Difficult dental conversations: Discussing gum (periodontal) disease

Short title: GUMDISCUSS

Marion Charlotte Bowman

Submitted in accordance with the requirements for the degree of Doctor of Philosophy

The University of Leeds

School of Dentistry

January 2025

I confirm that the work submitted is my own, except where work which has formed part of jointly authored publications has been included. My contribution, and the contributions of the other authors of this work, has been explicitly indicated below. I confirm that appropriate credit has been given within the thesis where reference has been made to the work of others.

Chapters 5, 6 and 7 contain content and lines of argument which are included in the following jointly authored publication:

Bowman, M., Payne, R., Vinall-Collier, K., Tugnait A., 2022. Conversation, discourse and linguistic analysis in dental communication: valuable but under-used approaches. *British Dental Journal*. 232(12).

Bowman, M., Sale, I., Payne, R., Vinall-Collier, K. and Tugnait, A., 2021. Dental professionals' role perceptions in relation to periodontal (gum) disease explanations: A thematic discourse analysis approach. *Communication and Medicine.* 18(3).

Work attributed to Marion Bowman

The published work is directly attributed to me. This includes the design, data collection, data analysis and interpretation, drafting and revision of manuscripts.

Contribution of co-authors

Payne, Ruth, Vinall-Collier, Karen, and Tugnait, Aradhna. (Supervisors): Commented on study design and interpretation. Gave input on possible revision of manuscripts.

Sale, Isobel (Issy). Linguistics student at the University of Leeds, U.K., (Independent coder): Coded interviews with dental professionals separately from Marion Bowman and resolved any differences in interpretation afterwards through discussion with Marion Bowman (Chapter 5).

Randall, Olivia (Liv). Linguistics student at the University of Leeds, U.K., (Independent coder): Coded interviews with people with periodontal disease separately from Marion Bowman and resolved any differences in interpretation afterwards through discussion with Marion Bowman (Chapter 6).

RP = Ruth Payne, MB = Marion Bowman, OR = Olivia Randall, AT = Aradhna Tugnait, IS = Issy Sale, KVC = Karen Vinall-Collier.

This copy has been supplied on the understanding that it is copyright material and that no quotation from the this may be published without proper acknowledgement.

The right of Marion Charlotte Bowman to be identified as Author of this work has been asserted by her in accordance with the Copyright, Designs and Patents Act 1988.

Presentations at conferences

The presentations at international conferences below represent work attributed to Marion Bowman (these were solo presentations designed, developed and delivered by Marion Bowman).

Bowman, M., 2021. *Dental professionals' gum (periodontal) disease explanations: a typology of communicative discourse styles*. COMET (International and Interdisciplinary Conference on Communication, Medicine and Ethics) 2021 #135, 28 – 30 June 2021, Online.

Bowman, M., 2021. *Conversation, discourse and linguistic analysis in dental communication: Valuable but under-used approaches.* EALTHY (European Association of Language Teachers for Healthcare), 17 September 2021, Online.

The presentations at the School of Dentistry's annual Postgraduate Research Day mini-conference represents work designed, developed and presented by Marion Bowman.

Bowman, M., 2023. *Difficult conversations: Talking to patients about gum (periodontal) disease*, University of Leeds (School of Dentistry) Postgraduate Research Day, 11 July 2023, Leeds, UK.

Bowman, M., 2023. *Difficult conversations: Talking to patients about gum (periodontal) disease*, University of Leeds (School of Dentistry) Postgraduate Research Day, 26 June 2024, Leeds, UK.

© 2025 The University of Leeds and Marion Charlotte Bowman

Dedication

This thesis is dedicated to my husband, David Bowman, to thank him for all his support. This dedication also extends further back to my father, John Corrie, for engaging me in discussing all sorts of interesting topics from a young age.

Acknowledgements

First and foremost, I would like to wholeheartedly acknowledge the contribution of my principal supervisor, Dr Aradhna Tugnait, who has supported me and helped me remove obstacles during this long PhD journey. If it wasn't for Dr Tugnait's belief in me and her willingness to take me on as a student, I doubt I would be here writing this acknowledgement. I am very grateful for all her support.

My heartfelt thanks also go out to Dr Karen Vinall-Collier for her calm, patient, practical advice and for sharing her deep knowledge of oral health research. I would also like to thank Dr Ruth Payne who has provided advice from a different disciplinary perspective and given me words of wisdom which have strengthened this project. I have been very lucky to have three excellent supervisors who have been consistently available over a long period of time which has made the completion of this thesis possible.

In addition, I would like to thank the reviewers at the British Dental Journal who provided valuable comments for me to work on in my publication. In my other publication, the editor of Communication and Medicine, Dr Srikant Sarangi provided a stringent and detailed series of comments that significantly shaped my thinking on discourse analysis. I am grateful for this constructive feedback.

I am also grateful to have been awarded a University Research Scholarship and associated HEFCE funding. This funding has made it possible for me to attend very useful training courses and conferences which have given me a better understanding of discursive qualitative research methodologies in healthcare.

I am very grateful to those who volunteered to take part in the three stages of fieldwork in this study: dental professional colleagues, people with periodontal disease and students and dental tutors and the School of Dentistry, University of Leeds, U.K. Without their participation, the fieldwork would not have been possible.

Finally, I would like to thank my friends and family who have been very patient with me while I have been devoting time to this project. Thank you for your patience and support.

Abstract

Periodontitis is a common, chronic condition which is largely preventable. The condition has a significant impact on patients if left to progress. Effective communication between dental professionals and patients about oral health-related behaviour change is key to stabilizing the condition.

Research into dental communication has tended to follow a checklist approach, quantifying observed communicative behaviours without transcribing the interaction. This approach is not able to capture subtle shifts in language use. The aim of this study was to use an in-depth language-based approach to explore what makes a conversation about periodontal disease likely to be successful in terms of a resulting intention towards oral health-related behaviour change.

The qualitative research in this study was undertaken in three stages. Firstly, dental professionals (n=16) were interviewed regarding their lived experience of explaining periodontal disease to patients. A thematic discourse analysis of interview accounts identified six discourse categories related to participants' perceived professional identity roles.

In the second stage of fieldwork, people with periodontal disease (n=14) were interviewed about their experience of having this condition. A narrative macro-analysis was used in combination with a linguistic micro-analysis of participants' stance towards periodontitis. The combined analysis identified three categories of orientation towards behaviour change.

The results of the first two stages of fieldwork were used to design periodontal disease roleplay scenarios. The resulting roleplay interactions (n=87) between dental students or tutors and 6 simulated patient (SP) characters were discourse analysed to produce a set of recommendations on the communicative approaches more likely to be successful. Subtle language choices, e.g. word choice, framing and sequencing were found to have a differential impact on success for different SP characters. Being able to be use discourses flexibly in real time was identified as a key skill currently not emphasized in the dental curriculum.

Table of Contents

ACKNOWLEDGEMENTS.....v

ABSTRACT.....vi

TABLE OF CONTENTS.....vii

LIST OF TABLES.....xiv

LIST OF FIGURES.....xviii

LIST OF ABBREVIATIONS.....xix

1 CHAPTER 1: INTRODUCTION 1

1.1 Context 1

1.2 Structure of the thesis 2

2 CHAPTER 2: LITERATURE REVIEW 4

2.1 Periodontal disease 4

2.1.1 The nature of periodontal disease 4

2.1.2 The lack of awareness about periodontitis in society 7

2.1.3 The impact of periodontal disease on patients' lives 9

2.1.4 Treating periodontal disease 10

2.2 Dental communication and communications training 13

2.2.1 The importance of "effective" communication with patients in Dentistry and Medicine 13

2.2.2 The unique character of dental communication 15

2.2.3 Perceptions regarding the value of dental communications training for dental registrants 16

2.2.4 How communications is taught in different dental schools 17

2.2.5 Assessing students' communicative competence: The OSCE 20

2.3 The content of periodontal disease conversations: what should be included .. 22

2.3.1 Insights from research on patients' illness conceptions 22

2.3.2 Insights from the BSP S3 guidance and from dental indemnity providers . 23

2.3.3 What an initial periodontal disease discussion should include 27

2.4 Literature on different aspects of periodontal disease discussions 28

2.4.1 Bad news delivery (diagnostic disclosure) 28

2.4.2 Risk communication 37
2.4.3 Encouraging ownership and facilitating behaviour change 38
2.5 Dental communications research: A range of approaches 42
2.5.1 Communicative behaviours skills lists: A critique of the "one-sided" process analysis approach 42
2.5.2 Assessing dental communication: A critique of process analysis communications assessment instruments 44
2.5.3 The Roter Interactive Analysis Scale (RIAS): a critique of a two-sided process analysis communications evaluation instrument 45
2.5.4 Adding value through the use of language-based approaches 47
2.6 Summary of Chapter 2 51

3 CHAPTER 3: AIMS 53
3.1 Overarching aim of the wider study 53
3.2 Aims for each stage of fieldwork 53
3.2.1 The aim of the first stage of fieldwork 53
3.2.2 The aim of the second stage of fieldwork 53
3.2.3 The aim of the third stage of fieldwork 53
3.3 The link between the aims of this study and broader oral health priorities 53
3.4 The research questions explored in this study 54

4 CHAPTER 4: OVERARCHING METHODOLOGY 55
4.1 Social constructivism 55
4.2 Qualitative research 55
4.3 Language-based approaches 56

5 CHAPTER 5: THE LIVED EXPERIENCE OF DENTAL PROFESSIONALS DISCUSSING PERIODONTAL DISEASE WITH PATIENTS (Stage 1 of fieldwork) 58
5.1 Introduction 58
5.2 Aims and objectives of this stage of fieldwork 58
5.2.1 Aim 58
5.2.2 Objectives 58
5.2.3 Sub-objectives 58
5.3 Methods 59
5.3.1 Methodological Approach: Discourse Analysis 59

5.3.2 Gaining ethical permission and recruiting participants 60
5.3.3 Designing the interview schedule 60
5.3.4 Data Analysis 61
5.4 Results 64
5.4.1 Characteristics of the study participants 64
5.4.2 An overview of the six discourse categories identified 65
5.5 Discussion 76
5.6 Conclusion 80

6 CHAPTER 6: THE LIVED EXPERIENCE OF PEOPLE WHO HAVE PERIODONTAL DISEASE (Stage 2 of fieldwork) 81
6.1 Introduction 81
6.2 Aim and objectives of this stage of fieldwork 82
6.2.1 Aim 82
6.2.2 Objectives 82
6.3 Methods 82
6.3.1 Methodological approach 82
6.3.2 Ethics 86
6.3.3 Participants 86
6.3.4 Developing the Interview Schedule 87
6.3.5 Conducting the interviews 87
6.3.6 Data Analysis 88
6.4 Results 93
6.4.1 Characteristics of study participants 93
6.4.2 The results of the macro-analysis 94
6.4.3 The results of the micro-analysis 95
6.4.4 The Action-Oriented category 98
6.4.5 The Borderline Category 105
6.4.6 The Challenges category 111
6.5 Discussion 116
6.6 Conclusion 121

7 CHAPTER 7: IDENTIFYING THE INTERACTIONAL FEATURES THAT AFFECT THE SUCCESS OF CONVERSATIONS ABOUT PERIODONTAL DISEASE (Stage 3 of fieldwork) 122

7.1 Introduction 122

7.2 Aim and objectives of this stage of fieldwork 122

7.2.1 Aim 122

7.2.2 Objectives 122

7.3 Method 123

7.3.1 Methodological approach 123

7.3.2 Developing the SP character briefs, the roleplay scenario and the SP scoring criteria 124

7.3.3 Ethics 129

7.3.4 Data Analysis 130

7.4 Results 131

7.4.1 Challenges Category: Ray Patel and Judy Whitelock 131

7.4.2 Borderline category: Sam Williams and Kesia Wood 150

7.4.3 Action-oriented category: Keith and Joan 167

7.4.4 Summary of results for all SP characters by sequence 185

7.5 Discussion 187

7.6 Conclusion 191

8 CHAPTER 8: DISCUSSION 192

8.1 Summary 192

8.2 Recommendations for undergraduate dental communications teaching arising from this study 195

8.2.1 Using a variety of simulated patient character profiles for each clinical scenario 195

8.2.2 Emphasizing responsiveness to achieve two-way conversation 197

8.2.3 Grading difficulty to ensure progression through the curriculum 199

8.3 Recommendations for dental communications training for registered dental professionals 203

8.3.1 Consider placing more emphasis on communications training for patients resistant to advice 203

8.3.2 Provide additional teaching on how to achieve the communications steps required by the BSP UK S3 Clinical Practice Guidelines 203

8.3.3 Provide linguistic feedback to dental registrants who do not have English as their first language 205

8.4 Some unexpected findings for further exploration 206

8.4.1 Clinician interviews: Professional role perceptions 206
8.4.2 Narrative interviews: The role of emotion 206
8.4.3 Narrative interviews: Knowing the cause 208
8.4.4 SP roleplays: SP scoring ranges for tutors and students 208
8.4.5 SP roleplays: Student disclosure avoidance 209
8.4.6 SP roleplays: Disconnect between SP and OSCE examiner scoring 210
8.5 Limitations of this study 211
8.5.1 Researcher self-reflexivity in qualitative analysis 211
8.5.2 Small sample size 211
8.5.3 Triadic communication and intra-operative communication not included in study design 212
8.5.4 Impact of gender on communication not analysed 212
8.5.5 Impact of first language on communication not analysed 212

9 CHAPTER 9: CONCLUSION 214

10 REFERENCES 217
A. 217
B. 218
C. 220
D. 222
E. 223
F. 224
G. 224
H. 225
I. 227
J. 227
K. 227
L. 228
M. 229
N. 230
O. 230
P. 231
Q. 232
R. 232

S. 233
T. 234
U. 235
V. 235
W. 235
X. 236
Y. 236
Z. 237

11 APPENDICES 238
11.1 Supporting documents for Stage 1 of fieldwork (interviews with dental professionals) 238
11.1.1 Invitation email 238
11.1.2 Participant Information Sheet 239
11.1.3 Consent form 242
11.1.4 Interview Schedule 244
11.1.5 Ethical approval: DREC: 190618/MB/256 248
11.2 Supporting documents for Stage 2 of fieldwork (interviews with people who have periodontal disease) 250
11.2.1 Invitation letter for participating clinicians (with clinical inclusion criteria) 250
11.2.2 Invitation letter for potential participants 252
11.2.3 Participant Information Sheet 254
11.2.4 Consent form 260
11.2.5 Interview Schedule 262
11.2.6 Ethical approval: DREC: 040820/MB/305 266
11.2.7 An example of linguistic markers for agency from the codebook 268
11.3 Supporting documents for Stage 3 of fieldwork (simulated patient roleplays) 271
11.3.1 Invitation letter for potentially participating tutors 271
11.3.2 Invitation letter for potentially participating students 273
11.3.3 Participant Information Sheet (tutors / students / SPs) 274
11.3.4 Consent form: Tutors / Students / Simulated patients 278
11.3.5 Ethical approval: DREC: 040222/MB/343 279
11.3.6 Ethical Approval: HRA: IRAS 279070 281
11.3.7 Simulated Patient Character Briefs 283

11.3.8 An example of a comparison table used for SP roleplay analysis 300

11.3.9 An example interaction map used for SP roleplay analysis 306

List of Tables

Table 2. 1: Similarities between the characteristics of periodontal disease and Weinstein's principal characteristics linked to unrealistic optimism 8

Table 2. 2: Key communication skills requirements from the Effective Communications domain of the GDC's Safe Practitioner Framework (GDC, 2023) that relate to patient: provider communication. 18

Table 2. 3: Communications requirements from the Safe Practitioner framework relevant to communicating with periodontal disease patients from other Domains (GDC, 2023).. 19

Table 2. 4: 16 point Clinical Audit recommendations for assessing dental records relating to patients with moderate or severe periodontal disease (Dental Protection, 2014) 25

Table 2. 5: Types of dental 'bad news' and the patient's probable reaction according to the literature (Chiodo and Tolle 1997; Newton and Fiske, 1999; Curtin and McConnell, 2012) 29

Table 2. 6: Dimensions of patients' polarised views on the importance of oral health (Gregory et al., 2007) 32

Table 2. 7**:** Oral cancer communications model showing the decisions made by general dental practitioners to discuss oral cancer or not (Awojobi et al., 2015). 33

Table 2. 8: Khalifah and Celenza's (2019) 26 communication skills identified by reviewing the communications themes discussed in dental communications literature 44

Table 2. 9: A summary of the results of Kelly's (2015) study of interactional engagement in dental consultations. 49

Table 5. 1: Stages in the initial thematic discourse analysis (influenced by Braun and Clarke, 2006; Roberts et al., 2003; Weston et al., 2001) 61

Table 5. 2: Descriptions of initial discourse categories from coding four randomly chosen accounts 63

Table 5. 3: Sample characteristics of the interviewed dental professionals 64

Table 5. 4: The six discourse categories identified in the data set 65

Table 5. 5: The dominant discourses used by participants in their interviews..... 67

Table 6. 1: Overview of topics included in the interview guide 88

Table 6. 2: Stages in the narrative analysis of interviews with people who have periodontal disease 88

Table 6. 3: The key orientations relevant to behaviour change that were identified in the micro-linguistic analysis. 90

Table 6. 4: Demographic characteristics of the study participants 93

Table 6.5: The Action-oriented, Borderline and Challenges categories: Results from the macro-analysis

Table 6. 6: This Table shows an example category (External / Internal Control) from the Linguistic Codebook developed by MB. 95

Table 6. 7: The Action-oriented, Borderline and Challenges categories: Results from the micro-analysis..... 97

Table 6. 8: The Action-oriented, Borderline and Challenges categories: Results from the macro-analysis..... 94

Table 6. 9: Story curves for the Action-oriented category 104

Table 6. 10: Story curves for the Borderline category..... 110

Table 6. 11: Story curves for the Challenges category 115

Table 7. 1: The link between the interviewee accounts in Chapter 6 and the SP character briefs in Chapter 7. 125

Table 7. 2: Simulated Patient character briefs based on the interviews with people with periodontal disease from an earlier stage of fieldwork in this study. 126

Table 7. 3: Condensed character briefs for the two simulated patients in the Challenges category 132

Table 7. 4: The interactions between dental surgery students and Ray Patel 133

Table 7. 5**:** SP Ray: Summary of successful and unsuccessful features. (Bold for crux features). 137

Table 7. 6: Interactions between Judy Whitelock and dental students or tutors 139

Table 7. 7: Features of student/tutor discourse associated with high and low scoring interactions with Judy. Crux features are in bold. 149

Table 7. 8: Condensed character briefs for SPs in the Borderline category 150

Table 7. 9: Interactions between Dental Surgery students and Sam Williams 151

Table 7. 10: Features that were associated with lower and higher scoring interactions with Sam. The crux features are marked in bold. 157

Table 7. 11: SP Kesia scoring and SP written feedback (the interactions in bold were fully transcribed and interaction mapped) 160

Table 7. 12: Successful and unsuccessful interactional features for Kesia Wood with crucial features in bold. 166

Table 7. 13: Condensed character briefs for Keith and Joan in the action-oriented category 167

Table 7. 14: Interactions between students and tutors and Keith (Actors 1 and 2) 168

Table 7. 15: Successful and less successful features of interactions with Keith, PD = periodontal disease 175

Table 7. 16: Interactions between third year dental students and Joan 178

Table 7. 17: Successful and less successful features of interactions with Joan 184

Table 7. 18 The aspects of the interactions that were most important to each SP character 185

Table 7. 19 Staging and features generally associated with lower or higher scoring..... 186

Table 8. 1: Do's and Don'ts for the initial conversation with pre-diabetic patients (NIDDK, n.d.) 193

Table 8. 2: A possible framework for grading behaviour change communications teaching throughout the curriculum. 201

Table 8. 3: A possible set of workshops for registered dental professionals on behaviour change discussions relating to periodontal disease 205

List of Figures

Figure 2. 1: The BSP UK clinical practice guidelines for the treatment of periodontal diseases Step 1 (BSP, 2021) 11

Figure 6. 1: An example story curve from the grey literature providing advice to aspiring writers (The Write Practice Pro, 2024) 84

Figure 6. 2: Kenneth's story curve 99

Figure 6. 3: Jane's story curve 102

Figure 6. 4: Pat's story curve 106

Figure 6. 5: Georgina's story curve 109

Figure 6. 6: Jay's story curve 112

Figure 6. 7: Lynn's story curve 114

List of abbreviations

AAP = American Academy of Periodontology

BSP = British Society of Periodontology

BPE = Basic Periodontal Examination

CALD = Culturally and Linguistically Different

COM-B = The Capability, Opportunity, Motivation, Behaviour model

DCCC = Dental Consultation Communications Checklist

DDU = Dental Defence Union

DREC = Dental Research Ethics Committee

D = Dentist

DHDT = Dental Hygienist and or Dental Therapist

DP = Dental Protection

EFP = European Federation of Periodontology

EU = European Union

GDC = General Dental Council

GDP = General Dental Practitioner

HRA = Health Research Authority

IRAS = Integrated Research Application Form

LDI = Leeds Dental Institute

MDDUS = Medical and Dental Defence Union of Scotland

MI = Motivational Interviewing

NA = Narrative Analysis

NIHR = National Institute for Health Research

OH = Oral Health

OSCE = Objective Structured Clinical Examination

OHRQoL = Oral Health Related Quality of Life

PIC = Patient Identification Centre

PMPR = Professional mechanical plaque removal

PPI = Public and Patient Involvement Group

RIAS = Roter Interactive Analysis Scale

SOC model = The Stages of Change Model

SP = Simulated Patient

SRF = Socio-Relational Frame

TDF = Theoretical Domains Framework

UK = United Kingdom

1 CHAPTER 1: INTRODUCTION

1.1 Context

> "Despite our best efforts, the UK prevalence of chronic periodontitis has remained at 45%. I believe that many patients are confused about 'what gum disease is', often using this phrase themselves." (Ahmed, 2017).

In the quote above, a UK-based dental professional expresses frustration at patients not always understanding the nature of their periodontal (gum) condition. Periodontal disease is globally prevalent despite being preventable in the early stages of the condition (Varela-Centelles et al., 2016). There are low levels of public awareness about periodontitis, which is initially often painless, but it later impacts on the affected person's ability to eat, speak and feel confident in social situations, and is a major cause of tooth loss (Chapple et al., 2015; Varela-Centelles et al., 2016).

Dental professionals play an important role in explaining the condition to patients. Dentists (D) and Dental Hygienists and or Dental Therapists (DHDTs) are required by the General Dental Council (GDC) in the UK to communicate 'effectively' with patients, which includes being able to 'listen to patients', and to provide information 'in a way that they can understand', so that patients are well-informed and empowered to take ownership of their oral health (General Dental Council, 2013). Establishing a partnership with the patient through discussion is key to stabilizing the condition (Batchelor, 2014). Some dentists and DHDTs regard the discussions about periodontal disease as the most 'difficult part' of treating the condition (Ojak, 2020). The difficulty may lie in sensitively communicating that the primary cause of the condition is plaque build-up without directing any blame towards the patient, and in motivating the patient to make lifestyle changes. Unfortunately, there is very little available literature in dental communications, especially in terms of studies that are based on transcribed interactions (Kelly, 2015) which can provide detailed insight into what makes periodontal disease discussions more or less successful.

1.2 Structure of the thesis

This thesis follows the conventional structure of a PhD in Dentistry.

This Chapter, Chapter 1, introduces the research and the research questions.

Chapter 2 provides a review of the context for this research. This context is explored in terms of: the nature of periodontal disease, the context for dental communications teaching and training, what should be included in a discussion about periodontal disease, and a critique of the approaches used to study dental communication thus far.

Chapter 3 outlines the aims of the thesis.

Chapter 4 provides a broad overview of qualitative research and language-based approaches to enquiry used in this thesis. More detail of the type of approach used in each stage of fieldwork, namely discourse, narrative, linguistic and conversation analysis, is contained in Chapters 5, 6 and 7.

Chapter 5 outlines the methods and results of fieldwork Stage 1 which involved interviews with dental professionals about their lived experience of having discussions about periodontal disease. Thematic discourse analysis was used in this chapter to categorize insights gained. This chapter is largely taken from the following published paper:

> Bowman, M., Sale, I., Payne, R., Vinall-Collier, K. and Tugnait, A., 2021. Dental professionals' role perceptions in relation to periodontal (gum) disease explanations: A thematic discourse analysis approach. *Communication and Medicine*. 18(3).

Chapter 6 outlines the methods and results of fieldwork Stage 2 which encompassed interviews with people who have lived experience of periodontal disease and received explanations of the condition. Narrative analysis was used to categorize participants' lived experiences. This macro-analysis was accompanied by a micro-analysis of linguistic markers for identifying participants' orientations towards health-related behaviour change.

Chapter 7 sets out the methods and results of fieldwork Stage 3 in which simulated patient characters, which were designed based on the results Chapter 6, participated in periodontal disease discussions, using scenarios designed based on the results of Chapters 2 and 5. A fine-grained discourse analysis was used to identify interactional features that made these simulated conversations more or less successful.

Chapter 8 presents an overarching discussion of the themes emerging from the results of Chapters 5, 6 and 7. Recommendations arising from these themes are also included alongside a discussion of the limitations of the study design.

Chapter 9 concludes the study.

The References and Appendices follow after the Conclusion.

2 CHAPTER 2: LITERATURE REVIEW

2.1 Periodontal disease

2.1.1 The nature of periodontal disease

2.1.1.1 The prevalence of periodontal disease

Periodontitis is the world's most common chronic inflammatory disease (Chapple, 2014). According to the World Health Organisation, periodontal disease is a global health issue in industrialised, and increasingly in developing countries (Lung, et al., 2005). There are high levels of periodontal disease in most European countries with differences in prevalence and disease severity over the region (Baehni and Tonetti, 2010; The Economist Intelligence Unit, 2021). Unfortunately, there is currently no clear trend towards a decrease in prevalence (Baehni and Tonetti, 2010; The Economist Intelligence Unit, 2021). In the UK, some form of periodontitis affects 45% of all adults (Greene, 2013; Perrell-Jones and Ireland, 2016) and 60% of over 65's (Chapple, 2014), with its prevalence increasing due to an ageing population. Approximately 10.7% of periodontal disease sufferers in the UK below the age of 65 years have more severe and destructive forms of the disease (The Economist Intelligence Unit, 2021). Due to the widespread nature of the disease, it has a significant impact on society. It is estimated that if it was possible to eliminate gingivitis in the UK, there would be a saving of £21 billion over a period of 10 years. However, if the current way of treating periodontitis continues unchanged then the cost would be £47 billion over 10 years (The Economist Intelligence Unit, 2021). In addition to the direct cost of treating periodontitis there is also the general economic cost due to lost productivity through patients needing time off work for dental appointments. These costs are harder to quantify (EFP, 2017).

2.1.1.2 The aetiology of periodontal disease: Plaque

The lay term 'gum disease' can encompass both gingivitis and periodontitis which are on a continuum, being part of the same inflammatory disease (Chapple et al., 2015). Gingivitis involves the mild inflammation of the gums and bleeding on brushing. The condition is very common and is reversible with improved oral hygiene (EFP, 2017). If plaque is not removed, gingivitis may progress into periodontitis or advanced gum disease. Whilst the lay term 'gum disease' can be used to refer to both gingivitis and periodontitis, it can also be used to refer to just periodontal disease (it will be used in this way in this thesis).

Periodontitis, or periodontal disease, is chronic and irreversible inflammation of the gums (Chapple, 2014).

The major risk factor for the development of both gingivitis and periodontitis is the build-up of plaque on the gum line leading to dysbiosis in this biofilm layer (Chapple, 2014; Chapple et al., 2015). Dysbiosis involves an increase in the pathogenic bacteria in plaque (a small number of gram-negative anaerobic bacteria have been found to be associated with periodontal disease) which produce harmful by-products that can trigger an inappropriate and exaggerated immune response (Williams, 2008; EFP, 2017).

Signs that the patient may notice that indicate that their disease has progressed to periodontitis include: increased bleeding of the gums (gingivae), lengthening of the teeth (gingival recession), teeth shifting position in the mouth or becoming loose, and bad breath (EFP, 2017). In periodontal disease the inflammatory response will have begun to destroy the supporting structures of the teeth. As tissue is destroyed, spaces (periodontal pockets) develop between the teeth and the gingivae where plaque can further accumulate and become mineralised forming calculus (EFP, 2017). Disease progression can result in severe destruction of the underlying alveolar bone, which the teeth are anchored in. This destruction, together with the damage to the periodontal ligament, can result in teeth becoming so mobile that they need to be extracted (EFP, 2017).

Whilst gingivitis is a precondition for periodontal disease, periodontitis does not develop from gingivitis in every case (Batchelor, 2014). Disease progression depends very much on the aggressiveness of the bacteria and the immune response of the individual (EFP, 2017). Also, disease progression is not steady, but occurs in unpredictable cycles of remission and progression, due to changes in the balance between the bacterial population and the patient's immune response (Williams, 2016; Perrell-Jones and Ireland, 2016). This can be confusing for patients as they may experience sudden and unexpected flare-ups in their periodontal condition despite them maintaining their oral hygiene (Batchelor, 2014; Sedghi et al., 2021). There are other factors that make the development of periodontitis from gingivitis more likely, these include having a genetic predisposition to the condition, having diabetes, leading a stressful life and being a smoker (Chapple et al., 2015; Minhoto et al., 2021). Like many chronic diseases with similar risk factors, periodontal disease disproportionately affects the socially disadvantaged (Lung et al., 2005; Batchelor, 2014) through the action of structural determinants that puts these sectors of society "at risk of [those] risks" (Broomhead and Baker, 2022).

2.1.1.3 Smoking as a key risk factor for periodontal disease

Being a smoker is one of the most significant lifestyle risk factors for the onset and progression of periodontal disease (Neild-Gehrig and William, 2011). Smokers show higher rates of periodontitis. Estimates vary, but smokers are thought to be between 2.5 and 6 times more at risk of getting periodontal disease (Zee, 2009; Nield-Gehrig and Willmann, 2011). The effect of smoking on the oral tissues is dose dependent; greater tissue destruction is associated with smoking more cigarettes per day for a longer period (Zee, 2009). Smoking impairs the host's immune response (Khan, 2011; Zee, 2009), making treatment up to 50% less likely to be successful (Greene, 2013). Further complicating this picture is that periodontitis is more difficult to diagnose in smokers as the gums are less likely to be red or bleeding due to the constriction of the gingival blood vessels caused by the toxins present in smoke (Zee, 2009).

2.1.1.4 A preventable condition

Periodontal disease is highly preventable in the early stages, with the most important aspects of prevention being regular efficient plaque removal and giving up or reducing smoking (Batchelor, 2014). During visits to the dentist or dental hygienist, the hardened plaque, known as calculus, can be removed mechanically, but this is not enough. The long-term commitment of the patient to an effective daily oral hygiene routine is vital to prevent further periodontal deterioration (Batchelor, 2014; Corbet and Smales, 2012).

2.1.1.5 Periodontal disease progression: A hidden or silent condition

Patients are often slow to realise that they have gum disease (either gingivitis or periodontitis) as it is a 'silent disease'; it can be present for decades with few symptoms, and since it rarely causes pain, it can go undiagnosed until the person is in their 40s or 50s (EFP, 2017). Often bleeding on brushing is the only symptom, which is often not seen as a cause for concern initially, only being recognized if it has gone on for a long time (Broomhead et al., 2022). , Patients can sometimes also interpret bleeding as being as a result of 'brushing too hard' (BSP, 2017). Painless bleeding may be the only symptom experienced by the patient right up until tooth mobility starts to alert patients that there is a problem (Varela-Centelles et al., 2016; BSP, 2017). Research by O'Dowd et al., (2010) showed that the first symptoms that patients took note of were when the disease had resulted in tooth mobility, tooth sensitivity due to recession or gum infection. The situation is not helped by the fact that in advertisements in the media, 'gum disease' can refer to anything from mild inflammation of the gums to severe periodontal disease with possible tooth loss (Corsodyl, 2024).

2.1.2 The lack of awareness about periodontitis in society

2.1.2.1 The global lack of awareness about periodontitis

Studies have shown that there is a general lack of awareness and understanding about this preventable disease globally (Varela-Centelles, 2016). To complicate matters, there is also evidence to show that patients in some parts of the world view tooth loss as an inevitable consequence of ageing (Varela-Centelles, 2016). The general public has particular knowledge gaps in relation to the causes of, and risk factors for, periodontal disease, and its links to other systemic inflammatory conditions (Varela–Centelles, 2016). This lack of awareness regarding gum disease generally has also been linked to the failure of treatment initiatives within certain communities (Lowry et al., 2005; Varela-Centrelles, 2016).

2.1.2.2 The lack of awareness regarding the link between smoking and periodontal disease

Knowing that smoking is a key risk factor for periodontal disease is important for patients who smoke. However, Lung et al.'s, (2005) study showed a lack of awareness regarding the links between smoking and periodontal disease in both non-smokers and smokers (in a survey of over 1000 patients). Whilst the patients in this survey were able to state that smoking had a negative impact on health, only 6% knew of the link between smoking and periodontal disease, and a further 7% thought that smoking affected the gums but were unable to state how. A larger percentage pointed to tooth staining and bad breath as the main oral consequences of smoking (Lung et al., 2005).

2.1.2.3 The lack of awareness amongst people with periodontal disease who are receiving treatment for the condition

The general lack of awareness regarding gum disease can extend even to patients who have periodontitis and are already receiving treatment for it (whether they are smokers or non-smokers). Survey data collected by Rana et al., (2023) showed that many patients with a periodontal condition did not always recognise their symptoms and were not fully aware of the consequences of leaving the disease to progress.

2.1.2.4 Periodontitis and unrealistic optimism

The nature of periodontal disease means that it has many of the characteristics of conditions that are associated with unrealistic optimism as set out in Weinstein's (1987) landmark study. Those characteristics are set out in Table 2.1 below.

Table 2. 1: Similarities between the characteristics of periodontal disease and Weinstein's principal characteristics linked to unrealistic optimism

Weinstein's (1987) characteristics of unrealistic optimism	**Characteristics of Periodontal Disease**
1. The belief that if **the problem has not yet appeared**, one is exempt from future risk	Patients are often slow to realise that they have gum disease (either gingivitis or periodontitis) as it is a 'silent disease'; it can be **present for decades with few symptoms** and since it rarely causes pain, it can go undiagnosed until the person is in their 40's or 50's (British Society of Periodontology, n.d., EFP, 2017).
2. The perception that the **problem is preventable** and therefore is less serious	Gum disease is **highly preventable** in the early stages, with the most important aspects of prevention being reducing or giving up smoking, together with plaque removal (Batchelor, 2014).
3. The perception that **the hazard is infrequent**	Studies have shown that there is a **general lack of awareness** and understanding about this [common] preventable disease globally (Varela-Centelles, 2016).
4. **Lack of experience** with the hazard	Often bleeding on brushing is only the symptom, which may be noticed at times, but also **may go unnoticed** at other times (Gilbert and Nuttall 1999), as just 'brushing too hard' (BSP, 2017). Bleeding **may be painless** and may be the only symptom experienced by the patient right up until tooth mobility starts to alert patients that there may be a problem (Varela-Centelles, 2016; BSP, 2017).

As shown in Table 2.1 above, periodontal disease unfortunately shares many of the characteristics with the other 68 conditions studied by Weinstein (1987) that increase unrealistic optimism regarding susceptibility to disease. Participants were significantly optimistic about these diseases, considering themselves to be less vulnerable to these diseases than the average person, and also less vulnerable to these diseases than to e.g. getting diabetes, getting influenza, having a heart attack or stroke, or getting cancer (Weinstein, 1987). This optimistic bias also extended to the link between behavioural risk factors and disease, e.g. flossing one's teeth was not correlated with the perceived risk of gum disease.

Further studies have started to shine some light on how unrealistic optimism might work, i.e. it is possible that people tend to focus on their risk-decreasing behaviour (e.g. 'I brush my teeth regularly') rather than their risk-increasing behaviour (e.g. 'I am a smoker') leading to a more optimistic view of one's own vulnerability to a health threat or risk (Hoppe and Ogden, 1996). An interesting finding was that even once participants had been given a set of risky behaviours to look through which they would have been able to identify as their own current behaviours, their optimism regarding their health risk status remained unchanged (Hoppe and Ogden, 1996).

2.1.3 The impact of periodontal disease on patients' lives

2.1.3.1 The impact of periodontal disease on patients' lives: Insights from quantitative studies

Traditionally, periodontal research has concentrated on the clinical aspects of the condition, however in recent times there has been some emerging research on the patients' experiences of the impact of the disease (Al-Harthi et al., 2013). Recent quantitative research has revealed the negative impact that established periodontal disease has on patients' Oral Health Related Quality of Life (OHRQoL) (Al-Harthi et al., 2013; Durham et al., 2013). The impact of chronic periodontitis includes the functional, social and psychological impact of the disease, with issues like: difficulties with eating, having discomfort or pain that affects sleep, suffering from bad breath, and feeling worried about dental health, being most the most frequently reported aspects in patient surveys (Durham et al., 2013, Batchelor, 2014; Varela-Centelles et al., 2016; British Society of Periodontology, n.d.). Periodontal disease can thus have a significant impact on a patient's quality of life, making it important for attempts to be made to halt disease progression.

2.1.3.2 The impact of periodontitis on patients' lives: Insights from qualitative studies

There is currently very little available qualitative research on how patients view the meaning and trajectory of their periodontal treatment journey. The small number of such qualitative studies identified will be discussed below.

Broomhead et al.'s, (2022) thematic study drew participants from across the periodontal disease spectrum from gingivitis to severe periodontitis, and similar concerns were identified for all participants. These concerns extended beyond reduced oral function to encompass broad psychosocial themes such as: feeling the need to conceal the effects

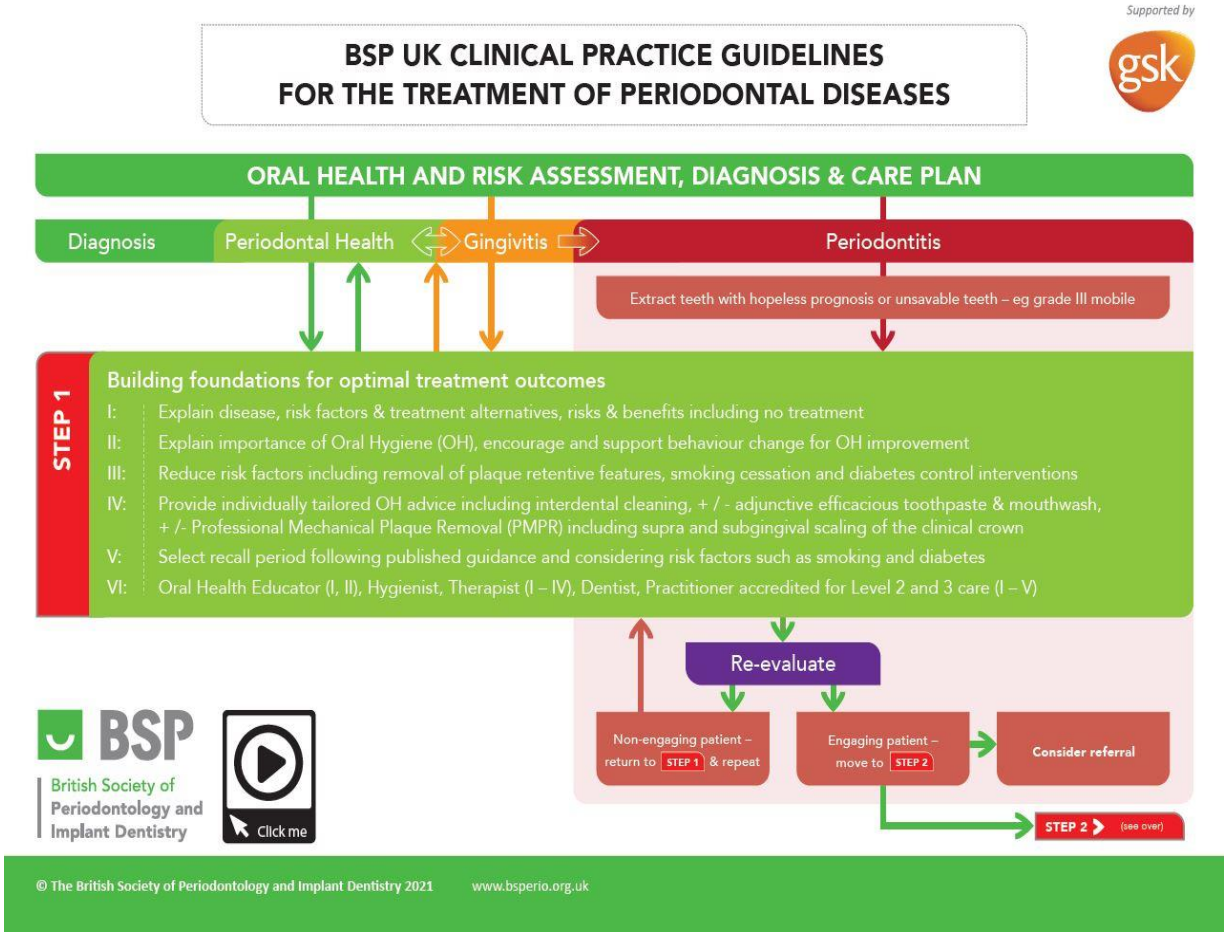
of the condition from others, feelings of remorse about unhelpful previous oral hygiene or smoking behaviours and experiencing physical and emotional discomfort during the treatment journey (Horne et al., 2020; Broomhead et al., 2022).

Qualitative studies of patients' experience of living with Type 2 diabetes, which is also a chronic condition with initial hidden symptoms requiring lifestyle change, further underline the phenomenon of individual variation in patients' experiences. The meaning that a patient ascribes to the condition and how it relates to their life journey gives great insight into how their behaviour change can be supported (Peltola et al., 2020). For example, in diabetes care, a Type 2 diabetic patient could see the meaning of diabetes management as "disciplining the dog" or "being in the grip of glucose levels" each implying different levels of perceived control, leading to very different coping strategies (Peltola et al., 2020).

2.1.4 Treating periodontal disease

2.1.4.1 Treatment for periodontal disease

In 2017, the American Academy of Periodontology (AAP) and the European Federation of Periodontology (EFP) developed a new classification system for periodontal disease, which was disseminated in 2018 (Caton et al., 2018). The aim of the new classification system was to bring the previous system in line with the latest evidence about the periodontitis and to accommodate individual variation in cases (Caton et al., 2018). The new classification system has two dimensions to it, assessing both the Stage and the Grade of the condition. There are four stages showing severity (from mild to very severe) and three grades indicating the rate of progression (from slow to rapid) (Caton et al., 2018). Following the new classification system, new guidelines for treating periodontitis were developed, and in May 2020 the British Society of Periodontology (BSP) published a UK version of the European Federation of Periodontology's guidance (The S3 Treatment Guidelines for Periodontitis), following a thorough critical appraisal of available systematic reviews and a rigorous expert consensus process (West et al., 2021; BSP, 2021). A summary of these guidelines is shown in the flow chart in Figure 2. 1:



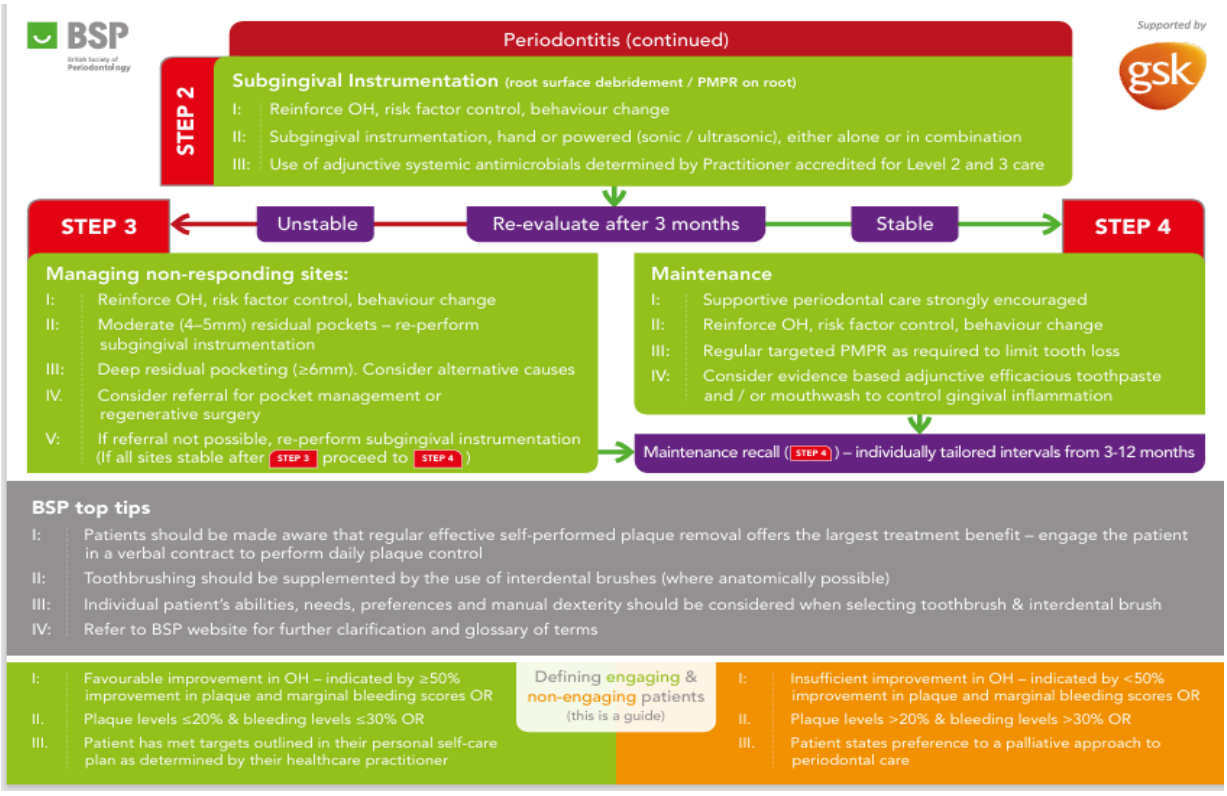


Figure 2. 1: The BSP UK clinical practice guidelines for the treatment of periodontal diseases (BSP, 2021)

As shown above, the S3 Treatment guidelines emphasize the role of the patient in keeping up with their oral hygiene at home and making lifestyle changes. This emphasis is clear in each of the four steps of treatment in the guidelines (BSP, 2021). The first step of the guidance aims at providing the foundation for future periodontal treatment. In the case of gingivitis, it is possible that only Step 1 of treatment may be needed to reverse the disease and regain healthy gum status (BSP, 2021). Moving on to Step 2 of treatment is conditional on patient engagement in oral hygiene. Patient engagement is defined in clinical terms as being a reduction in plaque and bleeding scores of approximately 50% (BSP, 2021). In Step 2, sub-gingival PMPR of the root (plaque removal below the gum line) is undertaken. It is recommended that this plaque removal is undertaken in stages, possibly one quadrant of the mouth at a time, which gives the opportunity to keep reinforcing the patient's own oral hygiene efforts at regular intervals (BSP, 2021).

In Step 3 of periodontitis treatment, the condition of the gingivae is assessed again, three months after the treatment given in Step 2. In Step 3, the focus is on any sites in the mouth that are not responding to treatment (BSP, 2021). The decision can then be made to refer the patient on for specialist treatment, or to undertake more PMPR on certain sites. Step 4 of treatment is a maintenance phase aimed on keeping the condition stable and avoiding deterioration through recall intervals which may differ from patient to patient. Reinforcing the patient's oral hygiene at home is important in this stage and the use of a verbal contract between practitioner and patient as well as giving the patient praise is recommended (BSP, 2021).

In the majority of cases, periodontal disease can be treated effectively without the need for surgery by controlling plaque levels, with the patient's oral hygiene home care routine being key to stabilizing the disease (Corbet and Smales, 2012; Greene, 2013).

2.1.4.2 The fundamental role of periodontal treatment in dentistry

Stabilizing a patient's periodontal disease is not just important in itself, but also needs to be achieved prior to undertaking other kinds of dental treatment which could be disruptive to the health of the periodontal tissues (Corbet and Smales, 2012). Without this stabilization, other kinds of treatment, (e.g. orthodontic work or placing crowns and bridges), can fail (Corbet and Smales, 2012). There are numerous examples of complaints on the General Dental Council (GDC) Hearings List that relate to the interaction of untreated or undertreated periodontal disease with other dental treatments (GDC, 2017).

2.1.4.3 The link between periodontitis and other systemic diseases

Research has shown that periodontal disease is associated with a range of other chronic inflammatory diseases, e.g. cardiovascular disease, Type 1 and 2 diabetes, rheumatoid arthritis, chronic kidney disease and chronic obstructive pulmonary disease (Chapple, 2014), as well as with Alzheimer's disease, inflammatory bowel disease and non-alcoholic fatty liver disease (Hajishengallis and Chavakis, 2021). In the case of diabetes, there is a bidirectional impact of periodontitis on glycaemic control, with increasing disease severity having an impact on the other condition (Greene, 2013). Due to the fact that periodontitis has established links with other serious systemic health conditions, it is argued in a recent European Union (EU) consensus report that access to periodontal health is a fundamental human right (Baehni and Tonetti, 2010).

2.2 Dental communication and communications training

2.2.1 The importance of "effective" communication with patients in Dentistry and Medicine

The preceding sections have shown that there is a lack of awareness amongst the general public regarding periodontal disease, a 'silent' but very common chronic inflammatory condition. There is clearly an important role for dental professionals in terms of communicating with patients "effectively" regarding this disease. The concept of what constitutes "effective" communication between provider and patient has changed over time. Traditionally, medical and dental care was delivered in a paternalistic way under the biomedical model with the discoursal and decision-making power lying with the healthcare provider and the patient's lived experience of the illness being marginalized (Kelly, 2015). In the late 1960's and early 1970's the biopsychosocial model of healthcare started gaining ground and the term "patient-centred medicine" was coined (Balint, 1969). Under this model, physicians were encouraged to see the patient as a unique whole person and to give an overall diagnosis that took into account the patient's own psychological perspective on their illness (Balint, 1969). Patient-centred care is currently the dominant paradigm in healthcare. Stewart et al., (1995) defined patient-centred care (and it is assumed patient-centred communication) as encompassing the following dimensions:

- "Exploring the disease and the patient's illness experience
- Understanding the whole person
- Finding common ground regarding management

- Incorporating prevention and health promotion
- Enhancing the doctor and patient relationship
- Being realistic about personal limitations and resources."

A succinct, commonly used definition is the Four Habits Model of patient-centred medical interviewing which sets out four key behaviours in a sequence.

- "Invest in the beginning,
- Elicit the patient's perspective,
- Demonstrate empathy,
- Invest in the end" (Frankel and Stein, 1999).

The Four Habits Model has been used in training medical professionals and has been shown to be a reliable and valid instrument capable of enhancing patient satisfaction scores over a sustained period (Stein et al., 2005). Torper et al. (2019) added a fifth habit to the Four Habits Model shown above in order to adapt it to suit a dental context. Due to high levels of patient anxiety about visiting the dentist combined with the need to conduct invasive clinical examinations or treatment at every dental visit, the fifth habit of "facilitate perceived control" (FPC) was added. In Torper et al.'s (2019) model, FPC is important in all phases of the dental visit. In the pre-clinical interview phase, the patient should be informed that they can use a stop signal to pause treatment in the clinical stage. The clinician should also find out how anxious the patient. In addition, the clinician should ensure that the steps being followed during treatment steps are predictable to the patient as this has been explained before active treatment. Finding out how much detail the patient wants to be disclosed during treatment is also important (Torper et al., 2019). FPC during the shared decision-making phase is described as the clinician finding out about the patient's other concerns and possible barriers such as their cost and time constraints before reaching a treatment decision that takes these into account. FPC can also manifest as asking the patient for permission to discuss oral health-related advice (Torper et al., 2019).

There are many other definitions of patient centred care (and communication) in addition to the two set out above. Whilst there is not always consensus on how patient centred communication should be defined, there is convincing agreement in the patient satisfaction literature that this kind of communication is desirable (Brouwers et al., 2017). Patients who are under the care of dental professionals who they perceive to be effective (patient-centred) communicators are more likely to: express more satisfaction with treatment, show lower anxiety levels, report less pain sensation, have greater recall from

consultations and show more adherence to oral hygiene regimens (King and Hoppe, 2013; Gao et al., 2014; Waylen et al., 2015; Buduneli, 2020; Moore, 2022). In fact, dental professionals' communicative ability (particularly the ability to show empathy and give clear explanations) is rated higher than the provider's clinical competency (Newsome and Wright, 1999). In addition, if a dental professional is seen as having these desirable traits, then patients are often prepared to travel some distance to access their care (Newsome and Wright, 1999).

Better overall health outcomes for the patient are also often associated with perceptions of effective (patient-centred) communication, but there is less consistency in the healthcare literature on this point (Brouwers et al., 2017). On the other hand, when patients are dissatisfied with their dental treatment, there is very often also an accompanying perception that the dentist is a poor communicator (Newsome and Wright, 1999). Most complaints against dental professionals have a communications component (D'Cruz, 2010; Phillips, 2018).

2.2.2 The unique character of dental communication

Communication between dentists and patients is very different from medical communication (Kelly, 2015; Aalboe and Schumacher, 2016; Moore, 2022). Firstly, examinations, discussions regarding treatment, and actual treatment all take place in the same setting. Also, in contrast to medical surgery, dental treatment usually occurs while the patient is conscious and patient co-operation is required. More importantly, there is some form of operative dentistry (even if it is just an examination) in almost all dental visits, hence the need for a modified model of patient centred communication which includes the need to enhance patients' sense of perceived control as explained in Section 2.2.1 above. Furthermore, the relationship between dental professional and patient is longitudinal with a lot of repeat visits (Kelly, 2015; Aalboe and Schumacher, 2016; Moore, 2022). In the UK patients generally pay for their dental treatment, but not their medical appointments. This could have the effect of changing the nature of the provider: patient relationship as cost acts as a well-known barrier to access in this context (BDJ Editor, 2023). In addition, 42% of respondents to the 2021 Adult Oral Health Survey reported feeling moderately dentally anxious and 12% reportedly felt extremely dentally anxious (Gov.uk, 2024).

Dental conversations can thus represent a very 'high stakes' interaction, with communication occurring between patients who may be anxious, cost conscious and

unable to speak during treatment, and dentists, who speak to both the patient and dental nurse through a protective mask (Kelly, 2015). A further aspect of the UK dental communications context is the pressure that NHS general dental practitioners are under. This pressure results from the drive to be time efficient whilst working within a tight regulatory environment and undertaking clinical work that might actually need more than the allotted time (Toon et al., 2019). Patients, as consumers, also have higher (and sometimes unrealistic) expectations of dental treatment than in the past, which further raises the stakes (Pearce et al., 2015). Boiko's (2010) ethnographic research introduced four models of discoursal power in primary care dentistry. Besides the consumerist (or contractual model), the paternalistic (or consensus model) and the negotiated model (facilitating patient-centred shared decision making), Boiko (2010) also noted a conflict model in which the patient repeatedly asserted the importance of their experience of symptoms and the dentist continued with their own biomedical interpretation of the condition.

2.2.3 Perceptions regarding the value of dental communications training for dental registrants

Despite the importance of communication in dental care, dental registrants often feel underprepared to meet communications challenges. In a recent survey of over 700 of its members, the indemnity provider, Dental Protection, found that 71% of respondents feared being sued and that 44% of these participants suggested communications training as a way of improving the situation (Dental Protection, 2016). Unfortunately, there is little evidence in the literature regarding how dental registrants in difficulty in the UK, who are facing patient complaints or are under imposed conditions, are given supportive additional communications training (Pearce et al., 2015). Indications are that this support is variable (Pearce et al., 2015). In addition, many older UK-trained dentists may not have received communication skills training in dental school (Kurtz and Silverman, 1996).

It is also likely that support for non-UK-trained dental registrants, who have particular inter-cultural communications needs, is uneven (Patel et al., 2011). Research by Davda et al. (2022) shows that non-UK trained dental registrants are not a homogenous group. Those registrants who qualified from countries outside the European Economic Area (EEA) face significantly greater challenges to professional integration as compared to their EEA or UK-trained colleagues. In addition, for international registrants from certain source countries there are significant differences in their prior clinical and communications training as compared to what is expected in the UK (Davda et al., 2022). It is important to

note that over half of the new dentists registering with the GDC between 2000 and 2019 qualified outside the UK, so these international professional represent an important group (Davda et al., 2022).

Similar challenges exist when UK dentists interact with culturally and linguistically different (CALD) patients. Research from the USA and Australia shows that even linguistically different patients with a reasonable level competence in English reported difficulty in conveying their desired meaning when discussing their healthcare needs (Komaric et al., 2012). In a survey of dental professionals in the USA, the view was expressed that consultations with patients with limited English proficiency needed to be longer and that that treatment recommendations might differ. For example, extraction might be recommended instead of root canal treatment as the latter involves complex explanations and a greater number of visits (Hammersmith and Lee, 2009). This could be regarded as a worrying potential difference in the quality of care. As has been discussed earlier, periodontal disease is regarded as very complex to communicate clearly even to patients from the same language group.

2.2.4 How communications is taught in different dental schools

Traditionally, dental schools have focussed on teaching basic science knowledge and providing for students' clinical skills acquisition. The importance of behavioural science teaching in dental schools was not really recognised until the 1990's (Croft et al., 2005). The General Dental Council's (GDC) guidance to dental schools in 2002 foregrounded communications skills training as being an essential aspect of dental student education (GDC, 2002). The GDC's "Preparing for Practice" document which was published in 2015 required students to be able to communicate effectively with patients and colleagues, even in challenging situations by the time they leave dental school (GDC, 2017). The new GDC Safe Practitioner framework, which was published in November 2023 and comes into effect in all UK dental schools by September 2025, adds detail to the learning outcomes required in the Preparing for Practice document and adds required behaviours (GDC, 2023). The new communications requirements in the Safe Practitioner framework are set out in Table 2. 2 and Table 2. 3. Only those that relate to communication between providers and patients have been included in these two tables. The standards relating to communication within the dental team have been excluded.

Table 2. 2: Key communication skills requirements from the Effective Communications domain of the GDC's Safe Practitioner Framework (GDC, 2023) that relate to patient: provider communication.

Applicable to: Trainee Dentists, Trainee Dental Therapists and Trainee Dental Hygienists
Interpersonal Skills (Overarching Domain Description) Uses interpersonal skills and emotional awareness to enable effective communication with all patients and colleagues which is underpinned by behaving in a caring, compassionate, empathic, and respectful way. Demonstrates effective team working and helps foster wellbeing of others
Sub-domain: Communication **Behaviour** I(B) 1 Communicate with care, compassion, empathy and respect in all professional interactions with patients, their representatives, the public and colleagues.
Learning outcomes I1.1 Describe the use of a range of communication methods and technologies and their appropriate application in support of clinical practice I 1.2 Describe the importance of non-verbal communication, including listening skills, and the barriers to effective communication I 1.3 Communicate effectively and sensitively, tailoring to context, by spoken, written and/or electronic means with all patients, including patients whose first language is not English (using representatives or interpreters where necessary), in relation to: • patients with anxious or challenging behaviour or special considerations such as emotional trauma • difficult circumstances, such as breaking bad news, or discussing issues such as alcohol consumption, smoking, or diet

Table 2. 3: Communications requirements from the Safe Practitioner framework relevant to communicating with periodontal disease patients from other Domains (GDC, 2023).

Applicable to: Trainee Dentists and Trainee Dental Hygienists
Clinical Skills and Knowledge Domain **Oral Health / Prevention (Clinical knowledge and skills domain)** C2.5.1 Provide patients/carers with comprehensive, personalised preventative advice, instruction and intervention in a manner which is accessible, promotes self-care and motivates patients/ carers to comply with advice and take responsibility to maintain and improve oral health.
C2.5.2 Manage and review the application of preventative treatments, intervention, advice and instruction.
Periodontal disease C2.6.1 Assess and manage the health of periodontal and soft tissues taking into account risk, lifestyle factors, plaque control/ self-care and compliance/ response to advice.
C 1.28 Describe, take account of and explain to the patient the impact of their periodontal health, including compliance with oral healthcare advice, potential effect on general health and the need for self-care in the overall treatment plan and how this influences their treatment outcome.

As shown in Table 2.2 and 2.3 above, students are expected to be able to conduct personalised, sensitive conversations with patients, including discussing behaviour change. A survey of dental students at Bristol Dental School revealed that dental students generally felt more confident communicating with patients when the topic of conversation could be regarded as dentally-themed, however less confidence was reported for smoking, alcohol or cancer themed conversations, which are potentially more sensitive (Walker et al., 2018).

It could be argued that many of the discussions dental professionals need to have with patients who have periodontal disease are sensitive. Even delivering the diagnosis of periodontitis is potentially sensitive, as the main cause of the disease is poor plaque control, so patients could internalise a hidden message of blame for this neglect. This is particularly the case for individuals from already stigmatized communities in society, such as those from ethnic minorities or who identify as transgender or who experience mental illness (Doughty et al., 2023). Discussing bad breath or difficulties in eating or

speaking relating to periodontitis could also be regarded as potentially sensitive. In addition, explaining periodontal disease is not straightforward as the condition is complex and can flare up unpredictably (see Section 2.1). In their study of communication with second language patients, Goldsmith et al., (2005) identified dental discussions about periodontitis (and also about endodontic treatment) as being the most challenging of all dental conversations.

Dental school staff and students recognise the value of communications skills teaching (Theaker, et al., 2000; Hannah et al., 2004). However, in comparison to the body of literature on communications training in medicine and healthcare generally, relatively little has been written on how this aspect of the curriculum is taught and assessed in dental schools in both the UK, the USA and further afield (Carey et al., 2010; Moore, 2022). It is likely that this aspect of the curriculum is taught and assessed in a variety of ways in the UK and abroad (Carey et al., 2010; Moore, 2022). However, it seems that the predominant methods of communication skills training are didactic teaching and role-play practice using simulated patients (SPs) (Carey, et al., 2010). SPs are actors who play the role of patients in scenarios developed by dental clinicians. The GDCs (2002) recommended that SP roleplays should be used in dental education.

It is worth noting that SP roleplay training is not the same as gaining experience by communicating with real patients. A small body of recent linguistic literature suggests that simulated interactions represent a distinct hybrid genre of talk that contains some of the same features of real consultations, but also has other features related to the simulation context (Croix, 2010; Atkins, 2019).

2.2.5 Assessing students' communicative competence: The OSCE

In terms of assessing students' communicative competence, the most widely accepted performance-based method used in Dentistry and Medicine is the OSCE (Objective Structured Clinical Examination) (Graham et al., 2013; Puryer, 2016). OSCEs were originally developed in medical schools in the 1970's to provide a standardized and reliable means of assessing clinical and communications tasks. Communications tasks in OSCEs are short, timed roleplays using SP actors using a particular clinical scenario. The scenarios can vary from e.g. delivering a diagnosis to gaining consent for a procedure to giving post-operative advice. Many dental schools also use OSCE-style simulated roleplays for formative communications practice (Carey et al., 2010; Moore, 2022).

OSCE communications stations are generally scored using checklists of observed communicative behaviours (Roberts and Sarangi, 2005) using criteria like: 'greets the patient and establishes rapport', or 'explains diagnosis'. In OSCE assessments criteria are often rated by examiners as e.g. achieved, partially achieved or not achieved. Whilst the majority of the OSCE scoring is done by the examiner, SPs sometimes give a global judgement on e.g. the extent to which they felt the candidate showed them respect and acted in a professional manner by using a Likert scale.

Piumatti et al., (2021) analysed four criteria for assessing the communications in OSCEs, namely: responding to patient's needs, structuring the interview, effective verbal and effective non-verbal communication. This study found that it was difficult to differentiate between better and poorer communicative performance using criterion-based scoring due to poor inter-rater reliability (Piumatti et al., 2021). It is argued that the precise nature of either communications difficulties or successes are impossible to identify without a fine-grained linguistic analysis (Roberts and Saragi, 2005; Alsubaie et al., 2023). Unfortunately, there are very few detailed linguistic analyses of OSCEs (Alsubaie et al., 2023). An exception is Roberts et al.'s, (2003) landmark discourse analysis study in medical communication, which showed the kinds of language patterns that tended to be associated with low and higher OSCE scores. Language associated with empathetic responding was associated with higher scores and a retractive purely clinical style with lower scores. No similar studies were identified in Dentistry.

One study in Dentistry relating to OSCE performance revealed that non-first language Dutch speakers performed significantly worse at OSCE than first language Dutch speakers (Schoonheim-Klein et al., 2007). Giving the non-first language Dutch students a longer time to complete the OSCE tasks did not result in increased scores, thus it was concluded that more tuition and practice for non-first language speakers was needed. Discovering which aspects of spoken communication needed further development was beyond the scope of Schoonheim-Klein et al.'s, (2007) study. In general, there is very little research on how to support the development of dental communication skills in non-first language English dental students (Morse and Nakahara, 2001).

In investigating SP interactions, there is an important voice that is "almost unreported" (beyond sometimes giving a once-off global OSCE score), and that is the perspective of SPs themselves on what constitutes a good or poor interaction (Laughey et al., 2018). The dental literature on OSCEs has been dominated by implementation (Schoonheim-Klein et al., 2005), statistical and reliability concerns (Eberhard et al., 2011), rather than SP

perspectives. SPs occupy a unique position as they do not have the clinical preconceptions that clinicians have, but they spend a lot of time working with students in communicative interactions (Laughey et al., 2018). SPs view themselves as having an important potential educational role. Giving feedback on interactions is seen as key to making their role meaningful and rewarding (Sullivan et al., 2021).

In conclusion, it is still not clear in Medicine, and even less so in Dentistry, what kinds of linguistic approaches make for a successful lifestyle change simulated discussion as seen from the viewpoint of simulated patients.

2.3 The content of periodontal disease conversations: what should be included

2.3.1 Insights from research on patients' illness conceptions

Studies on patients' illness conceptions comprise the following dimensions: its identity or name, its cause, the associated cure or treatment, the timeline or duration of the illness and the consequences of having the illness (Leventhal et al., 1997). Patients' ideas about these dimensions, once elicited, can be coded, for example, as correct, misunderstood, or uncertain as compared to clinical understandings of the condition (Vatne et al., 2015). According to Leventhal et al.,. (1992), patients' conceptions of the illness are strongly linked to the symptoms experienced, e.g. a patient with high blood pressure may feel the need to take their blood pressure pills only when they get headaches, whereas the doctor might be less interested in occasional symptoms, prioritising regular medication to decrease blood pressure over time. Even if patients have received a medical explanation, it is possible for them to have two contrasting mental schemas about the condition: the one linked to their everyday experience of symptoms and the other more abstract clinical explanation (Leventhal et al., 1992). Thus, it is argued that it is essential to determine the patients' mental model of the health threat from their point of view (Leventhal et al., 1992).

Vatne et al., 's (2015) study identified the most common misconceptions as relating to the identity and cause of the illness. Patients had more clarity regarding the treatment, timelines and consequences of the disease. In addition to understanding the cause of the illness, an important aspect of a patient's illness conception is whether it is coherent or not, i.e. is the patient clear on the links between the cause of the illness, its location and

how the treatment addresses the cause (Ogden, 2007). In an experimental study by Hall et al., (2004) female smokers were sent either a detailed leaflet, a less detailed leaflet or no leaflet on the link between smoking and cervical cancer (a link that is not commonly made by the public). The study showed that participants who received either type of leaflet had a more coherent understanding of smoking as a risk factor for cervical cancer and had increased perceptions of self-efficacy as well as stronger intentions to give up smoking (Hall et al., 2004).

Another aspect of a patient's mental model is if there is coherence between their cognitive and their emotional reaction to the condition (Leventhal et al., 1992). Furthermore, there may or may not be coherence between the patient's own illness conceptions and those of their significant others or of society regarding the illness and its treatment (Ogden, 2007). An in-depth interview with patients using open-ended questions is an appropriate method for teasing out any inconsistencies between these different dimensions of a patient's understanding of illness (Ogden, 2007). Patients' health conceptions have been found to be as elaborate as medical frameworks for understanding particular conditions (Ogden, 2007).

2.3.2 Insights from the BSP S3 guidance and from dental indemnity providers

The BSP 2021 guidance on treating periodontal disease shown in Figure 2.1 contains both communication and clinical treatment recommendations (BSP, 2021). The communications guidance covers all the dimensions of patients' illness conceptions discussed in the previous section, with the most emphasis being placed on oral hygiene instruction and facilitating behaviour change, which could be seen to relate to the treatment dimension. The guidance given in the dental indemnity literature also covers all the illness conception dimensions but places the most emphasis on being explicit with the patient about the consequences of any lapses in compliance (lapses in oral hygiene, smoking cessation or attendance), as shown in Table 2. 4 below.

Records from claims relating to periodontal disease show that complaints are most likely to occur when a patient starts treatment with a new dentist (due to the existing dentist retiring or leaving the practice or other reasons) after the patient has been with their previous dentist for a number of years (Medical and Dental Defence Union of Scotland [MDDUS], 2012a; Dental Protection, 2014; Barnes, 2024). At this point the new dentist may detect undiagnosed, untreated, undertreated or under-explained periodontal disease

and may explain this finding to the patient in a new way. The patient, especially if there are teeth at risk due to advanced periodontal disease, often becomes angry that the previous dentist did not make them aware of the presence of advanced gum disease, or adequately explain the severity and consequences of having the condition, and may lodge a complaint (MDDUS, 2012a; Dental Protection, 2014; Barnes, 2024).

The real patient stories featured on the BSP's website illustrate the importance of ensuring patient understanding of the consequences of unchecked periodontal disease progression, especially tooth loss (BSP, 2024). Most of these patients lacked awareness of the consequences of the condition and didn't take ownership until they started losing teeth, or when this prospect was more clearly and directly explained by a dental professional. Barnes (2024) of the Dental Defence Union notes that the following are commonly recurring communications-related lapses in periodontitis claims:

- "Failure to inform the patient of their periodontal condition, explain what it is, the adverse impact on the dentition and consequences if it progresses.
- Failure to give advice on oral hygiene, smoking cessation, diet and personal habits."

UK dental indemnity organisations strongly emphasize the importance of keeping accurate notes relating to both the clinical and the communications aspects of periodontal care (as shown in Table 2.4) (Dental Defence Union [DDU, 2014]; Dental Protection, 2014). This may be due to the fact complaints and litigation relating to periodontal disease are one of most costly, and the most rapidly increasing, sources of patient dissatisfaction in UK dentistry (DDU, 2014; Dental Protection, 2017; Phillips, 2018; Barnes, 2024). Costs result from the fact that periodontitis is a chronic disease involving disruption to a patient's lifestyle, which may include a loss of earnings over a significant period of time (DDU, 2014). In addition, claims are very complex to investigate (Barnes, 2024).

Table 2. 4: 16-point Clinical Audit recommendations for assessing dental records relating to patients with moderate or severe periodontal disease (Dental Protection, 2014)

Communications record keeping landmarks	**Clinical record keeping landmarks**
4. The patient has been **informed** of the presence of the disease.	1. A written **medical history** has been taken, and updated at regular intervals. This includes a review of any medication taken by the patient.
5. The patient has been given **specific information** regarding the site(s) and severity generally, and in respect of any specific teeth which have an unfavourable prognosis.	2. Appropriate **screening** (for example, BPE score, do the patient's gums bleed on brushing?) and follow-up investigation (for example, x-rays) has been carried out.
7. Known **risk factors** for periodontal disease (especially smoking) have been checked.	3. A **diagnosis** of periodontal disease has been made.
9. The patient has received suitable **advice and instruction regarding oral hygiene, risk factors** (for example, on cessation of smoking), to enable the patient to become personally involved in the control of their periodontal disease.	6. Some kind of **measurement** of the site(s) and severity of the disease has been made (this may range from BPE scores, to more detailed probing depth recordings and might include notes of bleeding points, mobility, and pathological changes affecting individual teeth).
10. Monitoring has been repeated at appropriate intervals, with any necessary x-rays and other investigations (including **questioning the patient** as to any areas of bleeding, discomfort, etc.).	8. Appropriate levels of **initial treatment** (for example, scaling, root planing) have been carried out, and repeated at suitable intervals.
12. Any failure on the patient's part in respect of compliance (oral hygiene, risk factors, attendance, for example) has been **brought to the patient's attention,** and the importance stressed.	10. The tissue response and the patient's compliance has been checked for and further measurement and **monitoring** of the progression of the disease has taken place.
	11. **Monitoring has been repeated** at appropriate intervals, with any necessary x-rays and other investigations (including questioning the patient as to any areas of bleeding, discomfort, etc).

Aspects that encompass both communications and clinical record keeping landmarks for treating periodontal disease.
13. Where the periodontal disease is particularly severe, and/or has not responded to the advice and treatment provided, the possibility of a **referral** for specialist advice, or treatment has been considered and **discussed** with the patient.
14. If the patient has **declined such a referral** for any reason, has this been made clear? (in the records).
15. Any occasion when the patient has **failed to attend appointments,** or has cancelled appointments at short notice. This includes occasions when the patient agrees to contact the practice to make further appointments, but fails to do so, or when the patient does not respond to reminders or recall letters. (Is this noted in the records?)
16. Any occasion when the patient has **declined the treatment** recommended for them (for example, a referral to a dental hygienist, or the provision of treatment to address any occlusal imbalance). (Is this noted in the records?)

The MDDUS (2012a) recommends that dental practitioners find ways to ensure that patients understand the significance of periodontal disease, and the consequences for their oral health if treatment advice is ignored. Oral hygiene home care advice should be repeated at every periodontal dental appointment, otherwise dental professionals can become vulnerable to accusations of supervising dental neglect (MDDUS, 2012a). A face-to-face two-way (or three-way including the dental nurse: Kelly, 2015) discussion is essential; written material can be used as a supplementary tool, but not as a substitute (DDU, 2024). Beyond this guidance there is little detail on how to approach these discussions, however there are some pointers in the communications literature that have a bearing on the aspects of a periodontal disease discussion outlined above grouped under the following themes: bad news delivery (diagnostic disclosure), risk communication and encouraging patient behaviour change as will be discussed in Section 2.4.

2.3.3 What an initial periodontal disease discussion should include

Given the importance of the initial periodontal disease diagnostic disclosure as identified by dental indemnity providers, as explained in the previous section, the first conversation (or first conversations as these might be spread over a number of appointments) about periodontal disease between provider and patient has been identified as an appropriate focus for this study. In terms of the content that could be covered in this discussion, insights from patient illness conceptions literature, BSP periodontal treatment guidelines and indemnity providers have been synthesized to produce the expected content list below:

- **Identity** (patient has been informed of the presence and nature of the disease)
- **Cause** (plaque has been explained to be the key aetiological factor and the link to personal risk factors, e.g. smoking, have been explained)
- **Severity** (the site, severity and prognosis for any specific teeth has been explained)
- **Treatment timeline** (it has been explained that this is a chronic condition which needs regular monitoring)
- **Consequences** (the consequence of not modifying lifestyle factors, in particular oral hygiene habits and smoking has been explained).

The list above should be seen in the context of a patient-centred communicative interaction that contributes positively to patient satisfaction (as discussed in more detail in Section 1.2.1).

2.4 Literature on different aspects of periodontal disease discussions

2.4.1 Bad news delivery (diagnostic disclosure)

2.4.1.1 Bad news delivery: Insights from Medical Communications

Informing the patient about the presence, nature and severity of their periodontal disease could be perceived by the patient as bad news. The literature on bad news delivery is dominated by articles from medical communication, many of which are focused on recommending communications models for delivering the news of a life-threatening condition like cancer. Common models for delivering bad news in Medicine include the SPIKES and ABCDE models (Guneri et al., 2013). However, Harrison and Walling (2010) point out that these models have only a modest evidence base supporting their use. The insights from medical communication may not translate directly in a dental context as dental bad news is rarely life-threatening. However, it is noteworthy that the way that bad medical news is delivered can be as important as the actual message (Newton and Fiske, 1999). The manner in which bad news is delivered is linked to how the patient perceives their condition and adapts to the news, as well as framing their relationship with the healthcare provider and how they view their future (Fallowfield and Jenkins, 2004; Curtin and McConnell, 2012; Guneri et al., 2013). Conversely if medical bad news is not communicated well, it can cause "confusion, long lasting distress and resentment" (Fallowfield and Jenkins, 2004).

2.4.1.2 Bad news delivery: The context in Dentistry

> "Patients may not like to hear bad news from us, but it is much better that they should hear it before the treatment starts, than to discover it for themselves afterwards." (Dental Protection, 2014).

As mentioned above, the issue of how best to break bad news to patients is given much less attention in the dental communications literature as compared to the medical communications literature (Curtin and McConnell, 2012; Guneri et al., 2013). However, breaking bad news is also an important issue for dental professionals and dental students; to presume otherwise is 'erroneous' (Guneri, et. al. 2013). Table 2. 5 shows a range of types of dental bad news disclosure, in decreasing clinical severity. As shown, a periodontal disease diagnostic disclosure would likely sit in the middle to bottom end of a diagnostic disclosure severity scale.

Table 2. 5: Types of dental 'bad news' and the patient's probable reaction according to the literature (Chiodo and Tolle, 1997; Newton and Fiske, 1999; Curtin and McConnell, 2012)

Dental Condition	**Clinical severity of bad news**
Diagnosis of oral carcinoma, suspicious oral lesion requiring investigation or the need for surgery to remove the oral lesion	Bad news of greater clinical severity Bad news of lesser clinical severity
Oral condition that indicates a serious systemic health problem	
Dental condition that means that the patient will need to lose all their teeth.	
Periodontal disease diagnosis requiring extractions, loss of teeth and denture construction	
Periodontal disease diagnosis (extractions not yet indicated)	
Diagnosis of a carious lesion needing restorative fillings or endodontic (root canal) treatment	

If multiple tooth loss is associated with a periodontal disease disclosure, then the patient may show a significant emotional reaction to the news (Davis et al., 2000; Gibson et al., 2024). Loss of teeth can be regarded as a serious life event as it is associated with facial disfigurement and social stigma which can have a significant impact on the sufferer's levels of self-confidence (Davis et al., 2000; Gibson et al., 2024). Other themes from literature linked to the loss of teeth include:

- Feelings of bereavement, or losing part of oneself
- Tooth loss as a subject needing to be kept secret and not discussed with others
- The need for privacy surrounding prosthodontic alternatives (e.g. dentures)
- Changes in social behaviour
- Feelings of ageing prematurely
- Feeling unprepared for the impact of losing teeth (Davis et al., 2000; Gibson et al., 2024)

It is interesting that the majority of patients who had difficulty accepting their tooth loss in a quantitative study felt that a better explanation from their dentist, before the teeth were extracted, would have aided their subsequent adjustment (Davis et al., 2000). This led

Davis et al., (2000, p.505) to conclude that "the dental profession is not doing all that it can to explain the effects of tooth loss" which can include embarrassment, pain and experiencing the functional limitations of tooth replacement options (Hyland et al., 2009). Unfortunately, there is currently no definitive guidance in place for General Dental Practitioners (GDPs) on how to break bad news or communicate risk (Asimakopoulou, 2016). There are appeals in the literature for this kind of communications training to made available (Curtin and McConnell, 2012; Guneri et al., 2013). Instead, GDPs tend to acquire skills in this area through experience, thus further research is needed (Asimakopoulou, 2016).

2.4.1.3 Dental bad news: Is it always perceived as bad news?

To take a step back, the question of whether disclosing the presence of periodontal disease to a patient does represent breaking bad news or not, must be asked. According to MDDUS (2012b) if a periodontal disease diagnosis does not involve tooth loss "patients are often relatively unconcerned" as the disease generally progresses slowly and "causes relatively little discomfort" (MMDUS 2012b). To further complicate matters, according to the MDDUS (2012b), an acute carious lesion (dental cavity) identification and an early periodontal disease diagnostic disclosure, which are "not very good news" disclosures, are significantly different from each other. Patients presenting with complications associated with acute dental decay, e.g. pulpitis or apical infection, are usually in pain and accept the news of an identification of decay quite easily (Guido and Tolle, 1997). At this stage, patients are usually willing to accept the dentist's treatment (MDDUS, 2012b) and the patient's role in treatment is fairly passive. In contrast, patients with periodontal disease are often not in pain. They may be experiencing bleeding gums but may be "remarkably relaxed" about this and not see the need for treatment (MDDUS, 2012b). To compound matters, patients may experience some discomfort and sensitivity after periodontal scaling treatment, instead of the post-treatment benefit associated with being out of pain (MDDUS, 2012b). Therefore, it can be hard for dental professionals to motivate patients to attend regularly and pay for treatment for periodontal disease (MDDUS, 2012b), which is an insidious disease which often doesn't cause overt discomfort until it reaches a certain level of severity. In addition, with periodontal disease, significant patient input is required to achieve a better oral health outcome, which stands in contrast to acute carious lesion (Chapple, et al., 2015).

A further complication is that dental bad news for one patient is not necessarily bad news for another. Gregory et al.'s, (2007) qualitative study brought to light patients' very

polarised views on the importance of oral health. Study respondents saw oral health either as being very relevant to them, or as not relevant to them. This phenomenon was borne out by observations in an emergency dental care setting of patients' attitudes to keeping an infected tooth and having root canal treatment, or having the tooth extracted. Patients had very definite and polarised views on this, and make these binary choices quickly (Thompson, 2018). The patients in Gregory et al.'s, (2007) study who saw oral health as 'not relevant' could see little value in going to the dentist or in thinking about their teeth or oral health unless they were in pain (see Table 2. 6). This group saw dental disease as the norm, and poor oral health as a natural state (Gregory et al., 2007). Whilst it may be clear to a clinician that a patient's periodontal disease diagnosis represents clinical bad news, patients in the 'not relevant' group may not have the same view, as the "impact on the patient [of the 'bad news'] is proportional to the gap between their expectations and reality" (Buckman, 2005). In contrast, it can be assumed that patients who see oral health as very relevant would regard a diagnosis of periodontal disease as bad or possibly embarrassing news.

Table 2. 6: Dimensions of patients' polarised views on the importance of oral health (Gregory et al., 2007)

Normal state of oral health	
Disease or defect is normal	Having healthy teeth is normal
Causes of oral health or disease	
You can't help what happens to your teeth	Oral health is controllable, disease is caused by a person's own actions
Trust held in dentists	
Distrust, excessive treatment and exploitation	Trusted professionals
Oral health as a commodity	
Oral health aids are just created as something else to sell	Oral health aids are important for keeping your teeth clean and healthy
Accessibility of oral health care	
Unobtainable, booked up or private	Attainable to everyone on the NHS
Judgements / character	
Having healthy teeth is showing off, looks unnatural, too perfect, wouldn't trust the person	Healthy teeth is attractive, poor teeth are unnatural and shows someone who doesn't look after themselves

Moving back to patients who view oral health as not relevant to them, it may be tempting for the dental professional to "avoid confrontation by 'deferring' discussion of prevention and treatment of periodontal disease, secure in the knowledge that it may take many years for the resulting problems to manifest themselves" (MDDUS, 2012b). Whilst there is little empirical evidence in the formal literature to definitively confirm that some dental professionals in general practice may avoid discussing periodontal disease with patients, there is evidence of the avoidance of communication related to other dental conditions.

Qualitative studies by Brocklehurst et al., (2010) and Awojobi et al., (2015) revealed that discussions surrounding oral cancer were not happening routinely in general dental practice. Awojobi et al.'s, (2015) study set out a sequence of decisions that participating dentists made in relation to whether to discuss oral cancer with patients or not (this sequence is set out in Table 2. 7). Whilst the extra- and intra- oral screening of patients'

soft tissues was routinely carried out by the majority of dentists in the study, communication about the purpose of the screening (to check for oral cancer or other abnormalities) was not routine and was often avoided or discussed more obliquely. Whilst there is no analogous study known to this author, it is possible that some dental practitioners might follow a similarly complex decision-making pathway in terms of whether to, and how to communicate the presence of periodontal disease.

Table 2. 7**:** Oral cancer communications model showing the decisions made by general dental practitioners to discuss oral cancer or not (Awojobi et al., 2015).

Decision	Yes / No	Reason
1. Conduct routine oral cancer screening?	No	**System**: Time constraints
	Yes	**System**: Routine **Patient:** risk factors (tobacco and or alcohol)
2. Communicate about screening?	No	**System**: Time constraints, cost constraints UDA system **Patient relationship**: Concern: patient's reaction **Patient:** lack of risk factors or older patients **Dentist**: Lack of knowledge or training
	Yes	**System**: New dental contract – more prevention emphasis **Patient:** risk (lesions, risk factors, young patients) **Dentist:** training or exposure to oral cancer cases or confidence levels
3. Use the term 'cancer'?	No	**Patient relationship**: perceived negative reaction, possible loss of patients, economic impact. **Dentist:** low disease prevalence
	Yes	**Patient factors**: Risk factors: smoking & alcohol **Patient relationship**: encourage future attendance, encourage behaviour change

Participants in Awojobi et al.'s, (2015) study, were heavily influenced in their decision-making by time constraints under the Units of Daily Activity payment system, and by the

desire not to disrupt the patient: dentist relationship through potentially causing alarm (Awojobi et al., 2015) even though softening the message might reduce the patient's perception of the risk involved. However, it must be recognised that there has been a specific focus on oral cancer recently since the UK Mouth Cancer Action Charter was launched in November 2021 (Barrett et al., 2021). Whilst public awareness of oral cancer remains low, and recent campaigns to raise awareness have had mixed success (Barrett et al., 2021), it is possible that the focus on this condition may be impacting on kinds of decision-making processes outlined in Awojobi et al.'s (2015) earlier study.

Interestingly, Shepherd et al.'s, (2010) study of dentists' decisions on whether to disclose that a patient's alcohol intake is over the limit or not, also identified a reluctance to disturb the dentist: patient relationship as a driver for avoiding communication on this topic. Respondents in this study were found to be worried about the possibility of criticising or embarrassing the patient during an alcohol advice discussion as this could ultimately result in the practice losing patients (Shepherd et al., 2010).

There is evidence from a small number of studies to show that if dental professionals do not soften or avoid disclosure, but instead fully discuss periodontal disease in the initial appointments, then this can have positive outcomes. In a UK-based study (Cheshire et al., 2011) and a similar study from Norway (Vatne et al., 2015), patients were fully informed about the nature of periodontal disease. Discussions with patients started with an assessment of patients' level of understanding of periodontal disease e.g. 'Do you know what periodontal disease is?'. In both Cheshire et al.'s, (2011) and Vatne et al.'s, (2015) study, participants had a very low awareness of their own role in periodontal disease progression at the start of the study or stated that they hadn't been told they had the condition by the referring dentist. Later in the study a number of participants said they blamed the previous dentist for their initial lack of awareness. Following this awareness check, comprehensive information about periodontal disease and its severity was given. In Vatne et al.'s, (2015) study, care was taken to adapt the way the information was imparted to the level of understanding of the patient. In both studies, no specific time or cost limits were placed on the appointments, in contrast to e.g. the UK's Units of Dental Activity remuneration system. Also, in both programmes, after patients had been educated about periodontitis, detailed lifestyle advice was given (oral hygiene and smoking cessation advice) and plaque free score targets were set for patients to achieve prior to the dentist or periodontist undertaking any treatment. In both studies, there were significant gains in patient satisfaction levels and clinical outcomes, with some of the

clinical gains persisting 5 years after the study due to patients' significantly improved oral hygiene (Vatne et al., 2015). According to one participant: "It was a relief to learn about the disease and to be told that I could take control over my own situation" (Vatne et al.,2015). Further confirming evidence from a systematic review that showed that patients are more likely to adhere to oral hygiene instruction if they perceive periodontal disease to be a serious condition early on, and so can see the benefits of behaviour change (Tailor and Ogden, 2009; Newton and Asmiakopoulou, 2015).

2.4.1.4 Bad news delivery: Insights from Linguistics

Framing is important: It is generally accepted that health-related bad news should be communicated directly and with empathy. With sensitive communication events, e.g. communicating a cancer diagnosis, actual word choice may influence how the hearer perceives the news and adapts to it after delivery. There is also some evidence that framing (whether the information is framed as good or bad news) changes patients' perceptions of the news. If a doctor is sharing good news, it should be framed clearly as good news (affirmation), i.e. the news is good. However, if the doctor is sharing bad news, it is received more favourably if it is framed as 'not good' (negation) rather than 'bad' (Burgers et al., 2012). The empirical lab-based study described above showed that small linguistic variations can have an impact on the hearer's perception of the message, evaluation of the doctor and future adherence intentions (Burgers et al., 2012). However, this insight might not be transferrable to periodontal disease disclosure due to the possibility of unrealistic optimism on the part of the patient.

Style, sequencing and technical or lay language choice matters: Another line of investigation into breaking bad news is into the style in which the message is conveyed and the corresponding impact on the hearer. Breaking bad news differs from other types of health consultations, as the most important information is conveyed closer to the start of the interaction. Shaw et al., (2012) gave empirical weight to Maynard's (1996) three main styles of bad news delivery when analysing interactions between doctors and simulated patients linked to two scripted scenarios. The most frequently used styles were the blunt and forecasting styles in which the bad news was delivered more directly and earlier in the interaction than the stalling style. In the blunt style, the bad news was delivered directly within the first 30 seconds of the interaction in a direct way using simple lay language. In the forecasting style, the context for the bad news was sketched first, often by asking the patient open questions, with this context acting as a warning statement, and opening the possibility of some two-way discussion with the patient to

gauge their level of understanding of the situation, before the bad news was delivered. The rest of the interaction using the forecasting style then proceeds as a series of clear steps in lay language leading to the outcome (the bad news). It is argued in the literature that this is the most effective style for bad news delivery from a social psychology perspective (Maynard, 1996). In contrast, in the stalling style, it typically took the doctor more than 120 seconds to deliver the news using euphemistic language in between very technical detail, often leading to confusion for the listener (Shaw et al., 2012). In Shaw et al.'s, (2012) research, the blunt and forecasting styles were regarded as more consistent with effective communication and were perceived as being clearer than the stalling style.

Particular language functions relate to perceptions of competence in bad news delivery: In addition to the different styles of delivery discussed above (forecasting, blunt and stalling), particular language functions have also been shown to be associated with perceptions of competence, or lack thereof, in bad news delivery. For example, a greater degree of information seeking, information giving and information verifying on the part of the doctor were associated with lower perceptions of competence in bad news delivery (Gillotti et al., 2002). This stands in contrast to other kinds of healthcare consultations where patients may positively perceive information giving, seeking and verifying. It is possible that during a bad news delivery, the amount of information should be kept at a minimum (Gillotti et al., 2002). Thus, the amount of information delivered, the accuracy of the information, its clarity and relevance and the manner of its delivery, are relevant concepts in bad news delivery.

Non-verbal communication can have an influence: Specific non-verbal aspects of communicating bad news have also been shown to have an impact on patients' reactions. A randomized controlled trial showed that cancer patients, especially female patients perceived physicians' delivery of bad news to be more compassionate when the physician was sitting down during the discussion, rather than standing up (Bruer et al., 2007). However, as posture is only one variable, it is unlikely that this will be able to compensate for poor communication skills generally (Bruera et al., 2007).

Patient recall of information: Unfortunately, research from the medical communications literature shows that patients' recall of medical information is small. Studies have estimated immediate recall of medical information from a consultation to be between 40 and 80% of what was discussed by the provider (Kessels, 2003; McCarthy et al., 2012). A number of factors have been shown to influence recall including: clinician factors, the mode of delivery of the message and patient factors like age, health literacy

levels and anxiety (Kessels, 2003; McCarthy et al., 2012; Richard and Lussier, 2016). The more information provided by the clinician, the less is recalled. Recall is also improved if the structure of the information, or the categories to be discussed, is stated in advance and if visual pictures or diagrams which are directly linked to the explanation are used (Kessels, 2003). In addition, spoken health messages are less easily recalled than written information (Kessels, 2003; McCarthy et al, 2012) but this may not hold true for patients with low health literacy. It is recommended, therefore, that a short, clear, visually based explanation is given in addition to something to take away to read (Kessels, 2003; McCarthy et al., 2012). .

As discussed above, little is known empirically about whether dental practitioners routinely educate patients about the nature and severity of periodontal disease through discussion. However, it is possible that if the trends shown in the oral cancer, alcohol advice and child dental caries studies (discussed in Section 2.4.1.3) are assumed to apply, then it is possible that similar barriers exist to mitigate against dental professionals having comprehensive discussions about periodontal disease with their patients. It follows, then, that it may be possible for some periodontal disease patients to validly claim that they weren't clearly told they have periodontal disease, what it is, or how serious it is.

2.4.2 Risk communication

There is consensus in the Medical Communications literature that communicating prognosis and risk accurately is extremely difficult, both because of individual variation in patients' conditions, and because numerical risk estimates are notoriously hard for patients to relate to (Garcia, et al., 2009). So, it follows that a patient's response to a statement like "Smokers are 3 – 5 times more likely to have severe gum disease" might be difficult to predict. It is unsurprising that studies have shown misunderstandings to be common during prognostic discussions (Hoffrage and Koller, 2015).

The medical linguistics literature reveals that both the way risk is framed (either positively or negatively) (Burgers, et al., 2012), and the actual words that are chosen (Tailor and Ogden, 2009), influence the patient's perception of the risk. In Tailor and Ogden's (2009) study, 449 patients, with different Body Mass Indexes, were presented with two different vignettes relating to obesity, either a phrase containing the medical term 'obese' was used, or a euphemistic phrase, e.g. 'your weight may be damaging your health' was used. Patients were found to regard the condition as being more serious, and as having more

damaging consequences, if the term ‘obese’ was used as compared to the euphemism. Using either the medical term or the euphemism, however, did not alter patients’ understanding and sense of control over the condition, or their trust in the doctor (Tailor and Ogden, 2009).

2.4.3 Encouraging ownership and facilitating behaviour change

2.4.3.1 Behaviour Change theories: The Theoretical Domains Framework and COM-B model

Traditionally, behaviour change was thought of in Medicine and Dentistry in a fairly straightforward way, in terms of patient compliance with or adherence to treatment recommendations. Using this framing, patients either did or did not comply with what they were being asked to do to improve their health (Chan et al., 2023). Studies have since shown that the provision of information is insufficient to catalyse behaviour change as this is complex and multifactorial. Instead, approaches that are based on psychological theories are now recommended to promote patient centred oral hygiene behaviour change (Chan et al., 2023).

There are a large number of psychological health behaviour theories which makes it difficult to know which to apply, as each has its own strengths and limitations (Francis et al., 2012). An important recent development in the health behaviour literature, which Newton and Asimakopoulou (2015) describe as a paradigm shift, is the emergence of the Theoretical Domains Framework (TDF). The TDF is an overarching framework that was created through synthesizing 33 original psychological theories condensed into 14 theoretical domains (Mitchie et al., 2011; Francis et al., 2012). The strength of the TDF is that it is comprehensive. It has mainly been applied to implementation challenges in healthcare to determine which domains are the most pertinent in a particular context, so that these domains can be targeted in subsequent behaviour change initiatives (Alexander et al., 2014).

Whilst the TDF does provides a comprehensive framework of behaviour influence domains, it does not provide a testable theory postulating relationships between these elements (Atkins et al., 2017). For this reason, the TDF domains are often grouped into larger fields of meaning to generate theory. The COM-B (Capability, Opportunity, Motivation and Behaviour) model is often used together with the TDF. Under the COM-B model, TDF domains have been grouped into 4 fields: a patient’s Capability, combined with the available Opportunity for change, interacts via the filtering effect of Motivation to result in observable Behaviour (Alexander et al., 2014). The COM-B fields have, in turn, been linked to a suite of different health behaviour

interventions so that suitable actions for change relating to Capability, Opportunity or Motivation can be identified (Barker et al., 2019). The TDF and COM-B model will both be used in this study as tools to aid exploration of the health behaviour change aspect of periodontal disease communication.

2.4.3.2 Barriers to or enablers of oral health-related behaviour change

An important aspect of context that can mitigate against self-efficacy as encompassed by the TDF and COM-B model is the presences of barriers. There are a host of well described barriers in the UK context that operate to reduce the Opportunity (C**O**M-B) to access dental care at all. Barriers can operate at the level of the individual patient, but also at the level of the healthcare system (Dyer et al., 2023). Barriers can also be classified as social, economic, physical and psychological. Significant barriers that operate at the system and economic levels include difficulties in securing an NHS dentist appointment and cost (Hill et al., 2013). A significant psychological barrier that acts against Motivation (TDF / CO**M**-B) is dental anxiety. The causes of dental anxiety are multifactorial. Unfortunately, dental anxiety rates in the UK are estimated to run at 36% with 12% of the population experiencing extreme dental phobia that would preclude accessing dental care (Beaton et al., 2014). Conversely, facilitators or enablers are any factors that make accessing oral health care more likely.

2.4.3.3 The Stages of (behaviour) Change model

In contrast to the TDF / COM-B model which is a tool for identifying the most relevant factors thought to result in behaviour change for a population, the Stages of Change model (SOC) focuses on the process of behaviour change for an individual patient over time. The SOC model was developed in the 1970's in relation to addictive behaviours (Littell and Girvin, 2002). It has been widely applied in general health promotion interventions since its development. The SOC model proposes that an individual patient can move through five different states of readiness to change: from pre-contemplation, to contemplation, to preparation, to action, to a maintenance stage (Prochaska et al., 2013). The patient's stage of change at a particular point in time is determined through the completion of a quantitative self-report questionnaire (Prochaska et al., 2013). Health interventions that are tailored to participants' individual SOC category have shown some promising results in relation to a range of health-related behaviours (De Vet et al., 2005).

The SOC model has recently been applied to oral health related-behaviour change using a three-category system with participants being assigned to the pre-contemplation, contemplation or active stages of change (Jamieson et al., 2014). This kind of study tends to assign participants to a stage of change and test the correlation between their SOC and their

self-perceptions regarding their oral health. In Jamieson et al.'s, (2014) study those in the pre-contemplation or contemplation SOC had a poorer self-declared view of their oral health.

2.4.3.4 Motivational interviewing: A communicative approach aimed at promoting behaviour change

Motivational interviewing, (MI), is a communicative approach to behavioural change that fits well with the emphasis on self-efficacy in the TDF and COM-B models. The aim of MI is to empathetically support a person by coming to understand their worldview in a non-judgmental way whilst gently directing them to discuss possible changes to harmful behaviour habits (Martins and McNeil, 2009). MI, which was originally developed for counselling clients with an alcohol, drug dependency or smoking addiction, has been found to be convincingly more effective in catalysing lifestyle change than educational and advice-giving approaches alone (Wilder and Bray, 2000).

MI in Dentistry has been studied in relation to changing patients' oral hygiene practices and dietary habits (Martins and McNeil, 2009; Stenman, et al., 2012; DeBate et al., 2012). Whilst there are calls for dental students and dental professionals to be trained in MI (Kay et al., Schoonheim-Klein et al., 2012), there is only a relatively small literature base of studies that support its effectiveness in this context (Gao et. al., 2014). In order to more firmly establish MI's effectiveness in the oral health arena, randomized controlled trials with more similar and longer recall intervals are needed (Martins and McNeil, 2009). Due to the relatively small and heterogenous current evidence base, the latest evidence-based guidance for periodontal treatment in the UK (BSP S3 level guidelines: 8.3.2) does not specifically recommend using MI or other cognitive behavioural approaches to motivate patients' oral health-related behaviour change (West et al., 2021). It must be borne in mind that the S3 guideline development process was extremely rigorous and involved both systematic reviews and using a recognised expert consensus reaching process (West et al., 2021). Carra et al., (2020), who conducted a systematic review used in the S3 guidelines development process, states that MI and cognitive interventions can be used to reinforce oral hygiene advice with patients. However, definitive clinical evidence as to whether these interventions significantly improve plaque levels and bleeding scores over time is not yet available. Despite the relatively limited evidence base for MI in Dentistry, an understanding of the common linguistic functions of MI, i.e. Open questions, Affirmation, Reflective listening and Summarising (Wilder and Bray, 2000) is relevant to the present study.

2.4.3.5 Behaviour change communication in relation to periodontal disease

There is limited dental communications literature on periodontal disease discussions and behaviour change, however the general literature on providing oral hygiene advice can provide insights. Threlfall et al., (2007) studied general dental practitioners' (GDPs) communication-related decision-making processes when a child patient presents with severe dental decay. Whilst participating GDPs did see a role for themselves in educating the parents of child patients about diet control and oral hygiene, time constraints and the lack of a financial incentive tempered this. In most cases, verbal advice was given in the form of a short educative talk without visual aids. The amount of discussion was influenced by the severity of the child patients' dental caries and the perceptions regarding the parents' motivation levels, with dentists often spending more time advising parents they thought were more motivated (who were often from a middle-class background) about diet and oral hygiene. Less time was spent with parents who were perceived to have less enthusiasm for oral health. GDP respondents identified these parents as often being from lower socio-economic groups (Threlfall et al., 2007).

Giving oral hygiene advice to unmotivated parents or patients was experienced as demoralising, and participating dentists expressed that they were unsure what to do if the short prescriptive talks had not worked (Threlfall et al., 2007). However, some dentists did report making gains when additional explanations were given, e.g. explaining how much sugar there is in ice cream or soft drinks, or exactly how decay works: "mum didn't really know why the child's teeth were decaying and I think once I explained it the light switched on for mum" (Threlfall et al., 2007). This led the authors of the study to conclude that more innovative approaches to giving preventative advice, need to be identified. A systematic review of psychological approaches used to effect oral hygiene habit change in periodontal patients concluded that if the diagnostic disclosure was accompanied by an individually tailored approach encouraging oral hygiene goal setting, planning and self-monitoring, then significant behaviour change was possible (Newton and Asmiakopoulou, 2015).

No linguistically-based studies that focus on evaluating the effectiveness of different communicative approaches to conversations between patients and providers about periodontal disease have not been identified by the author of this study. Different communicative approaches may be more or less likely to lead to behaviour change on the part of the patient. There are also very few studies that explore patients' responses to oral health conversations generally that are written from the patient's point of view.

2.5 Dental communications research: A range of approaches

In this section, the research methodologies used in the dental communications literature base will be critically examined in order to place the current study in a research context.

2.5.1 Communicative behaviours skills lists: A critique of the "one-sided" process analysis approach

Associated with the acceptance of the biopsychosocial model in the 1970's and 1980's were calls for frameworks to guide healthcare communications training that would align with the new patient-centred focus. One of the most well-known of these communications frameworks is the Cambridge-Calgary referenced observation guide (Kurtz and Silverman,1996). This guide consists of five basic tasks for the physician: initiating the session, gathering information, providing structure to the consultation, building the relationship, explaining and planning and closing the session (Greenhill et al., 2011). Each of these tasks has a set of associated skills e.g. 'Identifies the patient's issues' is a skill which is part of the task 'Initiating the session'. In total there are 71 of these constituent skills. This model was developed deductively, working backwards from patient satisfaction research on what is important to patients to produce a matching communicative function on the part of the clinical (Kurtz and Silverman, 1996). Like many communication skills guides, the Cambridge-Calgary guide focusses only on the communication skills of the clinician and has been criticized for being one-sided and not based on real interactional data (Kelly, 2015).

Since the Cambridge-Calgary guide was developed, the literature base has looked to apply this model, and others like it, to a range of new contexts (Greenhill et al., 2011 as an example). There has also been a lot of emphasis on achieving inter-rater reliability. Instruments like this are most often used as a checklist to quantify the presence or absence of particular communicative skills on the part of the clinician in a consultation. Following this, there is often evaluation of these interactions by patients using a questionnaire. When used in this way, there is no need to transcribe what is actually said in the consultations (Bowman et al., 2021). Using this approach, it is possible to identify what the important "ingredients" in the conversation are but not how they fit together as a "whole cake" (Pendleton, 1983; Perakyla, 1997). The Cambridge-Calgary guide, with its 71 constituent skills, has been criticised as being unwieldy in practice. According to De Haes and Bensing (2009) "in many studies, a battery of communication skills is assessed" and this makes it unclear which of the skills has made the biggest contribution to the

overall effect. A review by King and Hoppe (2013) claims that a consensus has now coalesced around the following set of competency domains in patient-centred communication (see list below). However the model still has a sizeable number of skills associated with each domain (albeit a smaller number than the Cambridge-Calgary guide):

- "(1) fostering the relationship,
- (2) gathering information,
- (3) providing information,
- (4) making decisions
- (5) responding to emotions, and
- (6) enabling disease- and treatment-related behaviour". (King and Hoppe, 2013)

An example of a possible "battery of skills" approach in the dental context is provided by Khalifah and Celenza (2019) who reviewed articles on how to teach dental communications and developed a list of the communications skills that were most commonly mentioned as shown in Table 2. 8). The skills list is also not based on transcribed interactional data.

Table 2. 8: Khalifah and Celenza's (2019) 26 communication skills identified by reviewing the communications themes discussed in dental communications literature

Generic skills	**Case-specific skills**	**Time-specific skills**	**Emerging skills**
Active listening	Identifying chief complaints	Session initiation	Cultural sensitivity
Easy language	Obtaining behaviour history	Session closure	Obtaining consent
Asking questions	Technical skills	Using the telephone	Breaking bad news
Establishing rapport	Medical interview		
Friendliness	Gathering information		
Patient's perspectives	Structure of counselling		
Motivation	Sharing information and decision making		
Empathy	Patient's records		
Professionalism	Special needs		
Comfort			
Non-verbal communication			

2.5.2 Assessing dental communication: A critique of process analysis communications assessment instruments

As has been mentioned earlier, there is comparatively little research on dental communications as compared to the body of literature in Medicine and Health (Kelly, 2015; Moore, 2022). In addition, many of the communications models used in Dentistry are adapted from Medicine. One exception to this is the Dental Consultation Communication Checklist (DCCC) which was developed from notes made by a research assistant who observed a number of oral medicine consultants (the interactions were not

transcribed). It is important to note that it is not clear how many interactions were observed and the extent of influence of other communications models in the DCCC design was not made explicit. The notes were developed into 5 domains with each with constituent components (Theaker et al., 2000). The DCCC was designed as an assessment tool in order to assess dental students' communicative competence. It includes clinical communication aspects (e.g. clearly explains findings of examination) and aspects of socio-emotional communication (e.g. gives reassurance) as shown below (Theaker et al., 2000).

A. Introduction
B. Case history
C. Examination
D. Closing
E. The patient (the patient's role in communication)

It is reported that the DCCC has high inter-rater reliability ratings and is a standard instrument capable of consistently assessing dental undergraduates' communication and interpersonal skills in any type of consultation using a Likert scale (Theaker et al., 2000). Unlike other communications checklists, the DCCC does pay some attention to the patient's communication. Domain E includes: the patient freely offers information, discloses concerns and appears relaxed (Theaker et al., 2000). A criticism of a standardized instrument like the DCCC is that it does not take into account the contextual factors that shape the character of different interactions including the dental concern (acute or chronic), the setting, (primary, secondary, emergency) (Boiko, 2010), and all the variables relating to the particular provider and patient.

Instruments like the DCCC are often used to inform the design of communicative OSCE evaluation sheets (for more on OSCEs see Section 2.2.5). Despite the popularity of the simulated patient OSCE as a mode of assessment, there is very little detailed guidance in the literature on how to be successful in a communications OSCE station aside from a list of topics to cover or skills to demonstrate.

2.5.3 The Roter Interactive Analysis Scale (RIAS): a critique of a two-sided process analysis communications evaluation instrument

The RIAS, which was originally developed in 1977, is the "most widely used single system of medical interaction assessment" (Roter and Larson, 2002). Similar to the Cambridge-

Calgary guide and other process analysis instruments, the RIAS consists of a list of communicative skills or behaviours that can be observed in an interaction without the need for transcription. The RIAS was also deductively derived, in this case from theories, notably social exchange and interaction theories (Roter and Larson, 2002), rather than being derived from real interactional data. However, in contrast to many communications models, the RIAS contains criteria or codes for the provider's communication as well as parallel codes for the patient's communication. The many codes are categorized as either task-based or socio-emotional (or affective) in character (Sondell et al., 2003). However, as Vinall-Collier (2013) points out it is not always possible to totally separate the two broad categories as language use is not taken into account. So, if a provider uses a phrase like "a zap in your bum" this could be coded as "information about the therapeutic regimen" and the informal jokey affective impact of the utterance would be lost, making it difficult to categorize.

However, Roter, the constructor of RIAS, did to some extent allow for coding of the character of the utterance at (1) the intrinsic level (overt statement of affect), (2) the conveyed level, (manner of communication e.g. tone, innuendo or word choice), and (3) the interpreted level (overall impression on coder) (Sondell et al., 2003). It could be argued that this attempt to code some of the subtleties associated with both provider and patient or simulated patient aspects of the interaction is starting to move towards more of a discursive (discourse, linguistic or conversation analysis) approach in which language use patterns are central to analysis. However, the RIAS is not based on transcribed interactional data, so it is still not possible to discern sequence, i.e. to see how a particular utterance by the clinician might be linked to a particular response from the patient.

In Sondell et al.'s, (2003) study the RIAS-dental instrument was used to quantify dentist: patient interactions in prosthetic dentistry and the following dimensions were identified: emotional exchange, information exchange— patient horizon, relation building exchange, information exchange—dentist horizon, and administrative and counselling exchange. The 'emotional exchange' factor was associated with the largest amount of variance. This was interpreted as showing that there was a strong emotional aspect pervading the interactions studied, and that it was not possible to define much of the communication in these interactions as either task focussed or socio-emotional as both of these dimensions were being realized simultaneously (Sondell et al., 2003). The authors conclude that: "prosthetic care in dentistry is basically a human relationship with strong

emotional communicative content" rather than being just the provision of a piece of technology to a patient.

2.5.4 Adding value through the use of language-based approaches

Bridges et al., (2010) argues against the polarisation of the process analysis and discursive approaches to analysing dental communication. In their study, Bridges et al., (2010) observed 51 undergraduate dental students using the DCCC scale to rate their skills set. In this way, 'giving reassurance' was identified as the lowest rating communicative competency, and a second research stage was conducted in which a consultation between an experienced dentist and a patient was conversation analysed to identify how reassurance was achieved through conversation. In this way, a number of important features of the conversation were identified, e.g. that reassurance was given throughout the consultation in immediate response to the patient's signals that it was being sought, but there was more overt emphasis on reassurance at the end of the clinical examination and the use of softening words, e.g. a small surgical procedure, to open the gum, were noticeable.

Bridges et al.'s, (2010) study would be classified by Barnes (2019) as an observational-relational type of conversation analysis study. Observational-relational studies are mixed methods and use other data alongside conversation analysis. Another noteworthy study in dental communication that is mostly observational-relational, was conducted by Sarnat et al., (2001) in paediatric dentistry. The starting point of this study was that a child's behaviour in the dental chair is related to the communication patterns used by the dental professional. Whilst transcribed interactional data was used in this study, it was used in order to code for pre-defined linguistic approaches and verbal strategies, so the study does not strictly represent pure conversation analysis. However, a strength of this mixed methods study was that it determined that an empathic approach combined with the provision of sensory information about what the child could expect to feel alongside giving the child clear instructions was significantly correlated with treatment success.

Other types of conversation analysis studies defined by Barnes' (2019) review include causal studies and descriptive studies. There are comparatively few causal studies in the medical communications literature. An example of one is the "some" or "any" study by Heritage et al.,. (2007). Causal studies take the form of a kind of randomised controlled trial. In the "some" or "any" study the difference between the following statements was

tested: “Is there anything else you want to address in the visit today?” as compared to “Is there something else you want to address in the visit today?”. The something question was found to be more effective at meeting additional concerns alongside main reason for the patient’s visit which led the authors to reflect on the potential difference that one word can make (Heritage et al., 2007). To the knowledge of the author of the current study, there are no causal conversation analysis studies available in dental communications.

In the Barnes (2019) review it was made clear that there is a rich database of conversation analysis studies to draw upon in medical communications which are based on transcriptions of real recorded consultations. Unfortunately, the same is not true of the dental communications literature. An exception to this is the very detailed descriptive discourse analysis of routine primary dental consultations as part of a PhD thesis (Kelly 2015). In common with Sondell et al., (2003), Kelly (2015) found that the socio-emotion and task-focussed aspects of the communicative interaction were inseparable and that the consultation does not proceed in a standardised sequence of stages or phases. Instead, Kelly (2019) puts forward the idea of frames (socio-relational, operational and consultation) that can co-occur simultaneously, could overlap or could interact with each other as participants interacted with each other. Of relevance to the current study are the socio-relational frame, in which rapport with the patient is built and maintained through the dynamic use of politeness and involvement strategies, and the consultation frame. The consultation frame is one in which there are sequences relating to e.g. history taking, diagnostic disclosure and treatment explanations and advice. A summary of Kelly’s (2015) framework is provided in Table 2. 9. As the current study is dyadic (conversations between dental students and simulated patients), the triadic participation structure and the operational frame (talk during active dental treatment) do not apply.

Table 2. 9: A summary of the results of Kelly's (2015) study of interactional engagement in dental consultations. Key: The grey highlighting shows the Socio-Relational features that occur in the other two frames.

Discourse analysis aspect	Resulting categories	Detail of some of the associated features
Frames analysis	Socio-relational frame (SRF)	Ritual openings and closings, narratives and joking or teasing sequences. Informal register, variations in word use, word order, intonation, stress and rhythm, positive politeness strategies, equal turn taking, non-dental topics, rapport building.
	Operational frame	Directives, reporting sequences, procedural sequences, financial discussion sequences, closing or scheduling sequences, marked by instructions and requests. Includes politeness strategies and SRF features (laughing or joking).
	Consultation frame	Opening sequences, medical history and illness narrative sequences, information-gathering and diagnosis sequences, explanation, planning and health promotion sequences, closing sequences. Marked by monologues, professional jargon, questioning sequences, formal to informal style (medicine vs lifeworld). Includes SRF features including politeness.

Table 2.9 is continued over the page

Discourse analysis aspect	Resulting categories	Detail of some of the associated features
Participation structure or participation roles	Default model	Dentist as central participant, nurse in subordinate discoursal role, weak communication between nurse and patient
	The team member	Dentist and nurse both speaking to patient reinforcing same message as a team
	Nurse as social catalyst	Nurse initiating and maintain social contact with patient, dentist minimal social-relational discussion with patient
	Nurse as maverick (independent)	Nurse engaging patient in social-relational chat independent of dentist
	Nurse or patient as conduit for dentist's communication	Dentist speaking to nurse by speaking to patient, or dentist telling patient something indirectly by speaking to nurse
	Triadic communication	Nurse, patient and dentist participating equally in the discourse
Facework: politeness and involvement strategies	Politeness or facework	negative face – not being impeded by others
		positive face – wanting a positive image in the eyes of others
	Involvement strategies	Aspects of everyday conversation that create emotional involvement e.g. repetition or echoing, detail, imagery, use of metaphors.

2.6 Summary of Chapter 2

Periodontal disease is a chronic 'hidden' condition which is preventable in the early stages, however, if left to progress it has a significant impact on a patient's quality of life that transcends oral function. Effective communication between clinician and patient is essential, in order to establish a partnership, as the patient's oral home care efforts are key to stabilizing the condition. Effective or patient-centred communication has beneficial effects on patient recall, satisfaction, adherence and potentially oral health outcomes. Despite the importance of effective communication in dentistry, which takes place in a unique context where the power imbalance between provider and patient necessitates the facilitation of patient's sense of perceived control, there is little detailed linguistic analysis in the research base. The evidence base for what is most effective in teaching dental communication is limited and is to a large extent reliant on studies which have followed a process analysis approach. Whilst this approach can quantify the frequency of clinicians' communicative behaviours in an interaction, it does not capture the nuance, complexity and dynamic nature of a dental conversation.

In particular, dental conversations about periodontal disease are under-studied. These conversations are complex and involve aspects like breaking bad news, discussing risk and motivating patients towards behaviour change. The models associated with breaking bad news in medicine are likely to be inappropriate for disclosing periodontal disease to patients as patients' levels of oral health priority differ significantly. From the linguistics literature on breaking bad news in medicine it seems likely that framing, style, sequencing and the degree of technical language used may be important in periodontal disclosures. Again, from the medical communications literature it is clear that communicating risk levels to patients is complex. Similarly, motivating patients towards behaviour change is particularly complex, with frameworks like the TDF, the Stages of Change model and motivational interviewing theory all making a contribution to this field.

Not much is known about dental professionals' lived experience of explaining periodontal disease to patients or about patients' perceptions of these conversations. In addition, to the knowledge of this author, no detailed discursive studies of conversations about periodontal disease have been conducted as yet. It is argued here that using an in-depth discursive approach to analysis developed from insights from the lived experience of both clinicians and people with periodontal disease could assist in isolating what makes such a conversation more likely to be successful in terms of an intention towards oral health-related behaviour change. These insights would be valuable in terms of designing training

for undergraduate students and post-registered dental professionals in negotiating these complex conversations.

3 CHAPTER 3: AIMS

3.1 Overarching aim of the wider study

To explore patient : provider communication about periodontal disease in order to gain insights with potential relevance for training dental students and dental professionals.

3.2 Aims for each stage of fieldwork

3.2.1 The aim of the first stage of fieldwork

To explore what characterises the lived experience of dental professionals in relation to discussing periodontal disease with patients.

3.2.2 The aim of the second stage of fieldwork

To explore what characterises peoples' lived experience of periodontal disease and their perceptions regarding explanations about this condition.

3.2.3 The aim of the third stage of fieldwork

To identify the interactional features that make simulated conversations about periodontal disease more or less successful for different simulated patient characters.

3.3 The link between the aims of this study and broader oral health priorities

The research questions from this study have a bearing on two of the prioritized oral health questions set by the James Lindt Alliance (2024):

> "no,7. How to improve communication between dental teams and patients or carers?"

In addition, whilst the focus of this study is not at the community or population level, but at the level of personal interaction between providers and patients, there will nevertheless be some insight gained into what could predispose patients to consider behaviour change, which are relevant to the following Lindt Alliance question (James Lindt Alliance, 2024):

> "no,9. What is the best way to prevent gum disease, and reduce oral health inequalities at a community or population level?"

3.4 The research questions explored in this study

The research questions explored in this thesis are:

Overarching research question: What makes conversations about periodontal disease more or less successful?

Fieldwork Stage 1: How can the lived experience of dental professionals, in terms of discussing periodontal disease with patients be characterized?

Fieldwork Stage 2: How can peoples' lived experience of having periodontal disease and receiving associated explanations of the condition, be characterized?

Fieldwork Stage 3: What are the interactional features that make simulated conversations about periodontal disease more or less successful for a range of character profiles based on the results of Stage 2 of fieldwork?

4 CHAPTER 4: OVERARCHING METHODOLOGY

4.1 Social constructivism

The epistemology underpinning this research is social constructivism. Under social constructivism, it is assumed that reality is socially defined. Knowledge is constructed by individuals through interaction with others within a specific social, economic and cultural context (Burr, 2015). Therefore, there is no discoverable objective reality, but instead multiple understandings of reality exist in the minds of individuals, and language is the primary means by which people exchange ideas and construct meanings (Amineh and Asl, 2015).

4.2 Qualitative research

The majority of research in oral health to date has been quantitative in nature (Baker et al., 2022). However, qualitative research has stand-alone value that goes beyond being able to bring to light new insights when a topic is under-explored (Fitzgerald et al., 2008), as these approaches can bring nuance to the 'how' and 'why' questions relating to complex phenomena (Baker et al., 2022). In qualitative research, reality is seen as complex, interwoven, time-dependent and situated in a particular context, so it is not possible to isolate a particular variable for testing (Yilmaz, 2013). In addition, multiple realities can co-exist, depending on the perspectives of different people subjectively relating to a phenomenon in different ways (Yilmaz, 2013). Therefore, purposive sampling is used to identify expert insiders who will have key insights into the phenomenon under study. A range of insider views is needed in order to inductively build a holistic picture and develop a greater understanding of the phenomenon. This greater understanding may in turn lead to emergent working hypotheses that influence the design of the later stages of research. In this way being flexible and responsive to the data is important (Yilmaz, 2013). Whilst strategic choices must be made in order to identify key insiders to include in the study to achieve diversity, the actual number of participants may be relatively small in order to meet the aim of qualitative enquiry which is to use rich description, interpretation, and the identification of emergent patterns to arrive at a better understanding of the phenomenon (Yilmaz, 2013). Due to the small sample sizes involved, generalizability is limited in qualitative enquiry. However, qualitative findings, if rigorously produced, can be rich, detailed and meaningful and have immediate pragmatic relevance that is transferable to similar clinical contexts (Fitzgerald et al., 2008; Baker et al., 2022).

Reflexivity is important for rigour in qualitative research (Olmos-Vega et al., 2022). In this study, the principal researcher (Marion Bowman: MB) is a middle-aged female part-time PhD student, who is generally dentally healthy and has been working as a non-clinical tutor in the Leeds School of Dentistry for 10 years. MB's familiarity with dentistry and her positive pre-disposition towards dental professionals who actively educate their patients, may have influenced her interpretation of the data. Olivia Randall (OR) and Isobel Sale (IS) were both second year Linguistics students at the time of this study. Both students have formal training in noticing linguistic cues. OR and IS are female and dentally healthy. IS has significant systemic medical issues and has extensive experience of negotiating the complexities of the UK health system. This may have had an impact on her coding interpretations in Stage 1 of fieldwork.

OR took an immersive holistic view of participants' journeys within their social context in coding Stage 2 of fieldwork. Having researchers from different disciplines enhances openness in interpretation as it helps to decrease the impact of disciplinary blinders (Held et al., 2019). However, the fact that MB, OR and IS are dentally healthy has influence as this could place the person who has a dental condition in a position of feeling as if they need to justify his or her sickness and to validate themselves being important participants in the social world (Radley and Billig, 1996).

Qualitative approaches could be argued to be particularly appropriate in healthcare due to the centrality of the clinician-patient relationship, which is dynamic and complex (Yardley, 2000). There are a range of qualitative approaches methods which can be used to study the dynamics of provider: patient healthcare interactions, e.g. ethnography, phenomenology, interpretative phenomenological analysis. However, due to the important role that communication plays in healthcare interactions (as explained in Section 2.2.1), and in order to meet the aim of this study, language-based qualitative approaches have been chosen.

4.3 Language-based approaches

In this study the term 'language-based approaches' will be used in a broad sense to refer to qualitative approaches that explore language use in context using transcribed interactional data. As such, language-based approaches are taken here to include: discourse analysis, conversation analysis and linguistic analysis (Bowman et al., 2022). In this study, narrative analysis has also been used to categorize the lived experiences of people with periodontal disease. Some narrative analysis approaches are more closely

based on the analysis of language than others. The narrative analysis approach used in this study has been accompanied by a linked linguistic analysis, so it could also be thought of as a language-based analytical approach.

5 CHAPTER 5: THE LIVED EXPERIENCE OF DENTAL PROFESSIONALS DISCUSSING PERIODONTAL DISEASE WITH PATIENTS (Stage 1 of fieldwork)

The contents of this chapter are largely taken from Bowman et al., (2021).

5.1 Introduction

There is a regulatory requirement for dental professionals to be effective communicators, but dental communications is an under-researched field. In addition, periodontitis can be particularly difficult to discuss as it is a complex condition that a patient may not be fully aware of until it has significantly progressed (as explained in Sections 2.1 and 2.2). Given the above, exploring the lived experience of dental professionals in relation to giving periodontal disease explanations was deemed an appropriate starting point for fieldwork in this study.

5.2 Aims and objectives of this stage of fieldwork

5.2.1 Aim

To explore what characterises the lived experience of dental professionals in relation to discussing periodontal disease with patients.

5.2.2 Objectives

To conduct in-depth interviews with dental professionals [both Dentists (D) and Dental Hygiene and or Dental Therapists (DHDT)] to identify what are the key aspects [in relation to the Theoretical Domains Framework (TDF)] of dental professionals' lived experience of discussing periodontal disease with patients.

5.2.3 Sub-objectives

To conduct a thematic discourse analysis of the transcribed interviews in order to characterise any discourses relating to the identified TDF key domains.

To create a rich description of all identified discourse categories so that these could be used as materials for future teaching or training in dental communications.

5.3 Methods

5.3.1 Methodological Approach: Discourse Analysis

Discourse analysis is a suite of interpretive qualitative approaches which are sensitive to the complex range of ways in which a study participant gives an account of their lived experience through language (Lupton, 1992; Reavy and Gough, 1997). As language is socially constructed, it illustrates much more than just the explicit topics that are being discussed and so in any one participant account, a range of different discourses may be adopted in order emphasize certain aspects of their identity, often without them consciously recognising this (Potter and Wetherell, 1987; Fairclough 1989; Reavey and Gough, 1997; Taylor and Ussher 2001). Identifying discourses in this way helps to uncover participants' implicit belief systems and how they are ordering and making sense of the world (Granek and Fergus, 2012). An analysis of discourses can also reveal the speaker's subconscious perception of the power relations that were present in a discussion, as discourses are where the power relations between participants are enacted (Fairclough, 1989).

Discourse analysis is not a unified approach, but instead is comprised of a cluster of approaches which share certain commonalities (Cheek, 2004; Hodges et al., 2008). These clusters range from highly structured analyses of language data at the micro level, to approaches that focus more on the social meanings and actions created through language patterns at the macro level of context (Lupton, 1992; Hodges et al., 2008). Critical discourse analysis examines language patterns at the broader, macro level of society with a particular focus on power, dominance and marginalisation, i.e., who is given authority to speak on certain topics in certain ways, and whose accounts are given less credence (Cheek, 2004). In this way, critical discourse analysis accommodates the coexistence of a variety of discourses in a field of knowledge, all of which could be vying for power, with the power balance changing over time (Talja 1999). The approach to discourse analysis used in this stage of fieldwork comprises a micro examination of text in its context, with some macro level critical reflections on broader interpretations of these patterns in broader society. It is common for a blended approach to be used in discourse analysis research (Turner, 2020).

The specific approach used in this study to explore the lived experiences of dental professionals discussing periodontal disease is 'thematic discourse analysis'. In thematic discourse analysis, patterns of language form the starting point for the inductive

identification of thematic units (Roberts and Sarangi, 2005; Crawford et al., 2017). Following the initial inductive discourse analysis stage, the subsequent analysis of interviews followed a traditional thematic analysis approach (after Braun and Clarke, 2006). Weston et al., (2001) was also used to ensure rigour in the analysis.

5.3.2 Gaining ethical permission and recruiting participants

Ethical permission was granted to interview dentists (D) and dental hygiene and or dental therapists (DHDT) working at a single-site university dental hospital, who also have at least three years' recent experience, within the last five years, in primary care dentistry (DREC ref: 190618/MB/256; July 2018).

An iterative grounded theory approach to recruiting participants into the sample was adopted (after McCrae and Purssell, 2016: Strategy A), which encompassed early data analysis and theory generation leading to sampling for participants with particular attributes as the study proceeded. Due to early analysis and theory building, permission was sought to extend the sample to internationally trained dentists who are non-native speakers of English and undertaking dental postgraduate studies at Leeds University (ethical permission: DREC: 190618/MB/256: May 2019). Whilst sampling saturation was reached in the original sample through constant comparative analysis, saturation may not have been fully reached with the extended (postgraduate) sample. A number of attempts to widen the postgraduate sample purposively from within a small target population did not yield further participants.

5.3.3 Designing the interview schedule

In this study, conventional semi-structured interview accounts formed the collection method. The interviews were conducted in a flexible way, using the schedule as a guide in order to enhance the participants' freedom of expression. The participants were encouraged to engage in role-play within the interview, using the same words they would use in explaining periodontal disease to patients. The interviews varied in length (30 minutes to over an hour) and took place on the university premises.

The design of the first draft of the semi-structured interview schedule (contained in Appendix 11.1.5) was influenced by a prior literature review, a pilot interview with a primary care dentist and by consultations with the Smile Aiders Patient Public

Involvement and Engagement forum (Smile Aider, 2020). Due to the importance of encouraging patient behaviour change in periodontal treatment planning, the interview schedule was then checked for comprehensiveness by being mapped against the categories in the Theoretical Domains Framework (TDF) (which is explained in Section 2.4.3) (Alexander et al., 2014; Atkins et al., 2017).

The interviews were transcribed by the researcher (MB), which allowed for greater data immersion. The emphasis during transcription was on capturing the participants' verbal language as accurately as possible, with attention being paid only to obvious non-verbal cues, i.e., pauses or hesitation. These were represented as three dots in the transcript. After transcription, the interview transcripts were checked for accuracy and sent to the participants for verification.

5.3.4 Data Analysis

An overview of the data analysis process is provided in Table 5. 1 below.

Table 5. 1: Stages in the initial thematic discourse analysis (influenced by Weston et al., 2001; Roberts et al., 2003; Braun and Clarke, 2006)

Stage	Detailed description	Result / output
Data immersion	Interviews conducted by lead researcher (MB) Transcription (MB) Transcripts checked for glitches by second researcher (IS) Transcripts sent to participants for verification Reading and re-reading of four randomly chosen transcripts by MB and IS independently	Notes only at this stage
Generating initial coding guide	Zooming in (Weston et al., 2001) Highlighting, annotating, note making with four randomly chosen transcripts by MB and IS independently Joint discussion MB and IS	Notes on four initial discourse categories
Testing coding guide against full data set	Zooming out (Weston et al., 2001) Testing initial four discourse categories against full data set (MB) Two new discourse categories identified (MB)	Notes on six discourse categories
Describing and naming the discourses	Six discourse categories described in first full draft of discourse codebook (MB)	Dimensions of each discourse category fleshed out (aim, style, word choice, variation)

Table 5.1 continued

Stage	Detailed description	Result / output
Reviewing the discourses	Zooming in: Joint re-coding (MB and IS) of data set using 6 category discourse codebook. In addition, any accounts with dominant discourse category were identified. Agreement reached on all dominant discourse categories for accounts apart from one. Disagreement resolved by consulting another independent coder.	Joint recoding of all accounts based on the discourse codebook Accounts' dominant discourse categories agreed on.
Refining the discourse categories	Zooming out: Identification of subcategories in the discourse Recoding of interview transcripts to include the new subcategories. Subcategories refined until saturation reached Recoding transcripts with subcategories	Discourse subcategories: Deep educator Educator lite Positive mentor Negative mentor Deep rapport builder

Key: Lead researcher MB = Marion Bowman (School of Dentistry, University of Leeds): Second researcher IS = Isobel Sale (School of Linguistics, University of Leeds); (Bowman et al., 2021).

As is consistent with qualitative enquiry, analysis began before the interviews were completed. Through immersion in four randomly chosen transcripts using line-by-line hand coding for language patterns, four initial discourse categories were identified independently by the first named researcher (MB) and a coder with a background in linguistics (IS). These initial discourse categories shown in Table 5. 2 below indicated an emerging theme, i.e., the participants' perceptions of their professional role influenced the way they expressed themselves throughout the entire interview. This over-arching theme corresponds to the 'Social and professional role and identity' category of the TDF (Francis et al., 2012).

Table 5. 2: Descriptions of initial discourse categories from coding four randomly chosen accounts

Notes on the first discourse categories to emerge from the interview data
These [sections of text] show that the dental professional sees the importance of varying communication strategies and has analysed the best way to communicate – maybe sees his role as a communicator?
These [sections of text] suggest that the dental professional sees his role as a teacher, educator, laying out the plan
These [sections of text] show the dental professional demonstrating understanding and reassurance towards his patient with gum disease – maybe an emotional and physical aid/guide
These [sections of text] would perhaps show that the dental professional sees his role as a provider and/or collaborator of clinical facts

Following this, these four initial categories were used to code further transcripts independently through an iterative process of zooming in and zooming out (after Weston et al., 2001). This process resulted in a set of six categories which became the first version of a discourse-based codebook which was iteratively applied to incoming interview data. The discourse categories were found to apply to all interviews. The categories were labelled through agreement between the two coders in this study [Marion Bowman (MB) and Issy Sale (IS)]. In labelling the discourse categories, an attempt was made to keep closely to the terms used by the interview participants to describe their perceived roles. In order to remain open and responsive to the interview data (Weston et al., 2001; Holloway and Galvin 2017), the codebook was further refined through joint coding, saturating each coding category with repeated evidence until no new discourse categories emerged. In this process of refining, two discourse categories were subdivided into subcategories. The results of this process are shown in Table 5.4 in the Results section.

It is interesting that all interviews contained a number of the identified discourse categories; however, in a few cases, an interviewee drew predominantly on one category in their account. Vertical agreement was reached on whether any category dominated in each account by independent visual inspection of the colour coded transcripts. Agreement on this was not reached in one case, with the difference being resolved through consultation with another linguistically trained coder.

5.4 Results

5.4.1 Characteristics of the study participants

The study participants for the original and extended sample are profiled in Table 5. 3 below.

All the interviewees (with the exception of one UK-trained dentist) have experience of providing both state and private primary dental care. None of the international interviewees are dental hygienist therapists, all are dentists.

Table 5. 3: Sample characteristics of the interviewed dental professionals

ORIGINAL SAMPLE: DREC ref: 190618/MB/256: July 2018	**No. of participants**
DHDT* female mid-career (>15 years' experience)	2
DHDT female experienced (5-15 years' experience or more)	4
Dentist male early career (3–5 years' experience)	1
Dentist male early career (current practice owner)	1
Dentist female mid-career	2
Dentist male mid-career	1
Dentist male experienced (current or recent practice owner)	2
TOTAL IN INITIAL SAMPLE	13
EXTENDED SAMPLE: DREC: 190618/MB/256: May 2019	**No. of participants**
Dentist male (internationally trained^) early career	2
Dentist female (internationally trained^) early career	1
TOTAL IN EXTENDED SAMPLE	3

*DHDT = For the purposes of this study all the dental hygienists and/or therapists will be referred to as DHDT, whether they are dual qualified or not, to preserve anonymity.

^The internationally-trained dentists were from India or the Middle East, further detail has been omitted to preserve anonymity.

5.4.2 An overview of the six discourse categories identified

According to Talja (1999), when identifying discourse categories from interview accounts it is important to focus on the starting point behind the account by looking for recurring concepts that point to a particular worldview. With this in mind, six discourse categories were identified (as shown in Table 5. 4) relating to differing professional role perceptions. Whilst these categories have different starting points, there is some overlap in the language patterns and lexis, but it is the intended purpose that distinguishes them.

Table 5. 4: The six discourse categories identified in the data set. Key: pt = patient.

Perceived Roles	**Characteristics of the discourses: Key components**
Clinician	Aim of communication: To ensure patient (pt) is fully informed, gives valid consent, and will comply with treatment. Variation: Explanation varies according to pt's clinical presentation. Style: Formal or clinical. Few analogies. No mention of small talk, few to no anecdotes about particular patients. Sense of hierarchy: Dentist higher status than pt. Lexis: 'Fact', 'being realistic', 'bottom line', 'absolute certainty', 'level of knowledge', 'tell', 'listen', 'compliance', 'evidence'
Mentor	Aim of communication: to foster behaviour change. Variation: Communication varies widely according to each individual pt's personal characteristics, situation, values, attitudes, significant life events. Style: Informal, mention of small talk with pt, use of praise, importance of optimism, use of analogies to explain, anecdotes about individual pts. Lexis: 'Support', 'tailor', 'adapt', 'feed', 'pt's motivation', 'laugh', 'chat', 'know in a blink', 'instinctive', 'trust', 'rapport', 'relationship', 'personality', 'nature of patient', 'adapt for you', 'right for you', 'convenient for you'.

Table 5.4 is continued on the next page

Perceived roles	Characteristics of the discourses: Key components
Educator	Aim of communication: To educate pt, to enhance pt's understanding of condition. Variation: Explanation can vary on pt's level of understanding about their condition. Style: Deep: Analogies used to explain. Clear on common misconceptions, informal; Lite: Mix of formal and informal terms. Not much mention of small talk or individual pt characteristics. Lexis: 'Explain', 'understand', 'educate', 'talk', 'look', 'relate to their mouth', 'show'.
Collaborator	Aim of communication: If referred pt, then educational aim (explanation of condition); if walk-in pt = immediate clinical need first, more discussion in next appointment. Variation: Explanation varies on how the pt accessed care (referred or walk-in pt). Style: Formal, direct, clinical for new pts. More informal with pts referred from within the practice. Not much small talk. Uses evidence to emphasize own DHDT role. Lexis: 'Dentist' 'periodontist', 'hygienist', 'referral', 'prove', 'hierarchy'.
Rapport Builder	Aim of communication: For patients to feel comfortable and trust the professional, reduce fear and threat level. Variation: Varies according to levels of pt anxiety or how comfortable pt feels. Style: Small talk, music in background, saying things in 'nice way'. Lexis: 'Talk', 'conversation', 'comfy', 'discussions', 'relationship'.
Professional	Aim of communication: To gain valid consent and to practise in a way that reduces possibility of pt complaints. Variation: Varies according to how likely pts are to blame practitioner. Style: Formal, direct, stylised communication, refers to clinical evidence, emphasis on written notes, highly structured consultations, avoids blaming the other dentist. Lexis: 'Care Quality Commission', 'duty of candour', 'indemnity', 'complaint', 'sue', 'notes', 'claim', 'second opinion', 'consent', 'litigation'.

5.4.2.1 The Clinician

The starting point of this identified discourse category is the primacy of clinical evidence. Table 5.5 shows that the interviewees whose accounts were dominated by the clinical discourse category were two male experienced dentists (D M EX) and two international early-career dentists (D M EC INT). The clinical discourse category was present in all interviews, but did not dominate other individual accounts to the same extent.

Table 5. 5: The dominant discourses used by participants in their interviews

Dominant perceived role	**No.**	**Participant**
Mentor	1	1 F DHDT (EX)
Clinician	4	2 M D (EX +EX) 1 M INT D (EC) 1 F INT D (EC)
Collaborator	1	1 F DHDT (MC)
Educator	3	2 M D (EC + MC) 1 F DHDT (MC)
Professional-Rapport Builder	1	1 M D (EC)
Rapport Builder-Educator	1	1 F DHDT (EX)
Mentor-Educator	1	1 F D (MC)
Mentor-Educator-Rapport Builder	1	1 M INT D (EX)
Educator-Mentor-Clinician	1	1 F D (MC)
Clinician-Educator-Mentor-Rapport Builder	1	1 F DHDT (EX)
Clinician-Educator-Mentor-Rapport Builder-Professional-Collaborator	1	1 F DHDT (EX)

DHDT is dental hygiene therapist, D is dentist; M is male, F is female, INT is international. EX = experienced (> 15 year or more in practice); MC = mid-career (5–15 years' experience); EC = early career (3–5 years in practice).

Clinical terms and formal style featured strongly in this discourse category. Often the same language was used as would be employed to take a formal medical history: e.g., “I listen to their presenting complaint, then I would lay the patient down and… do a full examination.” (D M EX). Examples of other similar lexical expressions included: ‘adverse oral habits’, ‘investigating a patient’s periodontal condition’ or explaining the ‘stages in a periodontal disease process’, using terms like ‘clinical attachment loss’ or ‘resorbed bone’.

There was also a binary sense running through this discourse category, as stated by a male experienced dentist: “The facts are the facts… I’m afraid I’m a very black and white dentist”. In addition, in this discourse the patient was framed as either “want[ing] to know about gum disease… or they don’t really want to know”, and that the patient either “cleans their teeth or they don’t”. For the international interviewees, patients were either well educated and able to accept recommendations or “workers with low level of education who are not taking responsibility for their oral health” (D M EX).

In this discourse category, the main purpose of gum disease explanations seemed to be to gain compliance: “you are not going to get a compliant patient if you don’t explain what’s happening” (D M EX). The explanation itself was perceived as needing to vary according to the clinical ‘extent of the periodontal disease’.

The language of cause and effect was also prominent in this discourse category: e.g., “There is a yellow discolouration between the teeth and it’s basically due to not brushing twice [a day]” (D F EC INT). In addition, the discourse often included precise numerical information like percentage plaque free scores or periodontal pocket depths in millimetres.

Noticeably absent in this discourse was the use of analogies and metaphor. The few anecdotes about individual patients were framed in terms of their clinical, and not their personality, profiles. Some everyday language was in evidence, but it was often mixed with formal dental terms. Very little mention was made of making small talk with the patients.

5.4.2.2 The Professional

The Professional discourse category was most prominent in an interview with a male early career dentist, who had become the owner of a private dental practice quite suddenly. This interviewee explained that when he took on the practice there was a significant number of patients with undiagnosed and untreated periodontal disease. The starting point for the discourse category in this case seemed to be fear: “The fear of litigation is the single thing that will force me not to practise dentistry” (D M EC).

Also prominent in this discourse category were anecdotes about patients who had taken complaints to the General Dental Council (GDC). The majority of the UK-trained dental professionals in this study explained that delivering a diagnosis of periodontal disease to a patient who had been attending regularly under a different dental practitioner without being given a diagnosis was an extremely difficult kind of conversation. For these interviewees, the way to resolve these difficult conversations was to revert to clinical discourse, foregrounding medical evidence: e.g., “I do evidence-based dentistry’ (D M EC)”; or “I just keep proving it in their mouths” (DHDT F MC). In contrast, the discourse of complaints and litigation was not noticeable in the internationally trained interviewee accounts.

The language of conflict and blame was used when relaying difficult conversation anecdotes: “The conflict is somebody saying to you… you’re not doing your job” or “My gums are like this, that’s your fault” (D M EC). The interviewees (both dentists and DHDTs) also felt that their professional status was being questioned in these kinds of encounters with a stance of “Well, what do you know?” (DHDT F MC). Linked to this were references to patient perceptions that the dental professionals might be suggesting periodontal treatment to try to make money out of them: “They think that dentists drive around in Lamborghinis” (D M EC), or patients might say “I’m not paying for another appointment” (DHDT F MC). A female DHDT’s response to this kind of conflict situation was to ‘fire fight’ by restructuring potentially difficult appointments in order to ‘front load’ the disease disclosure and explanation. The male early career dentist, whose account was dominated by professional concerns, explained that he also maximised his note-taking efforts: “We put in the notes everything they have turned down, every time we see them”. The language of ‘us’ and ‘them’ is noticeable in this quotation.

In addition, within this discourse category there was language indicating compulsion to adhere to professional body standards: “HTM0105 pretty much requires me to have a very clean surgery” (D M EC). In contrast, an experienced female DHDT framed her view of regulation as a more patient-centred requirement: “I need permission from patients for treatment, as they have a right to know exactly what their condition is, and that it’s going to have an impact on them”.

Whereas in the clinical discourse category the aim of the explanation seemed to be to present the facts to gain compliance, in the professional discourse category similar stylised clinical language was used, but with the aim of gaining valid consent as protection from litigation.

5.4.2.3 The Collaborator

Only one interviewee’s account (a female mid-career DHDT) was dominated by her perceived role as a Collaborator with other members of the dental team. She explained that her approach to explaining periodontal disease was influenced by whether the patient had been referred by the dentist that she was working alongside, or whether the patient had “walked in off the street” through direct access. If a patient was referred in and had “already been told”, she felt that she was ‘cushioned’ by this and could adopt a more relaxed educational approach. In contrast, appointments with patients who were “coming in cold” were seen as more stressful, more time-limited, and were associated with more clinical language in order to convince the patient to come back for another appointment, as “they’re not gonna believe me”. This interviewee linked these concerns to her status as a mid-career DHDT: “There is a slight hierarchical or age thing”. Another (experienced) female DHDT felt that her role in the eyes of patients was “one up from a traffic warden”, as patients tended to expect to be ‘told off’ about their oral hygiene practices by DHDTs, whilst dentists were viewed more positively as they did quicker one-off treatments.

Almost all the other DHDT interviewees stated that they would start appointments with an introductory delineation of roles, which would be indicative of hierarchy, e.g., the dentist has “referred you in” or has “diagnosed periodontitis” or has “drawn up the treatment plan”, and “I’m the DHDT, this is what my scope of practice is”, with an associated explanation. Initial questions to elicit patients’ levels of understanding might also refer back to the dentist, asking: “What did the dentist say about gum disease?”

In contrast, the dentists in this sample less frequently discussed their collaboration with DHDTs. This was most noticeable in the account of a male experienced dentist: “A lot of it [oral hygiene instruction] was put onto the hygienist so I would write a note to the hygienist…” [I would say to the DHDT “please go into oral hygiene, tooth brushing instruction and interdental cleaning - as this was quite time consuming” (D M EX). In contrast, a younger mid-career male dentist placed a lot of emphasis on doing the periodontal disease and oral hygiene explanations himself, but referred “maintenance” to the DHDT (D M MC).

Whilst discussions relating to collaboration in the dental team were not prominent in most interviewee accounts, these discussions were mainly framed in terms of the Dentist : DHDT roles. However, there were also a few anecdotes relating to teamwork with dental nurses. A female NHS dentist explained that it was essential that her dental nurse worked intuitively with her, in order to free up time for periodontal disease explanations. In contrast, having a different nurse that was “bustling around, clattering cleaning away” led this dentist to postpone explanations until another nurse was available. A further anecdote from a female DHDT involved a nurse overstepping her role to give inappropriate oral hygiene instruction to a patient. There were very few instances of collaboration or teamwork discussed in the internationally trained interviewee accounts.

5.4.2.4 The Educator

All interviewees in this study used the Educator discourse category in their accounts. However, the degree to which they seemed prepared to adapt their gum disease explanations for different patients varied, which resulted in this discourse category being subdivided into two subcategories: ‘Deep Educator’ and ‘Educator Lite’. The starting point for the Deep Educator discourse subcategory seemed to be that it was very important that patients fully understand their condition. This seemed to form an aim in itself: “I see my role very much as an Educator as well as a Clinician, that’s what’s special about what I do”, and “I see that my role number 1 is to educate the patient… show them what’s going on inside their mouth” (DHDT F EX).

In the Deep Educator discourse category, the interviewees explained how they would start by trying to “work out what [patients] already know themselves” (D M MC), through focused and open questions. Then, depending on the level of understanding in their reply,

'talking, looking, discussing and answering questions' with patients would follow. In this discourse category there was a strong emphasis on the visual and on 'showing': e.g., "These are your bone levels, the bone should be up here, but it's gone down to there" (DHDT F EX). Analogies and gestures would also be used: e.g., your "gum is acting like skin… but there is a gap down the side of the tooth' (one hand clasped at the bottom of a fist)"; or "Your gums have come away from your tooth a little bit… and it's created… a bit like… a pocket in your trousers" (DHDT F EX).

In the Deep Educator discourse category, personal pronouns (we, you) and everyday language were noticeable: e.g., "We will go on a guided tour of your mouth" (DHDT F EX). The conversation might conclude with "getting them to tell me back", to test understanding (DHDT F EX). To further personalise and enhance understanding, the explanation might also be linked back to the patients' perceptions of their individual symptoms. The language of iterative concept acquisition was also used: e.g., to "break things down and make sure they understand each little bit and you build up that picture in their head" (D M MC). The interviewees also referred to common misconceptions about periodontal disease that patients can hold.

In contrast, the 'Educator Lite' discourse category seemed linked to professional or clinical concerns rather than having patient understanding as an aim in itself. In this discourse category, there was a sense that the information was not adapted to the levels of understanding of individual patients and was more of a one-way delivery and sometimes was associated with a sense of hierarchy, particularly for the participants who had Clinician as their dominant discourse category: e.g., "How long does it take to tell someone they have gum disease?" (D M EX); or "You may have heard of something called periodontal disease… it's gum disease to you" (D M EX). Interestingly, one of these participants later in the interview commented that checking a patient's understanding was "very difficult actually… you can look a patient in the eye and tell them with absolute certainty what the problem is… [then] occasionally things get back to you… but you think… we've explained all this" (D M EX).

In the Educator Lite discourse category, a mixed register of formal and everyday language was often used: e.g., "It starts off as a process of bleeding from the gums, and if it's not rectified then you start to get inflammation below the surface and get bone resorption" (D F INT)

5.4.2.5 The Mentor

All interviewees used the mentoring discourse category in their accounts. However, this discourse category completely dominated the accounts of an experienced female DHDT and an early career internationally trained male dentist (see Table 3, above). The starting point for this discourse category was foregrounding patient behaviour change: "Communication is fundamental to behaviour change"; "It's all about behaviour change". "The patient needs to take ownership of their health condition: It's what you do at home that's the most important thing" (DHDT F EX). Both positive and negative mentoring discourse sub-categories were noticed.

The positive mentoring discourse subcategory emphasized teamwork, using the personal pronoun 'we' or 'us' more than 'you': "Between us we can maintain the bone" (DHDT F EX); or "We can work together" (D M MC). In addition, the patient might even be framed as leading the team with the dental professional in a supportive role: "to me my role is as a counsellor, mentor, supporter, I am part of their plan of action" (DHDT F EX). In contrast, this might be put more directly with clearer division of roles using 'I' and 'you': "There's 365 days in a year and of those you will probably see me for two of them… For the other 363 days of the year, it's really your responsibility" (D M EC).

In the positive mentoring sub-category, the presence of praise was noticeable: "Hopefully I can reassure them that there's a lot of good"; "let's work out what you are doing already and then build upon that" (D M MC). Praise using personalisation was often juxtaposed with constructive brushing advice messages using the passive voice and normalisation: "You are very good at getting into those areas [but] sometimes there are more tricky areas… I can see how it is awkward" (DHDT F EX).

The positive mentoring discourse subcategory also seemed to include adapting to patients' personal characteristics, situations, values and interests in order to motivate them: "Whatever works to motivate them" (DHDT F MC). An international male dentist used patients' oral health goals to foster internal motivation as his main approach: "The interest of the goals in children and teenagers is completely different from the elders, so I used to play on what he needs or what he wants, and I used to explain it to him, and, like, motivate them by their goals". This interviewee emphasized the importance of finding out why they were visiting the dentist in the first place and using these initial oral health goals as tools for motivation. Personalisation was prominent in this discourse subcategory, with

the use of phrases like: 'for you', 'convenient for you', 'right for you', "this is your 3–4 minutes… for you and your mouth". It is worth noting that both the positive and less positive mentoring discourse subcategories seemed associated with trying to enhance motivation through setting clinical goals for patients to achieve (often improved plaque-free scores).

There was a sense within the positive mentoring discourse subcategory that mentoring was iterative: e.g., "Trying to propel him [a particular male patient] forward, by giving him the equipment, supporting him, bringing him back" (DHDT F EX). There was also mention of possible barriers to behaviour change. In one example, informal language and tag questions were used to engage a busy mum: "It's really hard isn't it… it's like mayhem isn't it… forget the morning brush… but before you go to bed at night… find your own quality time" (DHDT F EX).
In contrast, in the less positive discourse subcategory, mentorship activity seemed to be framed more as a one-off event with a binary patient response: "They either buy it and go, right, this is for my own good… or they have no interest in doing anything about it" (D M EC). Only one of the participants (D EC F INT) expressed that they would use blame to try to shock a patient into behaviour change. They would increase the use of blame if the patient was young and already had periodontal disease: "It's like you don't care about your future, you are young and you don't even look young because of your oral condition".

Engaging in small talk with patients was seen as important in the positive mentoring discourse subcategory, with the aim of facilitating behaviour change: "If they feel like you care about them, they will take your words" (D M INT). Small talk was also viewed as important in the Rapport Builder discourse category, although for a different reason.

5.4.2.6 The Rapport Builder

Whilst rapport building was mentioned in a number of accounts, this discourse category was most prominent in an interview with an experienced female DHDT, who has a significant number of dentally anxious and phobic patients in her caseload. The language of fear and threat versus comfort and closeness featured in her account. The starting point for her approach seemed to be to work "within [patients'] comfort zones" and choosing the right timing for explanations to patients, as "I don't want to frighten them off". She stated that she would never give patients an explanation with them lying down "with me leaning over like that, cos I think that's awful, because I've got a mask on…

it has to be face-to-face" and she also did not "give a patient information at a time when they are vulnerable". The importance of reducing possible triggers in the dental environment was highlighted here. She explained that her physical stature also helped to reduce the threat level: "I am the go-to person in practice for anybody who's inclined to kick off because I can defuse them… because I'm nice, because I'm thorough but gentle, because I'm short, you know, so no one can feel intimidated by somebody like that".

As part of reducing the threat level and enhancing the relationship to gain trust, this interviewee stated that she also used distraction and was happy to talk about her personal life if a patient asked her about it. There were clear indications that there were very close relationships between this professional and some of her longer-term patients: "he was a loveable rogue… I actually had quite a soft spot for him". This sense of closeness was echoed by a male international dentist:

> "sometimes I see people sleeping in front of my door… waiting… they waiting for me to come… some of them they just put their kids with me and they go to finish their daily job and they come back… so I became part of the families there, so they invited me to their weddings".

Alongside the language of fear versus comfort, the experienced female DHDT interviewee also used an informal style to empower the patient: "You need to know that you are in charge of this appointment' and 'I'm not going to carry on if I am hurting you… if you feel something… I will believe you". In addition, whilst patient comfort seemed to take precedence, this DHDT indicated that patients still needed to be empowered with relevant information at a time when "they can process it" and that she wouldn't "dumb down the information" as they "still have a right to be treated with dignity".

This discourse category was also prominent in an interview with the early-career male dentist who had professional concerns due to becoming an early-career practice owner. Here rapport building was framed in a slightly different way: the relationship with the patient was also seen as being of primary importance; however, the reason for this could have been partly in order to protect the provider from possible litigation. For example, he explained that "I think you can be a crap dentist, but a brilliant communicator and your patients think you are fantastic, absolutely brilliant. It defines you in dentistry". He has conversations with the patient away from the dental chair because "as soon as you sit in

the chair you become a different person – so move them out of that setting". In this account there was also attention to giving patients accurate clinical information, but saying it "in a nice way, with a nice voice on". In both this account and the account of the female DHDT discussed earlier, assessing the patients' level of anxiety was seen as important, both by observing the patient's "perspiration rate, breathing and just overall manner" (D M EC) and asking directly about the patient's level of comfort with dental care (DHDT F EX).

Finally, as stated earlier, in all interview accounts, a range of discourse categories was employed. One experienced female DHDT captured the interconnectedness of the discourse categories this way: "The aim of communication is to gain their trust (Rapport Builder), their understanding (Educator), and make sure they realise why they are doing it [brushing] (Clinician or Educator), it's in their best interest (Mentor)".

5.5 Discussion

Examining the historical context of the development of doctor–patient interactions can bring some insight into how locally identified discourse categories might reflect broader discourses in society (Heritage and Maynard, 2006). The Clinician discourse category identified in this study could be said to align with traditional conceptions of medicine that arose in the 1950s and 1960s in the 'golden age of doctors' (Heritage and Maynard, 2006) (as detailed in Section 2.2.1). These traditional conceptions emphasise the authority of clinical science and recommend standardised treatments for patients, who are assumed to be uniform if their disease characteristics are the same. The patient's role is assumed to be one of passive compliance.

In line with the biomedical approach outlined above, UK dental surgery training was focused on clinical techniques and the basic sciences up until the 1990s, and communications training only became a mandatory requirement in dental school curricula in 2011 (as explained more fully in Section 2.2.4) (Croft et al., 2005; General Dental Council, 2015). As shown in Table 5. 5, the two UK-trained experienced dentists in the sample tended to use Clinician as their dominant discourse category in the interviews. It is also noteworthy that a study by Waylen et al., (2015) found that whilst patients were generally satisfied with their dental care, those surveyed felt that senior dentists were slightly less able to make them feel that they were receiving personal attention. A clinical

communication style has been criticised for not making space for patients' or carers' perspectives in the medical communications literature (Boman et al., 2012). However, Sweson et al., (2004) and Jahng et al., (2005) note that a significant number of medical patients, particularly older patients, prefer less involvement in their care decisions, and that the best outcomes occur when the communication preferences of physicians and patients are matched.

In this study, the Clinician discourse category seemed to be associated with the Educator Lite category. Barnes et al.'s, (2022) review of the provision and reception of oral health education identified dentists as either being disease- focused or health-focused in their provision of oral hygiene advice. For those who were more disease-focused, a narrower approach was taken and oral hygiene advice was given briefly and only in relation to a particular clinical treatment, rather than following a general preventative approach with all patients. In Threlfall et al.'s, (2007) study, discussed in detail in Section 2.4.3.5, it was noticed that many participating dentists were providing ad hoc one-way oral hygiene information without accompanying visual aids, and that patients were often framed as those who listened versus those who did not (Threlfall et al., 2007).

The bio-psychosocial approach that arose in the 1970's (explained in Section 2.2.1) foregrounds the patient's individual psychosocial context and lifeworld as being important, not just their medical disease profile (Mishler, 1984). These broader conceptions of patient-centred care align well with the Educator, Mentor and Rapport Builder discourse categories identified in this study. However, it is interesting to note that attitude studies in Dentistry have found that dentists may be positively disposed towards patient-centred care, but might not always feel sure whether this can be implemented in practice, in particular when it comes to shared decision making for high-value dental treatments (Alrawiai et al., 2019; Apelian et al., 2020). This uncertainty could be related to the fact that most dental practices also have to be run as small businesses.

The Professional discourse category identified in this study aligns with the corporate model of healthcare which has emerged in society over the last 20 to 30 years (Boiko et al., 2011). During this time, limits have been placed on the autonomy of medical professionals, and patients have increasingly had to pay for their healthcare (Holden, 2019). Pearce et al., (2015) explain how this, combined with advertising on social media, has produced high expectations of dental treatment on the part of UK patients (for more

detail on this see Section 2.2.2). Under this corporate or consumerist model, the patient could expect to set the agenda for the consultation and make the decisions, with the clinician being a technical consultant.

A further macro-level discourse about Dentistry which aligns here is the public scepticism of dentists as having an underlying profit motive, which leads to unnecessary treatment suggestions (Holden, 2019). In this study, the Professional discourse category foregrounded the importance of practising defensively, in order to avoid litigation. This may also be due to background pressure from the knowledge that claims relating to periodontal disease, particularly if patients feel they were not clearly informed about their diagnosis and its end consequences, can be very costly (Dental Defence Union, 2014). This is explained more fully in Section 2.3.2.

The Collaborator discourse category identified in this study seemed to point to underlying hierarchical relationships within the dental team. In particular, there was a sense that a number of DHDTs in this study felt they needed to find ways to claim legitimacy with new patients. Holden's (2019) study of dental discourse in the media has shown that whilst dentists feature strongly, the other members of the dental team are often absent. In this macro-level media discourse, it is interesting to note that Dentistry is also often portrayed as marginalised in comparison to Medicine. In response, dental discourse has recently attempted to enhance its discoursal power by making the links between oral health and systemic medical health more prominent (Holden, 2019).

Table 5. 5 shows that there were no DHDT accounts where the dominant discourse category used was that of the Clinician; instead, in these accounts the Educator and Mentor discourse categories featured strongly. Cobban et al., (2009) argue that scientific empiricism is disproportionately valued and should be rebalanced by drawing on other epistemologies that are equally important to carrying out the DHDT therapeutic role. Other important kinds of knowledge for DHDTs include a practical knowledge of what works well with patients, personal knowledge and intuition about patients and moral knowledge related to what is right and wrong in the healthcare system (Cobban et al.,2009).

The Mentor discourse category, which was visible in the accounts of all interviewees in this study, foregrounds individual patients needing to take ownership of their oral-health-

related practices. Holden (2019) argues that there are limitations to this perspective at the macro level, as it represents a neoliberal view of healthcare which could side-line discussions about social justice and patient access rights.

All interviewees in this study showed the presence of more than one discourse category in their accounts, which would give them the opportunity to adopt different roles (Talja, 1999). According to Sarangi (2010), in any professional activity type (in this case a dental consultation), a professional may move seamlessly between different roles within a role set, e.g., from a therapeutic to an educating role.

In terms of the limitations of this stage of fieldwork, in common with qualitative studies of this nature, the sample size is small so this could limit generalizability. Also, the research participants were dental tutors with primary care experience so these could represent a particular kind of primary care practitioner (one with an interest in education). In terms of reaching saturation, it is thought that saturation was reached in terms of the UK tutor sample as no new categories of discourse emerged. However, whilst broadly the same discourse categories were noted with the postgraduate international student sample, the negative mentor subcategory was only noted amongst this subset of participants. Unfortunately, the postgraduate international student population is quite small at our institution and repeated attempts at recruitment did not yield more participants. An enhancement to using an interview method for this stage of fieldwork would have been to triangulate the interview results with observations of how each participant actually communicated with patients on clinic. At the time it was thought though that this would have been difficulty to achieve in practice as conversations about periodontal disease are fragmented across numerous appointments with patients.

In terms of rigour a second independent coder was used to triangulate interpretation. All transcripts were independently coded and then compared. Agreement on dominant discourse categories was reached in all but one case. A third coder was brought in to resolve this difference. Individual member checking of dominant discourse categories was not done, however an overall presentation of the results to the school to allow comment was done. Some of the interview participants were known to the researcher prior to the interviews and others weren't. An attempt was made to increase transparency by giving a very detailed account of how the interviews were analysed. Direct quotes were included in the results section to achieve thick description of the data.

5.6 Conclusion

Thematic discourse analysis is concerned with ‘how language constructs professional practice’ (Roberts and Sarangi, 2005). A strength of this stage of fieldwork is the identification of six discourse categories relating to dental professionals’ perceived roles in relation to explaining periodontal disease to patients. These discourse categories could be used in communications training for dental students or postgraduate registrants. This will be expanded upon in Chapter 8. .

6 CHAPTER 6: THE LIVED EXPERIENCE OF PEOPLE WHO HAVE PERIODONTAL DISEASE (Stage 2 of fieldwork)

6.1 Introduction

There is a limited body of literature written from the patient perspective relating to the lived experience of having and managing periodontal disease (Karlsson et al., 2009). Quantitative studies have shown that periodontitis has a significant functional impact on patients, with eating, speaking and socializing being affected, as discussed in Section 2.1.3.1 (Al-Harthi., 2013; Durham et al., 2013). These studies have also highlighted the psychological impact of having periodontitis on sufferers' quality of life.

A limited number of qualitative studies have identified psychosocial themes such as the need to conceal the condition from others, and the sense of stigma, remorse, and blame experienced by many periodontal disease sufferers (as detailed in Section 2.1.3.2). Beneath the themes identified in the qualitative thematic analysis studies, some individual patient variation was noted. For example, Karlsson et al.'s, (2009) study noted that individual respondents took different lengths of time to understand their condition. Horne et al., (2020) stated that participants had a wide range of emotional reactions to having periodontal disease. In addition, whilst Stenman et al., (2009)'s study identified a patient journey that generally started with initial feelings of vulnerability and needing to be respected by the clinician which then moved to gaining insight and feeling a sense of control over the condition, there was variability in patients' journeys (Stenman et al., 2009). Patients in Stenman et al.'s, (2009) study showed different levels of frustration regarding the cost of treatment and either a sense of control over their condition or apprehension about potential future disease progression. Similarly, O'Dowd et al., (2019) found that periodontitis could leave patients feeling either personal regret or anger towards their previous treating clinician. Stenman et al., (2009) also noted a range in patients' attitudes towards their treating clinician. This implies that when researching patients' experiences of living with periodontal disease, it would be useful to conduct the analysis at the level of the individual sufferer.

6.2 Aim and objectives of this stage of fieldwork

6.2.1 Aim

To explore peoples' lived experience of having periodontal disease and having received explanations about the condition from dental professionals.

6.2.2 Objectives

To use the insights gained from the first stage of fieldwork to design the interview schedule for this stage of fieldwork.

To characterise how people with periodontal disease draw meaning from their experience of living with the condition.

To explore patients' perceptions of how dental professionals explained periodontal disease to them.

To identify linguistic markers in the accounts of people who have periodontal disease that give insight into their readiness for oral health-related behaviour change.

6.3 Methods

6.3.1 Methodological approach

6.3.1.1 Narrative analysis (macro-level)

Semi-structured interviews were used to explore how individual people interpret their experience of living with periodontal disease and their perceptions regarding explanations about the condition. A narrative analysis (NA) approach was chosen in preference to discourse analysis or thematic analysis in order to retain the nuances inherent in each person's individual account. In NA the individual account is the main unit of analysis. In this sense, NA is the opposite of traditional qualitative thematic analysis as the emphasis in NA is on synthesizing meaning within one account rather than identifying multiple themes that can dissect the data across different accounts (Lumsden, 2022).

NA assumes a chain of connection between how the participant is telling the story and their sense of identity, as the way a person tells their story is thought to show how it has significance in their lives (Crossley, 2021). According to Stephens (2011) it is common for people living with a chronic illness to respond to interview questions by storytelling, as the

condition has disrupted their life course on onset (Williams, 1984). Telling the story of this disruption, and their response to it, is a way for the sufferer to make meaning out of the experience by linking the former self to the current self to build identity coherence (Murray, 2000; Stephens, 2011).

The aim of narrative analysis is to identify key elements from an account and then later to use these to develop the participants' story with a plot that links these elements in a temporal sequence and gives meaning to the account as a whole (Polkinghorne, 1995). Like all qualitative analysis approaches, NA starts with reading and re-reading the transcripts in order to become immersed in the data. Following this, a process of narrative smoothing is undertaken (Polkinghorne, 1995). During this process, data elements that are not needed for the retelling of the story are removed so that the core story elements remain (Riessman, 2008; Lumsden, 2022). The elements that are removed usually include irrelevant asides and interviewers' questions. Another part of narrative smoothing is to order the key elements of the account in a way that makes its meaning more easily immediately accessible (Polkinghorne, 1995). Narrative smoothing is iterative with researchers repeatedly identifying and arranging key story elements and then rechecking against the unedited account (Embden, 1998). Keeping the identified key story elements as close as possible to the participant's original words is emphasized (Polkinghorne, 1995) and one way of doing this is to use direct quotes or summarised quotes as the key story elements.

After narrative smoothing, the process of plotting (or emplotment) takes place and key story elements are linked together in an arc of meaning to form the core story (Polinghorne, 1995). An important aspect of rigour in narrative analysis is for the core story to be grounded firmly in the individual person's account through an iterative tacking process, recursively plotting the core story and checking this against the person's voice as captured in the raw interview (Polkinghorne, 1995). Grounding a narrative analysis in the original transcripts is an important aspect of rigour (Etherington and Bridges, 2011). In addition, conducting member checks (checking with participants that the researcher has interpreted aspects of their story in a way that rings true for them) is key (Polkinghorne, 1995). Through member checking, the participant can make corrections, develop or amend what has been identified and interpreted by the researcher (Emden, 1998).

In narrative analysis it is important to make the meaning of an account easily accessible to the reader (Polkinghorne, 1995). There are a range of ways that the meaning can be made more accessible which can include visual means of story representation. One way

of representing stories that is used in guidance to aspiring authors in the grey literature is the use of a story arcs or story curves (The Write Practice, 2024). A story curve is a visual way of representing the path of the narrative from one state to another (The Write Practice, 2024). In character driven stories, this path usually represents a shift from one emotional state to another and involves some kind of transformation for the character (Word Studio, 2024). Story curves or arcs (or emotional trajectories) have also been identified in illness narratives (Gwyn, 2003) and in the change management literature e.g. the Kubler Ross Change curve (a roughly U-shaped curve tracing the emotional changes associated with the ultimate adaptation to change after experiencing a bereavement) (Changemanagementinsight, 2024). There is some empirical support for the existence of story arcs. Reagan et al., (2016) used a quantitative data driven approach to analyse the emotion words contained in more than 1300 stories in English from the Gutenberg library (in a process called sentiment mining) and isolated 6 story arcs common to all stories.

An example story arc or story curve is shown in Figure 6.1 below:

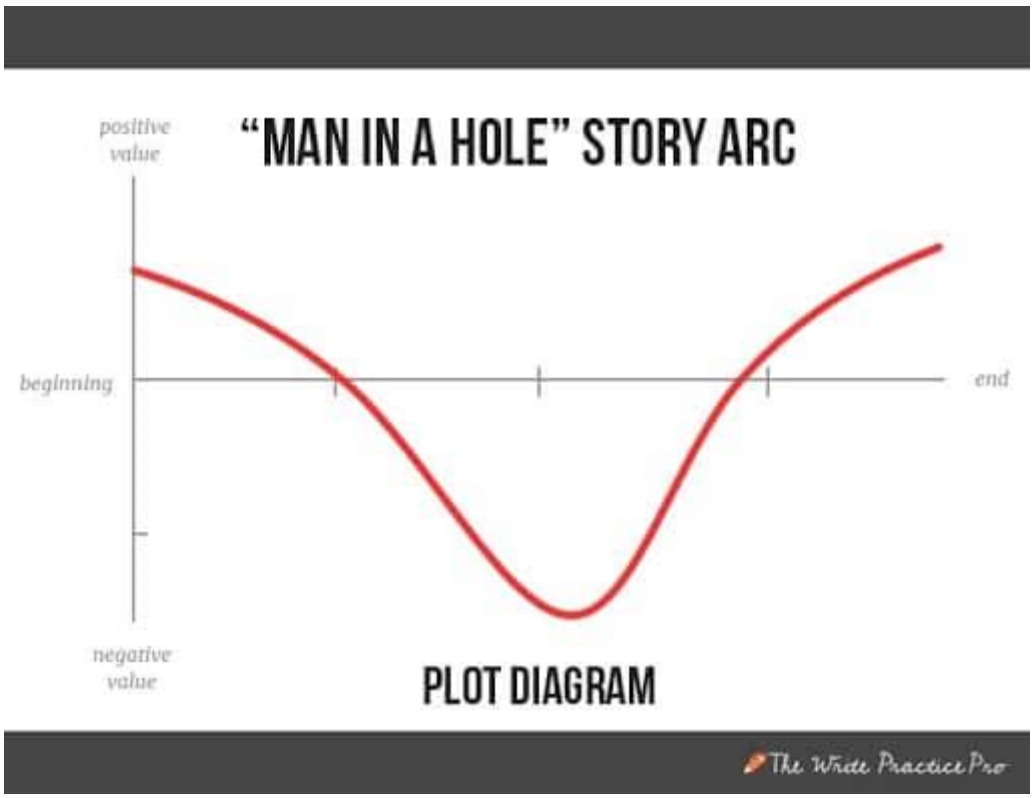


Figure 6. 1: An example story curve from the grey literature providing advice to aspiring writers (The Write Practice Pro, 2024)

Whilst the steps in a Narrative Analysis are roughly those outlined in the preceding paragraphs, there are differences of emphasis associated with different NA approaches.

The NA approach used in this study could be termed thematic NA, as the focus is on the content of the story (Riesmann, 2008). In this case the content focus is the narrator's understanding of their illness. However, the approach used in this study has also been influenced by structural NA. Originally developed by Labov (1972), in structural NA, a core story is thought to have the following structural components: an abstract, orientation, complicating action, evaluation, result, coda (Ouyang and McKeown, 2014).

Narrative analysis accommodates the grouping of stories into categories. In categorising accounts, whilst one is looking for overall similarities in trajectory there will be minor aspects that differ, reflecting each account's uniqueness (Emden, 1998; Etherington and Bridges, 2011). It is important not to lose each account's uniqueness, so iterative tacking between stories and returning to the raw interview data if there is uncertainty about categorisation decision, is important (Emden, 1998).

6.3.1.2 Linguistic analysis of narrative accounts (micro-level)

In this study the evaluation and coda of each participant's story were selected for further investigation in the linguistic micro-analysis of the accounts. The coda of a story is a statement that provides a summary of the main theme of the story or the story's main point (Riesmann, 1993). The coda can be found at any point in a narrative account, and can be repeated by the interview participant, but in a fictional story it is often found at the end (Riesmann, 1993).

Evaluation statements are grounded in the narrator's value system and indicate the narrator's general attitude toward the main topic of the story or their attitude towards life as indirectly revealed in the story (Riesmann, 2008). Patterson (2013) identifies some useful linguistic features that can reveal evaluations, e.g. comparators (what did happen as compared to what might have happened), explanations of causes (emotional response due to a certain cause) and intensifying adjectives or adverbs.

To aid in the identification of the evaluation and coda of each account, studies on linguistic markers for behaviour change in diabetic patients were used as a starting point. Research by Connor et al., (2012) and Connor and Lauten (2014) identified evaluative linguistic markers that revealed participants' attitudes towards behaviour change associated with Type 2 diabetes self-management. These research studies started with extensive reading of the psychological literature on health-related behaviour change which led to the identification of three key concepts as pivotal to behaviour change, i.e. agency, locus of control and affect or emotion (Connor and Lauten, 2014). Locus of

control and agency are analogous to motivation and capability in the TDF / COM-B model (as explained in Section 2.4.3). In their subsequent analysis of interviews with Type 2 diabetes patients, the language used by participants was classified as representing an internal or external locus of control, high or low agency and negative or positive affect. A number of linguistic forms that best discriminated for these attitudinal orientations were isolated and categorized, i.e. metaphors, role perception statements, self-characterisations, and use of vague or precise language, amongst others. Examples of statements fitting into the linguistic categories were harvested and developed into a codebook of linguistic markers for diabetes-related behaviour change talk. The codebook was iteratively drafted and refined through discussion between the four linguistically trained coders. Once the final draft of the codebook had been decided upon, several rounds of test coding of a set of transcripts established high inter-rater reliability between coders (Connor et al., 2012).

6.3.2 Ethics

The University of Leeds Dental Research Ethics Committee DREC (040820/MB/305) approved the protocol and all participants gave their written consent before being interviewed. All interviews were anonymized upon transcription and stored securely.

6.3.3 Participants

People of any gender who had mental capacity, were aged between 18 and 90 years old, were from any ethnic or socioeconomic background, living in the United Kingdom, and who had self-identified experience of periodontal disease were included in this study in recruitment route 1. In addition to the above, clinician-identified patients who had 2 or more sextants with a BPE score of 4 and evidence of radiographic bone loss affecting 6 or more teeth were included in recruitment route 2.

6.3.3.1 Recruitment Route 1

Recruitment took place during the COVID pandemic when dental care in the United Kingdom was suspended. Family, friends and local community Facebook groups as well as two PPI (Public and Patient Involvement) groups linked to Leeds University Dental School were used as recruitment sites. In the invitation letter potential participants were asked if they had experience of receiving explanations about gum (periodontal) disease from dental professionals. Recruitment of people with experience of receiving periodontal disease explanations continued until these routes yielded no new participants. The sample comprised thirteen participants whose demographic characteristics are

summarized in Table 6.4 in the Results section. The interview schedule contained questions relating to participants' experience of the typical presenting features of periodontitis. One account was discarded as it was deemed by a Periodontist to be an unusual case inconsistent with a typical presentation of periodontitis.

6.3.3.2 Recruitment Route 2

After the COVID pandemic, the clinician-identified Heath Research Authority ethics application that was originally begun in January 2020 was re-activated and amended. After approval (Leicester South REC review: 14 December 2021: IRAS 279070) two primary care practices in the Leeds local area began to act as PICs (Patient Identification Centres) over a number of months. Unfortunately, only one interviewee was identified through this route before time constraints lead to the closure of this recruitment route (see no. 15 in Table 6.4).

6.3.4 Developing the Interview Schedule

The development of the interview schedule was influenced by insights set out in the literature review (notably Sections 2.1 and 2.3) as well as the findings of Stage 1 of fieldwork (Chapter 5). The interview schedule was also assessed for comprehensiveness against the Theoretical Domains Framework (TDF) (which is discussed in Section 2.4.3) (Francis et al., 2012). The Smile Aiders PPI (Patient and Public Involvement) group based at the University of Leeds Dental School also commented on the schedule. The amended schedule was tested in pilot interviews with two people known to the researcher who both have periodontal disease. An overview of the topics used in the interview schedule is contained in Table 6. 1 and the full interview schedule can be found in Appendix 11.1.5.

6.3.5 Conducting the interviews

The semi-structured interviews were conducted according to the principles outlined by Riesmann (2008) which are important for narrative interviewing, e.g. conducting the interview as a conversation, being an emotionally attentive interviewer, allowing the participant extended turns at speech, and using follow-up questions to explore participants' perspectives. The topic guide presented in Table 6. 1 was used only for prompting. The interviews were conducted online on Zoom, with the exception of two interviews that were conducted over the telephone due to a lack of online access. Interviews lasted between 45 minutes and 90 minutes according to participant preference.

Table 6. 1: Overview of topics included in the interview guide

Realization	Severity	Ownership	Conclusion
Onset Symptoms Diagnosis or disclosure Explanations Progression Prior knowledge versus current knowledge	Perceptions of severity Beliefs about consequences Intentions and oral health priority Preferred balance of honesty and reassurance from provider Relationship with provider	Role of dental provider and self Behaviour change implementation – details including behaviour regulation and memory and attention. Goals and reinforcement Belief in capability Skills Social influences Barriers and facilitators in environment	Feelings over journey Optimism or pessimism about future Advice to future dental providers giving explanations about condition

6.3.6 Data Analysis

6.3.6.1 Overview of the data analysis process

The analysis of the interview accounts proceeded in a series of stages (see Table 6. 2).

Table 6. 2: Stages in the narrative analysis of interviews with people with periodontitis

Key: MB = Marion Bowman (School of Dentistry, University of Leeds, UK.); OR = Liv Randall (School of Linguistics, University of Leeds UK)

Stage	Detailed description	Output
1. Data Immersion	- Transcription by MB - Reading and re-reading of interview scripts MB and OR	Annotations, notes and key quotes identified
2. Narrative smoothing	- Identifying key events and associated key quotes in the account and putting them in a time sequence	Key quotes arranged in a time sequence
3. Plotting (macro-analysis of individual accounts)	- Connecting the events using a visual representation of the perceived meaning trajectory for the person (whether positive or negative, with the curve trending up or down) - Plotting was done independently by MB and OR and then compared. Differences resolved by revisiting and re-plotting.	Core story curves

Table 6.2 continued

Stage	Detailed description	Output
4. Member checking	- Contacting the participants who agreed to follow-up contact were presented with a set of identified key quotes for their verification and comment.	Key quote set retained or amended
5. Micro-analysis of linguistic markers in individual accounts	- Linguistic codebook developed by MB using example quotes from a number of transcripts - Design of linguistic codebook influenced by (Connor and Lauten, 2014; Connor et al., 2012) (Linguistic markers for diabetes patients) - MB and OR independently coded all transcripts using linguistic codebook and compared results, differences resolved through reference back to transcripts.	Linguistic codebook: - Agency - Control - Affect - Barriers - Facilitators - Dental anxiety - Oral health priority - Evaluation (unique meaning statement)
6. Comparison across different stories in order to group the stories	- Grouping the stories into categories was done using both the visual story curves and linguistic micro-analysis. - Categorisation was done independently by MB and OR with differences resolved through repeated re-reading of the accounts.	3 categories: Action-oriented Borderline Challenges
7. Identifying the optimal cases within each ideal type (category)	- MB identified the optimal stories that best illustrated the patterns noted for that category. Optimal accounts are used as a reference point for the other stories in this category.	Identification of optimal story that best represents the story category.

6.3.6.2 The macro-level narrative analysis of individual accounts

As shown in Table 6. 2 above, the first stage of analysis was the transcription of the transcribed anonymised interviews. MB undertook the verbatim transcription in which attention was paid to fillers (e.g. um, er, you know), reformulations and truncated sentences as well as long pauses and laughter, as all of these can carry meaning. Transcription was followed by repeated re-reading of accounts. Following this, narrative smoothing of the interview accounts was undertaken independently by two researchers: MB and OR. During this process, key quotes capturing important nodal events and participants' key orientations were identified. These key quote sets were member

checked with those participants who had indicated that they were available for follow-up contact after the interviews. Two participants suggested modifications. These key quotes were then ordered into a temporal sequence and the plot was represented as a curve showing the participants' emotional orientation towards what was happening at different points in their journey with the periodontitis. It is worth noting that the story curves are not graphs based on numerical data but interpretive curves that represent time from the start to the end of the account on the X axis and negative to positive affect or emotion on the Y axis (see Section 6.3.1.1). Story curves were drawn up inductively from the data independently by both MB and OR for later comparison. Differences were resolved through discussion and by referring back to the transcripts in order to achieve the best fit.

6.3.6.3 The micro-analysis of narrative accounts

In order to conduct a micro-scale linguistic analysis of accounts, the categories of linguistic features for each participant's attitude to health behaviour change from the research by Connor and Lauten (2014) and Connor et al., (2012) were used (as explained in Section 6.3.1.2: locus of control, agency and affect). Additional categories were added by MB due their importance in the UK dental context as discussed in the literature review in Chapter 2 (see Section 2.4.1 and 2.4.3 in particular). The added categories include barriers and enablers in oral health care, dental anxiety levels, and patients' perceptions of oral health priority as shown in Table 6. 3.

Table 6. 3: The key orientations relevant to behaviour change that were identified in the micro-linguistic analysis.

Aspect	**Detail**	**Categorisation**
Agency	In relation to the following aspects of oral health- related behaviour: • Brushing • Use of floss / interdental brushes • Attendance • Smoking • Diet As seen in the following linguistic markers: propositions, adverbs of extent, degree and manner, adverbial clauses of time, hedging language, pre-modifying stance adverbs.	Low Moderate High

Table 6.3 Continued

Aspect	Detail	Categorisation
Control	As seen in the following linguistic markers: • Semantic role: self versus provider • Metaphors or idioms • Characterizations of the self • Claims of ignorance of forgetfulness • Vague or precise language in relation to periodontitis	External Internal
Affect	Classified as negative or positive overall. Where possible the actual words used by the participant are noted. The negative and positive shifts are captured in the graphical core story representation.	Negative Positive
Barriers or facilitators	Barriers to dental care access noted for each participant against the backdrop of known barriers from the Adult Dental Health Survey (2009)	Barriers described
Barriers: Dental Anxiety	Either answers to direct questions about dental anxiety or volunteered in a variety of linguistic ways including characterization of self, metaphors, idioms, intensifiers, adverbs.	Dentally phobic or avoidant (impacts attendance) Dentally anxious but copes (not impact attendance) Not dentally anxious (Beaton et al., 2014; Hill et al., 2013)
Oral Health priority	• Normal state of oral health • Causes of oral health or disease • Trust held in dentists • Oral health as a commodity • Accessibility of oral health care • Judgements or Character	Not relevant Highly relevant (Gregory et al., 2007)
Coda	The core meaning of the story that is underpins the story as is seen in frequently repeated key quotes and links the story back to everyday life in the present (Riessmann, 2005).	Core story statements

MB then populated the categories in Table 6. 3 with examples from the narrative accounts to form a codebook of linguistics markers. OR used the examples in the codebook to independently categorize each participant's key orientations. Both OR and MB then independently categorized participants' key orientations and reached full agreement through discussion for all participants.

6.3.6.4 Grouping the accounts into categories

Once the individual narratives had been comprehensively analysed, both on a macro level using story curves, and on a micro-level using linguistic analysis to categorize participants' attitudinal orientations the accounts were grouped into three larger categories. Categorisation was done independently by MB and OR and then compared. During this categorisation process, there was frequent tacking back and forth between different accounts and back to the original transcripts, re-reading these when necessary. In the end MB and OR had different categorisations for only 2 of the 14 accounts. These differences were retained and discussed in the results in order to retain each account's uniqueness and make the reasons for OR and MB's different categorisations clear.

6.4 Results

6.4.1 Characteristics of study participants

The characteristics of the study participants is outlined in Table 6. 4 below.

Table 6. 4: Demographic characteristics of the study participants

Transcript no. and Pseudonym	Sex	Age	Ethnicity	Smoking history	Recruitment route	Other conditions
T1 Keith	M	60's	White British	Non smoker	PPI group	Type 2 diabetic
T2 Lynn	F	60's	White British	Former smoker	Facebook community group	-
T3 Jane	F	50's	White British	Former smoker	Friends or Family	-
T4 Zahida	F	80's	Middle Eastern, British Dual	Former smoker	PPI group	Rheumatoid Arthritis
T5	This account was discarded due to features inconsistent with typical periodontitis.					
T6 Molly	F	40's	White British	Former smoker, current vaper	Friends or family	-
T7 Paul	M	70's	White British	Non-smoker	Friends or family	-
T8 Denise	F	60's	White British	Former smoker	Facebook community group	-
T9 Margaret	F	60's	White British	Non smoker	PPI group	Sjorgens, lichen planus, arthritis
T10 Jay	M	50's	Asian British	Current smoker	Friends or family	-
T11 Georgina	F	50's	White British	Former smoker	PPI group	-
T12 Bella	F	Late 20's	White British	Non smoker	Facebook community group	-
T13 Suzy	F	70's	White British	Former smoker	PPI group	Sjorgens, lichen planus, scleroderma
T14 Pat	F	70's	White British	Former smoker	PPI group	Rhematoid and osteo-arthritis and osteoporosis
T15 Linda	F	60's	British, Australian Dual	Non smoker	HRA IRAS Clinician identified	Had covid badly

6.4.2 The results of the macro-analysis

Three categories of story were identified by means of the macro-analysis of narrative accounts as detailed in Section 6.3.6. These were named as: Action-oriented, Borderline and Challenges by the researcher, MB, in keeping with the main themes running through the accounts. An overview of these categories is presented in Table 6. 5 (macro-analysis) below and following this, the results of each category are discussed in more detail.

Table 6. 5: The Action-oriented, Borderline and Challenges categories: Results from the macro-analysis

	Action-oriented	**Borderline**	**Challenges**
Transformation	- Transformative and irreversible change (e.g. from low to high oral health priority or negative to positive affect).	- Some potentially transformative action is being taken (e.g. attendance / brushing), but there is still some negative affect (emotion), unresolved questions, negative attitudes or barriers, so there is the possibility of future lapsing.	- No signs of any change in oral health related behaviour anticipated
Turning points	- Dental diagnosis as a direct turning point followed by immediate new oral hygiene action	- The original diagnosis may not have resulted in immediate action. - Turning points might have been gradual and could be due to chance or other influences, not always the dental professional's advice	- No turning point or a negative turning point(s)
Story curve trajectory	- An upward trajectory in the story curve ending with positive affect.	- A gradual or undulating upward trajectory in the story curve with an uncertain future trajectory. The end point of the curve does not show more positive affect than the start of the story (is lower).	- A flat or slightly downward trajectory, or a dramatic downward trajectory, or a U shaped curve with a stable end point which is less positive than the start.

6.4.3 The results of the micro-analysis

As explained in Table 6. 3, the micro-analysis was divided into a number of categories relevant to behaviour change. These categories were populated with examples from participants' accounts to form a codebook. One example category (internal or external locus of control) of the codebook is shown in Table 6. 6 below and another example category (Agency) is shown in Appendix 11.2.7.

Table 6. 6: An example category (internal or external control) from the Linguistic Codebook developed by MB.

The source transcripts are indicated by using T + number.

Category	External	Internal
Role (general) (includes metaphor, repetition, precise or vague language)	I can take him [the dentist] every problem, he sorts it out whenever there's an emergency. T10	It's up to me, really, I see, to do most of the work and it's up to him to check ..., I see it really, basically, as my work. T3
Motivation: need for goals or absence of goals	I don't really know what, sort of, the whole plan is...that's something I should have raised with my dentist... I don't know what I am aiming for other than maintaining where I am. T3	She did regular X rays to compare the gum line. She would go "ooh you've managed to improve your gums!" To the point where she was like "your gums are so much better" that was just, yeah, really good. T6
Knowledge or learning	My knowledge of things going wrong was toothache and fillings. I didn't even really know anything about gum disease, didn't really know it existed. T3 Int: Yeah what causes it maybe? Pt: Um I don't know, I really just remember the smoking. T3 I've not had it explained as such. T10	I now have a special toothpaste which I take. Now whilst this particular toothpaste hasn't been proved to cure or help with gum disease it is very good for your teeth and this is the Duraphat by Colgate, it's the 5000 parts per million. T1

Table 6.6 continued

Category	External	Internal
Characterization of self	I'm terrible really, I cut off me nose to spite me face. T11 I'm one of those people who approaches life in a very fatalistic way. T2 I think I needed telling, basically – to stop messing around and being an idiot and take it seriously. T10	I mean, I wasn't, I don't really have a sweet tooth anyway. T1 The more information I have [about a health condition], the more I'm in control. T14 They [my gums] got better due to everything I've done to help them get better. T6
Characterization of the condition	You've got to stop it in its tracks before it sets in there, but you can't always get rid of it. T10 I've ..lost four or five teeth now and I've got some broken stumps lurking which are tantalising for your tongue.. I'm constantly reminded of the state my mouth is in... it's perpetually present. T2	Like with any chronic inflammation it's just really not good for you to have. And also you don't want that bacteria all the time living under your gums. T6

The results of the linguistic micro-analysis corresponded with three categories of narrative account identified by the macro-analysis of story curves: Action-oriented, Borderline and Challenges. The results of the micro-analysis are shown in Table 6. 7 below.

Table 6. 7: The Action-oriented, Borderline and Challenges categories: Results from the micro-analysis

Aspect	Action oriented	Borderline	Challenges
Affect	- Now clearly positive. From negative before to positive now.	- Either positive about current dental professional or positive about own increased knowledge of oral health but also negative affect (underlying dissatisfaction with dentists or dental hygienists or dentistry or sense of shame or self-blame.	- Negative affect or an absence of emotion or positive affect which is in the past
Oral health priority	- High	- Higher than previously, but there are competing priorities	- Low: Aware of diagnosis but not as a priority. Other life priorities dominate.
Agency (brushing or smoking)	- High agency in terms of both brushing and inter-dental cleaning. Detailed knowledge demonstrated.	- Higher agency than previously, some new brushing or interdental cleaning techniques.	- Low: Little oral health-related action or continued routine action
Barriers	- Any barriers, e.g. painful gum treatment, having been overcome or taking convincing steps to overcome these.	- Barriers may resurface if conditions change, e.g. if current dentist changes, or other health conditions become more of a priority then avoidant coping strategies could resurface.	- Significant barriers e.g. phobia or very resistant habits present.
Dental anxiety	- None, or overcome or determined to attend anyway (overcoming).	- Largely overcome. Dental scepticism, shame and embarrassment as important as anxiety.	- Barriers in all cases, e.g. long-term smoking or ineffective brushing or cost or phobia or low OH priority or combination
Facilitators	- Usually none, but if present these will continue to be in place.	- Particular dental professionals with a gentle approach	- None mentioned.
Control or motivation	- High internal control	- Mixture of internal control and reliance on external motivating factors.	- External control (fate or dentist's role to fix gums).

6.4.4 The Action-Oriented category

The stories in this category are transformational. The end of the story stands in contrast to the start, with a sense that there has been irreversible change, particularly in emotional stance, from negative or neutral to positive. Accounts in this category represent individuals who now show high oral health priority, agency, and internal motivation with any barriers in the past or being convincingly overcome in the present (see Table 6. 7 and Table 6. 5). Kenneth's story was chosen by MB and OR as being an optimal example of the Action-oriented category showing clear cause and effect, so this story is presented in detail. The other stories in this category are summarised following this. The terms highlighted in bold below represent domains in the Theoretical Domains Framework relating to key influences on health-related behaviour (as explained in Section 2.4.3). The underlined key words correspond to the discourses identified in Chapter 5.

6.4.4.1 Kenneth's Story: A detailed example of a story in the Action-Oriented category

Kenneth's story shows a sudden transformation very directly with a clear dentally-related turning point (see Figure 6. 2). In his case the transformation was from a lack of knowledge and associated inaction to understanding and dedicated action after a diagnosis that was experienced as a shock upon being referred to a dental hospital. The dentist had told Kenneth that there was a chance he would lose his teeth by the time he was 40 years old. In Kenneth's words that "had a massive effect on me. I was determined to do my part." Kenneth adopted interdental brushing and worked on overcoming his apprehension surrounding painful treatment. Kenneth's story placed a lot of emphasis on the cause of his periodontal disease which he explained was hereditary, and not as a result of his own lack of oral hygiene, noting that this was the reason he was not embarrassed by having the condition: "I'm an unusual case, it's in my genes…if anything I overbrush". In Kenneth's account his **beliefs about the clinical consequences** of unchecked periodontal disease acted as a trigger to action, but maintaining self-esteem and having a positive sense of **identity** was important in relation to the cause of his condition. He also showed a detailed **knowledge** about the condition (e.g. periodontal pocket depth measurements scores and fluoride concentrations levels in toothpaste). In terms of the discourse category used by the dental professional (six discourse categories were set out in Chapter 5), Kenneth responded well to, a <u>factual and honest clinical discourse</u> with some oral hygiene skills <u>mentoring</u>, goal setting and <u>education</u> about the condition.

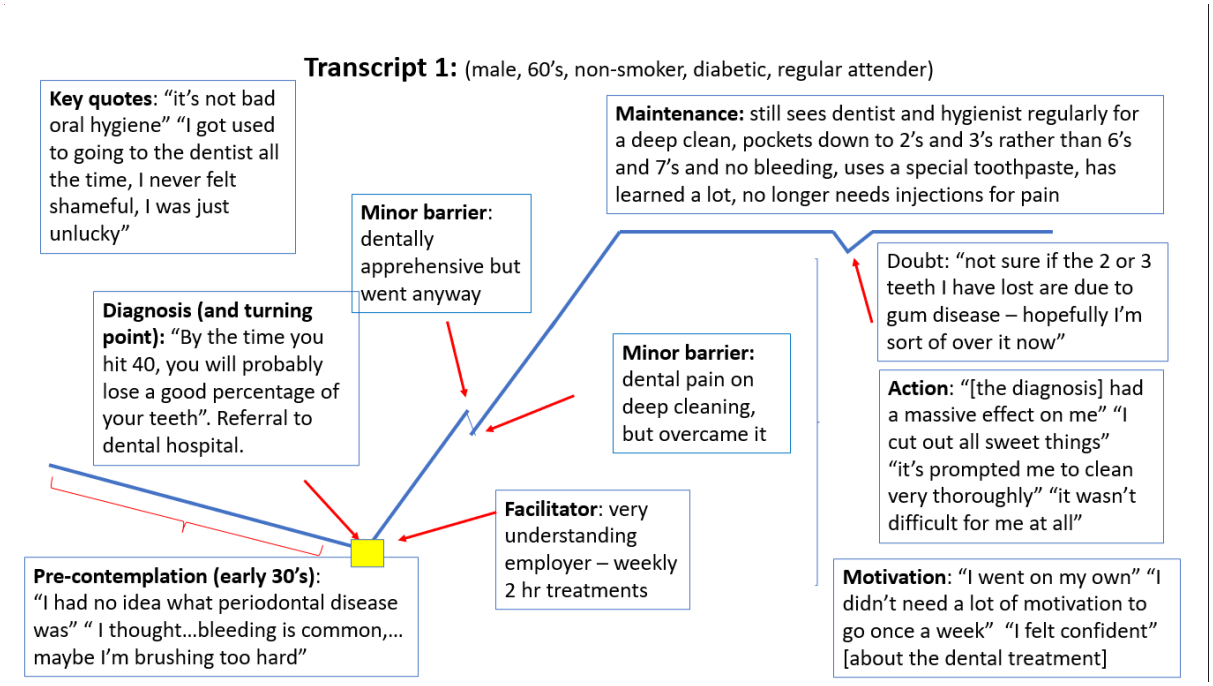


Figure 6. 2: Kenneth's story curve

6.4.4.2 *Paul's Story*

Paul's story was similar to Kenneth's, as it contained an immediate internally-motivated response to a dental diagnosis after he had noticed bleeding and sensitive gums. Paul's transformation was in the positive way he now views dental hygienists, from a starting point of **scepticism** and seeing dental hygiene as an optional extra designed to make money for a practice. Paul also gained **new knowledge and capabilities** in terms of interdental cleaning and toothbrushing techniques. Interestingly Paul's actual clinical knowledge of the cause, nature and consequences of periodontal disease were quite vague, he had just assumed that he was responsible for the condition, that it was serious and took action. In terms of the discourse category, Paul responded well to a mentoring and educational discourse, working together with the hygienist on acquiring new skills.

6.4.4.3 *Suzy's story*

Suzy's story has in common with Kenneth's that there was a sense of deep shock when she fully **understood** her diagnosis after it was explained when visiting a new private dentist with a "state of the art surgery". Suzy showed internal motivation as she had **intentionally** sought out a new dentist after reading an article in a magazine that resonated with her. Her initial motivation was aesthetically **goal-driven**. In her case, she had had a series of previous dentists (see story curve in Table 6. 8) and had had some awareness about gum disease but without a sense of clarity. With this new dentist, Suzy went on to have a number of implants fitted. Suzy's story was included in this category

due to her very **optimistic** outlook and her excitement at having "new teeth". The **relationship** with her new dentist and hygienist made "an awful lot of difference" to her. Another one of Suzy's drivers seemed be getting value for money: "if you don't keep to it yourself [keep brushing]... till you go [to the dentist] again, well it's a waste of time and money, isn't it?". In terms of which discourse category was a good fit for Suzy, rapport building and mentoring was relevant.

6.4.4.4 Linda's story

Achieving aesthetics goals (tooth straightening) was part of the internal motivation for Linda seeking private dental treatment, similar to Suzy. Linda's transformation was from experiencing dental treatment in her former country as "horrendous" and "tortuous" and not really being aware she had gum disease to finding that her treatment in the UK with a dentist and hygienist was "completely painless, nothing like I remembered it". However, despite being treated by the new dentist and hygienist for gum disease over a period of ten years, there was no distinct shock moment. Linda felt that she didn't fully realize the seriousness of the condition until "relatively recently... I think I found out fairly slowly that I had gum disease, it took a while for the um... er the true implications of it to sink in because my dentist is a real sweetie and she's very gentle...and encouraging." From Linda's story it seemed that the new dentist was aware of Linda's recent difficult circumstances when she had had COVID and so had waited and chosen the right moment to explain the severity of her condition in detail and to refer her to the practice's oral hygiene (OH) educator. Linda was very positive about the OH educator and felt that they were working in partnership. Linda was keen to implement the recommendations perhaps due to renewed internal motivation due to her newly **acquired knowledge** (from having COVID) of the importance of attending to any kind of inflammation in the body. She now feels: "chuffed to bits, I'm really pleased 'cos I can finally have my teeth straightened." In the account, Linda strongly emphasized the importance of having a **relationship of trust** with any health professionals. Whilst **specific goals** were not set for gum health improvement, Linda was internally motivated, stating that she felt "it was her responsibility" to try to bring "those numbers [pocket depth measurements] down". However, the **absence of blame** was also important to her positive sense of **identity**. Her dentist had said "you know, it's not your fault you've got gum disease, it comes ... for other reasons', (you know I can't remember what she said), 'genetic reasons' (or whatever... well I don't know whether it's true or not, but it worked for me)". Linda further kept her self-esteem intact by reflecting that dental hygiene treatment was not emphasized when she was young. She explained she does not feel very embarrassed by

the condition as other people can't see it, and a lot of people have the condition. For Linda, a rapport building discourse together establishing a mentoring partnership, was very important.

6.4.4.5 Jane's story: A detailed example of a story in the Action-oriented or Borderline category

Once again, Jane's initial motivation to seek out a new dentist was due to an aesthetic **goal** (tooth whitening). Jane story showed a transformation from low to high oral health priority, but her trajectory was more gradual than for Kenneth or Paul. In Jane's case, she had been a smoker and non-attender who was **sceptical** of dentistry as being a **money-making** enterprise (cost had been a barrier to dental access in the past). Jane remembers being given her diagnosis. The dentist had said "you have gum disease, it's severe, it you don't give up smoking it will get worse and you **will lose teeth.**" Like Suzy and Kenneth, Jane was shocked by the diagnosis. Jane explained "**I needed the shock factor**. I needed telling, basically." After initial painful gum treatment acting as a **barrier**, she had been tempted not to return, but after discussing ways to mitigate the pain with the dentist, gradually her trust increased as the dentist's **knowledge** and professionalism became apparent to her. She was regularly shown X-rays and pictures of her mouth to show progress. These visual aids were "hugely important", she had "never seen her mouth like that". Another turning point came when the dentist refused her request for tooth whitening until her gum health had improved, which made Jane think that he perhaps wasn't "just after [her] money" after all. She would have liked a bit more praise around the time that she gave up smoking, however, but overall she ended by trusting this dentist, which was transformative. Jane's story curve had a more undulating start and a more gradual upward curve as compared to Kenneth's, but generally followed a similar trajectory. For Jane, an honest clinical and educational approach was more important than building rapport with the dentist as he needed to prove to her that he was not out to just make money (see Figure 6. 3).

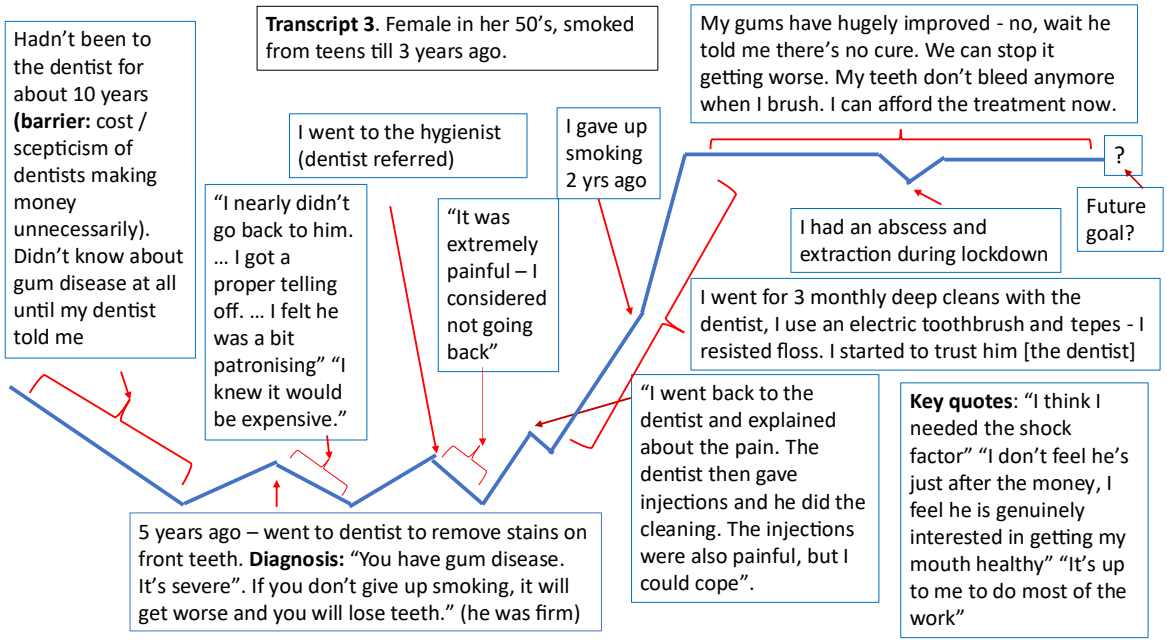


Figure 6. 3: Story curve for Jane's story

6.4.4.6 Molly's story

In Molly's case, she had been to a number of different dentists in her early adult life before she found the one that sparked the transformation. When she was first diagnosed with gingivitis in her teens it had not really registered with her. In her adult life, her children's health issues had given her first-hand **knowledge** regarding the importance of tackling inflammation anywhere in the body. She showed high agency in proactively changing dentists when she felt that the dentist she had been with was not addressing what her what she suspected was an underlying gum problem. Upon finding her current "brilliant" dentist, Molly framed her story using a discourse of **education**, using phrases like: "she taught me" or "she showed me", as well as emphasizing the importance of having a good **relationship** with the dentist. Similar to Jane, regular X rays and updates were highlighted as being important. In both Molly and Jane's cases high internal motivation was shown as difficult actions needed to be taken, either going back to the dentist to discuss pain levels during treatment (Jane) or finding another dentist (Molly). This internal motivation kept both on a transformational trajectory and allowed for an increase in agency in terms of oral hygiene changes and, after some time, quitting smoking (quitting was not immediate or directly related to their gum disease for either Jane or Molly). In Molly's case the provider's educational, and to a lesser extent their rapport building, discourse was important.

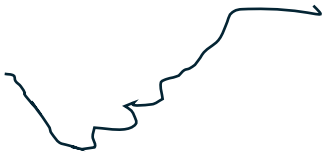
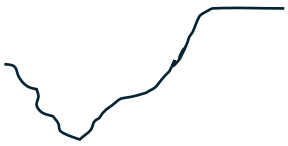
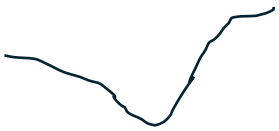
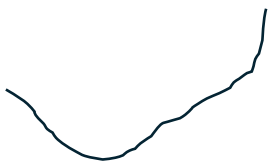
6.4.4.7 Bella's story

Bella's story represents an impressive transformation, as she is working through a serious **phobia** of dental treatment. Of all the accounts in this category, her change is perhaps the most recent and the least firmly embedded. Like Paul, she was prompted to attend the dentist due to a symptom that was hard to ignore (a loose tooth). However, unlike the other people in this category, Bella's transformation was heavily influenced by **a significant other** (indicating initial external control). Her brother suggested she visit a supportive dentist that he had visited, he encouraged and supported Bella through each visit and gave advice on interdental brushing techniques at home. In addition, the **dentist's gentle approach** was crucial. Whilst the dentist did give Bella her periodontal diagnosis, it was framed gently: "She didn't say that much I think, because she understood how scared I was being there. She just took it step by step like encouraging me to improve my oral hygiene". The explanation was softened and accompanied by hope: "there's a small amount of bone loss from the gum disease but we can halt that in its tracks, if you improve your brushing." The dentist had also phoned Bella the night before her dental visit as part of an informal chat offering **reassurance**. A phrase that was frequently repeated in this account was: "step by step". This account was included in the action-oriented category as it ended with a positive future outlook, as the support from her brother and the dentist's gentle approach are unlikely to change. Bella also explained that the **fear of needing extractions** was a strong factor motivating her to attend more regularly in order to avoid this happening. This story has shown a transformation from dental phobia and total avoidance to managed dental anxiety and attendance. In conclusion, the dental provider's gentle rapport building approach was crucial in Bella's case.

6.4.4.8 The Action-oriented category: Story curves

The story curves for the participants in the Action-oriented category are to be found in Table 6. 8. In this category the emotional trajectory ends with a more positive sense of affect than at the start of the story.

Table 6. 8: Story curves for accounts in the Action-oriented category

Transcript / Pseudonym	Story curve	Key quote as coda
T1 Kenneth		"I was just unlucky, it wasn't poor oral hygiene, if anything I overbrush. It's in my family, my case is unusual".
T3 Jane		"I think I needed the shock factor" "I don't feel he's just after the money I [now] feel he's genuinely interested in getting my mouth healthy" "It's up to me to do most of the work"
T6 Molly		[I changed to a] "brilliant dentist" "She explained the risks of staying with bad gums" She gave me regular updates [X rays] and [scores]." "My gums have got better due to everything I have done to help them"
T7 Paul		"I think more highly of hygienists now. I stuck at it, I knew it could be serious"
T12 Bella		"I want to avoid that dreadful feeling when you know that a tooth has to come out. Avoiding that motivates me." "I was not told in too much detail because I was scared."
T13 Suzy		"I marvel at myself sometimes. I can't believe I've done this" [gone for implants and conquered my dental fear]. "Your gums might well be more important than your teeth as they hold your teeth in."
T 14 Linda		**"**I'm chuffed to bits 'cos I can finally have my teeth straightened." "It's my responsibility to try to bring those numbers down [pocket depth scores]"

6.4.5 The Borderline Category

Pat's story is one of the accounts that was initially classified differently by the two researchers (as either action-oriented: MB or borderline: OR). In common with Denise and Georgina in the borderline category, Pat had difficult early memories of dentistry, having had a traumatic extraction at age 10. Denise remembers running away from a dentist when she was a child when he produced an enormous syringe, and Georgina recalled being very scared of the school dentist. Margaret, also in the borderline category, whilst not specifically mentioning a childhood dental trauma clearly remembered a dentist who "really did let rip" soon after she had had her first child, saying that "you're not taking good care of these teeth". The negative impact of being told off by the dentist was strongly emphasized in Margaret, Georgina and Denise's accounts, and was also mentioned in Pat's account. In contrast, participants in the action-oriented category did not refer to childhood dental trauma or being told off by a dental professional. Instead, just two participants in the action-oriented category had had some initial scepticism about dentists and DHDTs in relation to value for money, with this sense of mistrust being transformed over time. The participants in the borderline category all showed signs of taking positive action to improve their oral health but their underlying negative stance towards their oral condition (Denise and Georgina) or towards dental professionals (Pat and Margaret due to perceived shortcomings) remain unchanged. This meant that the future trajectory of these story curves (negative or positive) was hard to predict as shown in Table 6. 9.

6.4.5.1 Pat's story: A detailed example of a story in the Action-oriented (MB) or borderline category (OR)

In Pat's case her view that dental professionals **haven't been providing** the kind of detailed **information** that she needs, and has been given by her doctors and endocrinologist for her other medical conditions, persists. This is important, as Pat's evaluation statement could be summarised as "more information just means I'm more in control". However, in common with participants in the Action-oriented category, Pat's discourse shows a strong sense of **internal control** as she regularly attends the dentist even though she has to "steel herself to go". She also now has **detailed knowledge** about gum disease due to her participation in a Rheumatoid Arthritis research Patient Public Involvement (PPI) group, but not from dental professionals ("I had a look online and **worked it out for myself**"), and is now much more inclined to prioritize oral health due to learning that it could have links to her systemic medical condition. Pat explained that she

has now realized that her gum disease could have been a precursor of her Rheumatoid Arthritis. She may feel some resentment that dental professionals had not picked this up. For Margaret, being given accurate and detailed clinical information (clinical discourse) was very important. There was a sense in this account that Pat remains **sceptical** about the promotion of dental products, e.g. mouthwash, as being income generating without being based on solid evidence of their efficacy. Pat also seemed uncertain (she used the qualifier "hopefully") about her oral condition continuing to be stable, as shown as a dashed line at the right-hand side of her story curve in Figure 6. 4).

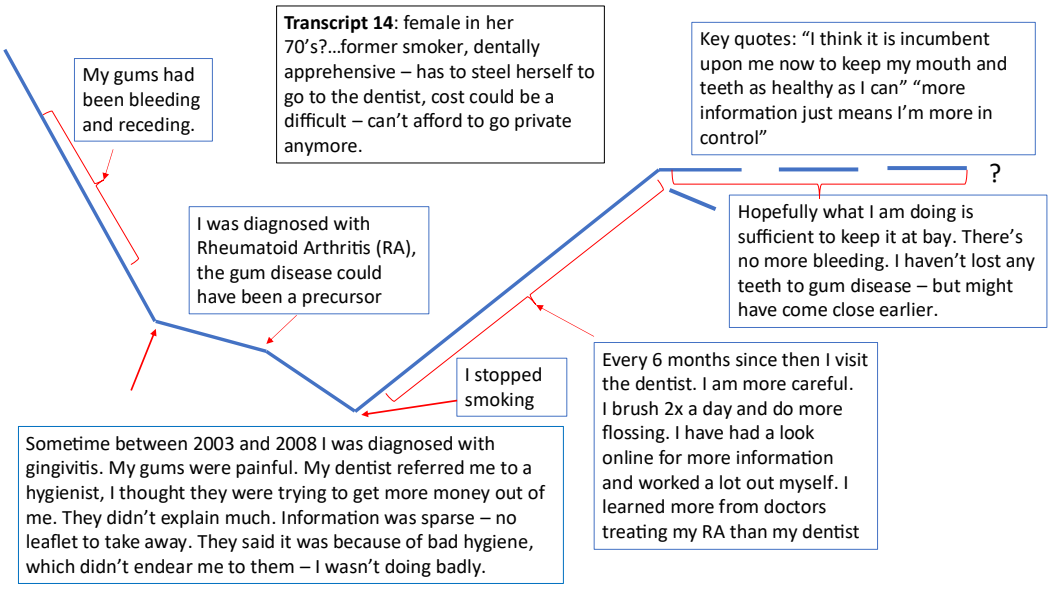


Figure 6. 4: Story curve for Pat's story

6.4.5.2 Margaret's story

Margaret's account had a lot in common with Pat's as she also has other medical conditions that are linked to gum disease and is also part of a PPI. Like Pat she came to **understand more** about her gum disease **gradually** through this route, rather than directly from dental professionals. Margaret's dental turning point came about by chance when she was given an electric toothbrush and an anesthetizing mouthwash by family members. She found these dental products to be a "revelation". Margaret's account gives the sense that she still **feels aggrieved** about having been told off by a dentist a long time ago for poor oral hygiene when in fact it was a previously undiagnosed medical condition that was likely playing a role in the condition's onset. "I know I am **not to blame**, I am not neglectful" was a key statement for Margaret. For Margaret a vindication from a dental professional relating to her clinical history could go some way to modifying her negative stance towards dentists . In her account, Margaret explained that gum health was not emphasized in society at the time she was diagnosed as the focus was on having

"clean and sparkly teeth". Like Pat, Margaret seemed to be taking action on oral hygiene and placing more priority on oral health than before, but she was also tentative about the future trajectory of the disease. For both Margaret and Pat, if there were any dental treatment **cost increases**, (if the need arose for private care or more hygienist visits) this would act as a barrier to accessing care. Also for both Margaret and Pat, managing their other medical conditions, e.g. Scleroderma or Rheumatoid Arthritis as given primacy in their accounts, with periodontal care being presented in relation to those conditions.

6.4.5.3 Denise and Georgina's stories

For Denise and Georgina, shame, blame and cause-seeking played an important role in the way they gave their accounts. Both are women in their 50's or 60's, have smoked heavily in the past, have no underlying medical conditions that were mentioned, and were both diagnosed with periodontitis about 30 years ago. In both cases, the diagnosis didn't lead to an immediate improvement in their oral condition. Both also had had gaps in their dental attendance of between 5 and 7 years. For both participants, their turning points came only when they felt they were under the care of a gentle, non-judgemental dental professional who delivered: "motivation not condemnation" (Georgina).

In Denise's case the **barrie**r to attendance had been not dental fear, but the fear of being judged and **told off** despite trying very hard with oral care at home: "I used to dread going … not because I was afraid of the pain of whatever they were going to do, because I can deal with that, … it was, oh, I'm going to get told off again". This resulted in a 5-year attendance gap. Denise's turning point came when she moved to a new dental surgery and the dentist and hygienist "are absolutely lovely…they are **very, very understanding**", "they are just more friendly, and they don't tell me off" (a rapport building approach). However, despite this turning point for Denise, her underlying search for what caused her periodontal disease persists as a burning question "I'd love to know why this has happened".

This **search for cause** was intertwined with sense of **shame** and a sense of **frustration** at not getting a straight answer from dental professionals. She explained that she has asked dental professionals if it is genetic, as her grandmother and sister have the same problem and the reply was: "maybe it is, maybe it isn't, …nobody could explain to me why it is happening". Another possible cause she explored was that her gum condition was maybe due to having had braces when she was young. However, she also blames herself: "it's my fault, and it's me because I couldn't clean my teeth, it's my fault totally that this has happened, obviously I was doing something wrong that my teeth needed." Denise was

aware that previous smoking habits “probably didn’t help either” but she was **not able to articulate a coherent explanation of cause** and effect for periodontal disease and also how the condition actually links to smoking: “plaque’s been mentioned,… tooth loss has been mentioned”. Denise qualified what she was saying by also noting that she found it hard to ask the dentist questions as she didn’t want to waste the professional’s time. Her strong **sense of embarrassment** has meant that she would not discuss her oral condition with anyone except her sister who has similar difficulties to her. In terms of presenting herself to others: “as far as they’re concerned, I’ve got a full set of teeth and that’s it”. She sees some advantages in having dentures as “for the first time in my life I’ve got straight teeth”.

6.4.5.4 Georgina’s story: A detailed example of a story in the Borderline (MB) or Challenges (OR) category

Georgina’s story was classified in the Borderline category by MB and in the Challenges category by OR. Georgina remembers poor oral health habits from childhood which included having a sweet syrup put on her dummy and a lack of a bedtime brushing regime. She was also a “bit **scared** of the dentist” as a child. Like Denise, Georgina was diagnosed with periodontal disease about 30 years ago at a time when she “was always at the dentist having some work done”. Georgina remembers the dental hygienist who gave her the diagnosis as having said that she had advanced periodontal disease and that the “**damage had been done** and it was just a matter of trying to keep hold of your teeth now”. Georgina said this made her feel shocked, discouraged and **dispirited**: “I feel like it’s totally self-inflicted.” Upon changing dental practices, Georgina felt that the new hygienist doing scaling had had been a bit “gung ho” and a crown had become dislodged the next day. This led to Georgina not visiting this hygienist for 7 years. Georgina expressed that as “cutting off me nose to spite me face really”. She also noted that brushing was unpleasant as she “didn’t want to face [her] damaged teeth”. It seems that **avoidance may have been a coping strategy** for Georgina.

Georgina’s turning point was when the dentist, who she had been visiting during the 7-year gap in attending the hygienist, recommended going back to the hygienist for a more “thorough [cleaning] job”. Georgina “ummed and aaahed and cancelled the [hygienist] appointment and then reinstated it”. At the hygienist appointment Georgina found the courage to ask the hygienist to take a more gentle approach. The hygienist listened and they had “a natter” (rapport building) before starting treatment with the hygienist saying that she “might just have mellowed in these seven years”. The appointment was

successful, as according to Georgina "she was more **gentle**, and it felt brilliant after", "it was only uncomfortable not painful". Georgina explained that she was to go back in four months' time and next time will ask the hygienist to scale her back teeth. Georgina also reported changing her brushing habits and having been taught a new technique. In this account, whilst Georgina showed courage and strong **internal motivation** by going back to the hygienist, but there was a sense that she felt **reliant on her "lovely" dentist** and was concerned that he would be retiring soon: "I'm really, really scared of starting with a new [dentist]." She explained that she would be **embarrassed** to reveal the details of her dental condition to anyone else, even her husband did not know the full extent of her oral condition. To Georgina, gum disease would be interpreted as something that had resulted from someone "not looking after themselves", hence the initial downward trajectory in her story curve and the uncertainty about the future shown in Figure 6. 5.

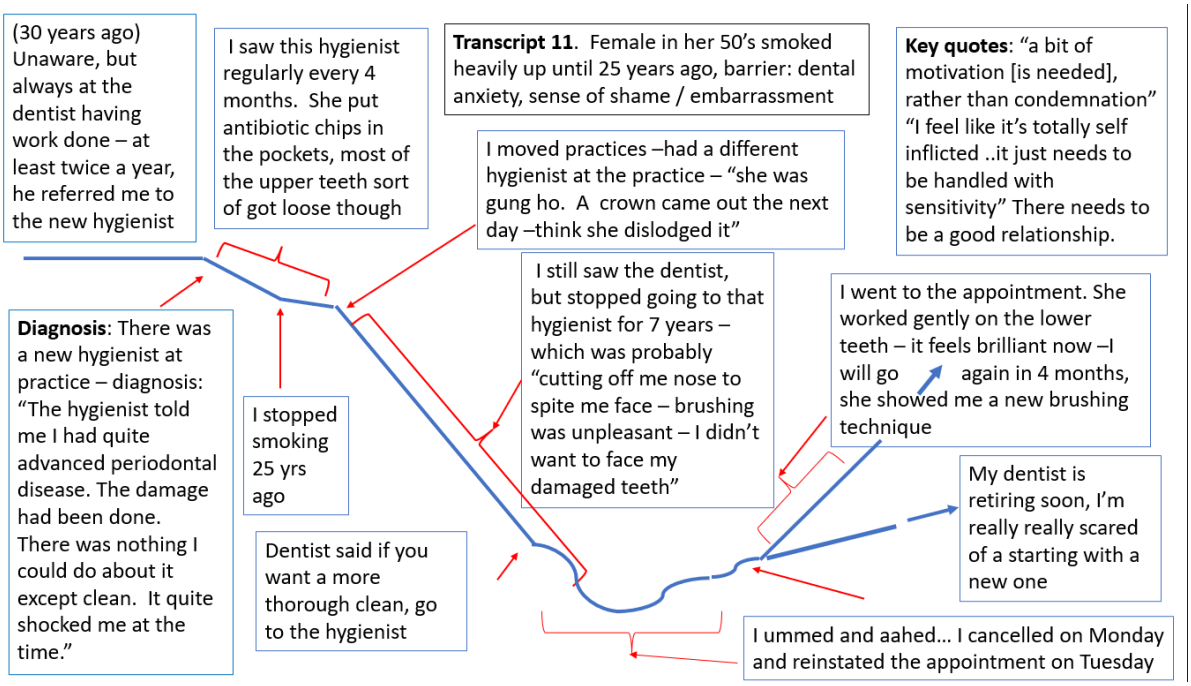


Figure 6. 5: Georgina's story curve

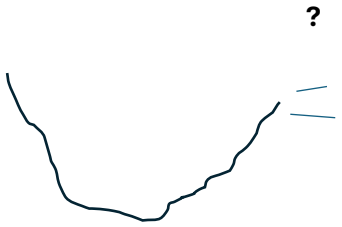
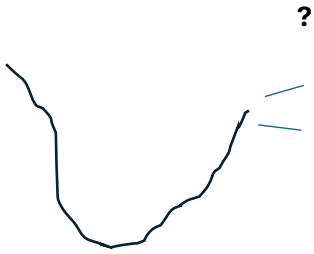
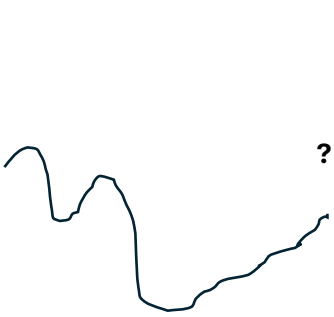
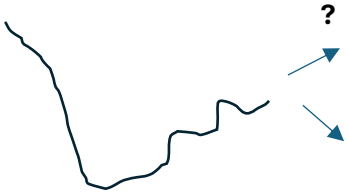
As explained earlier, Georgina's story was coded differently by MB and OR. In MB's interpretation of the account, emphasis was placed on Georgina's recent **oral health-related action** which was taken despite dental apprehension, a sense of shame and an avoidant coping strategy. Georgina had said that she would visit the dental hygienist again to get her back teeth cleaned. In contrast, in OR's interpretation, more emphasis was placed on the **fatalism** Georgina expressed regarding her future oral health trajectory. Towards the end of the interview Georgina had said that she was, to some extent, "just waiting for [her] teeth to fall out". She had explained that the frequent painful abscesses that she gets could tempt her to say: "right just take them all out". In MB's interpretation it

was thought that the effects of Georgina's recent positive oral health changes need a bit more time to result in a shift in perspective. In MB and OR's view, without affirmation and a continued gentle approach, Georgina might revert to her avoidant coping strategy.

6.4.5.5 The story curves for the Borderline category

The story curves for the Borderline category are contained in Table 6. 9.

Table 6. 9: Story curves for the Borderline category

Pseudonym	Story curve	Key quote / Coda
T14 Pat		"I think it is incumbent upon me now to keep my mouth and teeth as healthy as I can". "The more information I can get from reputable sources the more I can control my conditions or at least understand them." "Hopefully what I am doing is sufficient to keep it at bay"
T9 Margaret		"The {original} dentist made me feel that I didn't bother, but I have a healthy diet, don't smoke and visited a dentist every six months – he didn't know anything about me. I know I am not to blame. … you've got to take a portion of the blame.. ignorance is probably no answer. There's no such thing as someone being neglectful, it's something that you learn"
T8 Denise		"I'd love to know why it's happened. I feel embarrassed about it. I didn't want to carry on going. I was going to get told off by the hygienist. My current dentist and hygienist are very understanding. They don't tell me off. I've lost most of my teeth, but the gum measurements are pretty stable at the moment. I was stupid not to ask any questions".
T 11 Georgina		"…the damage had been done already". I feel like it's totally self-inflicted. I cancelled it (dental appointment) then reinstated it. I will see [the hygienist] again. [But] I'm just waiting for them [my teeth] to fall out".

6.4.6 The Challenges category

The main distinguishing feature of the Challenges category is that the participants are not currently taking any oral health-related lifestyle changes and are not contemplating doing so in the future. In addition, participants in this category had a fatalistic acceptance of tooth loss, scepticism about dentistry as being money-orientated and did not hold oral health as a priority. Participants' oral health trajectories seemed to be seen more as fate is taking its course, which was interpreted as indicating an **external locus of control**. Another common feature is that all of the participants in this category are either current smokers or recently gave up smoking. However, aside from these common themes, each individual participant in the Challenges account had a different emotional trajectory (see the story curves in Table 6.10).

6.4.6.1 Jay's story: A detailed example of a story in the Challenges category

Jay, whose trajectory was mostly flat with a gentle downward slope to it, felt there was no stigma associated with having periodontal disease and saw a contrast between himself and a younger generation who might want to wear braces for "wonky teeth" which he saw as a sign of dentistry having become more money-orientated lately. Instead, Jay regarded himself as lucky as he had not experienced much bleeding or pain with his gum disease. In his account he seemed aware that there was a link between smoking habits and gum disease but could not articulate the exact nature of the link or show any signs of habit change. Jay explained that he had also maintained the same brushing habits as he had in his early adult years. There was a sense of **external control**, Jay is a fairly regular attender at the dentist and is not dentally anxious: "I take every problem to him [the dentist] to sort out if it is an emergency". It is possible that Jay's **long-established smoking and brushing habits act as a barrier** to change alongside his acceptance of the inevitability of tooth loss "there's no point being embarrassed about it, you've lost some teeth", "[my dad's] only got a couple of teeth left". In his account Jay provided clues about how focussing on the **consequences** of untreated periodontal disease might help facilitate behaviour change with someone like him. His advice to others was: "if a patient is still young and not taking care of their teeth, they need a shock to the system…you need to tell the person how it will affect them and what the effect will be after years" "if in six months, they haven't got it [the message about gum disease], tell them again … for a lot of people teeth might not be high in importance" (a direct clinical / educational approach). Jay's story curve can be seen in Figure 6. 6: Jay's story curve.

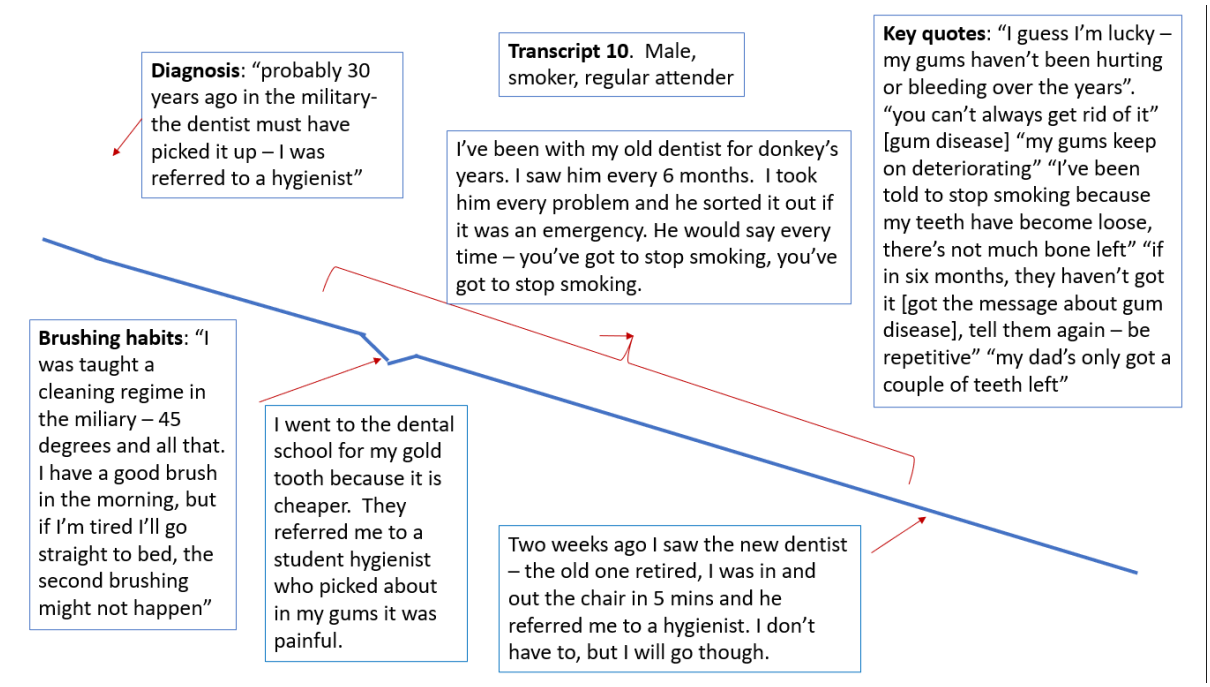


Figure 6. 6: Jay's story curve

6.4.6.2 Zahida's story

Like with Jay, **smoking** featured strongly in Zahida's account. Her account started positively then took a sharp downward turn and ended with **acceptance**. Early in the interview she explained how she was persuaded to take up smoking when she came to England to work as a nurse in order to stay awake during night duty. Her mother had also smoked and her grandmother had explained that smoking acted as a disinfectant in the mouth. Looking back now she frames smoking as "the worst addiction". Zahida gave up smoking much later in life only when her granddaughter commented that Zahida's clothes smelt of smoke. This was some time after Zahida had been diagnosed with Rheumatoid Arthritis and had also noticed a sharp deterioration in her gum condition to the point where she was fitted with dentures due to tooth loss. When asked, Zahida **was not aware of** the specific details of the link between smoking and gum disease having been explained to her. She looks back at the rapid period of tooth loss as being "such a shame", and at the time she felt that she was too young to have a denture. However, Zahida now regularly goes for dental check-ups and uses a mouthwash and special toothpaste and says she hasn't had any bleeding for about twenty years. Despite these actions, Zahida said she would like to have her **remaining top teeth extracted** because "one of them sticks out and I'm very aware of it", but her dentist refuses to extract these teeth. Zahida's account showed that oral health is **not her main priority**. The interview began and ended with a discussion of how she keeps herself busy and mentally healthy in order to manage the pain arising from her Rheumatoid Arthritis which is, understandably,

her main priority: “I have to manage it.. by mind over matter, really”. In Zahida’s case it is possible that having more accurate clinical information about the link between smoking and both periodontal disease and rheumatoid arthritis earlier on in her life, would have been helpful to her.

6.4.6.3 Lynn’s story: A detailed example of a story in the Challenges category

Whilst Zahida has prioritized managing painful Rheumatoid Arthritis, Lynn had prioritized caring for her children rather than her own oral health. Due to changes in her family circumstances as a result of a divorce, she was **no longer able to afford** private dental care. Upon switching to NHS dentistry care, she **prioritized her children’s dental needs** and had the minimum done herself. Later she developed a phobia of all dental and medical care as a result of the trauma associated with caring for one of her children who had serious mental health difficulties and regularly attacked her physically. In her own words her account was “a journey from my earliest days of [complete trust in dentists] to the effects of a neo- liberal government, and my phobias, and how they intersected in a catastrophic way for my mouth.” Towards the end of the account Lynn shared that she would be hypothetically prepared to accept dental care in her own home with someone she trusted, but doubts that this is possible. Alternatively, she would accept being “completely disempowered without knowing” by general anaesthetic. But Lynn knows that either of these two options would be difficult to arrange and equally she has accepted “a future without teeth as they fall out one by one”. So, the end of the Lynn’s trajectory could perhaps have a positive turning point, or it could continue on a downwards trajectory. Lynn faces multiple barriers to oral health care including her phobia, significant cost constraints and a fatalistic acceptance of her situation. A gentle holistic approach combining rapport building and mentoring would assist Lynn, with the caveat that cost could still act as a barrier. Figure 6. 7 contains Lynn’s story curve.

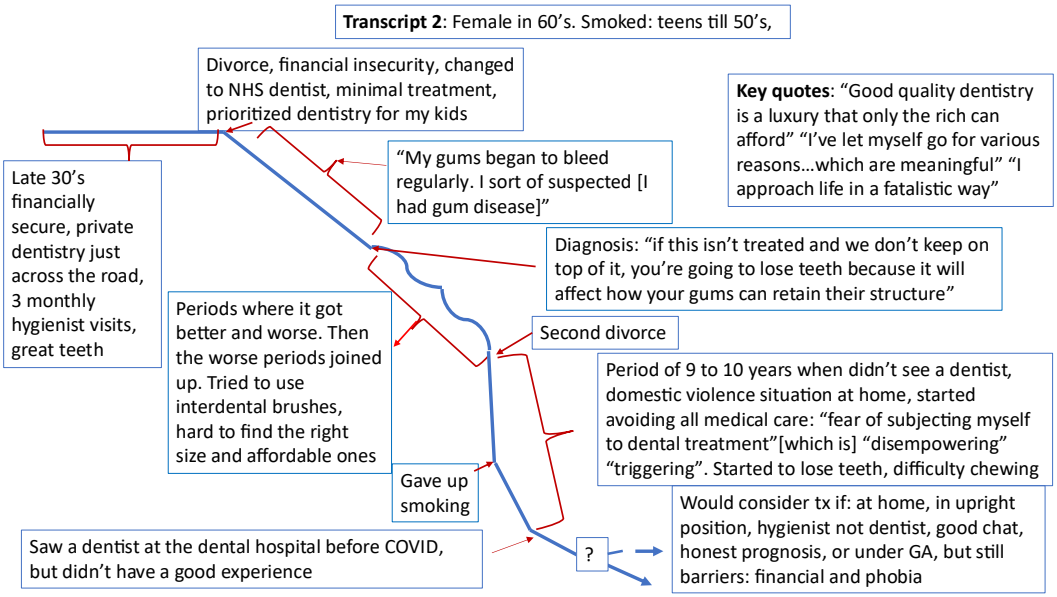


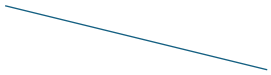
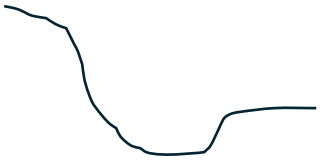
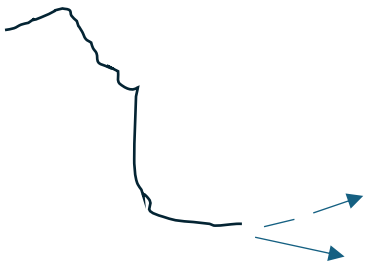
Figure 6. 7: Lynn's story curve in detail

For all the Challenges category participants there were other aspects of their lives that were priorities other than their oral condition and there seemed to be little change in their oral home care habits.

6.4.6.4 The story curves for the Challenges category.

The story curves for the Challenges category are presented in Table 6. 10.

Table 6. 10: Story curves for the Challenges category

Transcript and Pseudonym	Story curve	Key quote / Coda
T10 Jay		- "you can't always get rid of it" [gum disease] "my gums keep on deteriorating" - "I've been told to stop smoking because my teeth have become loose, there's not much bone left" - "my dad's only got a couple of teeth left" - "nowadays …dentistry has become more money orientated" - "I guess I'm lucky my gums haven't been hurting or bleeding over the years."
T4 Zahida		- "my mum had gum disease – she was a heavy smoker" "I don't know whether it's genetic…smoking could aggravate it" "I felt I was too young to wear dentures" - "when I was nursing, my own grandma would explain to me – smoking is very good for you because it is a disinfectant"
T2 Lynn		- "I became a carer for my [child] … who had serious mental health problems… she was attacking me regularly, physically. I have been psychologically damaged by what's happened to me and don't want any medical or dental prodding or poking. I was left with this fear of subjecting myself to dental care". - "Good quality dentistry is a luxury that only the rich can afford" - "I approach life in a fatalistic way". "I consider a future without teeth". - "[But] If someone was to come to my house …around my dining table and treated me sitting up in a chair on the same level …. I would have liked a real heart to heart about the implications of untreated gum disease".

6.5 Discussion

This study, a narrative and linguistic analysis, has identified three categories of patient experiences with periodontitis, namely the Action-oriented, Borderline and Challenges Categories. The findings of this study are aligned with Gregory et al.'s,(2007) qualitative study which showed that there is a variation in patient perspectives on oral health generally, which ranges from low oral health priority and a distrust of dental professionals to high oral health priority with patients believing that they can personally take action to control dental diseases (Gregory et al., 2007) (as captured in Section 2.4.1).

In the current study, it is argued that the Action-oriented, Borderline and Challenges trajectories put forward here add longitudinal complexity to the kinds of categories theorized in the Stages of Change (SOC) model (as explained in Section 2.4.3.3), rather than being a survey-based snapshot in time. Critics of the SOC model argue that assigning an individual to a stage does not sufficiently explain why they do or don't consider making changes, and that the delineation of stages can be rather arbitrary. Instead of delineated stages, a spectrum dependent on qualitative transformations would be a more appropriate construct (Bunton et al., 2000). The results of the current study support this critique. For the participants in the Action-oriented category, there was a sense that an irreversible transformation in perspective (whether in affect, oral health priority, agency, dental fear, sense of control or trust in dental professionals) had been achieved, but the reasons and time taken for this transformation differed between participants.

Participants in the Borderline category were already taking oral health-related action, in some cases potentially transformative action (e.g. Georgina), but there were still underlying emotional and attitudinal needs related to dental care. The mixed picture presented by participants in the Borderline category does not match well with the pre-contemplation or contemplation stages of the SOC in which it is assumed that action has not yet taken place. The unsatisfied emotional or attitudinal needs expressed by participants in the Borderline category had a range of origins including: adverse previous dental experiences, unanswered questions regarding the cause of their dental condition, and a lack of sufficiently detailed dental information.

In the Challenges category, participants differed significantly in their reasons for not prioritizing their oral health ranging from having established habits, having a phobia or through prioritizing the management of another health condition. It is argued here that

knowing, not just what category of trajectory the patient is on, but also the underlying reasons underpinning their oral health-related behaviours and attitudes, is crucial to enhance the likelihood of behaviour change.

These results of this study also support Bunton et al.'s, (2000) assertion that the focus on individualized behaviour change advocated by the SOC model is in line with a neo-liberal worldview that places responsibility on the individual to weigh up the pros and cons of behaviour change in a neutral way that does not recognize the social and economic context that may afford the individual advantage or act as a barrier. In this study, Bella's account demonstrated the importance of a significant other in motivating her transformation. In addition, Lynn's account and to a lesser extent, Pat and Margaret's accounts illustrate the effect that cost constraints exert on access to dental care. Cost is a well-recognized barrier to access for UK dental patients (Hill et al., 2013) as explained more fully in Section 2.4.3.2.

The results of this study also highlight the important role of emotion, or affect, in participants' experience of living with periodontal disease and their sense of identity. This is an aspect not emphasized in the SOC model. Instead, the SOC model rests heavily on the concept of decisional balance, with individuals being assumed to be making rational choices about the pros and cons of adopting the new healthy behaviours (Jamieson et al., 2014). In particular, shame and blame emerged strongly in participants' accounts in this study. Other qualitative studies, (Horne et al.'s, 2020; O'Dowd et al., 2010; Abrahamsson, 2008) have found that participants' embarrassment and shame lead to them attempting to conceal their symptoms from others, even from close family members. Self-blame and regret were also commonly expressed by participants in relation to past attendance gaps and adverse oral health-related behaviours (Horne et al., 2020). Like the participants in this study, in Horne et al.'s, (2020) and Stenman et al., (2009)'s studies many participants emphasized the importance of a being treated by a dental professional who was non-judgemental and a good communicator due to their feelings of vulnerability.

Not all participants in the current study expressed a sense of shame, there were some accounts that were characterised by a lack of emotion and other accounts that were dominated by dental fear. This range of emotional responses to living with periodontal disease has been noted in other qualitative studies (Karlsson et al., 2009). In this study past traumatic dental experiences were noted in mainly the Borderline and Challenges categories particularly for female participants. Interestingly Bella's (in the Action-oriented category) dental fear was not as a result of past dental experiences but was a vicarious

fear of dental care arising from her mother and brother's apprehension. This may have made her fear easier to address. Oliveira et al., (2017) showed that study participants who had difficult dental experiences in childhood or who had experience of painful dental conditions or dental treatment more recently, or who had a negative view of their own oral health were more likely to have dental anxiety. The efficacy of taking patients' emotions and thoughts into account in order to communicate dental information in a personalised way was also highlighted by Asimakopoulou et al., (2015).

Another interesting finding from this study was the emphasis which a number of participants put on their search for what caused them to have periodontitis. Research shows that the general public has particular knowledge gaps in relation to the causes of, and risk factors for periodontal disease, as well as its links to other systemic inflammatory conditions (Varela–Centelles, 2016). Research into the way that patients understand their illnesses (their illness conceptions), as explored in Section 2.3.1, includes a focus on the cause of the condition (Leventhal, et al., 1997). Coherence in illness conceptions is also important, i.e. the link between lifestyle factors and cause. In this study, participants, mainly in the Borderline category, who were not clear on the cause of the condition tended to alternate between self-blame, regret, looking for genetic explanations and blaming previous dental professionals for insufficient explanations. In this study, Linda, Molly's, Margaret and Pat's self-gained background knowledge about the importance of avoiding inflammation anywhere in the body acted as a motivator to oral hygiene action. It is unclear to what extent dental professionals routinely explained the role of plaque driving inflammation in periodontitis or whether the focus of explanations is on oral hygiene techniques not aetiological understanding.

In this study most participants were able to describe toothbrushing and interdental cleaning techniques in some detail, but none were able to explain how periodontitis is actually linked to smoking. Survey research studies have shown that there is a general lack of awareness regarding the links between smoking and periodontal disease amongst both smokers and non-smokers (Lung et al., 2005). Unfortunately, smoking, which accelerates the onset of periodontitis, also reduces gum bleeding, one of the key signs of the disease that patients might notice (Lung, et al., 2005). Instead, a common understanding about the effect of smoking on the oral cavity is that it causes tooth staining and bad breath (Nield-Gehrig and Willmann, 2011). This may be another area of patients' understanding that dental professionals could provide more detail on in their explanations.

Another interesting finding from this study was how much the communications preferences of individual participants varied. For example, both Jane and Jay felt that they needed “the [clinical] shock factor” when being given their diagnosis. However, for participants like Bella, Denise and Georgina, a direct and shocking diagnostic announcement without rapport building, softening, and accompanying affirmation and hope would have likely resulted in a gap in dental attendance. For a number of participants in the Action-oriented category, dental aesthetic goals were important and acted as an internal motivator. Horne et al., (2020) advocate that dental professionals should “strive to build rapport with their patients on an individual level”.

In this study, a linguistic codebook has been produced that provides examples of linguistic markers for clinicians to be aware of in patients’ behaviour change talk. These can give clues as to a patient’s sense of internal or external control, their attitude to their condition and their sense of self belief in being able to change, amongst other aspects like oral health priority and levels of dental anxiety (see Tables 6.2, 6.3, 6.4). These linguistic cues could be used to train dental students in attentive listening, as the nuances in patient talk could give an initial sense of which whether the patients’ story curve seems to be indicating an underlying positive or negative emotional direction of travel. This could in turn inform the approach, e.g. as action planning and goal setting is likely to be more effective with a participant on the Action-oriented trajectory (Prochaska et al., 2013; Norcross et al., 2013). However, it could be argued addressing any underlying dissatisfaction or negative attitudes could make any behaviour changes more sustainable for those within the Borderline category. Affirmation is also thought to be especially important with patients in the Borderline category as, according to Prochaska et al., (2013), change can be better maintained when underpinned by a strong sense of self that is valued by self and others. In terms of patients in the Challenges category, direct discussion of their oral health priority and their oral health beliefs could be beneficial. Prochaska et al., (2013) and Norcross et al., (2011) recommend nurturing or Socratic questioning approaches to patients in the contemplation or pre-contemplation stages of change (analogous to the Challenges category) in order to work with resistance and encourage insight.

A possible limitation of this stage of fieldwork is that there are a number of dentally factually incorrect statements made by participants, particularly in relation to the cause of their condition. In fact, the most significant factor in the development of gingivitis and periodontitis is the build-up of plaque on and below the gum line (Chapple et al., 2015).

Whilst genetics may play a part in the progression of the condition for some participants, modifiable lifestyle factors like oral hygiene and smoking play a very significant role (Chapple et al., 2015). However, as the aim of this stage of fieldwork was to fully elicit patients' perspectives, it is possible to see their assertions on the cause of their condition as a way of managing their emotions and coming to terms with it without too heavy a sense of blame. The results of Chapter 5 show that participating clinicians also say they sometimes use slightly inaccurate softening statements in relation to discussing the cause of periodontal disease with patients who they think may benefit from a gentler approach.

An obvious limitation of this stage of fieldwork is that it was based on participant self-report regarding periodontal disease status, which may not be clinically reliable. The interview schedule asked participants about their lived experience of typical aspects of periodontal disease, and one interview was discarded as it was deemed inconsistent with a typical periodontal disease presentation (as described in Section 6.3.3.1). It was not possible to have clinician-identified participants recruited into this study as it was conducted during the COVID 19 pandemic when UK dental care was suspended. Whilst this is a disadvantage, it also may have facilitated the participation of some of the interviewees, like Lynn, who are outside the dental care system at present. The sample therefore is likely to represent a range of disease severity levels. It also spans dental anxiety levels and captures accounts for participants accessing both NHS state dental care and private care through either dentists or dental hygienists (or both). There are other qualitative studies relating to the lived experience of periodontitis, e.g. Horne et al. (2020) and Broomhead et al., (2022) who have deliberately recruited participants with a range of disease severities in order to enhance the richness of their data. Interestingly though, in Horne et al.'s, (2020) study, all participants were on a low-cost treatment pathway, and all showed positive transformations in their attitude towards periodontal disease during their treatment journeys. This would be analogous to the Action-oriented trajectory in the present study. The current study sample was diverse, with cost constraints playing a role in some cases. Some participants were on a regular established treatment pathway and others on a more irregular trajectory. In Broomhead et al., (2022)'s study participants were recruited from a University dental hospital setting which may not be representative of patients in routine primary dental care.

In this stage of fieldwork, triangulation was achieved as all the interpretation done independently by two different coders with agreement achieved through discussion.

Where agreement was not achieved, this was explicitly discussed in the results section. Member checking of key quote sets was undertaken, however participants were not invited to comment on the final story arcs as it was thought that this might be potentially distressing for participants who were assigned to the Challenges group. Key quotes were included in the write up in order to keep as close to the data as possible. A very detailed account of the steps undertaken in the analysis was given to ensure transparency of method. Whilst this stage of fieldwork drew upon a small sample of participants, this size is consistent with other qualitative interview-based studies. Saturation was reached in the Action Oriented and Borderline categories as no new themes emerged. However, in the Challenges category there was a wide range of emotional responses to the condition displayed. It is also noteworthy that not many male or minority ethnic participants were able to be recruited into this sample.

6.6 Conclusion

Treating periodontitis is very different from treating dental decay. While patients often accept a decay diagnosis and once off treatment quite easily following pain, patients with periodontal disease show a range of responses to their diagnosis and to being told they need to permanently change their oral hygiene habits (Guido and Tolle, 1997; MDDUS, 2012b). To date, insufficient qualitative research has been conducted into the psychosocial dimensions of periodontal patients' experience (Stenman et al., 2009; O'Dowd et al., 2010; Palaiologou and Kotsakis, 2020). This qualitative study has suggested a three-category classification of patient narratives in terms of their lived experience of having periodontal disease and receiving dental care for the condition. However, within each category variation in participants' reasons for their behaviours and their socioenvironmental context differs, suggesting that an individualized approach to communicating with periodontal patients about oral health-related lifestyle is likely to be more effective than a standardized communicative approach.

7 CHAPTER 7: IDENTIFYING THE INTERACTIONAL FEATURES THAT AFFECT THE SUCCESS OF CONVERSATIONS ABOUT PERIODONTAL DISEASE (Stage 3 of fieldwork)

7.1 Introduction

Undergraduate dental students in the UK must be able to demonstrate that they can communicate "effectively and sensitively at all times with … patients" (GDC, 2015). A common way to train and assess dental students' communicative ability is through the use of OSCEs (Objective Structured Clinical Examinations) which are short, timed roleplay conversations that students have with Simulated Patients (SPs) who are actors (for more detail see Section 2.2.5). OSCEs are usually assessed by noting the presence or absence of aspects of communication on a checklist, however this gives very little guidance to students on how to improve their actual language use and communicative approach (for further explanation see Section 2.2.5). Unfortunately, there are very few linguistic analyses of OSCE communication. One exception to this is the thematic discourse analysis of good and poor scoring OSCEs conducted by Roberts et al., (2003) which isolated successful and less successful linguistic strategies used by medical undergraduate in OSCE communicative interactions. There are no linguistic analyses of OSCEs in dental communication known to this author. In addition, the SP perspective on what constitutes good communication in OSCEs is underreported in the literature as was discussed in Section 2.2.5.

7.2 Aim and objectives of this stage of fieldwork

7.2.1 Aim

To identify the interactional features that make simulated conversations about periodontal disease either more or less successful for a range of SP characters.

7.2.2 Objectives

To design a formative periodontal disease roleplay scenario suitable for an initial consultation with a simulated patient who has periodontal disease (based on the results of Chapters 2, 5 and 6).

To develop a set of character briefs for SPs based on the previous stage of fieldwork (interviews with people who have periodontal disease in Chapter 6).

To develop an SP-facing criterion-based scoring system using a Likert scale (based on the results of the literature review and Section 2.3) so that the different roleplays can be sorted into those perceived by SPs as being successful from those seen as less successful.

To recruit consenting Year 3 dental surgery (D) students, Year 2 dental hygiene therapy students (DHDT), dentally qualified international postgraduate students and qualified dental tutors (both D and DHDT) to participate in short, timed SP roleplays discussing periodontal disease.

To facilitate the provision of verbal and written feedback from SPs to consenting roleplay participants (students or tutors).

To conduct a fine-grained discourse (linguistic) analysis of the transcribed SP roleplay interactions (after Roberts et al., 2003) to distinguish the interactional features associated with more and less successful SP interactions.

7.3 Method

7.3.1 Methodological approach

A fine-grained discourse analysis approach was used in this stage of field work. Discourse analysis can be thought of as an umbrella term consisting of a suite of approaches to analysing language patterns ranging from broad-based approaches (analysing discourse at the level of a whole society) to fine-grained micro-analyses of individual conversations (Lupton, 1992; Hodges et al., 2008), as explained in more detail in Section 5.3.1. There is some overlap between a fine-grained discourse analysis approach and conversation analysis (CA). However, in CA a tightly prescribed set of methods is used to conduct a micro scale linguistic analysis (Parry and Land, 2013). In common with other language-based approaches, CA starts with naturally occurring conversational data which is closely transcribed using certain transcription conventions. In CA close transcription takes account of all features, both verbal and non-verbal, including, for example, pauses, gaps and intonation, as these features can hold valuable information about the interaction (Parry and Land, 2013). These transcriptions are subjected to re-reading and analysis to identify the typical and atypical features of these kinds of conversations. The identified features are compared to established literature

relating to these kinds of communicative practices and how they function (Parry and Land, 2013). The unit of analysis in CA is a linked set of speech turns that forms a sequence (Parry and Land, 2013). The focus in CA is what is occupying each interlinked talking turn in a sequence to identify how the social function is achieved. CA is arguably particularly relevant to dental communication as it can show how a communicative function is achieved at a micro-level in a new under-explored context.

Having said this, though, a pure CA approach was not followed in this stage of fieldwork as it was thought to be inappropriate both to the large size of the data set and in terms of the overall aim of this study. Instead, the approach used could be described as a fine-grained discourse analysis approach similar to what was used in Roberts et al., (2003). However, a number of concepts from CA were used in the design of this micro-level discourse analysis, in particular: word choice, topic framing (as negative or positive, or tentative or definite), and syntax (phrasing choices such as using open or closed questions) and staging (the order of different sequences within the interaction (Tietbohl and White, 2022).

7.3.2 Developing the SP character briefs, the roleplay scenario and the SP scoring criteria

Six SP briefs were developed based on the interviews with people who have periodontal disease from the previous stage of fieldwork (Chapter 6). Table 7. 1 shows the link between the interviewee accounts and the corresponding SP character briefs. Two accounts were chosen from each category (where possible): one from a male and one from a female participant on the basis that the chosen accounts were sufficiently clear and detailed to be used to develop the SP briefs. In developing the SP briefs, modifications were made to the interviewees' occupation, smoking status and sometimes to their gender in order to preserve anonymity. Whilst the brushing habits of all SP characters was kept as the same, the characters in the Action-oriented category were scripted as non-smokers, the Borderline category as current smokers who were reducing their cigarette use, and the SP characters in the Challenges category were scripted as current smokers. By way of example, a summary of the character briefs to show how these vary by category for the male characters is contained in Table 7. 2. The full character briefs for all 6 SP characters are contained in Appendix 11.3.5. Direct quotes from the interviewees featured prominently in these character briefs in order to give additional guidance to the SPs on characterization. All of the SPs used in the roleplays are experienced actors who have done a lot of simulated patient work in a healthcare context.

The SPs are used to giving students feedback on their communication skills. The roleplay scenario used for all SP characters is contained in Figure 7.1 and SP scoring criteria in Figure 7.2.

Table 7. 1: The link between the interviewee accounts in Chapter 6 and the SP character briefs in Chapter 7.

Interviewee in Chapter 6	**Corresponding SP character brief**	**Category**
Kenneth	Keith Simpson	Action-oriented
Pat	Joan Harvey	Action-oriented
Jane	Sam Williams	Borderline
Georgina	Kesia Wood	Borderline
Jay	Ray Patel	Challenges
Lynn	Judy Whitelock	Challenges

Table 7. 2: Simulated Patient character briefs based on the interviews with people with periodontal disease from an earlier stage of fieldwork in this study.

Characteristics	**Challenges**	**Borderline**	**Action-oriented**
Name, sex, age, occupation	Ray Patel. Asian male in his 50's. Security.	Sam Williams. White male in his 50's. Teacher.	Keith Simpson. White male in his 50's. Supplier.
Smoking status	Current smoker (15 a day since age 16 years)	Smoking since 16 years old, cutting down to 2 or 3 a day	Former smoker, gave up 30 years ago.
Drinking habits	Moderate: a few whiskies with friends at the weekends.	Moderate: a few pints a week	Moderate: a few glasses of wine per week with meals.
Brushing habits	Once a day as shown in the military. Usually in the morning, often skips evenings when tired. No interdental cleaning.	Sometimes twice a day, sometimes once depending on time. Brushes and reads emails at same time. No interdental cleaning.	Once a day as was taught by parents. Wasn't aware twice is needed. Goes 'hammer and tongs' at brushing. No interdental cleaning.
Oral health priority	Regular attender at the dentist. Expects dentist to sort out problems with teeth. Feels lucky that gum disease has not involved pain. Expects to lose teeth as dad did. Not embarrassed.	Initially sceptical of dentists, irregular attender, very cost conscious. Time poor. Bit embarrassed about gum disease diagnosis.	High priority. Teeth as important to him as eye care. Would be gutted if a dental disease was diagnosed. Regular attender.
Needs	Shock factor. Blunt message in everyday language. Repetition of message needed as very difficult to change a routine. Rapport with dentist needed.	Strong sense of consequence of disease progression (shock factor), clear information, preferably visual, goals and targets, preferably some praise or recognition for progress.	Honest appraisal of consequence of disease. Evidence-based explanation using well explained dental terms. Regular feedback on progress using clinical indicators.

SP ROLEPLAY SCENARIO

Instructions:

Introduction:

You are meeting your patient in the periodontology clinic of the Leeds Dental Institute (LDI) for the first time. They have been referred to the LDI by a dentist that they visited recently after not attending for several years. The patient has been told that the reason for referral is 'inflamed gums'; but he / she is not really sure what this means or how it applies to them.

Medical history: Medically fit and well other than over-the-counter medication for occasional headaches.

Key findings: BPE: 3 / 2 / 3

4 / 3 / 4

Extractions are not needed at the moment, but could be needed if the disease is left to progress.

Diagnosis: Periodontitis Stage 3, Grade B

Your task is to:

- Take a social history to establish if there are any risk factors (you do not need to take a diet history).
- Explain the diagnosis to the patient, in particular that this is a condition that will need an extended course of treatment alongside lifestyle changes.

Figure 7. 1: The roleplay scenario for students and tutors interacting with any SP character

Simulated Patient Rating Scale

Name of student: _____ Day: _____ SP name:_____

Rating: When the student has left on completion of the interaction, please rate the students or tutors using the following scales and give some free form written feedback:

I feel that the student showed respect for me and acted in a **caring and professional manner**

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

I feel that the student's **explanation** of gum disease was **clear.**

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

After this consultation, I think that my gum condition is **serious.**

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

I intend to **make changes to my lifestyle** as a result of the consultation with this student.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

Additional written feedback:

_____

_____

_____

_____

Figure 7. 2: The feedback form filled in by SP immediately after the roleplay interaction

7.3.3 Ethics

The University of Leeds School of Dentistry was the research site for this study. Year 3 Dental Surgery (D) students and Year 2 Dental Hygiene Therapy (DHDT) students were chosen to participate in this study. The rationale for this is that both years have started their clinical experience and will have had some conversations with patients about periodontal disease already, but their practice will not yet be well established, so there will be more to learn from feedback. To add contrast, clinical tutors and already qualified postgraduate international students were also included in this study. The SP roleplay interactions were conducted during the 2021/2 and 2022/3 academic years. The roleplays were part of ordinary formative scheduled teaching and were not assessed. Ethical permission was granted (DREC reference number: 040222/MB/343). The total sample was 90 recordings gleaned from interactions with 6 SP characters played by 9 different actors.

The interactions each lasted up to 8 minutes, and participants were made aware that they could pause at any time if they wished to. Verbal feedback was given by the SP and facilitator (who is also the researcher in this study) directly afterwards as part of a two-way reflective conversation with the student. None of the tutors opted to receive verbal feedback after their interactions. The SP scored each interaction on a five-point Likert scale as shown in Figure 7. 2 and also wrote some open text feedback.

Transcription, which was undertaken by the researcher, formed part of the initial data immersion stage of the analysis. The transcription conventions used are shown in Figure 7. 3.

Transcription Key

D = dental student or dental tutor (could be Dental Surgery or Dental Hygiene Therapy).

P = simulated patient

(.) pause

((nods)) Non-verbal communication

[inaudible] section that was not able to be transcribed

= word or phrase =

= another overlapping word or phrase = (overlapping speech where two speakers are talking at the same time)

Um, mm or erm for filler sounds

[ ] added by the author to refer to what was said previously

1:03 is a time stamp from transcription

Figure 7. 3: Transcription conventions used in this study (after Roberts et al., 2003)

In terms of transcription, an initial statement about the body language adopted by both participants at the start of the interaction was noted, and, following that, any major shifts in body language or tone were noted. A more detailed line by line description of non-verbal shifts was thought to be impractical for the size of this data set and not needed in terms of to achieve the aims of this stage of fieldwork. However, where body language was pointed out as a particular barrier or enabler by the SP in their feedback, more attention was paid to this aspect in analysis of those particular interactions.

7.3.4 Data Analysis

Data analysis was undertaken by the researcher (MB). The starting point for analysis was the SP scores and written feedback. During analysis, the highest and lowest scoring interactions for each SP were closely transcribed and analysed in juxtaposition to each other to develop hypotheses about what were the most important interactional features or sequences for each SP (the crux of the interaction). Interaction maps (after Roberts et al., 2003) were created for these high and low scoring interactions for each character as a way of further crystallizing differences. An example interaction map is contained in Appendix 11.3.7.

Following on from hypothesis generation regarding the crux of interactions with each character, the mid-range scoring interactions were then analysed, and detailed viewing notes were made. Where there was disconfirming evidence or a striking example of confirming evidence, the relevant sequences were transcribed for further analysis. In addition, if the crux of the interactions was not immediately identifiable, the features of all the interactions for that SP were tabulated as a means of comparison. An example of such a comparison table is contained in Appendix 11.3.6.

7.4 Results

7.4.1 Challenges Category: Ray Patel and Judy Whitelock

Two SP characters, namely Ray Patel and Judy Whitelock, comprised the Challenges category. The condensed character briefs for each SP are shown in Table 7. 3 below.

Table 7. 3: Condensed character briefs for the SPs in the Challenges category

Character	**Ray Patel**	**Judy Whitelock**
Key quotes	"There's no point in being embarrassed about it – you've lost some teeth. I've been lucky in the sense that I've never had any bleeding or pain with it." "If it has progressed and the person has their own way of doing their routine, and would have to start all over, it might be difficult, but still you would need to stop and shock."	"I prioritized having a roof over my children's heads rather than having dental work for me." "I approach my life in a fatalistic way… possibly a future without teeth… as they fall out one by one. I feel like I am a lost cause." "I have let myself go for various reasons that are meaningful to me."
Underlying health beliefs	"My dad only has a couple of teeth left – maybe that's just what happens when you get older. No need to be embarrassed about it".	"Caring for my disabled son comes first." "Having dental treatment lying down is disempowering, it's a trigger for me. I don't want any more poking and prodding."
Characteristics	Profile: British Asian Male (50's) Smoking status: 15 a day since teens Dental history: Attends fairly regularly if likes the dentist, but is not making changes to oral hygiene or smoking status. Tendency to attend more for dental emergencies. Brushing: Once a day in morning usually, following routing taught in military many years ago. At night may skip it if tired. Symptoms: no pain, occasional bleeding, a few loose back teeth. Dental anxiety: Not anxious. Saw 'butcher dentist' in the army Occupation: Private security, formerly military.	Profile: White British Female (Judy 2) or British Asian female (Judy 3) Smoking status: 15 a day since teens Dental history: Irregular attender, last attended more than 10 years ago. Only attended this visit as persuaded to by a friend. Brushing: Irregular, when there is a chance between caring for her son. Symptoms: no pain, occasional bleeding, looseness in a couple of back teeth. Dental anxiety: Aversion to dental and medical care since disabled son became aggressive. Feels vulnerable in dental settings. Occupation: Carer for son. Does online transcription work at home.

7.4.1.1 SP Ray Patel

Ray Patel is a character who attends the dentist but is generally disinclined towards lifestyle change, especially as he is not experiencing dental pain and the moment and also as he has accepted the inevitability of tooth loss (his father lost all his teeth). The 15 interactions between Ray and Year 3 dental students are shown in Table 7. 4 below.

Table 7. 4: The interactions between dental surgery students and Ray Patel

KEY:

- Interactions in **bold** were fully transcribed, linguistically analysed and interaction mapped. Interactions not in bold were analyzed through detailed note taking and close transcription of significant sections showing strong confirming or disconfirming evidence. The scores were given by the SPs using the criteria in Figure 7.1.

SP Ray Patel interacting with:	**Score /20**
Female Year 3 Dental Surgery (D) student	**10/20**
Male Year 3 D student	**10/20**
Female Year 3 D student	11/20
Female Year 3 D student.	12/20
Female Year 3 D student	13/20
Male Year 3 D student	13/20
Female Year 3 D student	14/20
Female Year 3 D student	15/20
Male Year 3 D student no 1	15/20
Male year 3 D student no 2	15/20
Female Year 3 D student no 1	16/20
Female Year 3 D student no 2	16/20
Female Year 3 D student no 3	16/20
Female Year 3 D student	17/20
Female Year 3 D student	**18/20**
TOTAL	**15 interactions**

The crux of the interactions with Ray were the sequences where tooth loss as the end consequence of untreated periodontal disease, was discussed. In the interactions with female D students scoring 10/20, 11/20, 12/20 and 13/20, closed questions from the student and minimal responses from Ray predominated, meaning that tooth loss was not mentioned by either party, so the crux was not reached at all. These students were invited to do a retake to try to discuss tooth loss, as the interactions had ended early. The student scoring 10/20 did manage a successful retake on her third attempt. In this retake, her points were negatively framed (see lines 128, 129 and 131 below), but she did directly address the SP's oral health beliefs after having missed the patient's cues previously. The transcription conventions used in the quoted extracts are contained in Figure 7.3.

Third attempt (female D student scoring 10/20 and Ray), Title of extract: Can't put a denture on an inflamed gum.

127 P any other impacts I need to know about?

128 D so if you lose your teeth your smile won't be pleasant. You can lose function while 129 eating (.) and not speaking as usual (.)

130 P ((scratches face)) but I can get dentures, though, couldn't I, if I lost my teeth?

131 D dentures are one of the options, however as I said with periodontitis we need to stabilize it, we can't put a denture in an inflamed gum

133 P oh right.

In contrast, if tooth loss was framed as a possibility using words like "might" "could" or "possibly" (or others shown underlined in the extract below), Ray tended to rate the condition as less serious. In addition, if any generic statements were made (see italics below), then this also reduced Ray's severity scores. In feedback SP Ray said that he would only consider changing his lifestyle if the threat felt "immediate" and was "spelt out in black and white". The phrase in bold below is a linguistic marker for repetition on the part of the SP. There are numerous instances of this kind of repetition by SPs in the data set which usually indicate an unmet concern.

Male D student 13/20 and SP Ray: It could, like, progress…

69 D um and if we don't sort of stabilize it now, it <u>could</u>, like, progress further

70 P right

71 D and like cause, <u>for example</u>**,** tooth loss or recession, and we don't want that
72 for you. *We want to maintain optimal health*. Working together we can stabilize
73 this and currently it's unstable

74 P mmm

75 D and we can work together to (.) get into a position where it's, <u>like,</u> quite healthy and causes you minimal, <u>like</u>, damage to your oral health

77 P right ok

78 D um, how does that sound?

79 P um yeah, it sounds (.) um, it makes sense

80 D Would you be willing to, um ((gestures with hands)) be, <u>like</u>**,** willing to take some further treatment because with *this current state* right now, we do need to take <u>kind of</u> (.) action, if that makes sense.

83 P well, **like I say**, at the moment I don't really feel any pain or anything so I don't really feel I have (.) or I like really need to make any changes

One student (female D student 12/20) said that she felt deflated when dealing with resistant patients like this and felt that anxious patients were more receptive to advice. Another student (female D scoring 11/20) gave a shocked laugh and stopped the interaction mid-way when Ray said he had accepted he was going to lose his teeth. A further female D student 13/20 gradually made her language more firm, immediate and definite in her retake, which Ray said was starting to capture his attention. The SP's feedback to all of these students was that they needed to pick up on his disengaged body language and deliver a clear and definite message about how the condition would impact on him personally.

Other students were unsuccessful because they used long turns without breaks (e.g. male D student 15/20) in their explanations, or used unexplained jargon (e.g. BPE scores, bone resorption), or discussed risk factors that were not relevant to Ray (e.g. snacking or tooth grinding) (female D student 15/20). Another feature associated with lower scoring was if the tooth loss consequence was disclosed and then immediately undermined by saying "that must all sound a bit scary" or "don't worry about it" (e.g. female D student 15/20).

Higher scoring interactions 16/20, 17/20 and 18/20 were characterized by information delivered in short turns about one sentence at a time with regular check ins and using visual support, e.g. using an upwards fist gesture to represent the tooth and a gradually

unclasping hand around the wrist to symbolize loosening gums. Alongside a short clear message, Ray also praised students who built rapport with him, especially at the start of the interaction, but this was not crucial to scoring. The extract below shows a rapport building sequence with overlapping speech in lines 22 and 23 between Ray and the female D student scoring 18/20.

Female D student 18/20 and Ray: You must be sick of everyone…

20 D um and has anyone ever spoken to you about stopping smoking before?

21 P yeah, my doctor does every time er

22 D Yeah you must be quite sick of everyone = who advises you =

23 = oh everyone, yeah = everyone saying, it's gonna kill you and all this yeah, yeah, yeah so every [inaudible]

The main influence on scoring for this character was whether he felt his underlying oral health beliefs had been "tackled directly and unequivocally" (see the underlining to show the positively framed and direct "we can stop it" using the pronoun 'we' to establish partnership in line 90 below). Also noticeable in line 89 is that Ray was engaged enough to ask a question, which is something that was not seen in many interactions.

Female D student 18/20 and Ray: We can stop it!

86 D … even the smoking which I'm sure you won't, you know, you don't want me
87 to mention, but I will, um, things that can contribute, to sort, of stopping (.) your
88 teeth, your tooth needing an extraction

89 P right, so you think you could actually stop it?

90 <u>D we can stop it, we can try to work together</u> (.) you know, try to give it <u>our best shot</u> so you don't need to (.) so the disease is stabilized.

A summary of the successful and unsuccessful features of roleplays with SP Ray are contained in Table 7. 5. The features marked in bold are those that were crucial to scoring, which acted as key discriminating features.

Table 7. 5**:** SP Ray: Summary of successful and unsuccessful features.

Key: Crux features are in bold.

	Features that were unsuccessful	**Features that were successful**
Information gathering	Predominantly closed questions Clinical agenda dominant, no attempt to elicited patient's underlying health beliefs and expectations Off-topic closed questioning, e.g. detailed alcohol history questioning.	Mixture of open and closed questions in early part of consultation. Very frequent meaning checks in the explanation that are often **open questions** or hanging statements that work as information gathering opportunities to elicit health beliefs.
Interpersonal (rapport)	Rapport building sequences were present in both successful and unsuccessful roleplays. Rapport building at start was preferred but didn't affect scoring.	
Interpersonal (framing)	Negative and positive framing was used for lifestyle advice and questioning. Positive framing was preferred but didn't affect scoring.	
Interpersonal (empathy / identification)	Not identifying with individual patient's experience, through generic advising, e.g. advice given on reducing stress although patient has said they are not stressed or repeated entreaties to stop smoking.	Identification with patient's individual experience tailored to their responses, e.g. "you must be sick of everybody advising you [to stop smoking]", & "it must be challenging coming back and forth to appointments"

Table 7.5 is continued on the next page

Table 7.5 continued

	Features that were unsuccessful	**Features that were successful**
Explanation	No attempt to elicit prior knowledge Jargon used in explanation Rushed, unclear, contradictory or hedged or softened explanation Long explanatory turns without meaning checks or with a few closed meaning checks e.g. “do you understand?” often at the end of a long explanation. Tooth loss consequence of unchecked periodontal disease not discussed, and SP’s oral health beliefs not elicited. Consequences of unchecked periodontal disease discussed but using vague language, softening or in a de-personalised way, e.g. “numerous factors can influence how long people keep their teeth”. Off topic explanations, e.g. oral cancer risk explanation.	Elicits prior knowledge with open questions e.g. “what do you know so far” Explanation is visual using gestures or diagrams and everyday language. **Small chunks of information with frequent meaning checks, including open checks, e.g. “how are you feeling about what we have discussed so far?”** **Honest about consequences and direct, e.g. “if left unchecked it can actually lead to getting your tooth extracted.”** **Honesty immediately followed by affirmation or hope e.g. “together we can stop it.” Affirmation repeated later.** **Directly addresses SP’s oral health beliefs. Lifestyle advice tailored to SP’s individual risk factors.** **Personalised lifestyle change suggestions made with honesty and affirmation e.g. ”your smoking is actually impairing the healing of your gums… we can work with you to help you stop.”**

7.4.1.2 SP Judy Whitelock (actor 2) and Judy Adoma (actor 3)

There were three actors playing Judy Whitelock. Actors 2 and 3 played Judy in a similar way, but Actor 1 had a significantly different interpretation. For Actor 1, Judy was interpreted as being a phobic patient who was unable to really speak or engage if not given substantial reassurance prior to lifestyle change discussions. In contrast, Actors 2 and 3 emphasized Judy's main priority (taking care of her disabled son) prior to revealing her dental apprehension. A decision was taken to remove the data for Judy 1 from this analysis as the interactions were thought to represent a departure from the main aim of this study (exploring behaviour change conversations relating to periodontal disease rather than exploring communication with dentally phobic patients). The interactions with Judy 2 and 3 are shown in Table 7. 6. As shown, most of the interactions were with Year 3 dental surgery students, however, there were also three interactions with qualified dental professionals.

Table 7. 6: Interactions between Judy and dental students or tutors

Actor 2: Judy Whitelock	**Overall Score /20**
Male Year 3 D student	**8/20**
Female Year 3 D student	10/20
Male Year 3 D student	10/20
Male Year 3 D student	12/20
Female Year 3 D student	12/20
Male Year 3 D student	13/20
Female Year 3 D student	13/20
Female Year 3 D student	14/20
Male Year 3 D student	15/20
Female Year 3 D student no 1	16/20
Female Year 3 D student no 2	16/20
Female Year 3 D student no 3	16/20
Male Year 3 D student no 1	17/20

Table 7.6 continued

SP Judy Whitelock	**Score /20**
Male Year 3 D student no 2	17/20
Male Year 3 D student no 3	17/20
Male Year 3 D student no 4	**17/20**
Actor 3 Judy Adoma (BAME)	
Female international Post-graduate	**10/20**
Female international Post-graduate	**17/20**
Female Dental Hygiene Therapy tutor	**17/20**
TOTAL	**19 interactions**

KEY: - Interactions in **bold** were fully transcribed, linguistically analysed and interaction mapped.

- Interactions not in bold were analysed through detailed note taking and close transcription of significant sections showing strong confirming or disconfirming evidence.
- D = Dental Surgery; DHDT = Dental Hygiene Therapy

Similar to Ray, there are significant barriers for Judy that prevent her from engaging with lifestyle change discussions. In contrast to Ray, who usually directly articulated his oral health beliefs after tooth loss had been mentioned, for Judy her personal priorities were more hidden. Judy usually explained that she didn't have time for habit change when oral hygiene was mentioned, when there was a deliberate pause, or when an open question was asked. However, the students needed to pick up Judy's cues and ask follow-up questions in order to get to the crux of the interaction. The crux for Judy was whether the participant fully acknowledged her main priority. If the participant showed empathy for her difficult caring situation and focused instead on clinical closed questions or one-way explanations, then Judy would repeatedly re-emphasize her constraints, and also the fact that she is not in dental pain at the moment anyway. The following low scoring extract shows a tokenistic acknowledgement of Judy's life situation in line 21 and 22 (italics) with a swift return to the clinical agenda (lines 24 underlined).

Female postgraduate student and Judy 3 10/20: Any mouthwash?

15 D so in terms of your brushing, how many times do you brush?

16 P ((speaking softly)) um I try to brush every day at least once but I'm just so busy, um I've got a severely disabled son that I look after. It takes a lot of my time, a lot of my attention so it's usually about this time ((gestures palms upwards)) that I even manage to get a cup of tea some days so I just, I try to do it but I don't brush every day as I should really

21 D *mm alright ok I understand your situation, completely understand ((mirrors*
22 body language, softer tone not smiling)) ((looks at notes periodically)) erm and
23 so you mentioned that you brush once a day and because of your busy
24 schedule, that's alright, do you use by any chance any mouthwash or anything?

25 P no

In this interaction the clinical agenda continued to dominate, and Judy repeated that her oral health was not her priority a number of times before the interaction ended early just after the 5:00 minute mark. It is possible that the postgraduate student realized that she had not made much progress with this SP in terms of behaviour change. This was shown in the final sequence (below) in which the postgraduate student resorted to begging the SP to consider change. It is noteworthy that the postgraduate student had not asked the SP any follow-up questions regarding her main priority during this interaction.

Female postgraduate student and Judy 3 10/20: I'll try, but I can't promise…

71D…don't you think, if you, if you want, don't you think you want to at least lessen the smoking

73 P I'll try

74 D if if that's what all I want to hear is that you = will try =

75 P = I'll try = but I will (.), I'll try but I can't promise

76 D yeah but if you can at least make it less than usual and then by the time, less and less and less then you will reach what you expect because we need to protect these gums, we don't want to lose your tooth sooner, you are fairly young, we don't want your teeth to be lost really soon. Is that ok?

80 P ((says 'ok' so softly it is barely audible))

81 D is that ok?

82 P ((says 'ok' so softly it is barely audible))

83 D are you willing to try?

84 P I'll try, I'll try ((softly))

85 D That's alright, that's good

A very similar pattern was noticed in the 12/20 interaction between a female D student and Judy 2. The clinical agenda predominated in this interaction with long explanatory turns and closed questioning up to the 4:00 minute mark. Following this, the interaction entered a repetitive sequence containing a lot of overlapping speech where the oral hygiene advice given using phrases like "I really urge you to…" was rebuffed by the SP repeating that she doesn't have time for that (see underlining below) using the phrase "like I said" or "I've already said to you…" (in bold below). The student in response, repeated the tooth loss consequence of untreated periodontal disease in stronger and stronger terms, but this had little effect as the SP's priorities had not been explored. The SP's cues regarding her main priority are marked in italics below.

Female 12/20 D student and Judy 2: I don't have time

64 D So (.) right, in terms of brushing your teeth, you mentioned that you don't brush your teeth, um is that at all, or is that occasionally =you might brush your teeth or=

67 P = <u>when I have time</u>= I might brush them (.) *my priority has never ever been my teeth*

69 D ok right, ok, that's a very good place to start. We can start there, we can look into getting into that habit = of brushing your teeth =

71 P =it's not about habits = <u>it's about having the time</u>

72 D = having time =

73 P I just don't have<u>, I just don't have the time</u>, **as I said**, I'*ve got other priorities apart from me teeth*.

75 D What we can do is, we can work with you to find the time and a way around.

76 P <u>I don't have time</u>, and it's easier said than done

77 D I totally understand that, but there are definitely other things that are probably a higher priority

79 P *Absolutely there is*.

What is noticeable in the extract above is that the student seemed to be hearing the SP's repeated concerns (see echoing in line 70) but did not ask any follow-up questions. At the end of the interaction, in a retake, the student was encouraged to ask the SP what their

main priority was and then the SP revealed she was a carer for her severely disabled son. Then the student explained that if she was the patient, then she would also see this as a higher priority than her teeth. However, she said that in the interaction she wasn't sure how much she could ask about a patient's personal life; she was not sure where the boundaries were with that. The SP explained that as a clinician you need to know about the patient's lifeworld in order to be able to explore ways to help them.

In another unsuccessful interaction between a female D student scoring 13/20 and Judy 2, very few cues were given because the SP didn't have much opportunity to speak. Very long explanatory turns by the student which were repetitious and used jargon (e.g. bone resorption) created a long one-way conversation that ran until 8:51. The student identified afterwards that she "had a tendency to waffle a bit" due to "feeling overwhelmed". The SP said "your agenda and my agenda never met so we couldn't make shared care decisions". Judy said she would not be likely to come back to a future appointment. In a retake the student found out about the SP's main priority and said she would have shown more empathy given another chance at the interaction.

A male D student scoring 13/20 who interacted with Judy 2 had been "honest and sincere about the consequence of untreated gum disease", according to the SP in the verbal feedback, but had missed a crucial cue by asking a closed rather than an open question. The student said in feedback afterwards, "I shouldn't have closed it down to work" (see line 25).

Male D student 13/20 and Judy 2: What is it you do for work?

21 D Are you aware of, like, the risk of possibly losing your teeth with smoking?

22 P Well as I say, me, me teeth have never been my priority anyway, so ((shrugs))

23 D Ok, is that because you've got a lot, like, going on = with work=

24 P =yeah= well with everything

25 D what is it you do for work?

In a similar pattern to that seen with Ray, there were a number of students who stopped the interaction with Judy midway as they were unsure how to continue. The extract below illustrates this.

Male D student 12/20 and Judy 2: **She said her teeth are not her priority**

34 D What we are going to do is to remove this bacteria ((gesture)) = from any =

35 P = I don't want any treatment = I don't want any treatment, I don't want to be going into the dentist chair for any length of time.

37 D So how about any changes to your lifestyle that can reduce this inflammation?

39 P But I'm not in any (.) I'm not in any pain

40 D Ja, but if we leave the gums as it is, this will cause progress of bacteria into your bone, so it might lead to bone loss and (.) may cause mobility for some teeth

42 P My teeth, my teeth have never been my priority anyway

43 D 4:10 ((Pause. Student looks at camera, turns to facilitator)). She says her teeth are not her priority, what can I say?

45 Facilitator: Go back in and ask why. You can ask in a nice way, "may I ask what is your priority at the moment?"

At this point the SP explained about her disabled son and that she had accepted tooth loss as she was not keen on dental treatment anyway. The student then asked to stop the interaction for a second time. This time, in discussion with the facilitator, the student identified that he wanted to ask more about the SP's past dental experiences. The student then used open questions which allowed Judy to take longer turns to explain the source of her dental fear. The SP ended by praising the student for his eventual patient-centred focus.

In contrast, to the low scoring interactions with Judy, the male D student 17/20 no.4, paused when Judy explained her low oral health priority and asked a crucial open follow-up question (see line 63 underlined). This marked a definite turning point in the interaction between the clinical first half which followed a dentist-driven agenda with minimal responses from the SP, and the second half where Judy took longer turns as they explored possible sources of support for her situation together. It is interesting that Judy's perspective was initially elicited by means of a rare example of a 'teach back' request in line 51 and 52 which gave Judy the permission to take a longer speaking turn.

Male D student 17/20 no. 4 and Judy 2: Might I ask?

51 D super, so could we maybe go through that, maybe just check if um (.) I've
52 explained everything (.) thoroughly

53 P so why I say, I'm not, I'm not in any pain so if if that's all happening then I don't (.) I don't understand why I'm not in any pain

55 D it is a very slow, slow process and can take several years, from what I've understood from what your (.) previous dentist has referred said, you are currently towards the later stages of it so some of it has already happened, so what we can do now from here if we can give you the teaching skills er to clean your teeth as efficiently as, as, you can, um. We can help try and slow that process down as best we can

61 P [inaudible] I just don't have time for for cleaning skills, er I've, you know, my teeth ((clears throat)) my teeth have never been my, my, number one priority

63 D might, might I ask what has been?

64 P my son, my son's erm 22. He is severely disabled, so, (.) I'm a single mom erm I don't have, we don't have any carers so when I I when he gets up on a morning ((intake of breath)) he's he's my priority so I have to sort him out, I've got to make sure he's ok during the day. Thankfully I work from home er, then on an evening again, I'm taking care of him, getting him ready for bed and then by the time I go to bed, which isn't long after him, erm (.) I'm absolutely exhausted so I don't have time to be cleaning me teeth, I don't even wash me face most nights I just collapse into bed with exhaustion and I'm shattered when I get up on a morning and I start again,

73 D yeah

74 P it's just like groundhog day every day =it's mad=

75 D =are you =

76 P =it's why I've= (.)

77 D = are you = aware of any, I suppose (.) infrastructure like in assisting, anything like that, like in terms of assisting yourself, like you said, you are a single mother erm (.) are you aware of any government institutions or any other community or adult [inaudible] helpers?

This interaction ended with the dental student offering to look into grants or support for the SP's living situation before the next appointment, matching the SP's priority. The SP's feedback was that "there was so much empathy there, you were genuinely so sincere about, right, I want to find some support for this woman and then we can talk about her teeth. The teeth went out the window, and it was just beautiful". However, in this interaction the SP's brushing history was not elicited and no oral hygiene advice was given, but the SP was very willing to come to a future appointment. It could also be argued that this student was stepping outside of his scope of practice here in offering to assist the SP in finding support with her disabled son.

In the interaction above, the SP's main priority was elicited by asking a direct follow-up question upon noticing a cue. In other successful interactions, the SP's main priority emerged directly at the start of the interaction in rapport building sequences dominated by open questions and longer SP speaking turns.

In the interaction between Judy 2 and male D student 17/20 no 2, the student used the following open questions at the start of the interaction:

- How are you today?
- How was your journey coming in?
- Why are you feeling nervous?
- How do you feel about your oral health in general?

This gave Judy the opportunity to speak in longer speaking turns and to reveal her nervousness about dental appointments, her painful dental experiences in the past, the fact that her friend had brought her to the appointment, and that dental treatment was not her priority as she was not in pain. Apart from making backchannel noises to show active listening, the student also normalized Judy's anxiety by explaining that dental patients are often quite nervous and he himself sometimes feels anxious about treatment. This sequence ended at 2:00 minutes into the interaction when the student started to explain Judy's diagnosis. Judy said later that due to the rapport built at the start the interaction, it felt like a chat. Also, the student explained that periodontitis is not painful at the start but could result in discomfort and extractions if left unchecked which directly addressed one of Judy's beliefs elicited early in the interaction (her assumption of pain-free tooth loss). Similarly in the interaction with the male D student 17/20 no 1, the student immediately picked up Judy's anxiety and spent several minutes at the start in discussing this and providing reassurance.

Following the same pattern, in the interaction between Judy 2 and male D student 17/20 no 3, Judy had the longest speaking turns in the first 3:00 minutes. Afterwards Judy said that the first part of the consultation had been patient-centered and the second part more clinical. This student opened the consultation with "How are you doing, you ok?" which elicited that Judy was nervous. The student then approached the consultation by using a lot of positively framed affirmations and follow-up questions, e.g.

- Affirmation: Thank you for coming in Judy
- Open question: You mentioned you are a little bit anxious, um I just wondered if you could explain that to me please, what's causing the anxiety?
- Affirmation: Thank you for sharing that
- Normalizing statement: I completely understand, we do get a lot of patients who come in who have had a situation [bad experience at the dentist] like that
- Reassurance: the good thing is there won't be any needles or any pain involved today, it's just a chat
- Normalizing: even when I was a kid, we didn't go to the dentist very much and my mom's friends also stepped in, so it's a similar situation
- Affirmation: it's really good that you came in
- Affirmation: going back to that last appointment with the dentist, how was that compared to that previous bad experience that you had? Ok right, so you feel that you are getting a little bit better at coming to the dentist?
- Affirmation: You've done the right thing
- Affirmation: Good on your friend for motivating you to come in today

In this high-scoring interaction, Judy's concern about her disabled son was not elicited until 7:45 so there was not much time to discuss this, however perhaps the affirmation and open questions in the first part of the consultation had generated enough rapport with Judy for her to feel comfortable enough to consider returning to this dentist in the future, despite her main priority not being discussed for very long.

In contrast, rapport with Judy was negatively impacted if persistent negatively-framed smoking cessation advice was given. The most extreme example of this was seen in the interaction between the male D student scoring 8/10 and Judy 2. The SP's feedback after this interaction indicated that the student had had a gentle tone, but there had been too much "telling". Judy said that she was getting a bit frustrated as she definitely didn't want to stop smoking. In the extract below the repetitive advice given by the student led the SP to divulge crux information in line 59 (in bold). An empathetic follow-up question in line 62 briefly raised the possibility of the conversation becoming more patient-centred, but then moved swiftly back to dentist-centred repetitive smoking cessation advice (see underlining) which led to conflictual overlapping speech in lines 67 and 68.

Male D student 8/20 and Judy 2: I'm just telling you

43 D oh ok er um and er do you er have you tried to like, stop smoking?

44 P no ((shakes head))

45 D no = you =

46 P = no not at all = l. I need it, I need it, I I find that having a cigarette is my break away from family circumstances and it ((gestures with hands circular gestures)) is a time for me to just (.) take a moment

49 D right, right ok yeah ((clears throat)) because you know, the smoking, is er particularly bad for your gum um like ah, if we do some treatment, if we treat your gum, if you continue smoking it will be very easy to come back, you know.

52 P I understand what you are saying ((shakes head looks away)) but

53 D ((short laugh))

54 P I need it

55 D actually we 4:00 have um evidence showing that if you have the support of the NHS your success rate will be much much higher for =quitting smoking=

57 P= I I only smoke about 15 a day,= I only smoke about 15 cigarettes a day and as
58 I say ((intake of breath and hand gesture)) it's it's my time to destress and have
59 a break from (.) **from my son**.

60 D you said **from your son**

61 P mm hmm

62 D is it like er (.) (.) incredibly stressful for you?

63 P yeah, my son's severely disabled so it's ((sharp intake of breath)) (.) it's very time consuming and pressuring so if I get a bit of a break, I just destress with a cigarette

66 D ah oh I see I see I see ah ok um, yeah, but I'm just telling you that um if you
67 want to quit smoking =we will have services to help you=

68 P =((vigorously shakes head))= I'm not interested in quitting

In this interaction the repetitive smoking cessation stage put pressure on time management. After the 8-minute mark the SP stated that she was not in any pain with her teeth (for the third time) and then added that because of this she didn't see the need for any treatment. It was not possible to address this crucial oral health belief as time had run out. For a summary of the successful and unsuccessful features of interactions with Judy, please see Table 7. 7 below.

Table 7. 7: Features of student/tutor discourse associated with high and low scoring interactions with Judy.

Key: Crux features are in bold.

	Features that were unsuccessful	**Features that were successful**
Information gathering	Closed questions only Not picking up cues. Not asking follow-up questions.	**Open questions and follow-up questions after a cue, particularly in the first 2 – 3 minutes of the interaction. Resulted in longer turns and SP's priorities and health beliefs being revealed.**
Interpersonal (empathy / identification)	Judy's life situation either not elicited or not acknowledged once elicited. Or formulaic empathy phrases with swift return to clinical agenda. No affirmation or normalisation.	**Acknowledgement of Judy's difficult life situation and empathy shown through active listening and follow-up questions.** Affirmation for Judy in terms of attending this dental visit and normalisation to address Judy's dental fear.
Explanation	Persistent advising, e.g. repetitive smoking cessation advice or begging sequences related to toothbrushing. Long explanatory turns containing jargon. Few checks or pauses. Detailed treatment explanations without picking up SP's apprehension about treatment. Negatively framed or purely clinical lifestyle advice.	**Short, explanation in everyday language but only after Judy's priorities and dental fear had been explored and acknowledged.** **Judy's oral health beliefs (no pain, low oral health priority) addressed in an honest but positively framed way with hope.** **Eliciting from the SP what kinds of lifestyle changes were manageable for them or exploring their sources of support**.

7.4.2 Borderline category: Sam Williams and Kesia Wood

The following section explores interactions with Sam Williams and Kesia Wood. The condensed character briefs for each SP are shown in Table 7. 8 below.

Table 7. 8: Condensed character briefs for SPs in the Borderline category.

Character	Sam Williams	Kesia Wood
Key quotes	**"**I knew that having a lot of treatment would be expensive [when I heard about the cost] I considered not going back." "[gradually] I started to trust him [the dentist] I started to respect his medical knowledge and integrity and didn't feel I was being ripped off." "ultimately it's my fault… for starting smoking at 16."	**"**I were really upset about it, so I just stopped going. Which is probably cutting off me nose to spite me face a little bit" "Whenever I had to brush my teeth it brought home to me how damaged they were". "It's affected my whole life. It's totally self-inflicted." "The hygienist needed to be a bit more careful… a bit more respectful with me."
Characteristics	Profile: 50's, White British male Smoking status: Smoking since 16. Now down to 2 to 3 cigarettes a day, more when out. Dental history: Irregular attender with some long gaps. Tends to go when there is pain. Sceptical about the cost of dentistry. Had some staining on a front tooth pointed out by a pupil. Symptoms: a couple of teeth at the back are a bit loose and some bleeding. Brushing habits: once a day, no interdental cleaning. Occupation: Woodwork teacher Dental anxiety: Not dentally anxious, but sceptical of dentists.	Profile: 50's, White British female Smoking status: Smoking since 16. Now down to 2 to 3 cigarettes a day, more when out. Dental history: Irregular attender with some long gaps. More likely to go if there is pain. Is sensitive to being told off by the dentist. Embarrassed about teeth and has some staining (front teeth). Symptoms: a couple of teeth at the back are a bit loose and some bleeding. Brushing habits: once a day, no interdental cleaning. Occupation: Part time call centre operative. Dental anxiety: Not dentally anxious, but dentally embarrassed/ashamed.

7.4.2.1 Sam Williams

In contrast to Ray and Judy, in Sam Williams' case the crux of the interaction did not lie with eliciting and addressing health beliefs or their low oral health priority. Instead, as a school teacher, it is crucial for Sam that he is given a coherent explanation of gum disease that has clear links between its cause, (as rooted in his lifestyle habits), the nature of the condition, its consequences and the personal implications for lifestyle change for him. Sam's scoring for his interactions with Year 3 dental students was not very polarized (ranging from 15/20 – 20/20) (see Table 7. 9).

Table 7. 9: Interactions between Dental Surgery students and Sam Williams

SP Sam Williams interacting with	**Score /20**
Male Year 3 D student	15/20 (recorded missed first minute of interaction)
Male Year 3 D student no 1	16/20
Male Year 3 D student no 2	16/20
Male Year 3 D student no 3	16/20
Female Year 3 D student	16/20
Female Year 3 D student no 1	17/20
Female Year 3 D student no 2	17/20
Male Year 3 D student no 1	17/20
Male Year 3 D student no 2	17/20
Female Year 3 D student	19/20
Female Year 3 D student no 1	20/20
Female Year 3 D student no 2	20/20
TOTAL	12 Interactions

KEY: - Interactions in **bold** were fully transcribed, linguistically analysed and interaction mapped.

- Interactions not in bold were analysed through detailed note taking and close transcription of significant sections showing strong confirming or disconfirming evidence.
- D = Dental Surgery; DHDT = Dental Hygiene Therapy

As explained above, for Sam, the crux of the interaction was if the periodontal disease explanation was clear and coherent. Interpersonal features, like empathy and rapport building, had less of an influence on scoring in these interactions. For Sam, explanatory coherence was important even from the start of the interaction, as shown below (see underlining in line 5 and lines 7-8).

Male D student 17/20 no 4 and Sam: On the referral it said…

5 D So we've found out that you've got just a bit of gum disease, is what we are looking at the, at the minute, and that would be our main concern going forward.

7 P You said gum disease (.) on the, on the referral it said inflammation of the 8 gums ((hand gesture)), is that the same thing?

9 D It's a similar thing, yeah.

The interaction between a female D student no. 1 scoring 20/20 and Sam, started with an open question: "could you tell me a little bit more about what you understand about that referral?", the student checked Sam's social history, including his occupation and then an interesting rapport building sequence arose in which the SP completed the student's sentence in line 63 below.

Year 3 female D student 20/20 no 1 and Sam: Splinters

56 P yeah er … it's fine, they [the school pupils] are hard work at times, but I've been a teacher for a long time, I know how to = manage them =

58 D = I can imagine = I remember doing woodwork It was = quite fun =

59 P =very good=

60 D Yeah

61P Dove tail joints and all that

62D you know what, I was so bad at it, I didn't like getting the bits of wood in = my fingers =

63 P = splinters? =

64 D =yeah = the splinters

65 P ok

After that, the student changed footing to start to explain Sam's gum condition, making the link between what he was told by the dentist (gum inflammation) and periodontitis (see underlining):

Female Year 3 D student and Sam: So gum inflammation is perio…?

84 D So what I'll do, I'll explain what periodontitis is, that's the condition, the name of the condition

85 P So gum inflammation is perio**…**

86 D yeah, that's just the technical term, but it does just mean gum disease, or gum inflammation

87 P ok

88 D so what it is, is when you eat food and that food gets stuck in your teeth, and in between your teeth, it can, sometimes can, get stuck under your gums as well

89 P right

The explanation then continued below, using visual support from gestures (from line 100) and then later with a drawing (from line 112). The explanation was clear enough for the SP to complete the student's explanation in line 117 and 121 using overlapping speech and follow-up questions (underlined). In line 118 the student uses the term 'gum inflammation' again having earlier established that this term and periodontitis are interchangeable. The explanation also contains frequent pauses and meaning checks (see line 107 and 110). It is worth noting that the student had already checked the SP's understanding of the terms plaque and calculus to prior to starting the explanation in line 100.

Female Year 3 D student 20/20 no1 and Sam: It makes complete sense.

100 D but when that is stuck in your gums, the bacteria and your own
101 inflammation system doesn't like that, it attacks it, and what happens is your
102 gums ((gestures with one upturned fist)) so let's say that is your tooth, your
103 gums are meant to be wrapped really tightly around your tooth ((other hand
104 clasped around upturned fist)), but over time when you get that plaque and
105 calculus stuck in between, your gums start to move away from your tooth
106 ((hand opens up from being around other wrist)) not sure if that makes sense,
107 please stop me….

108 P it makes complete sense

110 D and please ask me if there are any questions

111 P no it makes complete sense 4:58

112 D your gums will start to move away. That's actually not a great thing because
113 what will happen is that over time as your gums move away your bones would

114 also decrease (5:00) so if I had a X ray I would show you ((turns to book)) let
115 me draw it out for you, so let's say this is your tooth

116 P um hmm

115 D this is what it is normally meant to be like (.) that's your bone and that's just your gum (.) but we don't really need to, (.) that's your bone

117 P the tooth's anchored in the bone obviously

118 D yeah, so essentially what happens over time is that this is your tooth (.) and your bone will start to drop, can you see how here, the, this is your roots = there's not much support =

121 P **=** yeah and that's caused by the periodontitis? **=**

122 D Yeah, it's because of the gum inflammation, the inflammation attacks your gum and your bone so (.)

124 P and that's what I've got?

125 D yeah

The explanation continued directly to the consequence of untreated gum disease, again with the SP being able to predict what would happen based on his understanding of the diagram (overlapping speech in line 225 and 226 below). Due to the rapport that had already been built (see Splinters? Sequence above), the student used a potentially risky personalization of the consequence in line 227 below. However, one aspect of the explanation that had not been covered was the cause of the condition in terms of Sam's lifestyle which led to the question in line 232 and an interruption in line 235 below. Sam was given an honest and direct answer in line 236. The SP's feedback after this interaction was that the conversation "felt really natural", "it flew by". The large amount of overlapping speech (= =) in the extract below is worth noting.

Female Year 3 D student 20/20 and Sam: Have I done something to cause this?

221 D yeah we're not really quite at this stage just yet ((shows SP on the drawing in her notebook)), but the X rays will confirm that, but what we need to do now is make sure that this bone level doesn't keep dropping or what's going to happen as you can see quite clearly here ((points to drawing)), the tooth won't have much to be supported by and you = 225 don't want your teeth to fall out =

226 P = no I don't =

227 D at a young age, you're a teacher, you need to smile at your students, don't you?

229 P that's true,

230 D so you don't want your teeth falling out, so what we're gonna do is we'll set up a= little treatment plan =

232 P = so what what's caused this?= ((points at book)) ((shocked tone))

233 D it's literally just – in your mouth you have um your own inflammation system = like your own =

235 P = but I have done = something to cause this?

236 D ah um so what happens is when you smoke in particular that aggravates the inflammation

238 P right

Interestingly, the interaction between Sam and the male student who scored 16/20 no. 1 also contained a rapport building sequence a bit like 'Splinters?' above, but regarding the cricket team that Sam supports. Also, this student immediately gave Sam affirmation regarding the fact that he has reduced his smoking recently, something which was initially missed by the two students scoring 20 /20. However, the 16/20 no 1 student's explanation of periodontitis (shown below) was generic, vague (italics) and not personalised to Sam, who has a fairly healthy diet (lines 65 – 66), and also contained unclear terms (see underlined terms in line 67). This illustrates that the main influence on scoring for Sam was not rapport building but explanatory clarity.

Male year 3 D student 16/20 and Sam: A lot of factors.

62 D Are you aware of why gum inflammation might happen?

63 P (.) not really no

64 D there's *a lot of factors* that come into it and that's the reason why I asked about 65 the social questions as well. There's *quite a mixture of* lifestyle and (.) er 66 *predominantly like around* diet, so once you have (.) a fairly poor diet but (.) a 67 diet with <u>poor hygiene</u> can result in er =the <u>deposits</u> on your teeth=

68 P =poor hygiene?=

69 D yeah, so poor hygiene is more of

70 P I'm guessing you mean oral hygiene, not personal hygiene?

Later on in line 110 the term 'deposits' was used again and this prompted Sam to ask: "ok these deposits that you are talking about – what are they?"

Like in the 20/20 interaction, Sam asked about how his lifestyle habits link to the condition, but on this occasion he received a vague reply (see italics line 88 and 89):

Male year 3 D 16/20 and Sam: Dominated onto that reason

87 P right, and that's because I'm not brushing enough?

88 D it is quite (.) *dominated onto that reason* as well but at the same time it is *partly 89 due to your social sides as well*.

In addition to knowing how his lifestyle habits had contributed to his gum disease, in the feedback said he was also unclear about how the consequences of untreated gum disease might apply to him. The student had framed the consequence in a generic way: "[untreated gum disease] can result in extractions which patients do not really enjoy."

In other less successful interactions clarity was compromised in other ways. In the male D student 15/20 interaction the staging was confused with questions about brushing or smoking habits leading directly into brushing or smoking cessation advice, but before any the disclosure of Sam's periodontal disease status or an explanation of the condition. At 4 minutes into the interaction Sam asked: "is this appointment just about brushing technique?" and also later on "can you explain more about why I'm here?"

The third year male dental student scoring 15/20 had framed scaling under the gums as a cure, which the SP readily accepted, but which was later followed by an implied contradiction when the student mentioned that there had been 30% bone loss already, diluting explanatory coherence.

In the 16/20 interaction between a female D and Sam, she was direct about the severity of the condition and offered some reassurance, but her use of the term 'bone' in explanation caused confusion:

Female Year 3 D student 16/20 and Sam: Worn away some bone

74 D what it means is basically, the gum disease has progressed to the bone as it has worn away some bone

76 P it's worn away some bone?

77 D Yes

78 P ((frowns)) bone? Ok.

79 D The bone that's around your teeth

80 P right (.)

81 D do you have any questions about that?

82 P the bone around my teeth, are you talking about my jaw?

Later on, the SP asked: “I’m just a bit worried now, are you saying I’ve got bone disease?”. In high scoring interactions phrases like ‘the bone that anchors your tooth in place’ or the ‘structures that support the teeth’ or ‘the bony socket that your tooth fits into’ were used instead. For a summary of the successful and unsuccessful features of interactions with Sam, see Table 7. 10 below.

Table 7. 10: Features that were associated with lower and higher scoring interactions with Sam.

The crux features are marked in bold.

Aspects	**Features that were unsuccessful**	**Features that were successful**
Interpersonal (empathy / identification)	Not picking up on need for affirmation of smoking reduction, led to repetition. But this didn’t affect scoring much. Affirmation could be used in unsuccessful interactions as well, didn’t have much impact on scoring. Rapport building e.g. cricket teams could be present – didn’t affect scoring	Could miss cue initially (SP seeks affirmation of cutting down smoking) or give affirmation later in the interaction. Affirmation was used, e.g. “we can treat the teeth to avoid extraction”, or “I appreciate that brushing is time consuming, you are doing a great job with smoking reduction”. Rapport building sequences, e.g. splinters, could be present but didn’t affect scoring
Explanation	Staging: Elicits understanding of referral part way through after medical or social history questions, or doesn’t elicit understanding. Doesn’t use the term (inflamed gums) used by the referring dentist. Uses ‘gum disease’ or ‘periodontal disease’ instead with no link to original term.	Staging: Elicits understanding of referral at start of consultation, then signposts will come back to this later. **Starts the explanation with the term used by the referring dentist**. **Explanation kept as coherent whole, not interspersed with reverting to closed history questions.**

	Explanation interspersed with brushing history questions and brushing lifestyle advice before cause of disease process firmly established. No gestures or diagrams by any students scoring 15/20 or 16/20. Severity of consequence was softened, contradicted or expressed in a generic way. Incoherent progression of concepts not logical: - Inflammation is swelling and puffiness, - cause is lots of factors, - "deposits?" cause inflammation, - link between condition and personal lifestyle habits unclear, e.g. link between periodontitis and SP's smoking and brushing habits are not made or are vague - severity undermined or contradicted, e.g. "can result in extractions, but not at the moment" - Staging: lifestyle advice given before explanation of cause or before checking personal risk factors. Uses unexplained terms, e.g. bone loss or deposits, calculus gingivitis.	**Explains any new terms before using them or uses everyday language not scientific terms.** **Gestures or diagrams used or if no gestures and diagrams used then a clear logical build-up of concepts.** **Logical progression of concepts (from cause to consequence, personalised to Sam's risk factors)** – food stuck in teeth, needs to be brushed away 2 x day and hard plaque regularly removed by dentist. Plaque presence triggers inflammation, gums move away from teeth and supporting bone levels drop, tooth can fall out, smoking aggravating it, but plaque build-up is the cause. **Frequent pauses and meaning checks (both open and closed)** **Direct and honest disclosure of tooth loss consequence – often made obvious in diagrams or gestures.** Honest direct explanation not softened. But explanation accompanied by hope – there's ways to stop progression from getting worse. **Lifestyle advice follows explanation of condition and is personalised to Sam's risk factors (which were checked before lifestyle advice was given).**

7.4.2.2 Kesia Wood

SP Kesia Wood is also in the Borderline stage. Kesia's character shares the same smoking status, brushing habits and general medical history as Sam Williams. Like Sam, Kesia is willing to consider lifestyle change depending on how the consultation goes. In contrast to Sam, Kesia is experiencing a strong sense of shame regarding her gum disease and is extremely sensitive to any suggestion of blame related to the cause of the condition. The crux of the interactions with Kesia relate to interactional features, e.g. a mirrored body language, a soft and varied voice tone and a gentle, positively framed communicative approach with a lot of affirmation (see Table 7. 11). All high scoring interactions scored 5/5 for empathy and respect. In contrast to Sam, Kesia's character has less of a need for a clear and coherent explanation of the condition and its consequences. Kesia could tolerate a bit of jargon or vagueness in the explanation as long as affirmative interactional features were in place.

Table 7. 11: SP Kesia scoring and SP written feedback (the interactions in bold were fully transcribed and interaction mapped)

Category	Student and score	SP's Written feedback
Low scoring	**Female Yr3 dental student 10/20** **Male Yr 3 dental student 13/20** Female Yr 3 dental student 13/20 Female Yr 3 third year dental student 14/20	• "Broke eye contact with mobile phone • Bright and breezy tone and loud • Made the patient feel to blame • Empathy but severity not explained"
Mid Scoring	Female Yr 3 dental student 15/20 Male Yr 3 dental student 16/20 no 1 Male Yr 3 dental student B 16/20 no 2 Male Yr 3 dental student C 16/20 no 3 Male Yr 3 dental student D 16/20 no 4	• "Reassuring, friendly manner, but explanation long, jargon & repetition. • Nice manner, but jargon, too few lifestyle questions to patient • Strong explanations, needed to pick up on patient's sensitivity and build on positives. • Good explanation, but used jargon, need to build a rapport from the start • Gentle nature, but too much jargon, great positive praise about coming in today."
High scoring	Male Yr 3 dental student 17/20 Female Yr 3 dental student 17/20 Male Yr 3 dental student 18/20 Female Yr 3 dental student 18/20 Male Yr 3 dental student 19/20 **Female yr 3 dental student 20/20**	• "Empathetic, praise for smoking cut down, explanation mostly clear • Approachable manner, rapport from start, language needs to be in patient terms • Nice easy-going consultation, try to think about any possible jargon • Encouragement on stopping smoking, excellent explanation, eventual praise • Relaxed conversation, non-judgemental suggestions, good explanations. • Would happily come for help with you. Lots of advice and explanations – easy to understand"

KEY: - Interactions in **bold** were fully transcribed, linguistically analysed and interaction mapped. Interactions not in bold were analysed through detailed note taking and close transcription of significant sections showing strong confirming or disconfirming evidence.

- D = Dental Surgery; DHDT = Dental Hygiene Therapy

The female third year dental student who scored 20/20 had a noticeably varied range and pitch in tone of voice. This student also kept eye contact throughout and mirrored the SP's body language. The SP said that she felt warm and included from the start of the interaction. She said that the phrase "I'm going to look after you today" made her feel like the student had just put her arms around her with words. At the start of the consultation there were frequent affirmation tokens (**bold**) even after the name and date of birth checks. Also noteworthy is the use of Kesia's name (italics in line 7) and the diminutive (little bit) underlined in line 6:

Female Year 3 dental student 20/20 and Kesia: Lovely, brilliant, Kesia

1 D Hi there I'm {name}, I'm going to be looking after you today. Could I just confirm your name?

3 P Kesia Wood.

4 D **lovely** and what's your date of birth

5 P 12th of the 10th 66?

6 D **brilliant**, ok, so could you just tell me a <u>little bit</u> of information about what's
7 brought you here today for me *Kesia?*

This affirmative emphasis continued throughout the interaction. The following example shows the amount of affirmation given to the SP related to cutting down on smoking (shown in bold below):

Female Year 3 D student 20/20: really positive

22 D .... and do you smoke Kesia?

23 P (.) yeah, I've cut down a lot, though 1:00

24 D well **that's good**, **that's brilliant**, that's **really good to hear**, and you telling us that you've cut down is **really positive** because if you've been able to do it in the past, **you'll be able to do it again,** if that's the case. If that's something [inaudible] something you'd like to continue to do. So, what do you tend to smoke?

In contrast to the extract above in Kesia's interaction with the male Year 3 D scoring 13/20 there was only one instance of affirmation (short praise) in relation to Kesia cutting down on smoking. In the feedback session afterwards, the SP emphasized that patients like this need a lot of praise.

Also noticeable in the 20/20 interaction, was the frequent signposting when changing topic. The student made a point of asking Kesia for permission to continue using tag questions (italics). The use of diminutives (underlined) also continued.

> D 13 Um so I'm going to ask you a <u>couple of</u> questions to start if that's ok, <u>just</u> about your lifestyle, so I can get to know you better, *is that alright?*

In contrast to the affirmation, signposting and gentle approach followed by the 20/20 student above, the female third year dental student who scored 10/20 had used her mobile phone as a source of prompt questions, which meant that eye contact had been broken for most of the first half of the interaction. The SP gave some strong negative verbal feedback about this. She explained that using a mobile phone acted "as a barrier" and would be "absolute no, no in a real professional situation", where it would "come over as rude, (.) sorry to be blunt"; it would "damage rapport" and "switch the patient off". This SP consultation was interesting as the SP perceived the second half of the consultation to be very different. In the second half of the consultation, the student stopped using her phone notes, made eye contact and worked very hard to build back rapport by admitting that she herself was a former smoker. So, in the words of the SP, they started to "bond" over their smoking cessation attempts but the SP explained that this "wasn't enough to make up for" earlier breaks in eye contact.

The importance of non-verbal communication was picked up again in feedback given by this SP to the male dental surgery student who scored 13/20. The student acknowledged that he generally "has a loud voice and gets told he is shouting all the time, even when he is not". The SP pointed out that "you have an extra sensitive patient here, you need to mirror her body language and acknowledge her anxiety". She added that it was not just the loudness of his speech, "but also the tone" and that he should not sound "bright and breezy" with this kind of patient. The SP encouraged him to match her tone, to lean in more and to mirror her body language in order to engage her more in the conversation. The student acknowledged that he found it difficult to both articulate what he was trying to say, as well as to "manage the emotional side of it".

In terms of the verbal explanations about gum disease, the female D 20/20 student and the male student who scored 13/20 both used everyday language without jargon, and both linked explanation to patient's symptoms, but there were noticeable differences. In the 13/20 consultation with the male student, the explanation of gum disease was staged very early before checking Kesia's personal risk factors and the explanation was also framed in

a negative way using the pronoun 'you' and the term "damage". This negative framing was continued later (see line 27 and 36 underlined) so arguably this may have undermined the student's attempt to try and ask a follow-up question in line 32.

Male D Year 3 student 13/20 and Kesia: Damage

23 D "essentially what's happened is that they've [your gums have] become inflamed from bacteria your mouth and how they work with using, like, the food that you eat, and it causes = damage =

26 P = ((looks away and down suddenly)) =

27 D (.) inflammation and that causes, like, your gums to swell and become painful like you say. Um so obviously I can see it's causing you some discomfort and, and, it's causing you to, to, feel er a bit a bit distressed is how I feel, is that correct?"

30 P ((small shrug and raised eyebrows)) (.) yeah. Just being here is actually making me feel (.) like this

32 D so you feel a bit nervous about like kind of being, is it is it just = being at the dentist in general = or

33 P =yeah, yeah= ((nods)) 2:00

34 D yeah ok that's completely understandable, a lot of people do feel that way.
35 Erm and obviously it can be quite difficult especially when you know that there
36 is, there is something that could be wrong. Erm, would you be able to explain to me a little bit like, how you feel about the gums like, in terms of erm like what, what has been told to you previously, like, how that makes you feel?

39 P (.) (.) they, they're really wrecked

40 D yeah

41 P an like, I've just got to live with it now

Later on in this interaction, the dental student asked social history questions and followed each question with generic lifestyle advice whether it was needed or not (in the case of alcohol, the patient was below the recommended limit). This may have contributed to a lecturing effect. This pattern of risk factor checks then advice continued upon uncovering that the patient smoked. In addition, the student volunteered a negatively framed detailed scientific explanation (see underlining in line 108 – 111 and line 113) of the link between gum disease and smoking which was not well received by the patient. The closed meaning check in line 114 (italics) elicited a negative response from the patient and she took a longer than usual turn (lines 117 – 119).

Male D student 13/20 and Kesia: Everything I do has made me to blame

108 D ok so essentially the way that the smoking works is that it affects the blood
109 vessels in your gums and it can decrease them or make them smaller and
110 because of that your body <u>can't respond</u> to the bacteria that are there are that
111 allows the <u>damage</u>

112 P ((closes eyes and turns head away))

113 D on your gums to <u>get worse</u>, so that that is essentially how it affects your
114 gums. *Does that make sense?*

115 P ((breathes out noisily, holds head in hand, covers eyes)) (.) (.) (.) = yeah but=

116 D = I can see that that's causing you some = distress, um =

117 P = everything I do, = everything I do in my life, has made me (.) ((gestures to
118 her mouth)) to, to blame for how my mouth is then isn't it? How me teeth are,
119 how me gums are, everything that I've done ...

In contrast, separating the social history checks, the explanation and the lifestyle advice was a more successful strategy used by the student scoring 20/20. In this roleplay the explanation took place after the history had been taken and the pronoun 'we' (in bold) was used to depersonalize the general explanation (lines 56 – 62) and, but then it was personalized again to link empathetically to the symptoms the patient is experiencing (underlining in line 64 and 65). The depersonalize 'we' was returned to in order to continue the explanation from line 69, which was immediately followed by hope and affirmation (italicized in lines 71 - 76). Also noticeable is the use of 'hopefully' and 'kind of' as softening devices and the tag question for consent in line 70 - 73.

Female D Year 3 student scoring 20/20: When we brush our teeth...

56 D so when **we** brush our teeth, **we** are able to er brush the food kind of away
57 from our teeth and away from our gums ((hand motions for brushing)) and it
58 doesn't stay in the mouth, so when sometimes **we** don't do this, the food can
59 sit, this is the tooth if you like ((gestures with fist)) can sit along the gum line
60 and if **we** leave the food here for a long time it can go hard 3:00 and be difficult
61 to remove and it can cause the tooth to come away from the gum ((gestures
62 with fist and hand)) and this creates what **we** call a pocket and if this *kind of*
63 pocket is open this means food can get inside it and it can become really red
64 and inflamed and <u>like you were saying</u> before, <u>your</u> gums are quite swollen
65 <u>would you say</u>, and quite sore?

66 P a bit sore, yeah

67 D so this could be the cause of this?

68 P ((nods))

69 D so when **we** are brushing our teeth perhaps not all the food is being removed
70 and it's causing it to become trapped and your gums as a result are kind of
71 responding to this. So *good news* with some treatment we should be able to
72 keep this kind of (.) ((hand gesture to stop)) monitored and we will hopefully *be*
73 able to prevent it from progressing and hopefully we can have a bit of a
74 conversation now about of few things that could perhaps change how well this
75 *kind of* (.) ((hand gestures)) progresses and maybe to *reduce the progression*, if
76 that would be ok?

77 P (.) ((looks down but then makes eye contact again)) ok ((softly))

In verbal feedback after this consultation the female dental student who had scored 20 / 20 for the interaction explained that she had noticed that this "patient was shy and withdrawn so I kept information to a minimum as I didn't want to overwhelm her". In contrast in the feedback session with the male student who scored 13 / 20, the idea was floated that different patients may need the explanation framed in different ways and different levels of detail. The student said: "do you know, that's actually quite useful – I suppose I didn't really think that different people would respond differently". It is interesting to note that neither the student scoring 20 / 20 nor the student scoring 13 / 20 had disclosed the tooth loss consequence of untreated gum disease to this SP and the student scoring 13 / 20 had also not elicited the SP's brushing history.

Interestingly, there was one counter-example in this data set, the female dental student with 14 / 20 had focused totally on rapport building and this did get excellent feedback from SP who said she would definitely come back and had given 5/5 for empathy and for an intention to change her lifestyle, but unfortunately there had been no explanation of the SP's gum condition and her smoking history was also not elicited. The focus had been on getting to know Kesia, her occupation, marital status and worldview. Arguably, this approach could be successful in the long run as Kesia said that she would go back to this dentist, but this approach would be less likely to be successful in a short, assessed SP interaction due to the key clinical points that were not covered. Table 7. 12 shows the successful and unsuccessful features for interactions with Kesia.

Table 7. 12: Successful and unsuccessful interactional features for Kesia Wood with crucial features in bold.

	Features that were unsuccessful	**Features that were successful**
Information gathering	Negatively framed lifestyle questions.	**Positively framed lifestyle questions.**
Interpersonal Body language	Breaks in eye contact – e.g. consulting notes on mobile phone Constant or monotone voice or a voice that is loud. Body language not mirrored – just kept constant or leaning more back in chair.	**Constant eye contact** **Varied tone of voice** **Softer voice** **Mirroring body language – leaning forward to engage**
Interpersonal rapport	Predominantly closed clinical questions. Negatively framed lifestyle advice. Word choice with negative connotations, e.g. damage.	**Built rapport at start using open questions.** **Friendly reassuring manner using the patient's name.** **Easy going friendly relaxed consultation, using affirmative words, e.g. lovely, brilliant, thanks.** **Asking permission to continue by using tag questions e.g. is that ok?** **Affirmation for cutting down on smoking and for coming in to the dentist.**
Explanation	Long explanatory terms with clinical detail and jargon. Use of personalised 'you' in explanation could lead to a sense of blame. Language framed as direct, no softening features. No sense of hope.	**Short clear explanation using gestures in simple language.** **Use of 'we' for normalising, e.g. when we brush our teeth.** **Language softened with 'just' and diminutives, e.g. a little bit.** **Sense of hope and teamwork e.g. we can prevent it from getting worse.**

7.4.3 Action-oriented category: Keith and Joan

The following section explores interactions with Keith and Joan. Table 7. 13 contains the character briefs for both these SPs.

Table 7. 13: Condensed character briefs for Keith and Joan in the Action-oriented category

	Keith Simpson	**Joan Harding**
Key quotes	"I'm like brushing proper, you know" "the dentist said to me, if anything, you overbrush" "I don't really have a sweet tooth anyway"	"the more information I can get the better I can control my condition." "I work things out for myself." "it's incumbent upon me to make certain I can keep my mouth and teeth as healthy as I can."
Characteristics	Age: 50's Profile: White British male Smoking status: former smoker, gave up 30 years ago. Occupation: Early retirement with grandchildren, used to run a business supplying parts in the motor trade. Dental history: Long break in attendance due to COVID. Brushing: Once a day in the morning, vigorously. Symptoms: Bleeding when brushing and some loose teeth at the back. Dental anxiety: Apprehensive about the pain associated with dental treatment, but this doesn't affect attendance.	Age: 50's Profile: White British female Smoking status: former smoker, gave up 30 years ago. Occupation: Early retirement, working at citizen advice bureau and an age charity Dental history: Long break in attendance due to COVID. Brushing: Trying to brush twice a day, but not always, no interdental cleaning. Symptoms: Bleeding when brushing and some loose teeth at the back Dental anxiety: Apprehensive at the dentist, but this doesn't affect attendance.

7.4.3.1 Keith Simpson

SP Keith describes himself as "quite a motivated person who prides himself on his health and wants to know what he has done wrong so he can do something about it." The crux for Keith was whether the student or tutor could convincingly identify the lifestyle factor that has led to his gum disease. Keith likes to keep a positive self-image of himself in the eyes of others, and at times this acted as a distractor for the role-players opposite him. Whilst Keith gave up smoking 30 years ago, he brushes his teeth vigorously with great care in the morning, but not in the evenings (due to a lack of knowledge about the need for twice a day brushing). The emphasis Keith put on his morning brushing led to a number of students and tutors to overlook eliciting Keith's full brushing history, making it more difficult to establish the modifiable cause of his condition. The successful consultations with Keith foregrounded plaque control in a way that was individualized to Keith's oral hygiene habits. The set of roleplays with Keith is shown in Table 7. 14.

Table 7. 14: Interactions between students and tutors and Keith (Actors 1 and 2)

Keith Simpson interacting with:	**Scores /20**
Actor 1	
Male D student	13/20
Male D student	14/20
Female D student no 1	15/20
Female D student no 2	15/20
Female D student	16/20
Female D student	17/20
Male D student	19/20
Female D student	19/20
TOTAL	8 interactions

Table 7.14 is continued on the next page

Actor 2	
Female DHDT student 10/20	**10/20**
Female DHDT student no 1	13/20
Female DHDT student no 2	13/20
Female D tutor	15/20
Male D tutor	16/20
Female DHDT student no 1	17/20
Female DHDT student no 2	17/20
Female DHDT student no 1	18/20
Female DHDT student no 2	19/20
Female DHDT student	**19/20**
Female D tutor 19/20 no 1	19/20
Female D tutor 19/20 no 2	19/20
Male D tutor 20 /20	20/20
TOTAL	13 interactions
OVERALL TOTAL	21 interactions

KEY: - Interactions in **bold** were fully transcribed, linguistically analysed and interaction mapped.

- Interactions not in bold were analysed through detailed note taking and close transcription of significant sections showing strong confirming or disconfirming evidence.
- D = Dental Surgery; DHDT = Dental Hygiene and or Dental Therapy

The crux of the interaction between Keith and a DHDT student is shown below.

Female DHDT student 18/20 no 1 and Keith 2: Little bits of food are just sitting there.

11 D so in terms of your oral hygiene routine, how often do you brush, you mentioned you = brush in the morning? =

13 P = I brush them every morning, = yeah

14 D So we often recommend to brush twice a day, um, more importantly at night

15 P ((frowns)) more important than in the morning?

16 D Yeah, so if you think, you're about to spend eight hours ((wide hands gesture)), sort of, lying down and if you haven't brushed your teeth, all, sort of, little bits of food that have accumulated during the day are sort of just = sitting there=

20 P = yeah that = makes, that makes sense = now=

21 D =and = feeding the bacteria, that that's what eventually causes the inflammation and infection that leads to gum disease (.)

23 P right ok ((nods)) (.) see I was never (.), I was just brought up to (.) brush them in the morning.

25 D Yeah, but it's hard to know if no-one's sat down and explained it.

26 P (.) well I can't believe I've got this far just brushing them in the morning, you know, and no-one's told me any different.

Later, this DHDT student reinforced the importance of twice-daily brushing later by linking back to the patient's symptoms:

D 112 It's really important to brush twice a day for 2 minutes at a time to get off all the bacteria from the gum line which is what causes the bleeding.

In contrast, in a less successful interaction with a female DHDT student (14/20) the focus was on Keith's historical smoking rather than his current brushing habits, which had been elicited but received less emphasis. There is also an error in line 51 relating to the effect of smoking on the teeth rather than on the gums.

Female DHDT student 14/20 and Keith 2: My past smoking has turned round to bite me

51 D Smoking still has an effect on your teeth… it can weaken your enamel over a long time, as you've been smoking your gums and teeth are probably in a weaker state than normal

54 P I can't (.), I don't quite (.) you know, I haven't smoked for 30 years. You know, I don't really get that. I can't believe that has come and turned round to bite me

The dominant pattern of smoking impact explanations (using the present tense) interspersed with brushing advice seemed to pause at 3:50 when the student stopped to ask what the SP understood about gum disease. However instead of emphasizing the role of plaque and giving a full explanation of the condition, the student returned again to the impact of smoking on the gums for a third time:

Female DHDT student 14/20 and Keith 2: The gums shrink backwards

69 D do you know what gum disease is and how that's affecting your gums?

70 P no, no ((sighs))

71 D So if you were smoking in the past, it was around 30 years ago, the effects of that, (.) so one example I can give you is that it reduces oxygen in the bloodstream, so your gums need that oxygen to heal, so over time if you just continue to smoke over a long time that can reduce the blood flow to your gums and make it a bit longer for your gums to heal so in that case, the best thing for you to have at home is that good home care, so we need to introduce tepes just to remove that plaque and over time we will see the gums shrinking backwards as it starts to heal, what do you think about that?

79 P What, the gums will shrink backwards?

In the feedback afterwards, the SP said "if anything I felt a bit berated by something I gave up 30 years ago, it seemed to just keep coming back to the smoking. It left me kicking myself … I didn't realize it was going to damage my teeth for life." The SP explained that as a character, he wanted to know what he could do about his gum disease but as he had already given up smoking, there was nothing he could do about that now. In other interactions with this SP, asking about his brushing history first and then briefly about his historical smoking habits was generally more successful (e.g. compare D tutor 19/20 no 1. to D student 13/20).

Interestingly, one of the D tutors (16/20) didn't pick up Keith's once-daily brushing habits after Keith had explained that he was brushing very vigorously every day. Another feature in this interaction that was perhaps less successful was that the disclosure and explanation stages were split. After the greeting and referral discussion, the tutor disclosed that the patient had advanced gum disease, but did not go on to explain the condition. This prompted the patient to ask about the cause, whether it was just something related to aging. The tutor again explained advanced gum disease in terms of damage to the supporting structures of the teeth, but plaque was not strongly foregrounded here either. It seems that splitting the disclosure and explanation stages, as well as not foregrounding plaque as the cause of periodontitis strongly from the start of the interaction, were risky strategies with this SP.

In the less successful interactions (D 13/20, 14/20, 15/20 no. 1 and Actor A, and DHDT 13/20 and Actor B), the fact that the SP only brushed once a day was either discovered very late into the interaction, (at the 7:00 minute mark) or was discovered but not

commented on. This meant that it was then much more difficult to make a link between the patient's lifestyle habits and the development of the condition, which is what this character was concerned about.

However, there was one counter-example that had high scores (male D student 19/20) in which Keith's once-daily brushing habit had not been discovered. However, the student's explanation regarding inter-dental plaque had been short, clear and coherent and he had used gestures effectively. Much of the interaction was focused on the importance of flossing and inter-dental cleaning with tepe brushes. The extract below shows the missed cue in line 119 leading to the next clinical question in line 120 (underlined).

Male D student 19/20: Do you floss?

111 D it's time to stop it now, otherwise eventually what happens, (.) the last step, is tooth loss, unfortunately, and we really don't want to get to that stage.

113 P I don't want to lose my teeth, so it's important for me to keep on to top of it,
114 I'm surprised it's got like this, but I suppose I haven't been to the dentist that much er and = I haven't =

116 D = well you're here now = so it's a = good start =

117 P = it is good = , like, I want to do something about it. The thing is, I do brush
118 me teeth. I can't understand how I got it really, I know you said about things
119 build up, but I have brushed a lot, you know, if anything I overbrush, I've been told.

120 D <u>do you floss?</u>

Following this the SP's flossing history was elicited (Keith's does not floss). By the end of the interaction Keith seemed convinced that his gum disease was due to not flossing, as he had been given a very detailed explanation of how much damage plaque can do when left in between the teeth. This was discussed in the feedback session afterwards:

Facilitator to student: So, he's (SP character) going to go home and he's going to floss

SP to student: but he's still going to brush once a day.

Student, SP and Facilitator: ((laugh))

SP to both: Yep, I'm really into flossing now, I've been sold that one!

Interestingly, disclosing the tooth loss consequence of unchecked gum disease was not crucial to this SP's severity scores. This SP seemed to regard phrases such as "a breakdown in the tooth supporting structures" or "an irreversible disease" as severe.

A number of tutors were included in the set of interactions with this character which provided an opportunity for comparison. It is noteworthy that all the tutors in this sample did mention tooth loss as the consequence of unchecked periodontal disease, whilst none of the DHDT students did and only 3 D students did so. In fact, even though it was not crucial to this SP, as he is quite motivated, the most successful D tutor 20/20 mentioned tooth loss five times in different ways. The following are examples of how tutors framed tooth loss:

> D it can cause you to eventually lose your teeth, D tutor (20/20 no 1)
>
> D you might start to lose them, ok? D tutor (20/20 no 1)
>
> D I think it is a bit of a wake-up call at the moment for you not to lose any of your teeth. D tutor (19 /20 no.1)

Or less directly:

> D Historically … people did lose their teeth, er, quite routinely." D tutor (20/20 no 1)

Of with a mixture of indirectness, then direct personalization, then indirectness using the passive voice:

> D I'm afraid in the long term, the disease can progress, and teeth can be lost as a result, but you don't need any extractions at the moment, but this might be a consideration at a later date. D tutor (19/20 no. 2)

The following is an example that is less direct, potential tooth loss is implied:

> D The info we have here is that we are not concerned about you losing any teeth at the moment, which is great. D tutor (15/20)
>
> D this might have larger consequences due to the loss of some bony support around the teeth [in the longer term]. D tutor (15/20).

A feature that was almost unique to the tutors in this data set was the use of analogy (italics) for brushing advice.

> D we need to turn you into a *dental obsessive* if you're going to keep these teeth for the long term (D tutor 19/20 no 1)
>
> D I tend to go with a *rolling mechanism* to try and break different people's [toothbrushing] habits. (D tutor 15/20)

> D The way that I explain it it's a bit like (.) if you go to see a *personal trainer* there's only so much the personal trainer can do with you. It's up to you at home as well to keep up with your exercise routine as well. (D tutor 20/20)

Another very noticeable feature distinguishing the tutor interactions from the student interactions is that all the tutors discussed the treatment that needed to be done in the dental surgery, but relatively few of the students discussed treatment. This was revealed in the tabulated comparison tables (for an example comparison table, please see Appendix 11.3.6). It was interesting that the tutors' treatment discussions were closely linked to establishing a partnership with the SP in terms of the complementary roles of treatment and home oral care. In contrast, the DHDT students generally framed teamwork in terms of them providing direction for the SP's home care oral hygiene efforts, rather than providing treatment in partnership with the patient (e.g. DHDT 18/20 no 1 and no 2). Only a few D students mentioned treatment and there was less emphasis on the partnership or teamwork aspect in their roleplays. In terms of the tutor interactions, the teamwork theme was usually mentioned more than once and expressed in different ways during the interaction (e.g. D tutor 19/20 no.1):

> D Your job is to break up that plaque, or that bacterial film around your teeth ((round gesture)) (.) every day, consistently, and then we can come along and, sort of, clean up the deep pockets ((gestures)) and that way, when we clean the deep pockets we know that you go home and are going to keep it really nice and clean and things tighten up a little bit.
>
> P so it's do-able then.

Or:

> D I'm sure we can work between us. Our clinicians can help with the deep cleaning and put you in the right direction with your brushing and cleaning in between to help treat this problem. (D tutor 19/20 no2)

In this set of interactions with Keith, there was one example that stood out where a tutor had anticipated possible barriers and challenges for the SP in adopting a new home care regime, as shown below:

> D what you might find, as your gums are puffy and as you say, they bleed a little bit, well when you brush them, they will bleed a bit, don't panic, you have to go through that in order for them to get better, but as you go through it, they will bleed less and less. D tutor 19/20 no 1.

And also:

> D You might also find your gums shrink down a bit. Some people panic and think it's getting worse, (.) it's not. As the puffiness is shrinking back, even though the gum is further down the tooth, it's healthier. D tutor 19/20 no 1

And finally,

> D If you're struggling there's usually something we can do to work through it. D tutor 19/20 no 1

There were a few attempts made by students to manage the SP's expectations in terms of gum shrinkage after enhanced brushing, but these were generally unsuccessful and could be met with a shocked reaction from the SP (e.g. D student 16/20).

Another unusual example of expectation management in this data set was the provision of a warning shot before the diagnosis. This was only observed in the interaction with D tutor 19/20 no2:

> "I'm afraid I have some slightly difficult news about your gum health."

Table 7.15 contains the successful and unsuccessful features of interactions with Keith. It is worth noting the contrasting staging for more and less successful interactions.

Table 7. 15: Successful and less successful features of interactions with Keith,

PD = periodontal disease

Less successful features	**Successful features**
Greetings: Own name only	Greetings: Own name and SP's name and DOB
Referral - No awareness of referral - One-way referral statement	Referral - Open questions about SP's understanding of referral
History taking stage - Wide ranging history taking, including alcohol, diet, family history, medical history, occupation - **Detailed focus on either smoking history or alcohol intake** - Smoking history taken before brushing history - Once a day brushing habit not elicited	Disclosure / Explanation - Disclosure and explanation stage integrated - One discrete disclosure, short, clear. - **Clear explanation foregrounding plaque as cause of PD personalised to Keith's brushing habits.** - Short explanation in simple everyday language using gestures with pauses. - Explanation includes severity - Explanation is linked to SP's symptoms, understanding (gum inflammation) and concern (what can be done about it)

Less successful features	Successful features
<u>Disclosure</u> - Disclosure stage separated from explanation of condition - Disclosure and explanation stage separated with progressive revelations on severity - Very detailed clinical diagnosis - Disclosure stage undermined by 'don't worry about it'	<u>History taking stage</u> - Focused history (brushing history before smoking history) - Once a day brushing habit elicited early on - Brushing habits and smoking history can be integrated with explanation, but only successful in tutor interactions.
<u>Brushing advice</u> - Unaware of once a day brushing - Evening brushing not well justified, just framed as 2x a day - Flossing advice or spit don't rinse only, not 2x a day brushing - Harsh directive advice	<u>Brushing advice</u> - Evening brushing need clearly justified (plaque control overnight) - Can include expectation management (bleeding and gum shrinkage) - Language of affirmation used – partnership in OH enhancement
<u>Explanation</u> - Late in interaction (after 7 minutes) - **Not featuring the role of plaque, based on historical smoking instead** - Variety of factors rather than clear cause (plaque) - Generic explanation not linked to SP's brushing habits or focused on historical smoking. - Explanation on teeth not gums - Tentative or vague language used in disclosure/ explanation - Long speaking turns reduces severity perception	<u>Treatment stage / roles / partnership</u> - Treatment integrated into home care partnership explanation (can be repeated more than once, can use analogies) - Treatment features need for multiple appointments (over long term)
<u>Treatment stage</u> - No treatment discussed - Treatment mentioned without clear role of plaque in PD or SP need for home care - Treatment framed as once-off	

7.4.3.2 Joan Harvey

Like Keith Simpson, Joan Harvey is an Action-oriented patient who is internally motivated. Joan has high general health literacy, but she doesn't yet know much about periodontitis. Joan's drive comes from living with, and researching about, the systemic inflammatory condition she already has. A key quote for Joan taken from the interaction with the female third year dental student scoring 20/20 is "so tell me, do tell me, what do I need to do because the more information I have, the more, obviously, I can control it."

Whilst Joan and Keith both need a clear explanation of the condition and want to do something address it, there are differences in their interactional preferences. Keith is very concerned about having clarity on the cause of the condition, especially regarding whether he has done anything to cause it. Keith's preference is that this is made clear using accessible everyday language. Whilst this is also true for Joan, she is more concerned about being given an honest, direct and clear diagnosis which is scientifically accurate and clearly gives a sense of the severity of the condition. Like Keith, Joan's perceptions of severity were not just associated with tooth loss (only 2 students interacting with Joan mentioned tooth loss), instead her severity perceptions were associated whether the condition is reversible or not, or alternatively with the Grade and Stage of the diagnosis. Five interactions with SP Joan Harvey were analyzed. As shown in Table 7. 16, the scores given were not very polarized. The individual element on which scoring differed the most was the scoring relating to the SP's perceptions of the severity of her disease diagnosis. Joan's written feedback comments have been included in the Table below as all this feedback related to disease severity.

Table 7. 16: Interactions between third year dental students and Joan

Category	Student and score	Written feedback
Low scoring	Male third year dental student 16/20	• I've got the sense that I've got something but what stage it is and how serious it is, is unclear
	Female third year dental student 16/20	• I am not 100% on severity on where we are now.
	Female third year dental student 17/20	• Asked if the disease had any names (names not given but there was a sense of severity – tooth loss consequence disclosed)
High scoring	Male third year dental student 18/20	• I'm under no misconceptions about the severity of the situation, that's for sure. (tooth loss consequence disclosed) Ask me more questions at the start to find out my expectations.
	Female third year dental student 20/20	• Fully explained gum disease, Grade 4 Stage B, I understand the severity of it but know what we can do about it, we covered loads.

Joan, similar to Sam, responded better if the student opened the interaction by using the same term as used by the referring dentist. If a different term was used, Joan picked this up and would contradict the student e.g. "well that's not what I've was told by my dentist, he said I had inflamed gums."

In the most successful interaction the female third year dental student scoring 20/20, followed the greetings and disclosure stage above by checking the SP's social risk factors and then coming back to an explanation of the severity of the condition using clear hand gestures (see lines 45 -53 below). The disclosure was also personalized to Joan's need for detailed information, and was accompanied by establishing a partnership (lines 66 – 70) and by hope (72). Also, in line 63 there was an example of expectation management which was much less common in the student interactions than the tutor interactions.

Female third year D student 20/20 and Joan: You are at Stage 3

42 D: So I'm just going to move on to checking your teeth and we'll have a quick examination

44 D {Aside to facilitator: so I'll just pretend I've done all of that}

45 D: So, I'm just gonna have a quick discussion about what I've found so far,
46 which I've come to the conclusion of, so you've got Stage 3 periodontitis, which
47 sounds more complicated than it is. It's basically just gum disease. So, it's like
48 your dentist has been saying, your gums are a bit inflamed. So, you are at stage
49 3 at the moment. Just to give you some perspective, there's 4 stages, 1 to 4,
50 ((counting gestures with fingers 1, 2, 3, 4)) so you are at stage 3 ((shows third
51 finger)) which is quite severe, but I don't want to dishearten you because it's
52 definitely something which is manageable and we can work on. It's also (.)
53 Grade B, so we give it gradings depending on how quickly it progresses (3:00)

54 P: yeah.

55 D: so grade B is moderately progressing so I think it's really important that = we act now =

57 P: = right ok =

58 D: so with gum disease there's a lot of factors that affect it so you've got stress, you've got diet, you've got oral health. Um, so what we can start off doing is (.) you know to have a discussion about what you might think could be affecting it, how we can manage it and how we can go on to treat it in the future.

62 P: mm

63 D: I just want to let you know that it's not something that can be treated, like, in one appointment = or treated overnight=

65 P: = oh ok = .

66 D: you know, it's something that definitely takes a few appointments and a few months to overcome and it does take a lot of effort from me and you, but as long as you're willing to put that effort in

69 P right

70 D: I know I'm willing to put it in

71 P: right

72 D: it's definitely something that can be managed

73 P yes

After this interaction, the SP said that "you fully explained the severity, but it didn't make me fearful, I felt there was something we could do about it".

In contrast to the extract above, the male D student scoring 18/20 had a less successful start to his interaction. Whilst he had accurately disclosed the classification of the condition, he did so without any explanation of terms (see lines 5 – 8 and the SP's response in line 11).:

Male third year D student 18/20 and Joan: I'm here to talk to you about your gum disease

1 D My name is {name], I'm a third year dental student and I'm here to talk to you about your gum disease = and um =

3 P ((raised eyebrows)) = right = I'm going to have to backtrack there for a moment. My doctor, my dentist just said to come and see you about the gum inflammation I've got ((static hand gesture))

5 D Yeah, so last time you came we took um some investigations and we found that you have BPE scores of 3, 2 and 4.

7 P ((Frowns))

8 D and from this we got the diagnosis of periodontitis Stage 3 Grade B.

9 P Right.

10 D Do you know what that is?

11 P I've heard everything you've said, I don't understand a word of it.

12 D Right ok.

Following this exchange there was a clearer explanation of the condition and its severity, including the tooth loss consequence of untreated periodontal disease: ("it causes the bone in your jaw to recede and if it gets bad enough, your teeth can fall out from it"). The SP's feedback was that: "I don't have a problem with severity, I want to know about it, it is just that it came at me like a bullet train." The SP scored this interaction as 5/5 for his explanations, severity, and for her intention to change behaviour, but 3/5 for empathy and respect, and suggested that he ask her more open questions at the start of the interaction to get to know her a bit and also to show a bit more empathy to "soften the blow."

Whilst the precise classification of Joan's periodontal disease was disclosed in the 18/20 and 20/20 interactions above, in the 17/20 interaction, Joan's request for the scientific term in line 74 went unanswered (lines 76-83):

Female D student 17/20 and Joan: Does this disease have a name?

73 D are there any other questions that you have?

74 P Well I have a few questions, what's um, does this disease have a name or anything or is it just called gum disease?

76 D The disease is essentially made up of two phases, the first part is the
77 reversible phase that can be stopped by basically improving your oral hygiene
78 practices. The second part is irreversible, it doesn't mean it keeps on getting
79 worse, that can be stopped as well. Um unfortunately you are at the
80 irreversible stage, but that doesn't mean it can't be stopped so if we carry out
81 our scaling treatment here and you carry out your oral hygiene practices at
82 home, hopefully that um will keep the disease from progressing. Does that
83 make sense?

84 P mm. I'm keen to find out as much as I can so I can take control of the situation

In the verbal feedback after this interaction, the SP's constructive criticism was that if a patient is asking for the name of a condition, they should be given an accurate answer as they may want to research it later. As mentioned earlier, having accurate information, especially about severity, is a key concern for this SP.

In contrast, in the 20/20 interaction, when the SP asked the same question 7:00 minutes into the interaction (regarding the name of the condition), the student gave a very different response, directly meeting the SP's interactional needs (see line 126).

Female D student 20/20 and Joan: There's a flow chart

122 D um do you have any more questions so far?

123 P no (.) what did you call the disease ((points to the student)) because I would like to go and research it a bit more

124 D it's called periodontitis (.) I'll write that down for you.

125 P oh thank you, yes

126 D you're currently at Stage 3 Grade B. There's currently a flow chart that =you can use for research =

128 P = I like a flow chart =

129 D = and if you have any = ((laughs)) it's very colourful too.

In the interactions scoring 17/20, 18/20 and 20/20 there was a discrete disclosure stage in which the name of the condition, its severity and its nature were explained. In contrast, in

the two 16/20 interactions, the disclosure stage was split and was returned to several times either with each time increasing in severity (male student 16/20) or with severity being undermined or contradicted (female student 16/20). The first instance of minimizing the condition was seen within the first minute of this 16/20 interaction (in lines 2-4). It is noticeable that the patient's understanding of her referral had not been elicited at the start (something that was commented on by the SP in feedback):

Female D student 16/20 and Joan: I heard the dentist said that you've got gum disease

1 D Hi Joan, how are you?

2 P I'm not too bad, a little bit anxious, I won't lie, but not too bad thank you.

3 D So I heard the dentist said that you've got gum disease.

4 P Really? ((frown)) er (.) well, that's not what I was told, I er (.) well, my dentist said that I had some gum inflammation and must come and see you.

Following this initial exchange, the student asked a bit more about when the SP last went to the dentist and then she signposted that she would be asking social history questions and then "explaining the gum disease part". This prompted an SP response which was followed by reassurance that acted to undermine the severity message (in line 24):

23 P Yes, please, yes, I'm quite shocked to hear that =the disease=

24 D = no, no don't worry = it's nothing too crazy, it's quite normal, lots of people have it, so = don't worry=

26 P = right =

When the student got to the gum disease explanation after the social history check, it was softened by statements like: "that's all it is really" (repeated twice at different times), "it can also be reversed" and normalizing "it's quite normal" "a lot of people do bleed when they brush" "everyone has plaque". The SP was moved to ask if the disease could be reversed, but received an unclear set of replies:

Female D student 16/20 and Joan: Can I reverse it?

45 P so I can reverse this gum disease?

46 D yeah

47 P right ok.

48 D it can be reversible, it depends though, there's two stages, the first stage is
49 gingivitis which is the initial stage of gum disease which is a little inflamed but
50 it's at that reversible stage so if we improve your oral hygiene and give you
51 some treatment as well there then we can reverse it. But there are some,
52 there's another stage, it's quite severe, and that's periodontitis and that's when
53 it's got to like an irreversible stage.

54 P so, so, but I am not at that stage am I, I'm at the gingivitis stage, am I?

55 D I don't think you are because you are, you do, so basically we did your BPE's which is your basic examination to assess and screen for periodontal disease and you did have a code of 4 in one of your sectors, and I think 2 of your sections which means that you might have a stage of periodontal disease, but I don't think generally

60 P how would you ascertain if I did, or I didn't then?

61 D we would have to do another assessment, a 6-point pocket chart.

The student later went on to explain that periodontal disease was actually irreversible and the patient responded by frowning and saying: "I see" which prompted the student to reassure the patient again:

80 D I don't want to, like, scare you or anything, like that, it's nothing too serious but it's something we can work on together

A bit later on the student said that "we want to reverse it, to get it to a good stage." which left Joan uncertain as to how severe the condition is.

The female D 20/20 student's interaction contained additional features that were uncommon in the student data set, but common in the tutors' interactions with Keith Simpson. These included a discussion of how to make treatment more comfortable, (the use of topical gel), following an open question that elicited Joan's apprehension regarding painful treatment, and also giving information on how to overcome predicted lifestyle change barriers:

Female student 20/20 and Joan: it can be scary

98 P So with toothbrushing it is really important that you are brushing twice a day and I know you said you are a bit scared about the bleeding, but to get rid of the bleeding you are going to have to brush unfortunately, so

101 P Right

102 D so I know it can bit a bit scary when you = spit out and see blood =

103 P it's = counter intuitive isn't it =

Table 7. 17 contains a summary of the more and less successful features of interactions with SP Joan.

Table 7. 17: Successful and less successful features of interactions with Joan

Less successful features	**Successful features**
Openers: Not using the term used by the referring dentist.	Openers: Open question to elicit the reason for the referral or using the same term as the referring dentist.
Empathy / rapport: Positive or negative framing of lifestyle advice or questioning did not impact scoring for this SP. Whilst more open questions were preferred, closed clinical discourse without softening or open questions still received a high score (18/20) if the level of severity was clear.	
Disclosure: Scientific terms not given even if requested by the SP. Different terms used at different times e.g. periodontal disease, gum disease, gum inflammation, gingivitis (without explaining the relationship between the terms). Partial disclosure of severity with frequent returns to this sequence, often increasing in severity each time. Contradictions given on severity, e.g. severity disclosed and then severity minimized or softened. Vague or generic language used to disclose severity or a mixture of generic and personalised disclosure making it unclear which applies to this patient. Casual or offhand severity disclosure e.g. I can see you've already got it.	Disclosure: Accurate scientific terms explained visually or clearly in a different way. Discrete disclosure stage where a clear idea of severity is given once, preferably towards the start of the interaction. Consistent message about the level of severity of the condition for Joan. Clear personalised language used to disclose Joan's individual level of severity.

7.4.4 Summary of results for all SP characters by sequence

By way of a recap the crux of each interaction for the SPs was:

- Ray: Directly addressing his health beliefs around the inevitability of tooth loss, emphasizing severity and consequences succinctly in simple terms with honesty and hope
- Judy: Recognizing her main priority (her disabled son), and addressing her health beliefs about the inevitability of tooth loss within the constraints of what she believes is possible in her current caring situation
- Sam: Delivering a clear and coherent explanation of periodontitis using consistent terms which are personalised to his risk factors so he can make lifestyle changes he fully understands the rationale for.
- Kesia: Mirroring her body language and using affirmation and positive framing in the discussion of her periodontal condition without blame.
- Keith: Being clear about the link between his lifestyle habits and the condition and what he can do to change the course of the disease.
- Joan: Giving a very clear and scientifically accurate sense of the severity of the condition without contradiction.

The crux for each SP was different as explained above. A visual representation of the differences in emphasis placed by each SP on different aspects interaction is captured in Table 7.18 below.

Table 7. 18 The aspects of the interactions that were most important to each SP character

	Ray	Judy	Sam	Kesia	Keith	Joan
The student acted in a caring and professional manner						
The student's explanation was clear						
I think my gum condition is serious						
I intend to make changes to my lifestyle						

Table 7.19 below contains a synthesis of the staging (sequencing) generally associated with lower and higher scoring interactions. There was some variation in staging across the interactions in this data set. Example interaction maps can be found in Appendix 11.3.7.

Table 7. 19 Staging and features generally associated with lower or higher scores

Staging likely to be lower scoring	**Staging likely to be higher scoring**
• Greeting • Referral (closed question or statement using a different disease term to referring dentist) • Partial diagnostic disclosure (severity softened or contradicted later). Also mismatched register: either too much jargon or lay language for SP. • Generic explanation of periodontitis (with jargon or long speaking turns, or not asking SP for their prior understanding, or not taking regular breaks, or no visuals, leaving out tooth loss consequence or with negative framing, no hope) • Risk factors: alcohol as focus Risk factor check with advice after Generic advice on alcohol reduction or smoking cessation or brushing not linked to SPs actual habits Repeated smoking cessation advice, negatively framed • Disclosure of actual severity level contradicting earlier softened disclosure. • Attempt to establish partnership, but negatively framed without hope or with treatment as once off cure) • Aspects not mentioned, e.g. treatment, consequence, risk factors	• Greeting • Referral (open question with active listening, following up on cues, giving reassurance or eliciting and addressing oral health beliefs) • Diagnostic disclosure here or after social history (short clear discrete disclosure stage, honesty about severity but with hope) Risk factors: Brushing habits (brief)Social history: smoking (brief) + praise for reducing smoking • Explanation of periodontitis foregrounding the role of plaque, asking SP for prior understanding, using visuals or gestures, regular breaks, coherent from cause to consequence, hope of stabilizing condition (by working in partnership), depersonalized so no sense of blame. • Tailored Advice: as 2-way conversation Smoking cessation (detailed options tailored to SP, lots of affirmation) Brushing advice (detailed tailored to SP with affirmation) • Summary of joint decisions on smoking, brushing and future treatment. Partnership reinforced. Hope of stabilizing reinforced. • Discussed anticipation of barriers to habit change.

7.5 Discussion

The results of this study are aligned with the body of literature on patient-centred care and patient-centred communication, as discussed in Section 2.2.1. Active listening and using open-ended questions have been identified as being key to facilitating information sharing as part of patient centred care (Booth and McBride, 2007). In the current study, asking open questions and asking follow-up questions when noticing cues (active listening) made a contribution to higher scores for all SP characters, but these features were crucial for the SPs facing significant oral health-related challenges. In particular, open questions played a crucial role in engaging Ray. Similarly asking Judy open questions, particularly at the start of the interaction brought to light her low oral health priority.

For Kesia, actively picking up her verbal and non-verbal cues at the start of the interaction and following this up with reassurance and empathy was crucial to alleviating her sense of self-blame. The importance of active listening and using open questions at the start of a healthcare consultation is well established in the literature. This is often referred to in the medical communications training literature as the 'golden minute' in which the clinician should allow the patient to speak without interruption (Kelly et al., 2023). The importance of the start of the interaction is also captured in three of the four habits suggested by Frankel and Stein's (1999) (Krupat et al., 2006) four habits model (Section 2.2.1), namely, invest in the beginning, elicit the patient's perspective and demonstrate empathy. Further support for these findings is provided by the Roberts et al., (2003) study which found that unsuccessful OSCE interactions were conducted in a retractive style in which candidates persisted with a medical agenda (presumably using closed questions) and were not sensitive to patients' levels of understanding and/or didn't appropriately respond to patients' cues.

In this study word choice was found to be important. In particular, in the early stages of the interaction when discussing the purpose of the visit, if a term was used that differed from the one used by the referring dentist (gum disease rather than gum inflammation), then this would engender a confused reaction, particularly from Sam, Joan and Keith. In addition, if the phrase 'it is causing bone loss' was used rather than a phrase like 'it is weakening the structures supporting your teeth', this also resulted in a confused reaction from most SPs. Other linguistic studies of healthcare interactions have found that there are times when word choice can make a significant difference to the direction of the consultation either in terms of the patient's severity perception (see Tailor and Ogden,

2009 in Section 2.4.1) or in making progress towards addressing a patients' unmet concerns (Heritage et al., 2007).

Being aware of the impact of choosing particular words over other words is an important consideration in conversation analysis (Parry and Land, 2013). Conversely though, in this study the SPs' perceptions of the severity of their condition seemed to be less related to word choice than to their internal orientation to taking oral health-related action. SPs Joan, Keith and Sam still seemed to regard their condition as serious even if it was expressed as 'irreversible' or 'at Grade 3' and not as involving 'tooth loss'. Having a coherent explanation of periodontal disease seemed to have a more significant influence on severity scoring for these patients. In contrast, directly discussing tooth loss and the fact that it is not inevitable was crucial for Ray. These findings are in line with Gregory et al.'s, (2007) qualitative study (see Section 2.4.1) which showed how oral health priority can be very polarised for different patients: what is serious for one patient might not be regarded as serious for another.

Interestingly, rapport building through making small talk about e.g. the patient's journey in or their sporting interests or occupation was not found to have much influence on scoring in this study. However, the positive framing of risk factor questioning and lifestyle advice was helpful in the roleplays with all the SPs, but crucial for blame-sensitive SP, Kesia. Positive framing was particularly important in relation to diagnostic disclosure when a short honest statement about periodontal disease was followed by a hopeful phrase, e.g. "but we can work together to stabilize it". In addition, the positive framing of smoking reduction or cessation was very important, especially for Kesia, Judy and Ray. Using positive framing or affirmation is one of the four linguistic devices constituting the motivational interviewing (MI) approach alongside echoing and summarizing patient's concerns (Wilder and Bray, 2000). As explained in Section 2.4.3.4, the BSP S3 guidance does not specifically recommend an MI approach due to the limitations of the current evidence base. However, there are studies to support this approach. For example, Kitzmann et al.'s, (2019) quantitative correlation study found that in communicative interventions which were consistent with MI, there was a significant association with periodontal patients 'change talk' (implied oral health behaviour change intention talk). However, MI inconsistent communication strategies were associated with patients' 'sustain talk', indicating little intention to change. Kelly et al., (2023) suggest that positively framed oral health messages may enhance patient engagement in dental care.

In the current study, in some of the low scoring interactions, the information given was generic rather than being personalised to the patient which led Ray, in particular, to disregard it. Asimakopoulou et al.'s, (2015) large scale randomized controlled trial found that if patients were given an individualized periodontal disease risk assessment this was significantly associated with: greater confidence in their periodontal treatment and in their ability to make lifestyle change and keep to treatment recommendations, as compared to standardized periodontal risk communications (Asimakopoulou et al., 2015). In terms of personalizing advice, the current study found that the framing of lifestyle advice was important. A phrase like "your periodontal disease is causing damage" would elicit a negative reaction from SP Kesia if it was not softened and embedded in reassurance and affirmation, whereas it would be effective as a direct statement to SP Sam, if the message was coherent. Overall, positively framed lifestyle advice was found to be more effective than negatively framed advice, especially for Judy and Kesia, but also for Keith and Ray.

It was not only important for advice to be personalised to each SP's particular risk profile, and framed positively, but more successful explanations were coherent, with clear links between the cause of the condition, its nature and treatment, including the need for lifestyle change. This was particularly important for SP Sam. Section 2.3.2 details studies that show that if an explanation is coherent, then it is associated with a greater intention on the part of the patient towards behaviour change.

In terms of the potential limitations of the methods used in this stage of fieldwork, simulated conversations are a valuable educational tool, but are different in character to interactions with real patients, representing a different genre of talk (Croix and Skelton, 2009; Stokoe 2013; Atkins, 2019). An important way that simulated and real consultations are likely to differ is in the balance of power between the provider and the patient or simulated patient. According to Gwyn (2002), in real consultations, the default assumption is that power lies with the doctor or dentist who has the knowledge and expertise to provide care for a patient who needs it. Having said this, physicians' perceptions of who has the most power in the provider: patient relationship tend to show a diversity of opinion (Nimmon and Stenfors-Hayes, 2016). In terms of simulated conversations, Croix and Skelton's (2009) quantitative linguistic analysis of conversational dominance markers in simulated Year 3 medical OCSE conversations, found that the SPs talked and interrupted significantly more than the students, asked more direct questions and were more likely to initiate new topics than students (Croix and

Skelton, 2013). This suggests that the power balance in simulated conversations could lie more with the SP than the student. In contrast, in real medical consultations patients can often be communicatively passive (Robinson, 2003). For example, in real consultations patients might not be as overt in their responses to trigger words, e.g. “damage”, which resulted in a strong reaction from SP Kesia.

In this study, overlapping talk was a useful focus feature for showing either agreement or disagreement, with instances of overlap being more numerous in the very high and very low-scoring interactions. This supports suggestions elsewhere in the literature that interruptions in medical discussions are complex signifiers that can be interpreted in more than one way (Atkins, 2019). It is possible that SPs might be more likely to interrupt students or tutors more in simulated interactions that real patients would.

Another way that the dynamics in simulated interactions may be different from real interactions is due to the presence of an examiner or facilitator. The literature suggests that the sequencing of certain interactional features is perhaps more important than in real consultations, e.g. the imperative to show empathy by using a verbal phrase directly after a sensitive SP disclosure for the benefit of the examiner (Cordella and Musgrave, 2009; Atkins, 2019). In addition, the fact that the interaction was video recorded could also heighten students’ anxiety about being watched (by both the examiner and the camera). This could have negatively impact on students’ performance.

Another way in which simulated interactions differ from real interactions is that the SP is working according to a set brief and is trained to respond consistently to certain communicative stimuli. However, in real life even for the same individual patient or healthcare professional, communication can vary hugely according to the differing context for each interaction and even according to the time of day and the mood each interactant is in (Bensing et al., 2003; Church et al., 2010).

In short, simulated patient interactions are only one kind of communications teaching tool. SP roleplays should be used alongside other teaching methods, particularly methods that involve communicating with real patients (Carey et al., 2010).

In terms of ensuring rigor in this stage of fieldwork, triangulation was achieved by using the SP’s scoring, verbal and written feedback as a starting point for the researcher’s more detailed linguistic analysis. Interaction maps and tabulation were used by the researcher for comparison and attention was paid to disconfirming evidence arising from negative

cases that did not fit the emerging hypothesis. Rich description in the form of quoted sections of the interactions were included alongside a detailed exposition of the methods of analysis in order to stay close to the data and ensure transparency.

7.6 Conclusion

The results of this stage of fieldwork have shown that the interactional features consistent with patient-centred communication (e.g. active listening using open questions and following up on cues as well as giving short clear coherent explanations in patient-friendly language and personalizing the explanation to the SP's individual risk factors) were more successful with all SP characters. There was also a way of staging a periodontal disease conversation that was more likely to be successful. However, interestingly, different SP characters responded differently to contrasting communicative approaches, e.g. needing more reassurance and positive framing or more directness. In addition, different characters placed different amounts of emphasis on certain aspects of the interaction needing e.g. greater explanatory coherence, or a more precise idea of the condition's severity, or clarity how they had contributed to causing the condition. This underlines that communicating about behaviour change is a complex task requiring practice and reflection

8 CHAPTER 8: DISCUSSION

8.1 Summary

The overall aim of this study was to explore patient : provider communication about periodontal disease in order to gain insights relevant to training dental students and dental professionals.

The aim of the first stage of fieldwork was to explore what characterised the lived experience of dental professionals in relation to discussing periodontal disease with patients. The results of this stage of fieldwork showed that participating dental professionals framed their lived experience of discussing periodontal disease with patients using discourses related to their perceived professional roles (Clinician, Mentor, Collaborator, Educator, Rapport Builder, Professional). Each of the discourse categories identified above were able to be placed within the context of current macro-level discourse about dentistry in the literature or the media.

The aim of the second stage of fieldwork was to explore what characterises peoples' lived experience of periodontal disease and their perceptions regarding explanations about this condition. The interviews associated with this stage of fieldwork yielded an anonymised set of individual story curves which were classified as: Action-oriented, Borderline or Challenges. The use of individual story curves to capture participants' emotional stance towards periodontal disease over time is, to the knowledge of this author, an original contribution to knowledge in this area. However, the diverse themes running across individual accounts, e.g. blame, shame, cost constraints, scepticism about dentistry, empowerment and transformation, are in keeping with other thematic analyses of patients' lived experience of periodontal disease. In addition, a set of linguistic markers were identified from these interview accounts which could be used as a guide to a patient's readiness for behaviour change in terms of their: sense of agency (high/low), affect (negative / positive), control (internal / external) as well as the presence of any barriers or facilitators and their level of oral hygiene priority. The set of linguistic markers is in keeping with similar work by Connor and Lauten (2104) with diabetes patients.

The aim of the third stage of fieldwork was to identify the interactional features that make simulated conversations about periodontal disease more or less successful for different simulated patient characters. In this stage of fieldwork, a range of interactional features were identified which were more successful or less successful for each simulated patient

character. There were distinct differences in the features that formed the crux of the interaction for different SP characters. In general, though, the features that were associated with more successful interactions are detailed in Table 7.18 and 7.19. These included the use of open and follow up questions for eliciting the SP's health beliefs especially for those in the Challenges category, using positive framing, affirmation and reassurance accompanied by clear and coherent explanations for those in the borderline category and being clear about severity and personal risk factors for those in the Action-orientated category. The six discourse categories identified in the first stage of fieldwork were all visible in the SP interactions. Different proportions of these discourses were met with success or otherwise with different SP characters.

The results summarized above are consistent with Roberts et al. (2003)'s findings when studying medical student SP interactions. In addition, the current study's findings are remarkably consistent with US-government guidance from the National Institute for Diabetes and Digestive and Kidney Diseases (NIDDK, n.d.) on how to frame initial conversations with pre-diabetic patients (see Table 8. 1).

Table 8. 1: Do's and Don'ts for the initial conversation with pre-diabetic patients (NIDDK, n.d.)

Criterion	**Do's**	**Don'ts**
Terms	Do use the term prediabetes	Don't use the terms 'borderline diabetes 'touch of sugar' or say 'the sugar is a little high'
Ask before tell	Ask for the patient's ideas, questions concerns, feelings.	Don't assume you know how the patient is reacting
Diagnosis and explanation	Explain how different from type 2 diabetes.	Don't assume all patients will understand this message in the same way. Some patients hear diabetes and experience immediate stress. Others hear only 'pre-' and feel tremendous relief. Both of these reactions make it hard for a patient to listen and understand the remainder of your message.

Criterion	Do's	Don't's
Severity and risk	Do tell the patient that having prediabetes means that he or she has a much higher chance of developing type 2 diabetes in the coming years.	Don't tell the patient it is just something to 'keep an eye on' or monitor at the next visit. Conversely don't have a lengthy discussion about risk percentages which is confusing to many people.
Hope and benefit	Offer hope for preventing or delaying the diagnosis of type 2 diabetes. Do explain that he or she has a strong chance to prevent or delay type 2 diabetes by losing just a modest amount of weight (10 – 15 pounds), being more active and in some cases, taking medication.	Don't tell the patient there isn't much that can't be done. Don't say or imply that these changes are easy to make.
No preconceptions	Do expect that people can change their behaviour no matter where they start.	Do not have preconceived ideas about an individual's success in changing.
Referral	Do strongly encourage referral to another team member, community programme or other resource to assist each patient in ongoing steps to prevent type 2 diabetes.	Don't tell the patient to lose weight and increase their physical activity without offering specific resources, behavioural strategies support and follow-up.
Goals	Ask patients to identify one specific step they will take to reach their goals.	Don't recommend unrealistic or ineffective goals.
Teach back	Do use the teach back method to quickly assess a patient's understanding.	Don't assume the patient understands or simply ask ' do you understand?'

8.2 Recommendations for undergraduate dental communications teaching arising from this study

8.2.1 Using a variety of simulated patient character profiles for each clinical scenario

The results of Stage 3 of fieldwork in this study showed that some SP characters responded in opposite ways to particular communicative approaches, e.g. Ray responded well to a direct and honest clinical discussion of tooth loss as the end consequence of untreated periodontitis, whereas Kesia responded with self-blame if this approach was used. Kesia needed any discussion of consequences to be preceded by intensive rapport building through positively framed reassurance and affirmation. It is suggested here that communications teaching in dental schools would benefit from varying the SP character profiles, not just the clinical basis of a scenario, because being able to respond to the patient's preferred communication style is important.

There is evidence in the literature to support the suggestion that matching communication styles produce better outcomes. Kiesler and Auerbach's (2006) comprehensive review showed that if the interpersonal styles of both patient and physician are matched in a positive direction (e.g. both parties show a similar degree of friendliness and open body language), then this has a positive health impact. Wang et al., (2023) noted that if the patient and provider's linguistic features (style and word choices) were aligned, then was positively correlated with patient satisfaction. The Kiesler and Auerbach (2006) study also showed that while patients universally state a preference for a friendly physician, they differ a lot in how much control they would like to have in terms of making treatment decisions. If the patient and physician's beliefs about who should make the final treatment decisions are congruent, then this is associated with positive health outcomes (Kiesler and Auerbach, 2006). In this study, Kesia was accepting of the treatment options the dental students offered only if she felt comfortable with them. In contrast, Joan wanted to do her own research about the condition after the appointment in order to make her own mind up. In the more successful interactions, the dental students realised these preferences and adapted accordingly.

The type and amount of clinical information desired has also been found to vary considerably from patient to patient and matched preferences are more favourable (Kiesler and Auerbach, 2006). In addition, varying the terminology used with individual

patients can be important. Williams and Ogden's (2004) study of sexual health consultations in general practice concluded that if the physician used the same terms as used by each individual patient, this had a positive impact on patient satisfaction, distress relief and intention to follow treatment recommendations. Conversely, if communicative terms were not matched to the patient's usage, there was less satisfaction with the consultation. In the current study, Ray preferred a short direct explanation in layman's terms, whereas Joan wanted clinical accuracy and was tolerant of longer explanations.

The current study has identified six discourse categories that could be employed to match the communicative styles of different SP. However, it is not being suggested here that these are the only possible discourse styles or that only one discourse category should be used exclusively in any particular interaction. For example, in the successful interactions with Ray, a clinical discourse alone would not suffice, as Ray needed a very clear and brief explanation of periodontitis using an educational discourse, and he responded well if there were some rapport-building sequences in the interaction. However, asking Ray open follow-up questions about his health beliefs was crucial, which is something that would be consistent with a mentoring communicative approach. Judy also needed a professionally curious mentoring approach to be employed prior to discussing any clinical facts. For Kesia, affirmation and rapport building was crucial. Sam needed an educational approach in order for him to get a clear and coherent picture regarding the causes and consequences of his clinical condition. It is possible that a predominately clinical approach could be effective for Joan and Keith in the Action-oriented category, as both SPs are internally motivated towards behaviour change already.

Due to the importance of matching the patient's communicative preferences, it is suggested that an experimental approach could be taken when teaching dental communication. This would capitalize on the main advantage of using simulated rather than real patients (formative learning in a safe space) (Croix and Skelton, 2013). A group of students could take turns to interact with a particular SP and reflect on which might be the most appropriate approaches for the character. Alternatively, individual students could interact with different SP characters using the same clinical scenario to experiment with different communicative approaches.

Another way of enhancing students' ability to respond differently to different characters is using the Conversation Analytic Role-Play Method (CARM). CARM grounds role play simulation in real contextualised recorded data (Stokoe, 2014). Using this method

involves playing anonymized excerpts of real interactions and then pausing them at a crux point. At this point, participants are invited to play different ways of communicating to address the crux. Following this the real recorded data will be played to show how different providers did in fact deal with the crux and participants can critically reflect on these approaches (Stokoe, 2014). An advantage of the CARM method is that it allows communications features to be seen in their interactive context rather than in isolation. For example, Kelly's (2015) study shows how the successful realisation of engagement in an interaction is multi-dimensional: appropriate word choices, staging, framing are all important and have a cumulative effect in an interaction.

8.2.2 Emphasizing responsiveness to achieve two-way conversation

In the section above it has been suggested that dental students should have a range of different approaches at their disposal in order to successfully communicate with a diversity of patients with different communicative preferences. In addition to this it is argued that it is important for students to be able to change approach in real time in the middle of an interaction. In this study, a number of students called for 'time out' and tried to change their communicative approach when they seemed not to be making progress. Also, a number of both students and tutors had difficulty adapting to e.g. Ray's passive acceptance of the inevitability of tooth loss, to Judy's fixation on her main life priority, or to Kesia's closed body language. With Ray and Judy it was essential that once the SP's concerns or health beliefs had been elicited, students adapted quickly by directly responding in the next talk turn. Direct responding could either involve a short clear answer to the question implied by the health belief (Ray), or a change to a more empathetic approach acknowledging her priorities (Judy). If the student or tutor's response took the form of a formulaic phrase followed by a continuation of the clinical agenda, then this led to the SP to repeat crux information (Ray and Judy), sometimes with increasing signs of frustration that manifested in conflicting overlapping talk.

Kelly (2015) (this study is explained in Section 2.5.4) found that dental interactions in primary care have a dynamic structure with participants responding continually to each other in real time in order to maintain engagement. Seen in this light, Kelly (2015) argues that there should be more emphasis on students being able to be flexible and responsive in their communication with patients in order to achieve two-way conversation, which is

consistent with models of patient-centred communication (see Section 2.2.1). This approach is distinct from teaching communication skills from a prescribed checklist (as explained in Section 2.5).

Communicative responsiveness can be fostered in a variety of ways. One way suggested in Kelly's (2015) thesis is to consider including narrative medicine in the communication curriculum. Narrative medicine is a humanities-based teaching approach that has been adapted for use in medicine. It focuses on stories relating to the clinician : patient relationship and patient illness narratives. Competence in narrative medicine involves students being able to listen to, interpret and immediately respond emotionally to patients' stories (Charon, 2015). Students should be able to identify key events in an account and to connect these in a temporal sequence alongside noticing linguistic cues such as metaphors that suggest possible interpretations of stories. Charon (2015) suggests that narrative medicine teaching has the potential to make a contribution to more humane and ethical healthcare, by enhancing students' ability to empathetically adapt their communication to meet different patients' needs.

Being able to empathetically adapt their communication to meet the needs of different patients is likely to be easier to achieve for some students than others. In addition, results from this study indicate that communicative creativity is also easier to achieve for some experienced dental tutors than others, which suggests that emphasizing flexibility and creativity in communication is relevant for post-registered dental professionals as well. Developing patient-centred communication skills may involve significant behavioural change on the part of some students, (whether undergraduate or postgraduate or and some already qualified dental professionals), as communication is very personal and involves cognitive, social behavioural aspects of change, forged through reflection (Hannah et al., 2004). Often when students start communicating with patients they tend to focus on the science of disease and treatment, rather than focussing on the individual patient and their particular concerns (Hannah et al., 2004). This phenomenon was also noticed in the a few of the interactions involving dental tutors in this study. The discourse categories identified in Stage 1 of fieldwork could be used to facilitate deep reflection on the values and assumptions underpinning professional roles and how these might shape the relationship between health professionals and patients. Reflection is a key competency in dental education and continuing professional development in the post-registration phase (Bowman et al., 2021). Bleakley (2003) suggests taking a holistic educational-therapeutic approach to facilitate reflection on the part of unsuccessful

candidates, rather than reducing the complexity of communicative interactions to a list of skills. Bleakley (2003) suggests that experienced tutors with expertise in communication empathetically ask the student questions to help them identify any personally held values or deeper drivers that may have made a particular human interaction less successful.

Despite the argument for patient-centred communicative responsiveness presented above, it could be argued that there is a limit to such flexibility. Looking through a professionally defensive lens, if a dental student has made an emphatic statement (e.g. "we can stop it progressing" to a patient like SP Ray) that is not clinically accurate, then they could be liable to be sued. This dilemma could be resolved through raising students' awareness of the need for balance by asking them to come up with language that is as definite as possible, is accurate and is positively framed, but which also allows for unpredictable future clinical outcomes e.g. using 'if' statements.

8.2.3 Grading difficulty to ensure progression through the curriculum

There is evidence that communications skills are not well served by one-off communications interventions (Brouwers et al., 2017). Instead, students' communicative ability should be progressively developed throughout the dental curriculum (Carey et al., 2010) (as explored in Section 2.2.5). The results of this study support this recommendation. More students requested a 'time out' break during the conversations with SPs in the Challenges category in order to stop and ask for advice. Many students explained that they found conversations with resistant patients difficult and seemed surprised at encountering SPs who placed a low priority on oral health. Qualitative research shows that patients with a low oral health priority can view tooth loss as an inevitable consequence of aging and can view dental disease as normal (Gregory et al., 2007) (as discussed in Section 2.4.1). It is suggested that including a focus on patients with a low oral health priority should be part of the dental communications curriculum, but in the later years of the course. Empathetically raising students' awareness of this aspect of care could be done using a humanistic approach using anonymised real patient stories and interviews so that students can come to see the meanings that people ascribe to deprioritizing oral health (Hanna and Fins, 2006).

It is also suggested that teaching about behaviour change should be graded through the curriculum with students starting with less challenging SP profiles where e.g. explanatory clarity is required (Action-oriented category), moving through to dealing with patients who

are more resistant to change (Challenges category). Table 8. 2 contains a possible approach to grading teaching about behaviour change communication through the curriculum. The suggestions made are in alignment with the required competencies set out in the GDC Safe Practitioner framework (GDC, 2023) as outlined in Section 2.2.4 as well as with the BSP S3 clinical practice guidelines for the treatment of periodontal disease shown in Figure 2.1.

Table 8. 2: A possible framework for grading behaviour change communications teaching throughout the curriculum.

Year study	Communications teaching	SP roleplay practice	Communication with real patients
Yr 1	Theme: Patient-centred communication and active listening Open questions versus closed questions (analyse contrasting examples) Positive framing, affirmation, echoing and follow-up questions.	SP roleplays – scenarios with not much dental content, e.g. students discuss own lifestyle habits they would like to change and focus on active listening.	Informal conversations with real patients who have dental issues as part of a non-clinical communications round.
Yr 2	Theme: Risk factor checking and explanatory clarity Ask before tell, chunk and check, teach back, avoiding jargon, pausing in explanations, short clear explanations, using visual aids in explanations. Personalised versus generic explanations.	SP roleplays – focussing on the clinical content of simple coherent dental explanations, e.g. SP Sam (clarity of explanation) and Joan (clarity regarding severity).	Clinical communication with real patients on clinic.
Yr 3	Theme: Behaviour change and cause, blame and shame Flexibility in communication: Using different discourses to adapt to different patients' communications needs. Listening and reflecting on patients' stories, analysing story curves. Responding by suggesting different discourses to match different patient profiles Language for discussing lifestyle change without blame (analyse contrasting approaches: negative vs positive framing)	SP Kesia and SP Keith (both were concerned about cause, blame and shame)	Clinical communication with real patients on clinic.

Year study	Communications teaching	SP roleplay practice	Communication with real patients
Yr 4	Theme: Behaviour change and resistance Linguistic markers for locus of control, agency, oral health priority, affect. Techniques for exploring underlying health beliefs (contrasting approaches) Generic versus individualized language for explanations.	SP Jay and Lynn (resistance and challenges)	Clinical communication with real patients
Yr 5	Clinical communication with real patients		

The suggestions made in Table 8. 2 above can be seen in the light of evidence from medical undergraduate communications teaching. This evidence shows that communications training is most effective when a range of teaching methods are used over a longitudinal time period (King and Hoppe, 2013). In particular, practical active learning methods accompanied by immediate feedback does enhance communicative performance (Brouwers et al., 2017). Carey et al., (2010) also recommend greater use of real patients and patient feedback in dental communications training and more attention to be given to chair-side intra-operative communication.

In teaching medical undergraduates, it has been established that effective communications teaching should include:

- a skills-based approach,
- clinically relevant scenarios
- self-assessment by students
- filming or recording the interactions
- simulated patients (or real patients)
- an integrated teaching team including teaching staff from behavioural sciences
- small groups for optimal learning (Hannah et al., 2004)

All of these methods would be used in teaching behaviour change conversations throughout the curriculum.

8.3 Recommendations for dental communications training for registered dental professionals

8.3.1 Consider placing more emphasis on communications training for patients resistant to advice

Interestingly, it was not only students who found interactions with SPs in the Challenges category more demanding. The tutors who were given low scores for interactions with Judy had followed a purely clinical approach and had not explored her reasons for not prioritising her oral health. Studies in the literature show that registered dental professionals may have negative perceptions of less motivated patients. Barnes et al., (2022) noted that studies of dental professionals' attitudes to patients coalesced around concepts such as patients' compliance with treatment recommendations, their manageability and their likeability. As noted in Section 2.4.3.5 there is some evidence that that dental professionals spend less time advising patients who are perceived as less motivated (Threlfall et al., 2005). Leggett et al.'s, (2024) scoping review identified scepticism about the effectiveness of prevention advice: many dentists felt that the effort they put into prevention advice did not yield desired results due to a lack of interest. In addition, some dentists felt that giving prevention advice could potentially alienate patients (Leggett et al., 2024). Despite this the GDC Standards for the Dental Team (2013) sets out that it is the dental professional's responsibility to ensure that they "give patients the information they need, in a way they can understand". The onus is on the professional to "satisfy" themselves that the patient has understood what has been said (GDC, 2013). This directive applies to all patients (including patients who are more resistant to advice),

8.3.2 Provide additional teaching on how to achieve the communications steps required by the BSP UK S3 Clinical Practice Guidelines

It is suggested that the findings of the current study (which are summarised in Section 8.1) provide some nuances to complement the recommendations given in the British Society of Periodontology's S3 guidelines (BSP, 2021) with the aim of communicating with the patient in a way that is most likely to positively dispose them towards behaviour change. Perhaps the most useful contribution this study can make is in terms of the "reinforce OH" step of the BSP S3 guidance. Recommendation 4.3 in West et al., (2021): states that

“we recommend repeated individually tailored instructions in mechanical and oral hygiene including interdental cleaning in order to control inflammation and avoid potential damage.” The findings of this study could give ideas on how to use a different approach to reinforcing oral hygiene instruction rather than by simply repeating the oral hygiene instructions. Instead, it is suggested that it could be more effective to go back to the active listening phase in the next appointment and use open questions to try to identify and address any of the patient’s remaining underlying health beliefs or unmet concerns, particularly if the patient is not engaging. In addition, a different discourse category for communication could be tried which would reframe the discussion.

The BSP S3 guidance also defines patients as clinically engaging or non-engaging in terms of their plaque levels and oral hygiene improvements. The findings of this study add nuance in terms of communicative engagement in three categories: Action-oriented, Borderline and Challenges. The Borderline category is of particular interest here as patients in this category were taking oral health-related action, but had underlying unmet attitudinal or emotional concerns which acted as a potential threat to continued action. Raising clinicians’ awareness of this nuance could lead to a greater noticing of emotional cues and a potential discussion of unmet emotional or attitudinal needs related to dental care.

Whilst the recommendations arising from the findings of the current study are contained in Table 7.19, a simple list like that would not be sufficient to convey depth and detail. A workshop programme could be developed to provide additional communications recommendations as a supplement to guidance like the S3 BSP clinical guidelines for periodontal treatment. An example of a possible set of workshops based on the findings of this study is presented in Table 8. 3.

Table 8. 3 A possible set of workshops for registered dental professionals on behaviour change discussions relating to periodontal disease

Workshop title	Content	Teaching methods
1. Discussing periodontal disease: The patient perspective (1.5 hrs)	Intro: BSP guidance and behaviour change communication Patient core stories Patient story curves, the Stages of Change model and the 3 categories of stories Linguistic markers of readiness for behaviour change	Pair work mini roleplays Video-based learning Pair and group discussions Text-based, simple conversation analysis Individual reflection CARM (video-based prediction of communication)
2. Discussing periodontal disease: The clinician's perspective (1.5 hrs)	Sharing experiences of discussing periodontal disease with patients Themes from the interviews with dental professionals Reflections on the six discourse categories	
3. Simulated patient roleplay practice (3 hrs)	Action-oriented category interactions and reflections Borderline category interactions and reflections Challenges category interactions and reflections	Facilitated simulated patient interactions with feedback and reflection

8.3.3 Provide linguistic feedback to dental registrants who do not have English as their first language

As explained in Section 2.2.3, dental registrants who are not English first language speakers are over-represented on the GDC hearings list. In addition, communications support for these registrants is likely to be differ from region to region. The results of this study have shown that particular linguistic features are likely to be associated with a more successful communicative interaction. It is argued here that being able to receive linguistic and discursive feedback at the level of lexical choice and style can provide more

targeted solutions to communication difficulties, especially for non-native language professionals (Woodward-Kron et al., 2016; Dahm et al., 2020).

8.4 Some unexpected findings for further exploration

8.4.1 Clinician interviews: Professional role perceptions

The identification of discourses relating to clinicians' perceptions regarding their professional role identity was an unexpected finding. Seeing these patterns of language use pervading the interviews was not planned for. Initially a traditional thematic analysis of interview content had been planned. It is suggested that more research on professional role perceptions and the links these have to actual clinical communication and health outcomes could be a fruitful area for future research. To further support this, in a recent scoping review, Leggett et al., (2024) identified the social or professional role domain of the Theoretical Domains Framework (discussed in detail in Section 2.4.3) as being one of the top three factors influencing the provision of oral hygiene preventative advice by dentists. There is also scope for future research in primary care settings on the impact that varying discourses has on patients' intentions towards behaviour change.

8.4.2 Narrative interviews: The role of emotion

An unanticipated finding from Stage 2 of fieldwork in this study was the prominence of the emotional aspect of living with periodontitis emerging from participants' accounts. The discourses used by participants in the Action-orientated category showed a journey from initial negative emotion through to much more positive emotion after periodontal treatment and behaviour changed. In the Borderline category, participants were taking oral health-related action, but still had unmet emotional or attitudinal needs. Participants in the Challenges category showed a wide range of emotions from no emotion (disengaged) to a very negative outlook, to satisfaction with dentures after having lost a lot of teeth to periodontal disease. Other qualitative studies of patients' experience of living with periodontal disease e.g. Horne et al., (2020) (as discussed in Section 2.1.7) have also identified that there is a significant emotional influence at play when living with the condition.

A qualitative study by Gibson et al. (2024) conceptualized participants' lived experience of tooth loss and denture fitting as a journey shaped primarily by emotional processing. The authors of this study point out that traditional communications checklists, (examples are given in Section 2.5.1), with the exception of the Verona coding system, do not include the

emotional component of dental consultations. Other studies have shown that there is a complex interplay between dental anxiety, dental visit avoidance and feelings of shame due to poor oral health (Moore et al., 2004). It is argued by Yuan et al., (2020) and Gibson et al., (2024) the emotional component of communication could be crucial to establishing trust in the dental professional through sensitive attending to the patient's needs. It is suggested here that more attention should be paid to oral health-related emotion including shame and self-blame in dental communications curricula.

It is important to bear in mind that demonstrating empathy for a patient's emotions is realised in a multi-dimensional way in communicative interactions. Cordella and Musgrave's (2009) study showed that empathy is successfully realised cumulatively through: appropriate word choices, timing and staging in an interaction. In this study providing reassurance and affirmation prior to discussing treatment was crucial in interactions with Judy and Kesia. This sequencing needed to be combined with softening in word choice, positive framing and further affirmation and reassurance statements throughout the interaction. In van Osch et al.'s (2014) medical communication study, when an otherwise identical video vignette was changed by having 38 seconds of interspersed reassurance statements embedded in it, this was found to improve participants' general recall, and their recall of specific prognostic information.

There is evidence in the literature on behaviour change conversations between diabetes nurses and patients, that there is a bias towards the biomedical aspects of diabetes care and less attention is paid to the patients' underlying health beliefs and emotions (Mulder et al., 2015). The advice to the patient tended to be fairly general, not personalised, and was one-way without much discussion with the patient of barriers to self-management (Mulder et al., 2015). A possible reason for the emphasis on biomedical aspects was the role confusion experienced by nurses who had difficulty shifting from giving a medical judgment to the patient (e.g. weight gain or poor glycaemic balance), to having a patient-centred discussion about lifestyle and self-care which needed to be conducted without blame (Mulder et al., 2015). Mulder et al., (2015) surmised that switching from the role of medical expert to a facilitator of patient-centred change could involve a feeling of relinquishing control which could be difficult as nurses as are accountable for meeting medical targets. It is possible that similar underlying dynamics might be at play when dental professionals have behaviour change conversations with periodontal patients. It is suggested that more attention needs to be paid to the role of patients' underlying emotions in dental communicative interactions.

8.4.3 Narrative interviews: Knowing the cause

For a number of the people living with periodontal disease who were interviewed in this study (particularly those in the Borderline category, but also Keith in the Action-oriented category) it was very important to establish what caused them to have this condition. Keith repeatedly pointed out that his condition had a genetic basis to it and therefore he was not to blame. Whilst the primary aetiological factor for the common forms of periodontitis is plaque build-up rather than it having a genetic basis (Chapple, et al., 2015), it is possible that some dental professionals may not set the record straight for patients as it might be more motivating for them to believe that they couldn't help getting the disease. There are indications in Chapter 5 that show that this could be the case for some dental professionals interviewed in this study.

As discussed in Section 2.3.2, understanding the cause of an illness is an important dimension making up patients' illness conceptions. In addition, the Attribution Theory of patients' health beliefs posits that individuals are motivated to see the world as predictable and controllable, thus there is a pressing need to attribute a cause to an illness (Ogden, 2007). To extend this, the cause of the illness can be seen as being able to be controlled by the patient themselves (internal locus of control) or the patient may feel they are powerless to control it, as it is influenced by external forces or is related to luck or fate (external locus of control) (Ogden, 2007). Taylor's (1983) theory of cognitive adaptation suggests that the more a patient can get a sense of meaning from understanding the cause of the illness and the implications of it for their life, the better they will be able to adapt and cope with the illness. It is suggested here that there should be more of a focus on how to empathetically discuss the causes of individual patients' periodontal disease in communications training.

8.4.4 SP roleplays: SP scoring ranges for tutors and students

As discussed earlier, both tutors and students showed a range of scores in the SP interactions for characters as different as Judy and Keith. Whilst it is acknowledged that there was a small sample size in terms of the number of tutors involved, this is still an interesting finding. There are some studies in the literature that might go some way to explaining this phenomenon. In the dental context, Uziel et al. (2019) explored the vicarious trauma, discomfort and anxiety that dental professionals are exposed to when treating patients and found that this was inversely related to empathy. The effect was greater in older dental professionals and if the practitioner had not been getting enough

sleep. In medical education King and Hoppe (2013) found that there was a decline in empathy amongst medical undergraduates as they progressed through their programmes of study. Sinclair et al.'s (2017) meta narrative review focussed on the cumulative effect of work-related stress in healthcare and found that this was associated with a decrease in practitioner empathy when dealing with patients (compassion fatigue). It is suggested here that a fruitful area for future research would be more detailed comparisons of communicative interactions involving both students and experienced dental tutors.

8.4.5 SP roleplays: Student disclosure avoidance

Another unexpected finding from this study was that a number of students avoided disclosing the consequence of untreated periodontal disease to the SP, i.e. tooth loss. This phenomenon was most noticeable in the interactions with Ray, for whom an understanding of this consequence was crucial. This phenomenon could warrant further investigation. It was perhaps also noteworthy that it was the female students interacting with Ray who showed the most hesitance about discussing tooth loss (either avoiding disclosure or discussing this tooth loss very tentatively). It is possible that students with little experience of interacting with patients fear disrupting the relationship with their patient. Given the small sample size, this finding is not generalizable, but the phenomenon may be worthy of further investigation. Anecdotally, student disclosure avoidance has also been noticed by the author of this study as part of examining OSCE communication stations over the last ten years. Knowing the end consequence of having an untreated condition is very important in order for patients to have a full understanding of a disease (Leventhal et al., 1997) and for professionals to be protected in case of possible litigation (Dental Protection, 2014).

It is noteworthy that the hesitation shown by dental students regarding discussing potential tooth loss was not seen in the SP interactions with any of the dental tutors. However, there is evidence in the literature in relation to registered dental professionals avoiding disclosing, e.g. the fact that an extra-oral examination is also a screening examination for oral cancer (Awojobi et al., 2015) or avoiding giving alcohol advice to patients (Shepherd et al., 2010) (this is discussed in detail in Section 2.4.1). The influences here appear to be not wanting to disturb the relationship with a paying patient and due to time constraints. It is also interesting that a number of the participants interviewed in Chapter 6 of this study that they had not been told that they had periodontal disease or how serious it is in a way that registered with them.

If it is the case that some dental professionals postpone or avoid more comprehensive discussions about periodontal disease with their patients, the fact that periodontitis is a chronic condition makes this more significant. Chronic diseases have no associated cure, so symptom control, halting disease progression, and encouraging healthy lifestyles and patient self-care are the main goals of disease management (Thorne et al., 2004). It could be argued that communication between healthcare provider and patient is much more important in this context. In terms of effective patient-led chronic disease management, Kelly et al., (2023) recommend that dental professionals cultivate a professional curiosity about a patient's individual life circumstances instead of avoiding discussion. It is suggested here that facilitating student reflection on their reasons for disclosure avoidance could be a valid focus for a dental communications curriculum.

8.4.6 SP roleplays: Disconnect between SP and OSCE examiner scoring

Some of the high-scoring interactions in this study would not have received favourable OSCE scores due to them not covering all the required dental content aspects. For example, some of the successful interactions with Judy and Kesia focussed heavily on using affirmation and giving reassurance to the point where the SP was ready to engage with future treatment, but eliciting the SP's brushing habits or smoking history was omitted. There was also a high-scoring interaction with Keith in which the student did not elicit Keith's once-a-day brushing habit, but his very clear explanation of the need for regular flossing engendered a strong intention towards behaviour change. Conversely, there were some low-scoring interactions with Judy and Ray that would have received high OSCE scores for covering all the required clinical content, but the SP said they felt disinclined to attend a future appointment.

It is argued here that it is challenging for students to achieve both convincing patient engagement and to cover all the dental content at the same time, hence the need for grading the difficulty of behaviour change interactions throughout the curriculum (as explained in Section 8.2.3). It is also suggested here that it might be worth re-examining the purpose of an OSCE interaction (either to assess coverage of dental content or to engage the patient in behaviour change or both). For dental registrants, it could be argued that it is appropriate to focus just on engaging a patient who has challenges and then initiating a more detailed clinical discussion in a future appointment when enough rapport has been built. This strategy is not available to students in a one-off OSCE encounter.

8.5 Limitations of this study

8.5.1 Researcher self-reflexivity in qualitative analysis

The aim of qualitative research is to gain rich and detailed insight into how and why a phenomenon is experienced by insiders. In keeping with this aim, the researcher must be able to develop a close understanding of the research participants, in order to make rich description of their world possible (Yilmaz, 2013). In approaching the research participants so closely, it could be argued that there is a greater potential for bias in the study which is a possible study limitation. In qualitative research, no research is regarded as being value-free, so instead it is important that the researcher acknowledges their own subjective view of reality and is critically reflexive, i.e. is aware of any personal bias that could affect data collection and analysis, as well as how the collection of the data might be affecting the researcher (Daly et al., 2007). In this regard it is important that, as the principal investigator in this study, I declare that I am a passionate life-long educator. Teaching has been my profession since the start of my career, and I gain great job satisfaction from playing a role in facilitating the development of learning and confidence in the students in my care as a non-clinical teacher in a Dental School. In terms of the analysis of the data from the Stage 1 fieldwork interviews, I have the most affinity with the 'Deep Educator' role and have kept this potential bias in mind during the analysis and interpretation of the data.

In addition, as explained in Section 4.1, I am generally dentally healthy and so are the two Linguistics students who acted as independent coders for Stage 1 and 2 of fieldwork in this study. This could have an impact on how the participants in the narrative interviews chose to express themselves. However, that fact that I am not a practising dental professional could perhaps also have positively influenced disclosure in Stages 1 and 2 of fieldwork.

8.5.2 Small sample size

In this study, a method for developing simulated patient roleplay discussions about periodontal disease has been presented. The most obvious limitation of this method is the small sample size in Stages 1 and 2 of fieldwork upon which the SP roleplays were based. Small sample sizes are a feature of qualitative research. The results of this study cannot claim to be generalizable to the general population. However, the SP interactions did represent a large data set for this kind of analysis.

8.5.3 Triadic communication and intra-operative communication not included in study design

Kelly's (2015) study in primary dental care shone a spotlight on the dynamic triadic communication between dentist, dental nurse and patient, which is important for maintaining patient engagement. There is a significant gap in the literature regarding triadic or team-based communications teaching. It is acknowledged here that the current study has the limitation that it is dyadic (single provider and SP) rather than triadic. The teaching materials from this study could be adapted to be used for triadic or whole team dental inter-professional communications teaching. Students could be asked reflective questions on script-based analysis, e.g. how could a dental nurse come in here? or at which points in this conversation would you suggest a dental nurse should make a contribution and how (and why)? Also absent from the communicative focus in this study is a much-needed emphasis on intra-operative communication (Carey et al., 2010; Moore, 2022). This was beyond the scope of the current study.

8.5.4 Impact of gender on communication not analysed

In their systematic review, Roter and Larson (2002) found that female physicians in primary care communicated in a different way to male physicians. Female physicians' talk had significantly more positive framing, active partnership building and had more of a psychosocial component in longer appointments as compared to male physicians (Roter and Larson, 2002). Interestingly though, both sexes gave patients the same amount of biomedical information in roughly the same manner (Roter and Larson, 2002). In this study, male and female participants have been distinguished from each other. There are some indications that there are differences in approach, e.g. more female students had difficulty directly communicating the tooth loss consequence without softening language when interacting with Ray and more male students had difficulty adapting to Kesia's sense of shame and embarrassment. Doing justice to a gendered analysis was beyond the scope of this study, but this could be the subject of future analysis.

8.5.5 Impact of first language on communication not analysed

International students studying in dental schools outside their countries of origin, face additional challenges when learning to communicate with patients, especially if their countries of origin are socially, culturally, academically and linguistically very different from the UK (Rienties et al., 2012). When interviewed, international students point to a

lack of proficiency in speaking as being a more significant barrier to learning and integration in their host institution than written proficiency (Sherry et al., 2010; Yates and Wahid, 2013). Despite the importance of discipline-specific English language development, there is very little literature on the development of spoken communication of non-native speakers studying or practising Dentistry. There is also a paucity of learning materials in English for Dental Purposes (Morse and Nakahara, 2001). One study from the Netherlands compared the dental OSCE performance of native and non-native speakers of Dutch (Schoonheim-Klein et al., 2007). Results showed that non-native Dutch speakers performed significantly worse at OSCE and perceived that there were more drawbacks to their dental education and assessment performance, due to their language proficiency. Giving the non-native students a longer time to complete the OSCE tasks did not result in increased OSCE scores, thus it was concluded that more tuition, advice and discussion was needed (Schoonheim-Klein et al., 2007). In the current study, the University of Leeds Dental Surgery cohort is made up mostly of UK students, but 20% of the cohort are international students who have Arabic as their first language. Contrasting the interactions of the UK home students and the international students was beyond the scope of this study, but could be the focus of future analysis. In addition, the significant influence of culture on communication was not examined in this study.

On the other hand, UK-trained dental students and registered dental professionals face challenges when interacting with patients who are culturally and linguistically different (CALD) from them. When a language barrier is perceived to be in place, it is shown to have an effect on interactions with all members of the healthcare team (Komaric et al., 2012). Unfortunately, even linguistically different patients with a reasonable level of competence in English reported difficulty in conveying their desired meaning when discussing their healthcare needs (Komaric et al., 2012). If a patient has difficulty in expressing their healthcare needs, this in turn will make treatment discussions more difficult. A survey of dental staff's views conducted in a US state revealed that almost all clinics saw a need for language services to be made available to assist in communication with linguistically different patients (Hammersmith and Lee, 2009). The majority of clinics felt that consultations with patients with limited English proficiency needed to be longer. Also, some clinics in the study expressed that treatment recommendations and actual treatment might differ for low English proficiency patients. For example, extraction might be recommended instead of root canal treatment as the latter involves complex explanations and a greater number of visits (Hammersmith and Lee, 2009). This could be

regarded as a worrying potential difference in the quality of care. Interestingly, in addition to endodontics (root canal treatment), periodontal disease treatment is seen as being particularly problematic for communicating with linguistically different patients due to the detailed explanations required (Rowland, 2008). In this study, one of the SPs was a second language speaker of English (Judy 2), but the impact of language differences in this direction was also not subject to detailed analysis.

9 CHAPTER 9: CONCLUSION

The aim of this study was to explore patient : provider communication with a view to identifying communicative approaches that could be employed by dental students or dental professionals to enhance patients' understanding of periodontitis and to increase the likelihood of them intending to change their oral health-related behaviours.

The first finding from this study was that dental professionals' perceptions of their "professional roles and identity" (a domain of the Theoretical Domains Framework), had a marked impact on the way that they expressed themselves in their interviews about their lived experience of explaining periodontal disease to patients. This is a new finding in terms of the literature on dental communications. The six discourse categories identified in this study could be used as a tool to foster reflection on the values and assumptions that professional communication is based on. This is relevant for both dental students who are in the process of developing their professional identity and for qualified dental professionals who might benefit from refreshing their approach to communicating with patients. In addition, reflection on the values underpinning professional communication can be applied to any type of healthcare conversation; it is not restricted to conversations about periodontal disease. Reflective practice is strongly emphasized in both undergraduate training and in continuous professional development in Dentistry and other healthcare professions (GDC, 2019).

The second stage of fieldwork in this study identified that there was individual variation in participants' experiences of living with periodontal disease. However, despite the different circumstances influencing the trajectory of each individual journey, there were commonalities in terms of participants' emotional stances on the condition. Emotional stance was the key factor which differentiated the three categories of story curve. These results further emphasize the importance of gaining an empathetic, holistic understanding of the patient's perspective when discussing periodontal disease.

Attentive listening, using the linguistic markers identified in this study, could help dental students and professionals to become familiar with the patient perspective more quickly. The codebook of examples of linguistic markers for: internal or external control, agency, affect (emotion), dental anxiety, oral health priority and their sense of barriers and/or facilitators in their journey, could be used in awareness-raising training for dental students and professionals. Similar linguistic marker sets exist for training diabetes nurses in behaviour change conversations, thus this study adds to this kind of literature base, but as applied to periodontal disease.

The simulated patient (SP) roleplays that formed the third stage of fieldwork in this study identified further interactional features that were associated with more and less successful conversations about behaviour change with different SP characters. The interactional features included aspects of framing, word choice, and topic sequencing, and more importantly, being able to respond empathetically and flexibly in real time to the communicative needs of each SP. Engaging an otherwise disengaged SP, or dealing with someone who is taking oral health-related action but has an underlying negative stance towards dental professionals, is a very complex communications task. Noticing linguistic cues and responding appropriately to an SP character whilst also trying to cover expected clinical content, further deepens this complexity. It is argued that tackling this complexity is best achieved gradually, by grading the difficulty of this kind of task over the course of the dental curriculum. It is also suggested that there is scope to expand the educational role of SPs in terms of delivering feedback and scoring interactions. Expanding their role could help to humanize interactions so that simulation training does not become a tick-box exercise with the SP being used as a "prop", as pointed out by Gormley et al. (2012).

Despite the advantages of simulated interactions for stop-start experimentation with different communications strategies in a safe space, it is recognized that simulation interactions differ from real interactions and are only one tool for use in communications teaching. There is a role for humanistic approaches, including reflection on the values and assumptions beneath one's own communicative style, as well as using narrative approaches to raise awareness of the emotions associated with a patient's journey. However, practising communication with real patients alongside the kinds of teaching mentioned above, is an essential aspect of training in patient-centred communication.

This study began with a quote from a dental professional who was frustrated at the number of patients he encountered who were confused about what periodontitis really is.

The literature review conducted at the start of this study revealed that there was indeed very little detailed guidance on how to conduct such conversations. The three stages of fieldwork in this study have identified approaches to teaching communications that could enhance the likelihood of success in periodontal disease-related behaviour change conversations, potentially helping to make these interactions less ‘difficult’.

10 REFERENCES

A.

Aalboe, J.A. and Schumacher, M. M. 2016. An instrument to measure dental students' communication skills with patients in six specific circumstances: an exploratory factor analysis, *Journal of Dental Education*. 80(1), pp.58 – 63.

Abrahamsson, K.H., Wennström, J.L., Hallberg, U. and Wennström, J.L., 2008. Patients' views on periodontal disease; attitudes to oral health and expectancy of periodontal treatment: a qualitative interview study. *Oral Health and Preventive Dentistry*, *6*(3).

Ahmed, H. 2017. Oral health: What is gum disease?. *British Dental Journal*. 222(323).

Al-Harthi, L.S., Cullinan, M.P., Leicther, J.W. and Thomson, W.M. 2013. The impact of periodontitis on oral health-related quality of life: a review of the evidence from observational studies, *Australian Dental Journal*, 58, pp.274-277.

Alrawiai, S., Asimakopoulou, K. and Scambler, S., 2021. Patient-Centred Care in Dentistry: Definitions and Models-Commentary. *European Journal of Dental Education*. *25*(3), pp.637-640.

Alsubaie, S. Grant, D. Parastou D. 2023. An Applied Linguistics Study of How Students Prevent Embarrassments and Impositions During Interactive Examination OSCEs. *American Journal of Pharmaceutical Education*.87 (8).

Alexander, K.E., Brijnath, B. and Mazza, D., 2014. Barriers and enablers to delivery of the Healthy Kids Check: an analysis informed by the Theoretical Domains Framework and COM-B model. *Implementation Science*, *9*, pp.1-14.

Amineh, R.J. and Asl, H.D., 2015. Review of constructivism and social constructivism. *Journal of Social sciences, Literature and Languages*, *1*(1), pp.9-16.

Apelian, N., Vergnes, J.N. and Bedos, C., 2020. Is the dental profession ready for person-centred care?. *British Dental Journal*, 229(2), pp.133-137.

Asimakopoulou, K., Newton, J.T., Daly, B., Kutzer, Y. and Ide, M., 2015. The effects of providing periodontal disease risk information on psychological outcomes–a randomized controlled trial. *Journal of Clinical Periodontology*. 42(4), pp.350-355.

Asimakopoulou, K. Rhodes, G. and Daly, B. 2016. Risk communication in the dental practice, *British Dental Journal*. 220(2), pp.77 – 80.

Atkins, L., Francis, J., Islam, R. et al.,2017. A guide to using the Theoretical Domains Framework of behaviour change to investigate implementation problems. *Implementation Science*. 12(77).

Atkins, S. 2019. Assessing health professionals' communication through role-play: An interactional analysis of simulated versus actual general practice consultations. *Discourse Studies*. 21(2), pp.109-134.

Awojobi, O. Newton, J.T. and Scott, S.E., 2015. Why don't dentists talk to patients about oral cancer? *British Dental Journal*. 218, 537-541.

B.

Baehni, P. and Tonetti, M.S. 2010. Conclusion and consensus statements on periodontal health, policy and education in Europe: a call for action – consensus view 1: Consensus report of the 1st European Workshop on Periodontal Education, *European Journal of Dental Education*, 14, pp.2-3.

Baker, S.R., Heaton, L.J. and McGrath, C., 2023. Evolution and development of methodologies in social and behavioural science research in relation to oral health. *Community Dentistry and Oral Epidemiology* 51(1), pp.46-57.

Balint E. 1969. The possibilities of patient-centred medicine. *Journal of the Royal College of General Practitioners*.17(82). pp.269–76.

Barker, A., Doeltgen, S., Lynch, E. and Murray, J., 2019. Perceived barriers and enablers for implementing water protocols in acute stroke care: a qualitative study using the Theoretical Domains Framework. *International Journal of Speech-Language Pathology*. 21(3), pp.286-294.

Barnes, G., 2024. Learning lessons from a Perio claims analysis, *DDU Journal*. [Online]. [Accessed 30 January 2025]. Available from: Learning lessons from a perio claims analysis

Barnes, R.K. 2019. Conversation analysis of communication in medical care: description and beyond, *Research on Language and Social interaction*. 52(3), pp.300-315.

Barnes, E., Bullock, A. and Chestnutt, I.G., 2022. What influences the provision and reception of oral health education? A narrative review of the literature. *Community Dentistry and Oral Epidemiology*, *50*(5), pp.350-359.

Barrett, D., Dubal, R. and L. Morgan, C., 2023. The UK public and healthcare professionals' awareness of mouth cancer. *British Dental Journal*, 235(10), pp.811-815.

Batchelor, P. 2014. Is periodontal disease a public health problem? *British Dental Journal*, 217, pp.405-409.

BDJ Editor. 2023. NHS costs leave quarter of patients delaying or avoiding treatment. *British Dental Journal*. 234, 639.

Beaton L, Freeman R, and Humphris G. 2014. Why are people afraid of the dentist? Observations and explanations. *Medical Principles and Practice*. 23(4), pp.295-301.

Bensing, J., Van Dulmen, S. and Tates, K., 2003. Communication in context: new directions in communication research. *Patient Education and Counseling*. 50(1), pp.27-32.

Bleakley, A., 2003. 'Good'and 'poor'communication in an OSCE: education or training?. *Medical Education*. 37(3).

Boiko, O.V., 2010. Dentist-patient communication: How do the models correspond. *Social Science and Dentistry*, 1(2), pp.57-67.

Boiko, O.V., Robinson, P.G., Ward, P.R. Gibson, B.J. 2011. Form and semantics of communication in dental encounters: oral health, probability and time, *Sociology of Health & Illness*. 33 (1), pp. 16–32.

Boman, Å., Povlsen, L., Dahlborg-Lyckhage, E., Hanas, R. and Borup, I., 2013. Fathers' encounter of support from paediatric diabetes teams; the tension between general recommendations and personal experience. *Health & Social Care in the Community*, 21(3), pp.263-270.

Booth, B.J. and McBride, T., 2007. Patient focus and the quality framework. *Australian family physician*, 36(1-2).

Bowman, M., Sale, I., Payne, R., Vinall-Collier, K. and Tugnait, A., 2021. Dental professionals' role perceptions in relation to periodontal (gum) disease explanations: A thematic discourse analysis approach. *Communication and Medicine*. 18(3).

Bowman M, Payne R, Vinall-Collier K, Tugnait A. 2022. Conversation, discourse and linguistic analysis in dental communication: valuable but under-used approaches. *British Dental Journal*. 232(12).

Braun, V. and Clarke, V., 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), pp.77-101.

Bridges, S., McGrath, C., Yiu, C.K.Y and Cheng, B.S.S. 2010. 'Reassuring' during clinical examinations, *Journal of Asian Pacific Communication*. 20(2), pp.85-206.

Brocklehurst, P.R., Baker, S.R. and Speight, P.M. 2010. A qualitative study examining the experience of primary care dentists in the detection and management of potentially malignant lesions. 2. Mechanics of the referral and patient communication, *British Dental Journal*. 208(E4).

Broomhead, T. and Baker, S.R., 2023. From micro to macro: structural determinants and oral health. *Community Dentistry and Oral Epidemiology*. 51(1), pp.85-88.

Broomhead, T., Gibson, B., Parkinson, C.R., Vettore, M.V. and Baker, S.R., 2022. Gum health and quality of life—subjective experiences from across the gum health-disease continuum in adults. *BMC Oral Health*, *22*(1), p.512.

Brouwers, M., Rasenberg, E., van Weel, C., Laan, R. and van Weel-Baumgarten, E., 2017. Assessing patient-centred communication in teaching: a systematic review of instruments. *Medical Education*, 51(11), pp.1103-1117.

(BSP) British Society of Periodontology, 2017. Periodontal health for a better life. [Online]. [Accessed 19 March 2018]. Available at: https://www.bsperio.org.uk/assets/downloads/Patient_Information_Leaflet.pdf

(BSP) British Society of Periodontology, 2021. BSP UK clinical guidelines for the treatment of periodontal diseases (BSP treatment flow chart). [Online]. [Accessed 24 July 2023]. Available from: SM4822 BSP Treatment Flow Chart - Haleon Version 3 PRESS_READY

Bruera, E. Palmer, J.L, Pace, E. Zhang, K., Willey, J. Strasser, F. and Bennett, M.I. 2007. A randomized controlled trail of physician postures when breaking bad news to cancer patients, *Palliative Medicine*. 21, pp.501-505.

Buckman, R.A., 2005. Breaking bad news: the SPIKES strategy. *Community Oncology*, *2*(2), pp.38-142.

Buduneli N. 2020. Communication skills of the clinical and patient motivation in dental practice, *Current Oral Health Reports*. 7, pp.202-207.

Bunton, R., Baldwin, S., Flynn, D. and Whitelaw, S., 2000. The 'stages of change' model in health promotion: science and ideology. *Critical Public Health*. 10(1), pp.55-70.

Burgers, C., Beukeboom, C.J. and Sparks, L. How the doctors should (not) talk: when breaking bad news with negations influences patients' immediate responses and medical adherence intentions, *Patient Education and Counselling*, 89, pp.267-273.

Burr, V., 2015. *Social constructionism*. Routledge.

C.

Carra M.C., Detzen L., Kitzmann J., Woelber J.P., Ramseier C.A., and Bouchard P. 2020. Promoting behavioural changes to improve oral hygiene in patients with periodontal diseases: A systematic review. *Journal of Clinical Periodontology*. 47(Suppl 22). pp.72-89.

Carey, J. A., Madill A. and Manogue, M. 2010. Communication skills in dental education: a systematic research review, *European Journal of Dental Education*. 14, pp.69-78.

Caton J., Armitage G., Berglundh T., et al. A new classification scheme for periodontal and peri-implant diseases and conditions – Introduction and key changes from the 1999 classification. 2018. *Journal of Clinical Periodontology*. 2018; 45(Suppl 20): S1–S8.

Chan, C.C., Chan, A.K., Chu, C.H. and Tsang, Y.C., 2023. Theory-based behavioural change interventions to improve periodontal health. *Frontiers in Oral Health*, *4*, pp.1067092.

Changemangementinsight 2024. What is Kubler Ross Change Curve? [Online]. [Accessed 20 June 2024]. Accessed from: What is Kubler Ross Change Curve? | Stages & Advantages (changemanagementinsight.com)

Chapple, I. 2014. Time to take Periodontitis Seriously, *British Medical Journal*, 348.

Chapple, I.L., Van der Weijden, F., Doerfer, C., Herrera, D., Shapira, L., Polak, D., Madianos, P., Louropoulou, A., Machtei, E., Donos, N. and Greenwell, H., 2015. Primary prevention of periodontitis: managing gingivitis. *Journal of Clinical Periodontology*, 42, pp. S71-S76.

Charon, R., 2015. Narrative medicine: the essential role of stories in medical education and communication. *Creative Dialogues: Narrative and Medicine*. pp.95-111.

Cheek, J., 2004. At the margins? Discourse analysis and qualitative research. *Qualitative Health Research*. 14(8), pp.1140-1150.

Cheshire, P.D., Saner, P., Lesley, R., Beckerson, J., Butler, M. and Zanjani, B. 2011. Dental practitioners with a special interest in periodontics: the West Sussex experience, *British Dental Journal*. 210, pp.127-136

Chiodo G.T. and Tolle, S.W. 1997. Delivering bad news to dental patients, *General Dentistry*. 45 (3), pp.228-30.

Church, K., Hoggan, E. and Oliver, N., 2010, October. A study of mobile mood awareness and communication through MobiMood. *In Proceedings of the 6th Nordic conference on human-computer interaction: extending boundaries* (pp. 128-137).

Cobban, S.J., Edgington, E.M., Myrick, F. and Keenan, L., 2009. A discourse on the nature of dental hygiene knowledge and knowing. *International Journal of Dental Hygiene*, 7(1), pp.10-16.

Connor, U., Anton, M, Goering, E., Lauten, K., Hayat, A., Roach, P., Balund, S. 2012. Listening to patients' voices: Linguistic indicators related to diabetes self-management, *Communication and Medicine*, 9 (1).

Connor, U. and Lauten, K., 2014. A linguistic analysis of diabetes patients' talk: reported adherence to healthy behaviours. In *The Routledge handbook of language and health communication* (pp. 91-108). Routledge.

Corbet, E. and Smales, R. 2012. Oral diagnosis and treatment planning: part 6. Preventive and treatment planning for periodontal disease, *British Dental Journal*, 213(6), pp.277–284.

Cordella, M. and Musgrave, S. 2009. Oral communication skills of international medical graduates: Assessing empathy in discourse, *Communication and Medicine*. 6(2), pp 129-142.

Corsodyl, 2024. Could you have gum disease? [Online]. [Accessed 27 January 2025]. Available from: What Is Gum Disease? | Corsodyl

Crawford, T., Roger, P. and Candlin, S., 2017. The interactional consequences of 'empowering discourse'in intercultural patient education. *Patient Education and Counselling*. 100(3), pp.495-500.

Croft, P. White, D.A. Wiskin, C. M. D., and Allan T.F. 2005. Evaluation by dental students of a communication skills course using professional role-players in a UK school of dentistry, *European Journal of Dental Education*, 9, pp 2-9.

Croix, de la A.D. 2010. The language game of role-play: an analysis of assessed consultations between third year medical students and Simulated Patients (SPs). Ph.D thesis. University of Birmingham, U.K., [Online]. [Accessed 25 January 2024]. Available from: Etheses.bham.ac.uk

Croix, de la A. and Skelton, J., 2013. The simulation game: an analysis of interactions between students and simulated patients. *Medical Education*, 47(1), pp.49-58.

Crossley M. 2021. Narrative analysis, in eds Lyons E. and Coyle A. Analysing qualitative data in Psychology, Sage.

Curtin, S. and McConnell, M. 2012. Teaching Dental Students How to Deliver Bad News: S-P-I-K-E-S Model, *Journal of Dental Education*. 76(3), pp.360-365.

D.

D'Cruz, L. 2010. Risk management in clinical practice. Part 1: Introduction, *British Dental Journal*. 209, pp.19-23.

Dahm, M.R. and Yates, L., 2020. Rapport, empathy and professional identity: Some challenges for international medical graduates speaking English as a second or foreign language. *Multilingual Healthcare: A Global View on Communicative Challenges*, pp.209-234.

Daly, K.J., 2007. *Qualitative methods for family studies and human development*. Sage.

Davda, L.S., Radford, D.R., Scambler, S. and Gallagher, J.E., 2022. Accreditation and professional integration experiences of internationally qualified dentists working in the United Kingdom. *Human Resources for Health*, *20*, pp.1-12.

Davis, D.M., Fiske, J., Scott, B., Radford, D.R., 2000. The emotional effects of tooth loss: a preliminary quantitative study, *British Dental Journal*. 188, pp 503 – 506.

DeBate, R.D., Cragun, D. Gallentine, A.A., Severson, H.H. Shaw, T. Cantwell, C. Christiansen, S. Koerber, A. Hendricson, W. S.L.Tomar, McCormack Brown, K. and Tedesco, L.A. 2012. Evaluate, assess, treat: development and evaluation of the EAT framework to increase effective communication regarding senstivite oral-systemic health issues, *European Journal of Dental Education*, 16, pp.232-238.

De Haes, H. and Bensing, J., 2009. Endpoints in medical communication research, proposing a framework of functions and outcomes. *Patient Education and Counselling*, *74*(3), pp.287-294.

(DDU) Dental Defence Union, 2014. DDU pays out £2.8 million to compensate patients with gum disease [Online]. [Accessed on 9 May 2018]. Available from:

https://www.theddu.com/press-centre/press-releases/ddu-pays-out-2-million-to-compensate-patients-with-gum-disease

(DDU) Dental Defence Union, 2024. Learning lessons from a perio claims analysis. [Online]. [Accessed on 30 December 2024]. Available from: Learning lessons from a perio claims analysis

Dental Protection. 2014. Undiagnosed and untreated periodontal disease is one of the fastest growing areas of litigation and complaints in dentistry. [Online]. [Accessed on 14 April 2016]. Available from: http://www.dentalprotection.org/new-zealand/publications-resources/clinical-audit-tools/clinical-audit-tools-display/2014/08/27/periodontal-monitoring

Dental Protection. 2016. Dental Protection Horizons Roadshow 2015: How to avoid becoming a statistic [Online]. [Accessed on 1 June 2016]. Available from: http://www.dentalprotection.org/uk/about/media-centre/press-releases-display/2015/08/28/dental-protection-horizons-roadshow-2015-how-to-avoid-becoming-a-statistic

De Vet, E., De Nooijer, J., De Vries, N.K. and Brug, J., 2005. Stages of change in fruit intake: A longitudinal examination of stability, stage transitions and transition profiles. *Psychology & Health*, *20*(4), pp.415-428.

Doughty, J., Macdonald, M.E., Muirhead, V. and Freeman, R., 2023. Oral health-related stigma: Describing and defining a ubiquitous phenomenon. *Community dentistry and oral epidemiology.* 51(6), pp.1078-1083.

Durham, J., Fraser, H.M. McCracken, G.I., Stone, K.M., John, M.T. and Preshaw, P.M. 2013. Impact of periodontitis on oral health-related quality of life, *Journal of Dentistry*, 41, pp.370-376.

Dyer, A. Glenny, T., MacDonald, A.M. et al.,2023. Facilitators for increasing dental attendance of people from vulnerable groups: a rapid review of evidence relevant to the UK. *British Dental Journal.* pp.1-7.

E.

Eberhard, L., Hassel, A., Bäumer, A., Becker, F., Beck-Mußotter, J., Bömicke, W., Corcodel, N., Cosgarea, R., Eiffler, C., Giannakopoulos, N.N. and Kraus, T., 2011. Analysis of quality and feasibility of an objective structured clinical examination (OSCE) in preclinical dental education. *European Journal of Dental Education. 15*(3), pp.172-178.

Etherington, K. and Bridges, N., 2011. Narrative case study research: on endings and six session reviews, *Counselling and Psychotherapy Research.* 11(1), pp.11–22.

(EFP) European Federation of Periodontology, 2017. What is periodontitis? [Online]. [Accessed 18 May 2017]. Available from: http://www.efp.org/patients/what-is-periodontitis.html

Emden, C.M. 1998. Conducting a Narrative Analysis, *Collegian,* 5(3), pp.34-39.

F.

Fairclough N. 1989. *Language and Power*. London: Longman.

Fallowfield, L. and Jenkins, V., 2004. Communicating sad, bad, and difficult news in medicine. *The Lancet*. *363*(9405), pp.312-319.

FitzGerald, K., Seale, N.S., Kerins, C.A. and McElvaney, R., 2008. The critical incident technique: a useful tool for conducting qualitative research. *Journal of Dental Education*. 72(3), pp.299-304.

Francis, J.J., O'Connor, D. and Curran, J., 2012. Theories of behaviour change synthesised into a set of theoretical groupings: introducing a thematic series on the theoretical domains framework. *Implementation Science*. *7*, pp.1-9.

Frankel, R.M. and Stein, T., 1999. Getting the most out of the clinical encounter: the four habits model. The *Permanente Journal*, *3*(3), pp.79-88.

G.

Gao, X., Lo, E.C.M, Kot, S. C. C., and Chan, K.C.W. 2014. Motivational interviewing in improving oral health: a systematic review of randomized controlled trails, *Journal of Periodontology*. 85(3), pp 426-437.

Garcia, R.I. Nunn, M.E. and Dietrich, T. 2000. Risk calculation and periodontal outcomes, *Periodontology*. 50, pp. 65-77.

GDC, 2002. *The first five years, The undergraduate dental curriculum*, Vol 2, London: General Dental Council, pp.5–40.

GDC, 2013. *Standards for the dental team* [Online]. [Accessed on 24 July 2024]. Available from: Standards for the dental team

GDC, 2016, *Hearings and appeals list*, [Online]. [Accessed on 20 May 2016]. Available from: http://www.gdc-uk.org/Membersofpublic/Hearings/Pages/Hearings-list.aspx

GDC, 2017. *Outcomes and Appeals List* [Online]. [Accessed 22 April 2017]. Available from: https://olr.gdc-uk.org/hearings

GDC, 2019. *Benefits of becoming a reflective practitioner,* [Online]. [Accessed 12 January 2025]. Available from: benefits-of-becoming-a-reflective-practitioner-joint-statement-2019.pdf

GDC, 2023 The Safe Practitioner: A framework of behaviours and outcomes for dental professional education [Online]. [Accessed 9 October 2024]. Available from: https://www.gdc-uk.org/docs/default-source/education-and-cpd/safe-practitoner/spf-dentist.pdf?sfvrsn=c198211d_5

Gibson, B.J., Baker, S.R., Broomhead, T., El-Dhuwaib, B., Martin, N., McKenna, G. and Alavi, A., 2024. 'It's like being in a tunnel': Understanding the patient journey from tooth loss to life with removable dentures. *Journal of Dentistry*. 145, p.104964.

Gillotti, C., Thompson, T. McNeilis, K. 2002. Communicative competence in the delivery of bad news, *Social Science and Medicine*. 54, pp.1011-1023.

Goldsmith C, Slack-Smith L, and Davies G. 2005. Dentist-patient communication in the multilingual dental setting. *Australian Dental Journal*. 50(4), pp.235-41.

Gormley, G., Sterling, M., Menary, A. and McKeown, G., 2012. Keeping it real! Enhancing realism in standardised patient OSCE stations. *The Clinical Teacher*, *9*(6), pp.382-386.

Gov.uk. 2024. Adult oral health survey 2021: Service use and barriers to accessing care. [Online]. [Accessed on 24 July 2024]. Accessible from: https://www.gov.uk/government/statistics/adult-oral-health-survey-2021/adult-oral-health-survey-2021-service-use-and-barriers-to-accessing-care#:~:text=Eight%20per%20cent%20of%20adults,only%20attended%20when%20having%20trouble.

Graham, R., Zubiaurre Bitzer, L. A., and Anderson, O. R. 2013. Reliability and Predictive Validity of a Comprehensive Preclinical OSCE in Dental Education. *Journal of Dental Education*. 77(2), pp.161-77.

Granek, L. and Fergus, K., 2012. Resistance, agency, and liminality in women's accounts of symptom appraisal and help-seeking upon discovery of a breast irregularity. *Social Science & Medicine. 75*(10), pp.1753-1761.

Greene, P. 2013. Philip Greene: 'In order to be a good dentist you must be a good periodontist', *British Dental Journal*, 215(4), pp 197-199.

Greenhill, N., Anderson, C., Avery, A. and Pilnick, A., 2011. Analysis of pharmacist–patient communication using the Calgary-Cambridge guide. *Patient Education and Counselling*, *83*(3), pp.423-431.

Gregory, J., Gibson, B. and Robinson, P.G. 2007. The relevance of oral health for attenders and non-attenders: a qualitative study, *British Dental Journal.* 202 (E 18).

Guido, T. and Tolle, S.W. 1997. Delivering bad news to dental patients, *General Dentis*try. 45 (3), pp.228- 230.

Guneri, P., Epstein, J., and Botto, R.W. 2013. Breaking bad medical news in a dental care setting, *Journal of the American Dental Association.* 144(4), pp.381-386.

Gwyn, R. 2003. Processes of refiguration: shifting identities in cancer narratives, in eds. Coupland, J. and Gwyn, R*. Discourse, the Body and Identity*, Palgrave Macmillan.

H.

Hajishengallis, G., and Chavakis, T. 2021. Local and systemic mechanisms linking periodontal disease and inflammatory comorbidities. *Nature Reviews Immunology*. 21, pp. 426–440.

Hall, S., Weinman, J., & Marteau, T. M. 2004. The Motivating Impact of Informing Women Smokers of a Link Between Smoking and Cervical Cancer: The Role of Coherence. *Health Psychology*. 23(4), pp.419-424.

Hammersmith, K.J. and Lee, J.Y. 2009. A survey of North Carolina safety-net dental clinics' methods for communicating with patients of limited English Proficiency, *American Association of Public Health Dentistry,* 69(2), pp.90–.4.

Hanna, M. and Fins, J.J., 2006. Power and communication: why simulation training ought to be complemented by experiential and humanist learning. *Academic Medicine.* 81(3), pp.265-270.

Hannah, A. Millichamp, C.J., and Ayers, K.M.S. A communication skills course for undergraduate dental students, *Journal of Dental Education.* 68(9), pp.970-977.

Harrison, M.E. and Walling, A., 2010. What do we know about giving bad news? A review. *Clinical Pediatrics. 49*(7), pp.619-626.

Held, P., Klassen, B.J., Hall, J.M., Friese, T.R., Bertsch-Gout, M.M., Zalta, A.K. and Pollack, M.H., 2019. "I knew it was wrong the moment I got the order": A narrative thematic analysis of moral injury in combat veterans. *Psychological Trauma: Theory, Research, Practice, and Policy.* 11(4).

Heritage, J. and Maynard, D.W., 2006. Problems and prospects in the study of physician-patient interaction: 30 years of research. *Annual Review of Sociology.*, 32(1), pp.351-374.

Heritage, J., Robinson, J.D., Elliott, M.N., Beckett, M. and Wilkes, M., 2007. Reducing patients' unmet concerns in primary care: the difference one word can make. *Journal of General Internal Medicine*, *22*, pp.1429-1433.

Hill K.B., Chadwick B.., Freeman R., O'Sullivan I., and Murray J.J. 2013. Adult Dental Health Survey 2009: relationships between dental attendance patterns, oral health behaviour and the current barriers to dental care. *British Dental Journal*. 214(1). pp.25-32.

Hodges, B. D., Kuper, A. and Reeves, S. 2008. Discourse analysis. *British Medical Journal.* 337, pp. 570–572.

Hoffrage U. and Koller M. 2015. Chances and risks in medical risk communication. *German Medical Science.* 9(13).

Holden, A.C., 2019. Dentistry and oral health in online media sources: a discourse analysis. *Community Dental Health*, 36(3), pp.221-228.

Holloway, I. and Galvin, K., 2023. *Qualitative research in nursing and healthcare*. John Wiley & Sons.

Hoppe, R. and Ogden, J. 1996. Selective review, optimism and HIV risk prevention, *Psychology and Health*, 11(5) pp.757-764.

Horne P.E., Foster Page L.A., Leichter J.W., Knight E.T., Thomson W.M. 2020. Psychosocial aspects of periodontal disease diagnosis and treatment: A qualitative study. *Journal of Clinical Periodontology*. 47(8). pp.941-951.

Hyland, R., Ellis, J., Thomason, M., El-Feky, A. and Moynihan, P., 2009. A qualitative study on patient perspectives of how conventional and implant-supported dentures affect eating. *Journal of Dentistry*. *37*(9), pp.718-723.

I.

J.

Jahng, K.H., Martin, L.R., Golin, C.E. and DiMatteo, M.R., 2005. Preferences for medical collaboration: patient–physician congruence and patient outcomes. *Patient Education and Counselling*, 57(3), pp.308-314.

James Lindt Alliance, 2024. Oral and Dental Health: Top 10 Priorities [Online]. [Accessed 12 June 2022]. Available from: Oral and Dental Health | NIHR JLA

Jamieson, L.M., Armfield, J.M., Parker, E.J., Roberts-Thomson, K.F., Broughton, J. and Lawrence, H.P., 2014. Development and evaluation of the Stages of Change in Oral Health instrument. *International Dental Journal*. 64(5), pp.269-277.

K.

Kay, E.J., Vascott, D., Hocking, A. and Nield, H., 2016. Motivational interviewing in general dental practice: a review of the evidence, *British Dental Journal*. 221(12), pp.785-791.

Karlsson, E., Lymer, U.B. and Hakeberg, M., 2009. Periodontitis from the patient's perspective, a qualitative study. *International Journal of Dental Hygiene*, *7*(1), pp.23-30.

Khalifah AM, Celenza A. 2019. Teaching and Assessment of Dentist-Patient Communication Skills: A Systematic Review to Identify Best-Evidence Methods. *Journal of Dental Education*. 83(1), pp.16-31.

Kelly, A. 2015. *The ceremonial (dis) order of the clinic: mapping engagement in dental interactions*, Thesis submitted to the University of Dublin for a Doctorate in Philosophy.

Kelly, A., Carey, J., Powell, M. and McColl, E., 2023. Top tips for effective clinical communication. *British Dental Journal*. 234(10), p.716.

Kessels, R.P. 2003. Patients' memory for medical information. *Journal of the Royal Society of Medicine*. 96(5), pp.219-22.

Khan, S. 2011. Effect of Smoking on Periodontal Health, *Disease-a-Month*, 57(4), pp.214-217.

Kiesler, D.J. and Auerbach, S.M., 2006. Optimal matches of patient preferences for information, decision-making and interpersonal behaviour: evidence, models and interventions. *Patient Education and Counselling*. 61(3), pp.319-341.

King, A. and Hoppe, R.B., 2013. “Best practice” for patient-centred communication: a narrative review. *Journal of Graduate Medical Education*. 5(3), pp.385-393.

Kitzmann, J., Ratka-Krueger, P., Vach, K. and Woelber, J.P., 2019. The impact of motivational interviewing on communication of patients undergoing periodontal therapy. *Journal of Clinical Periodontology*. 46(7), pp.740-750.

Komaric, N., Bedford, S. and van Driel, M.L. 2012. Two sides of the coin: patient and provider perceptions of health care delivery to patients from culturally and linguistically diverse backgrounds, *Health Services Research.* 12, pp. 322.

Krupat, E., Frankel, R., Stein, T. and Irish, J., 2006. The Four Habits Coding Scheme: validation of an instrument to assess clinicians’ communication behavior. *Patient education and counseling*, *62*(1), pp.38-45.

Kurtz, S. M., and Silverman, J. D. 1996. The Calgary–Cambridge Referenced Observation Guides: An aid to defining the curriculum and organizing the teaching in communication training programmes. *Medical Education*. *30*(2), pp.83–89.

L.

Labov, W. 1972. *Language in the inner city: Studies in the black English vernacular*. Philadephia: University of Pennsylvania Press.

Laughey, W., Sangvik Grandal, N. and M Finn, G., 2018. Medical communication: the views of simulated patients. *Medical Education*. *52*(6), pp.664-676.

Leggett, H., Vinall-Collier, K., Csikar, J., Owen, J., Edwebi, S. and Douglas, G.V.A., 2024. A scoping review of dental practitioners’ perspectives on perceived barriers and facilitators to preventive oral health care in general dental practice. *BMC Oral Health*. 24(1), p.249.

Leventhal, H., Diefenbach, M. and Leventhal, E.A. 1992. Illness Cognition: Using Common Sense to Understand Treatment Adherence and Affect Cognition Interactions, *Cognitive Therapy and Research*. 16(2), pp.143-163.

Littell, J.H. and Girvin, H., 2002. Stages of change: A critique. *Behaviour Modification*, 26(2), pp.223-273.

Lowry, R.J., Maunder, P. Steele, J.G. Colligan, J. Beard, C.A., Harvey, J. and Erdos, G. 2005. Hearts and mouths: perceptions of oral hygiene by at-risk heart surgery patients, *British Dental Journal*, 199(7), pp.449 – 451.

Lumsden, K. 2022. *Narrative Analysis*. Course provided for the Social Research Association, 14 July 2022.

Lung, Z.H.S., Kelleher, M.G.D. Porter, R.W.J. Gonzalez, J. and Lung R.F.H. 2005. Poor patient awareness of the relationship between smoking and periodontal disease, *British Dental Journal*, 199(11), pp.731–737.

Lupton, D., 1992. Discourse analysis: A new methodology for understanding the ideologies of health and illness. *Australian Journal of Public Health*. *16*(2), pp.145-150.

M.

Martins, R.K. and NcNeil, D.W. 2009. Review of motivational interviewing in promoting health behaviours, *Clinical Psychology Review*, 29, pp. 283-293.

Maynard, D.W. 1996. On 'realisation' in everyday life: on forecasting bad news as a social relation, *American Sociological Review*. 61(1), pp 109 –133.

McCarthy, D.M., Waite, K.R., Curtis, L.M., Engel, K.G., Baker, D.W. and Wolf, M.S., 2012. What did the doctor say? Health literacy and recall of medical instructions. *Medical Care*, *50*(4), pp.277-282.

McCrae, N. and Purssell, E., 2016. Is it really theoretical? A review of sampling in grounded theory studies in nursing journals. *Journal of Advanced Nursing*. 72(10), pp.2284-2293.

MDDUS (Medical and Dental Defence Union of Scotland) 2012a. Case study – bleeding gums...again [Online]. [Accessed on 21 March 2018]. Available from: https://www.mddus.com/resources/publications-library/soundbite/soundbite-issue-06/case-study-bleeding-gums-again

MDDUS (Medical and Dental Defence Union of Scotland) 2012b. *Your teeth are fine...but the gums will need to come out* [Online]. [Accessed on 21 March 2018]. Available from: https://www.mddus.com/resources/publications-library/soundbite/soundbite-issue-06/your-teeth-are-fine-but –the-gums-will-need-to-come-out

Minhoto, G.B., Khoury, R.D., Orozco, E.I.F., Prado, R.F. and Valera, M.C., 2021. Effect of chronic unpredictable stress on the progression of experimental apical periodontitis in rats. *International Endodontic Journal*. 54(8), pp.1342-1352.

Mishler, E.G., 1984. *The discourse of medicine: Dialectics of medical interviews*. Norwood, NJ: Ablex.

Mitchie, S., Van Stralen M., and West, R. 2011. The behaviour change wheel: A new method for characterizing and designing behaviour change interventions, *Implementation Science,* 6(42).

Moore, R., Brødsgaard, I. and Rosenberg, N., 2004. The contribution of embarrassment to phobic dental anxiety: a qualitative research study. *BMC Psychiatry*, 4, pp.1-11.

Moore R. 2022. Maximizing Student Clinical Communication Skills in Dental Education-A Narrative Review. *Dental Journal* (Basel). 10(4).

Morse, Z. and Nakahara, S. 2001. English language education in Japanese Dental Schools, *European Journal of Dental Education.* 5, pp.168-172.

Mulder, B.C., Lokhorst, A.M., Rutten, G.E. and van Woerkum, C.M., 2015. Effective nurse communication with type 2 diabetes patients: a review. *Western Journal of Nursing Research*, *37*(8), pp.1100-1131.

Murray, M. 2000. Levels of narrative analysis in health psychology, *Journal of Health Psychology*. 5(3) pp.337 – 347.

N.

Newsome, P.R.H. and Wright, G.H. 1999. A review of patient satisfaction: 2. Dental patient satisfaction: an appraisal of recent literature, *British Dental Journal*. 186(4), pp.166-170.

Newton, T.J. and Asimakopoulou, K. 2015. Managing oral hygiene as a risk factor for periodontal disease: a systematic review of psychological approaches to behaviour change for improved plaque control in periodontal management, *Journal of Clinical Periodontology.* 42 (Suppl, 16) s36-s46.

Newton, J.T. and Fiske, J. 1999. Breaking bad news: a guide for dental healthcare professionals, *British Dental Journal*. 186(6).

Nield-Gehrig, J.S. and Willmann, D.E. *Foundations of Periodontics for the Dental Hygienist, 3rd edition*, Wolters Kluwer, Philadelphia.

Nimmon, L. and Stenfors-Hayes, T., 2016. The "Handling" of power in the physician-patient encounter: perceptions from experienced physicians. *BMC Medical Education*, *16*, pp.1-9.

Norcross, J.C., Krebs, P.M. and Prochaska, J.O., 2011. Stages of change. *Journal of Clinical Psychology*, 67(2), pp.143-154.

O.

O'Dowd LK, Durham J, McCracken GI, Preshaw PM. 2010.Patients' experiences of the impact of periodontal disease. Journal of Clinical Periodontology. 37(4). pp.334-9.

Ogden, J. 2007. *Health Psychology, A Textbook*, 4th ed. Maidenhead, Open University Press.

Ojak, A. 2020. The EME approach to oral hygiene education, *Dentistry,* [Online] [Accessed 12 July 2024]. Available from The EME approach to tacking oral hygiene education – Dentistry Online

Oliveira, M.A., Vale, M.P., Bendo, C.B., Paiva, S.M. and Serra-Negra, J.M., 2017. Influence of negative dental experiences in childhood on the development of dental fear in adulthood: a case–control study. *Journal of Oral Rehabilitation*, 44(6), pp.434-441.

Olmos-Vega, F. M., Stalmeijer, R. E., Varpio, L., & Kahlke, R. 2022. A practical guide to reflexivity in qualitative research: AMEE Guide No. 149. *Medical Teacher*. 45(3), pp.241–251.

Ouyang, J. and McKeown, K., 2014, Towards Automatic Detection of Narrative Structure. *LREC*. pp. 4624-4631.

P.

Palaiologou, A. and Kotsakis, G.A., 2020. Dentist-patient communication of treatment outcomes in periodontal practice: a need for dental patient–reported outcomes. *Journal of Evidence Based Dental Practice*, 20(2), p.101443.

Parry, R.H., Land, V. Systematically reviewing and synthesizing evidence from conversation analytic and related discursive research to inform healthcare communication practice and policy: an illustrated guide. 2013. *BMC Medical Research Methodology*, 13(69).

Patel, R. Eaton, K.A. Garcia, A. Rincon, V. and Brooks, J. 2011. An investigation into the numbers of dentists from 19 European Economic Area (EEA) member states currently registered to work in the United Kingdom and key differences between the practise of dentistry in the UK and their member states of origin, *British Dental Journal*. 211,pp.133-137.

Pearce M. Agius, S.J. Macfarlane, J. and Taylor, N. 2015. Supporting dental registrants in difficulty, *British Dental Journal*. 218, E5.

Peltola, M., Isotalus, P. and Åstedt-Kurki, P., 2018. Patients' interpersonal communication experiences in the context of type 2 diabetes care. *Qualitative Health Research*, *28*(8), pp.1267-1282.

Pendleton D. 1983. Doctor-patient communication: a review. In: Pendleton D, Hasler J, eds. *Doctor-Patient Communication*. London: Academic Press, pp 5-56.

Peräkylä, A., 1997. Conversation analysis: a new model of research in doctor–patient communication. *Journal of the Royal Society of Medicine*. *90*(4), pp.205-208.

Perrell-Jones, C. and Ireland, R.S. 2016. What factors influence patient compliance with supportive periodontal therapy in a general practice setting? *British Dental Journal*, 221, pp.701-704.

Phillips, M. 2018. Personal Communication (Mark works for the Dental Defence Union).

Piumatti, G., Cerutti, B. and Perron, N.J., 2021. Assessing communication skills during OSCE: need for integrated psychometric approaches. *BMC Medical Education*. *21*, pp.1-10.

Prochaska, J.O., Norcross, J.C. and DiClemente, C.C., 2013. Applying the stages of change. *Psychotherapy in Australia*, *19*(2), pp.10-15.

Polkinghorne, D.E. (1995) Narrative configuration in qualitative analysis, *International Journal of Qualitative Studies in Education*. 8(1), pp.5-23.

Potter, J. and Wetherell, M.1987. *Discourse and Social Psychology: Beyond Attitudes and Behaviour*, Sage: London.

Puryer, J. 2016. Dental Undergraduate Views of Objective Structured Clinical Examinations (OSCEs): A Literature Review. *Dentistry Journal*, 4(1).

Q.

R.

Radley A. and Billig M. 1996. Accounts of health and illness: dilemmas and representations. *Sociology of Health and Illness*.18(20), pp. 220–240.

Rana, H., Warnes, B., Davies, M. and West, N.X., 2023. Patient-reported understanding and dentist-reported management of periodontal diseases-a survey: do you know what gum disease is?. *British Dental Journal*, *235*(2), pp.127-131.

Reagan, A.J., Mitchell, L., Kiley, D., Danforth, C.M. and Dodds, P.S., 2016. The emotional arcs of stories are dominated by six basic shapes. *EPJ Data Science*, 5(1), pp.1-12.

Reavey, P. and Gough, B., 2000. Dis/locating blame: Survivors' constructions of self and sexual abuse. *Sexualities. 3*(3), pp.325-346.

Richard, C. and Lussier, M-T. 2007. Measuring patient and physician participation in exchanges on medications: Dialogue ratio, preponderance of initiative and dialogical roles, *Patient Education and Counselling*, 65, pp.329-341.

Rienties, B., Beausaert, S., Grohnert, T., Niemantsverdriet, S. and Kommers, P., 2012. Understanding academic performance of international students: The role of ethnicity, academic and social integration. *Higher Education*, 63, pp.685-700.

Riessman, C. K. 2008. *Narrative Methods for the Human Sciences*. London: Sage.

Roberts, C., Wass, V., Jones, R., Sarangi, S. and Gillett, A. 2003. A discourse analysis study of ‘good’ and ‘poor’ communication in an OSCE: a proposed new framework for teaching students, *Medical Education*. 37, pp. 192–201.

Roberts C. and Sarangi, S. 2005. Theme oriented discourse analysis of medical encounters, *Medical Education*. 39, pp.632-640.

Robinson, J.D., 2003. An interactional structure of medical activities during acute visits and its implications for patients' participation. *Health Communication*, 15(1), pp.27-59.

Roter, D. and Larson, S., 2002. The Roter interaction analysis system (RIAS): utility and flexibility for analysis of medical interactions. *Patient Education and Counselling*, 46(4), pp.243-251.

Rowland, M.L. 2008. Enhancing communication in dental clinics with linguistically different patients, *Journal of Dental Education*. 72(1), pp.72-80.

S.

Sarangi, S., 2010. Reconfiguring self/identity/status/role: The case of professional role performance in healthcare encounters. *Journal of Applied Linguistics & Professional Practice*. 7(1).

Sarnat, H., Arad, P., Hanauer, D. and Shohami, E. 2001. Communication strategies used during paediatric dental treatment: a pilot study, *Paediatric Dentistry*. 23 (3). pp. 337-341.

Schoonheim-Klein, M., Hoogstraten, J., Habets, L., Aartman, I., Van der Vleuten, C., Manogue, M. and Van der Velden, U., 2007. Language background and OSCE performance: a study of potential bias, *European Journal of Dental Education*. 11, pp. 222–229.

Sedghi, L.M., Bacino, M. and Kapila, Y.L., 2021. Periodontal disease: the good, the bad, and the unknown. *Frontiers in Cellular and Infection Microbiology*. 11, p.766944.

Shaw, J., Dunn, S. and Heinrich, P. 2012. Managing the delivery of bad news: an in-depth analysis of doctor's delivery style, *Patient Education and Counselling*. 87, pp.186-192.

Shepherd, S., Young, L, Clarkson, J.E., Bonetti, D. and Ogden, G.R. 2010. General dental practitioner views on providing alcohol related health advice: an exploratory study, *British Dental Journal*. E13.

Sherry, M., Thomas, P. and Hong Chui, W. 2010. International students: a vulnerable student population, *Higher Education.* 60, pp.33-46.

Sinclair, S., Raffin-Bouchal, S., Venturato, L., Mijovic-Kondejewski, J. and Smith-MacDonald, L., 2017. Compassion fatigue: A meta-narrative review of the healthcare literature. *International Journal of Nursing Studies*, 69, pp.9-24.

Sondell, K., Söderfeldt, B. and Palmqvist, S., 2003. Underlying dimensions of verbal communication between dentists and patients in prosthetic dentistry. *Patient Education and Counselling*, *50*(2), pp.157-165.

Stamp, A.J., Tzemou, E., Holmes, R.D. and Rolland, S.L., 2018. Enhancing Communication and Professionalism: Aligning Learner and Patient Feedback Priorities. *IADR/PER General Session*.

Stein, T., Frankel, R.M. and Krupat, E., 2005. Enhancing clinician communication skills in a large healthcare organization: a longitudinal case study. *Patient education and counseling*, *58*(1), pp.4-12.

Stenman, J., Hallberg, U., Wennström, J.L. and Abrahamsson, K.H., 2009. Patients' attitudes towards oral health and experiences of periodontal treatment: a qualitative interview study. *Oral health & Preventive Dentistry*, *7*(4).

Stephens, C. 2011. Narrative analysis in health psychology research: personal, dialogical and social stories of health, *Health Psychology Review*. 5(1), pp. 62 – 78.

Stewart, M., Brown J., Weston, W., McWhinney I., McWilliam, C. and Freeman T. 1995. *Patient centred medicine, transforming the clinical method*. London: Sage.

Stokoe, E., 2014. The Conversation Analytic Role-play Method (CARM): A method for training communication skills as an alternative to simulated role-play. *Research on Language and Social Interaction*, 47(3), pp.255-265.

Sullivan C., Condron C.M., O'Connor L., Pawlikowska T., Murray J.M. 2021.Their OSCE, not your Oscar: Simulated Patients' Perspectives. *Clinical Teacher*. 18(6), pp.596-601.

Swenson, S.L., Buell, S., Zettler, P., White, M., Ruston, D.C. and Lo, B., 2004. Patient-centered communication: do patients really prefer it? *Journal of General Internal Medicine*. 19, pp.1069-1079.

T.

Tailor A. and Ogden J. 2009. Avoiding the term 'obesity: an experimental study of the impact of doctors' language on patients' beliefs. *Patient Education and Counselling*. 76, pp.260 – 274.

Talja, S., 1999. Analyzing qualitative interview data: The discourse analytic method. *Library & information science research*. *21*(4), pp.459-477.

Taylor, S.E. 1983. Adjustment to threatening events, a theory of cognitive adaptation, *American Psychologist*. 38, pp.1161-73.

Taylor, G.W. and Ussher, J.M., 2001. Making sense of S&M: A discourse analytic account. *Sexualities*. *4*(3), pp.293-314.

The Economist intelligence unit, 2021. Time to take gum disease seriously, the societal and economic impact of periodontitis. [Online]. [Accessed 24 July 2024]. Available from: https://impact.economist.com/perspectives/sites/default/files/eiu-efp-oralb-gum-disease.pdf

Thewritepractice.com 2024. How to Shape a Story: The 6 Types of Story Arcs. [Online]. [Accessed on 23 July 2024]. Available from: How to Shape a Story: The 6 Types of Story Arcs for Powerful Narratives (thewritepractice.com)

Theaker, E.D., Kay, E.J. and Gill, S. 2000. Communication skills assessment: Development and preliminary evaluation of an instrument designed to assess dental students' communication skills. *British Dental Journal*. 188, pp.40 – 44.

Thompson, W., 2019. *Antibiotic prescribing: towards a reducTion during urgent NHS dental appointments in England (The APTiTUDE Study)* (Doctoral dissertation, University of Leeds).

Thorne, S.E., Harris, S.R., Mahoney, K., Con, A. and McGuinness, L., 2004. The context of health care communication in chronic illness. *Patient Education and Counselling*, 54(3), pp.299-306.

Threlfall, A.G., Hunt, C.M., Milsom, K.M. Tickle, M. Blinkhorn, A.S. 2007. Exploring factors that influence general dental practitioners when providing advice to help prevent caries in children, *British Dental Journal*. 202, pp. E10.

Tietbohl, C.K. and White, A.E., 2022. Making conversation analysis accessible: A conceptual guide for health services researchers. *Qualitative Health Research*. 32(8-9), pp.1246-1258.

Toon, M., Collin, V., Whitehead, P. and Reynolds, L. 2019. An analysis of stress and burnout in UK general dental practitioners: subdimensions and causes. *British Dental Journal*. 226. pp.125–130.

Torper, J., Ansteinsson, V., and Lundeby, T. 2019. Moving the four habits model into dentistry. Development of a dental consultation model: Do dentists need an additional habit? *European Journal of Dental Education*. 23(2). pp.220-229.

Turner, D., 2020. Introducing discourse analysis for qualitative research. *The Quirkos*. [Online]. [Accessed on 29 September 2022]. Available from: https://www.quirkos.com/blog/post/discourse-analysis-qualitative-research/

U.

Uziel, N., Meyerson, J., Winocur, E., Nabriski, O. and Eli, I., 2019. Management of the Dentally Anxious Patient: The Dentist's Perspective. *Oral Health & Preventive Dentistry*. 17(1).

V.

van Osch, M., Sep, M., van Vliet, L.M., van Dulmen, S. and Bensing, J.M., 2014. Reducing patients' anxiety and uncertainty, and improving recall in bad news consultations. *Health Psychology. 33*(11), p.1382.

Varela-Centelles, P., Diz-Iglesias, P, Estany-Gestal A., Seoane-Romero, J.M, Bugarin-Gonzalez, R. Seoane, J. 2016. Periodontitis awareness amongst the general public: A critical systematic review to identify gaps in knowledge, *Journal of Periodontology*. 87(4), pp. 403-415.

Vatne, J.F., Gjermo, P. Sandvik, L. and Preus, H.R. 2015. Patients' perception of own efforts versus clinically observed outcomes of non-surgical periodontal therapy in a Norwegian population: an observed study. *BMC Oral Health*, 15(61).

Vinall-Collier, K.A. 2013. *A nationwide study of the processes of care undertaken in Rheumatology clinics throughout the UK. Leeds: Thesis (Ph.D.)* -- University of Leeds (Academic Unit of Musculoskeletal Disease, Leeds Institute of Molecular Medicine), 2013.

W.

Walker, T.W.M. Fleming, C., Kerai, A., Hall, S. Rakhra, D. Horwood, J.P, Waylen, A.E. and Thomas, S.J. 2018. Are dental students well-equipped to deal with difficult communication situations? *British Dental Journal*. 224(3). pp.163-168.

Wang, S., Zhang, X. and Meng, F., 2023, May. What leads to effective online physician-patient communication? The power of convergence. In *Wuhan International Conference on E-business* (pp. 331-343). Cham: Springer Nature Switzerland.

Waylen, A. Makoul, G. Albeyatti, Y. 2015. Patient-clinician communication in a dental setting: a pilot study, *British Dental Journal*. 218. pp. 585–588.

Weinstein, N.D. 1987. Unrealistic optimism about susceptibility to health problems, conclusions from a community wide study, *Journal of Behavioural Medicine*, 10 (5), pp. 481-500.

West, N., Chapple, I., Claydon, N., D'aiuto, F., Donos, N., Ide, M., Needleman, I. and Kebschull, M., 2021. BSP implementation of European S3-level evidence-based treatment guidelines for stage I-III periodontitis in UK clinical practice. *Journal of Dentistry*, 106.

Weston, C., Gandell, T., Beauchamp, J., McAlpine, L., Wiseman, C. and Beauchamp, C., 2001. Analyzing interview data: The development and evolution of a coding system. *Qualitative Sociology*, 24, pp.381-400.

Wilder, R.S. and Bray, K.S. 2000. Improving periodontal outcomes: merging clinical and behavioural science, *Periodontology*, 71, pp.65-81.

Williams G. 1984 the genesis of chronic illness: narrative reconstruction *Sociology of Health and Illness*. 6(2). Pp.175 – 200.

Williams, R.C. 2008. Understanding and managing periodontal diseases: a notable past, a promising future, *Journal of Periodontology*, 79(8).

Williams, N. and Ogden, J., 2004. The impact of matching the patient's vocabulary: a randomized control trial. *Family Practice*. 21(6), pp.630-635.

Woodward-Kron, R., Fraser, C., Rashid, H., Au, J., Chua, Y.E. and George, L., 2016. Perspectives of junior doctor intercultural clinical communication: Lessons for medical education. *Focus on Health Professional Education: A Multi-Professional Journal*. 17(3), pp.82-95.

WordStudio, 2024. Types of Story Arcs and their impact on Narrative. [Online]. [Accessed on 21 July 2024]. Available from: Types Of Story Arcs And Their Impact On Narrative • Word.Studio

X.

Y.

Yardley, L. (2000). Dilemmas in qualitative health research. *Psychology and Health*. 15, pp.215–228.

Yates, L. and Wahid, R. 2013. Challenges to Brand Australia: international students and the problem with speaking, *Higher Education Research and Development*. 32(6), pp.1037 – 1050.

Yilmaz, K. 2013. Comparison of quantitative and qualitative research traditions: epistemological, theoretical and methodological differences, *European Journal of Education*, 48(2), pp.311-325.

Yuan S, Freeman R, Hill K, Newton T, Humphris G. Communication, Trust and Dental Anxiety: A Person-Centred Approach for Dental Attendance Behaviours. 2020. *Dental Journal (Basel)*. 2020 Oct 13;8(4):118. doi: 10.3390/dj8040118. PMID: 33066178; PMCID: PMC7712465.

Z.

Zee, K-Y, 2009. Smoking and periodontal disease, *Australian Dental Journal* 54(1) pp44-50.

Zhou, Y., Black, R., Freeman, R., Herron, D., Humphris, G., Menzies, R., Quinn, S., Scott, L. and Waller, A., 2014. Applying the Verona coding definitions of emotional sequences (VR-CoDES) in the dental context involving patients with complex communication needs: An exploratory study. *Patient Education and Counseling*, 97(2), pp.180-187.

11 APPENDICES

11.1 Supporting documents for Stage 1 of fieldwork (interviews with dental professionals)

11.1.1 Invitation email

Re: Interview with about discussing periodontal disease with patients [date]

Dear Colleague

Title of study: 'Difficult dental conversations: Talking with patients about periodontal disease' (researcher: Marion Bowman (PhD student))

> "I believe that many patients are confused about 'what gum disease is.'" (Ahmed, H., a periodontal specialist writing in the British Dental Journal in March 2017).

There are currently no studies in the literature that give detailed guidance to dental professionals on how best to communicate what periodontal disease is to a patient.

If you have recent experience (within the last 3 years) of working in primary dental care (whether Dental Surgery or Dental Hygiene / Therapy), I would really like to ask you what you have found **works best when explaining what periodontal disease is to a patient**, i.e. which topic words, analogies, gestures or visual aids you feel work best for ensuring patient understanding.

If you are willing, I would like to **interview** you about this, in an informal interview that will last **no more than 45 minutes** (it could be arranged to be shorter if this suits you better), and which can be conducted **at a time and place of your choosing**. The interview will be voice-recorded for transcription purposes, but will be anonymised before analysis.

It is possible that a short **follow-up interview of 15 minutes** might be needed if themes emerge from the main interview that warrant further investigation. However, participation in this study is entirely voluntary. Also, if you choose to take part in the interview, **you do not have to make yourself available for a follow-up interview** as well.

If you are interested, please email me to let me know. This doesn't mean you are committed to participate in the study, it just let's me know who might want more information or an opportunity to chat / ask questions.

Regards

Marion Bowman

Part-time PhD Student

11.1.2 Participant Information Sheet

Research project title: Difficult dental conversations: Discussing gum (periodonta)l disease.

Invitation paragraph: Not much detail is known about how dental professionals go about explaining periodontal disease to patients who are new to them. I would like to ask if you would be willing for me to interview you about your experience of communicating with patients about periodontal disease (i.e. what works best, what can go wrong, and how patients respond).

What is the project's purpose?

The main aim of the study is to learn more about what can make the first conversation with a periodontal patient more or less effective. These insights will ultimately be used to design targeted communications teaching resources on this topic.

Why have I been chosen?

You have been chosen as you have expertise in talking to patients about periodontal disease. All dental tutors (Dental surgery and Dental Hygiene and Therapy), clinicians and first year international postgraduate students linked to the Leeds Dental institute with recent primary care experience, have been invited to take part in this study. (Second year international postgraduate students may also be invited to take part later if there are insufficient first year volunteers).

Do I have to take part?

No, you don't. Participating in this study is optional. If you decide not to take part, there will be no repercussions. If you do decide to take part, it is also up to you whether you want to answer all of the questions in the interview or not. You can decline to answer certain questions. You can keep this information sheet and you will be asked to sign a consent form if you would like to take part, and you can decide to stop participating in the study or withdraw at any time, up until the data has been anonymised and been written up (approx. September 2019).

What will happen to me if I take part?

You will have one week to decide whether you would like to take part in this study or not. After the receiving this email, you will be given a chance to ask questions either in a face-to-face meeting or over the phone.

If you agree to take part you will be asked to sign a consent form and you will be invited to an **interview lasting no longer than 45 minutes**. During the interview you will be asked about your general experience of talking to newly diagnosed patients about periodontitis.

It is possible that during the interview stage a number of themes emerge that require a short **follow-up interview**. If this is the case, then you could be asked to a short (**no longer than 15 minutes**) follow-up interview based on collated results. You do not have to take part in this (or any other element of this study) if you do not wish to.

What are the possible risks of taking part? A possible risk of taking part is that it will take up your time. The interview will take no longer than 45 minutes, but could be modified to take less time than that if you specify this at the start of the interview. Also, you do not need to take part in any potential follow-up interviews if you do not wish to.

What are the possible benefits of taking part?

By taking part in this interview, you will have a chance to reflect on, your experience of explaining periodontal disease to patients. If you wish, you can be sent the results of the study, which will contain the views of other professionals about communicating with patients for the same reason. By participating in this study you will be making a contribution towards the eventual design of a targeted resource for dental communications teaching. As dental communications is an under-researched field, this could be a significant contribution.

Will my taking part in this project be kept confidential?

All the information that is collected about your views on best practice when communicating about periodontal disease will be anonymized. Your contribution will be coded to show whether you are a dental tutor, a dental hygiene / therapy tutor or a dental clinician (either dental or DHT), or an international postgraduate student and whether you are male or female. When the study is written up, you will not be able to be identified; anonymous quotes from the interviews could be used to give examples of themes.

What will happen to the results of the research project?

This study is part of a PhD project, so the results will be part of a thesis. However, it is possible that the anonymized results could be shaped into a conference presentation or written up as a research article, which may later be published. It is also possible that the anonymized results will be shared with staff of the School of Dentistry in order to facilitate decision making about future enhancements to the communications teaching. Once again, you will not be specifically identified. You can ask to receive a report on the results of this study by email if you wish (see email address at the bottom of this page). The data collected in this study may also be used for future research.

Who is funding this study? There is no external funding for this study. This study forms part of a PhD in Dental Communications (part-time).

Will I be recorded and how will the recording be used? Your voice will be recorded during the interviews. The audio recording will only be listened to by the researcher who is transcribing the text. The project supervisors may have access to the anonymized transcribed versions of the interviews in order to comment on methods of analysis. No other use will be made of the recordings without your written permission and no-one outside the project will be allowed to access the original recording. You will not be asked to give your name during the recording. In the written transcript you will be known as e.g. speaker 1.

Who can I contact about this study? The researcher is Marion Bowman**;** m.c.bowman@leeds.ac.uk; 0113 3436199. Leeds Dentistry Institute, Claredon Way, Leeds, LS2 9LU.

11.1.3 Consent form

UNIVERSITY OF LEEDS

Participant Consent Form

Title of project: Difficult dental conversations: Discussing Gum (periodontal) Disease

Name of researcher: Marion Bowman

Initial the box if you agree with the statement to the left.

I confirm that I have read and understood the information sheet explaining the research project. ☐

I confirm that I was given the opportunity to ask questions about the research project. ☐

I understand that I do not have to participate in this project and can withdraw at any time without any negative consequences. ☐

I know that I do not have to answer any questions in the study if I do not want to. ☐

I understand that my responses will be kept confidential and that my name will not be linked with my responses. I understand that I will not be identifiable in the research reports. ☐

I give the researchers permission to have access to my anonymised responses. ☐

I give permission for the interview to be audiotaped. ☐

I agree to the data collected from me to be used for future research. ☐

I agree to take part in the research and will inform the principal researcher if my contact details change. ☐

Participant:

Name: _____Signature:_____Date: _____

Researcher:

Name: _____Signature:_____Date: _____

(to be signed and dated in the presence of the participant). One copy to participant.

11.1.4 Interview Schedule

INTERVIEW SCHEDULE: GUMDISCUSS: Stage 1 of fieldwork

INTERVIEWS WITH DENTAL PROFESSIONALS (tutors, clinicians, postgraduate students who are linked to Leeds Dental School and have recent primary care experience.)

International Context: Could you tell me a bit more about where you were working before you came to the UK?

- What sort of setting were you working in (private care, state care, mixed)?
- Did the patients the same nationality and first language as you or not?
- Were the patients from low or high socio-economic groups?
- Were there any differences in the way patients expected you to communicate with them when you were working there?
- How long did you have for appointments generally?
- Did you undertake treatment for periodontitis yourself or were you working with a hygienist?
- Were there a lot of patients that you saw who suffered from periodontitis?

Intro /Communications / perio : In your view, how important is communication in working with patients with periodontitis?

Communicating key messages about the nature of periodontitis in the initial appointment: Open question: Let's say that you are seeing a patient for the first time and the patient has perio, what would you normally say to the patient? We can imagine that I'm the patient, if you like, what would you say to me?

Key messages: Detailed questions (non-verbal):

- Would you normally speak to the patient **during the clinical exam** or afterwards?
- What **position** would you and the patient be in during the discussion (chair up/down, facing or not)?
- Do you usually use **gestures or visual aids**? (e.g. radiographs, pictures, IO cameras)?

Key messages: Detailed questions (concepts / coverage):

- What can be reasonably **covered** in this first conversation, and what aspects of communication about perio would you save for further appointments?

- [If not stated in key messages (open question) above], then How would you explain the following **concepts?:**
    - Cause / risk factors without seeming to blame the patient for role in cause
    - Incidence / how common it is
    - Role of inflammation / immune system
    - Disease progression – from gingivitis to periodontitis (irreversibility)
    - Pocketing / attachment loss / bone loss
    - Chronic / long term nature
    - Treatment – formal at surgery vs own home care
    - (Further check if needed - key terms on next page – which use / avoid & why)
- To what extent should communication **individualized** to patient (site /severity)? / in your view, is it important to tailor information to match the patient's situation - if so how would you do it?
- How important do you regard it to be able to communicate **uncertainty** in periodontal disease prognosis / progression? How do patients respond to the idea of uncertainty?

Checking the patient's understanding:

- Is it important to check what the **patient knows** about gum disease **before** you start your explanation, if so how do you tend to do it?
- What is your view of what new patients **generally understand** about what periodontal disease is, **before** you have started discussing it?
- **How many key pieces** of information do you find patients are able to absorb at a time, or does it differ from patient to patient?
- How easy is it to tell if the patient has **understood** the key messages? How would you usually go about finding out what the patient has grasped?
- Which aspects of periodontal disease do patients often find **hard to understand**?

Communicating severity:

- **How seriously / how scary** do patients tend to regard a periodontal disease diagnosis? **Do patients differ** in their responses to the diagnosis? If so, could you group patients in terms of their reactions to the diagnosis? Linked to **symptoms**?
- Do you think patients are ever **unrealistically optimisti**c about the disease? Why?

- For patients who seem to take periodontitis less seriously, what have been some of **triggers** later on that have caused them to change their mind?
- Do you always mention the eventual possibility of **tooth loss** to all patients?
- Do you use terms like '**chronic' or 'auto-immune** disease' when explaining periodontitis? (if not covered in earlier questions).
- Do you make the **link** between periodontitis and **other systemic diseases**, e.g. diabetes or cardiovascular disease clear to patients – or is that too much information for the first appointment?
- Do you mention the other (oral health related **quality of life**) effects of periodontitis:
    - **Social** (bad breath, social embarrassment, concerns about appearance)
    - **Psychological** (worries about dental health, being less able to relax, finding life less satisfying)
    - **Functional** (pain and discomfort, more difficulty in eating, less enjoyment of food due to food packing or taste, difficulties speaking, less able to sleep).
- Have you ever been tempted to '**ramp up'** the discussion about the severity of the disease to get patients to take it more seriously? In your view, **is this justified** if the patient is not taking the condition seriously enough? Again – or is this too much for the initial diagnostic conversation? Is a strong message **enough to motivate** the pt?
- On the other hand, have you ever been tempted to **cut down** on periodontitis explanations with particular kinds of patients? If so, what kinds of patients and why?

Communicating ownership / affirmation:

Do any of the following fit within the initial appointment to discuss a periodontal disease diagnosis, or are these more appropriate for later appointments?

- Communicating the **patient's vital role** in oral home care (without being patronising)
- Setting short term **goals** (e.g. plaque free score achievement)
- Giving the patient **encouragement / hope/ sparing the patients feelings**
- Asking about the patient's **support systems** at home in relation to oral home care
- Can you predict patients who are likely to **adher**e to oral hygiene care early on?

Conclusion:

Balance: What is the best way to strike a balance between explaining the severity of the diagnosis clearly without blame in a way points to a role for the patient owning in oral care?

Miscommunication: In your view, what can go wrong when dental professionals are talking to patients about gum disease?

Training: In your view, is there a need for more training in relation to gum disease either clinical or communications? If so, what form would this training take / focus on?

Possible key words for discussions about periodontal disease

Key words:

- bleeding gums / bleeding on probing,
- plaque / bacteria / plaque biofilm / bacteria in pockets below the gum line
- inflammation / infection / immune / irritation of the gums / inflammatory disease / inflammation of supporting tissues of teeth / autoimmune disorder
- irreversible / chronic
- periodontitis / gingivitis
- small spaces / pockets /pocket depth / pocket formation / attachment loss/ detachment of collagen fibres
- bone loss /alveolar bone loss / the bone supporting your teeth / radiographic bone loss
- gingival recession / teeth become longer
- wobbly teeth / tooth loss / teeth fall out
- unpredictable / return unpredictably
- systemic health implications / linked to diabetes

11.1.5 Ethical approval: DREC: 190618/MB/256

From: Julie McDermott <J.K.McDermott@leeds.ac.uk>
Sent: Thursday, July 19, 2018 12:57 PM
To: Marion Bowman <M.C.Bowman@leeds.ac.uk>
Cc: Aradhna Tugnait <A.Tugnait@leeds.ac.uk>; Julia Csikar <J.I.Csikar@leeds.ac.uk>
Subject: DREC reference: 190618/MB/256

Dear Marion

DREC reference: 190618/MB/256
Study title: Difficulty dental conversations: Talking to patients about gum (periodontal) disease

Thank you for re-submitting the above Ethics application to the Dental Research Ethics Committee. Your application has been re-reviewed and I am pleased to inform you that your application has been accepted.

Documents reviewed

Document name	Version number and date
Ethics application form	Dated 16/07/2018
Research protocol	Version 2 09/07/2018
Participant information sheet	Version 2 09/07/2018
Consent form	Version 2 09/07/2018
Email to staff	Version 2 09/07/2018
Interview questions	Version 2 09/07/2018

With best wishes for the success of your project.

Please note: You are expected to keep a record of all your approved documentation, as well as documents such as sample consent forms, signed consent forms, participant information sheets and all other documents relating to the study. This should be kept in your study file, and may be subject to an audit inspection. If your project is to be audited, you will be given at least 2 weeks' notice.

It is our policy to remind everyone that it is your responsibility to comply with Health and Safety, Data Protection and any other legal and/or professional guidelines there may be.

Kind regards,

For and on behalf of

Dr Julia Csikar, DREC Chair

Amendment to include registered dental professionals who are also international postgraduate students at the University of Leeds Dental School:

From: Julie McDermott <J.K.McDermott@leeds.ac.uk>
Sent: Wednesday, May 22, 2019 4:28 PM
To: Marion Bowman <M.C.Bowman@leeds.ac.uk>
Cc: Jinous Tahmassebi <J.Tahmassebi@leeds.ac.uk>
Subject: DREC ref: 190618/MB/256

Hi Marion

Further to your amendment that has been accepted by DREC, could I suggest that you ask the Student Education Services Office to send out the invitation email to the students as they will have the relevant distribution lists. I also have a distribution list for postgraduate research students so please feel free to ask me to circulate for you if needed.

Best wishes

Julie

11.2 Supporting documents for Stage 2 of fieldwork (interviews with people who have periodontal disease)

11.2.1 Invitation letter for participating clinicians (with clinical inclusion criteria)

UNIVERSITY OF LEEDS

Invitation Letter

Dear Potentially Participating Clinician Date: 21 February 2022

Re: Interviews with patients about periodontal (gum) disease explanations

We would like to invite you to identify suitable patients in your practice to take part in a study about gum (periodontal) disease explanations. The title of the study is:

'Difficult dental conversations: Discussing gum (periodontal) disease'

The study is being conducted by a researcher (Marion Bowman) from the School of Dentistry (University of Leeds) who is a PhD student. The aim of the study is to interview patients to find out more about periodontal disease explanations from their perspective, in order to make recommendations for the future training of dental professionals.

If you would like to be involved, we would ask you to identify patients who you think would be suitable to be interviewed using the Inclusion Criteria on the following page. Once identified, you will be asked to give the patient an information pack (an invitation letter, an example consent form and an information sheet). (Please see examples of these documents attached). If interested, the patient will then contact the researcher who will answer questions and arrange for an online zoom interview or telephone interview (if the participant does not have online access) of no more than 60 minutes in duration. A £15 shopping voucher is being offered to participating patients as a token of thanks for taking part in the interview.

Just to let you know, patients' contact details and interview data will be kept data safe and secure. We will follow all privacy rules and patients' quotes will be anonymous; their words will not be traceable to them in the write up. We also do not need to know who you have given information packs to, but you may want to keep a note of this for your own records. Also, as indicated in Section 9 of the Participant Information Sheet, if interview participants have particular clinical concerns that emerge during the interview, they will be given the option of discussing these with their supervising clinician.

Kind regards,

Marion Bowman, m.c.bowman@leeds.ac.uk, School of Dentistry, University of Leeds.

Contact details for the research team:

Members of the study team:		
Marion Bowman PdD student; School of Dentistry University of Leeds Worsley building, Clarendon Way LS2 9LU Telephone:0113 3438619 e-mail: m.c.bowman@leeds.ac.uk	**Dr A. Tugnait** Associate Professor in Restorative Dentistry, Honorary Speciality Dentist Leeds Dental Institute, Worsley building, Clarendon Way, LS2 9LU Telephone: 0113 3432683 e-mail: A.Tugnait@leeds.ac.uk	**Dr. Karen Vinall-Collier** Lecturer in Dental Public Health School of Dentistry, University of Leeds, Worsley building, Clarendon Way, LS2 9LU Telephone: 0113 3439686 e-mail: K.A.Vinall@leeds.ac.uk

Inclusion and Exclusion Criteria for the study

Inclusion Criteria	Exclusion Criteria
Patients who have periodontal disease. For the purposes of this study such patients are defined as having 2 or more sextants with a BPE score of 4 and radiographic evidence of bone loss affecting 6 or more teeth.	Patients who do not fit the criteria for having periodontal disease as defined in this study.
Adult patients of over 18 years of age of any gender, socio-economic grouping or ethnicity.	Patients who are older than 90 years of age or younger than 18 years of age.
Patients living in the United Kingdom.	Patients not living in the United Kingdom.
Patients who have capacity to consent.	Patients who are deemed to be particularly frail, vulnerable or to lack capacity to consent.
Patients who have a sufficient English language resource to give valid consent and to understand the interview, whatever their ethnicity.	Patients who do not have a sufficient English Language resource to give valid consent or to understand the interview, whatever their ethnicity.

11.2.2 Invitation letter for potential participants

UNIVERSITY OF LEEDS

Invitation Letter

Dear Potential participant Date: 26 July 2021

Re: Interview about periodontal (gum) disease explanations

Do you have experience of receiving explanations about gum (periodontal) disease? We would like to invite you to consider taking part in a study called:

'Difficult dental conversations: Discussing gum (periodontal) disease'

The aim of the study is to interview people to find out more about their experience of receiving gum (periodontal) disease explanations. The **interview** will last between **30 and 60 minutes** and will be **conducted remotely and will be recorded**, i.e. using zoom video conferencing, or over the phone (if you don't have access to a computer). The study is being conducted by a researcher and PhD student (Marion Bowman) from the School of Dentistry (University of Leeds). The reason for the study is to make recommendations for the future training of dental professionals.

You are under **no obligation** to take part in this study, but if you would like to consider it, please **read the attached information sheet** and **consent form** and **get in touch with the researcher** (contact details are also provided at the end of this letter). Feel free to **ask any questions** about the study that you wish to. If you do decide to take part, you will be sent a **£15 shopping voucher** to show appreciation for your time.

Just to let you know, everyone involved in this study will **keep the interview data safe and secure**. We will also follow all privacy rules. In this research study we will only use information that we need for the research study. Only the researcher will have your name and contact details, and other members of the research team will only access this if they really need it for the study to run smoothly. At the end of the study we will save only your anonymised data in case we need to check it or for future research. We will make sure **no-one can work out who you** are from the reports we write.

Kind regards, Marion Bowman, m.c.bowman@leeds.ac.uk

Marion Bowman (researcher) PhD student; School of Dentistry University of Leeds Worsley building, Clarendon Way LS2 9LU Email: m.c.bowman@leeds.ac.uk Telephone:0113 343 6199	**Dr A. Tugnait (supervisor)** Associate Professor in Restorative Dentistry, Honorary Speciality Dentist Leeds Dental Institute, Worsley building, Clarendon Way, LS2 9LU Telephone: 0113 343 2683 e-mail: A.Tugnait@leeds.ac.uk	**Dr. Karen Vinall-Collier (supervisor)** Lecturer in Dental Public Health School of Dentistry, University of Leeds, Worsley building, Clarendon Way, LS2 9LU Telephone: 0113 343 9686 e-mail: K.A.Vinall@leeds.ac.uk

11.2.3 Participant Information Sheet

UNIVERSITY OF LEEDS

Participant information sheet: Short title: (GUMDISCUSS)

Title: Difficult dental conversations: Discussing gum (periodontal) disease

We would like to invite you to take part in the above-named study. Just to let you know, the design of this study has been influenced by feedback from a Patient and Public Involvement (PPI) group. Before you decide whether to take part or not, please read the information below which provides more details about the study. The researcher will go through the information with you and answer any questions you may have. The sponsor of this research study is the University of Leeds, so 'we' below refers to the University.

1. What is the purpose of this study?

In this study we want to find out about how gum (periodontal) disease was explained to you by dentists or dental hygienists. We would also like to ask whether anything about the explanations you have received over time was memorable and why. The aim of this study is to use the findings to make recommendations for the communications training of future dental professionals.

2. Who is doing this study?

This study is being conducted by a researcher from the School of Dentistry at the University of Leeds as part of her PhD qualification. The researcher is not a dental professional, but works in the Dental School. The researcher's main supervisor is a dentist (Dr A. Tugnait).

3. Why have I been chosen?

You have been chosen because, as someone who has experience of gum (periodontal) disease, your views on the way the condition was explained to you, and how you responded to these explanations, will be valuable to this study.

4. Do I have to join this study?

No. You do not have to. If you agree to participate, we will ask you to sign a consent form. It is also possible to join and later decide not to continue.

5. What will I be asked about?

In the interview you will be asked questions about the way gum (periodontal) disease has been explained to you, and about your experience of having the condition.

6. What will happen if you take part in this study?

If you agree to take part, the researcher will arrange an interview with you. The interview will be conducted online using zoom. You should not need to download any zoom software, but will be sent a link, a meeting ID and a password by email. You will need to click on the link and use the ID and password to join the call.

You can arrange a short online meeting to test the zoom software or ask questions, if you would like to. If you are not able to access a zoom call, the interview will be conducted by telephone (preferably landline).

The interview will last between 30 and 60 minutes (you can specify the duration beforehand). The interview will be audio recorded (telephone interview) or video/audio recorded (zoom interview).

There may be a short follow up enquiry within 12 months of the interview, but this shouldn't last longer than a 15 minute phone call or short email and will not be recorded. You can choose whether to consent to a follow up enquiry by indicating your preference on the consent form.

7. Will my interview be anonymised?

Yes. For zoom interviews, your video interview will be safely stored on the researcher's password protected M: at the end of the interview. It will be transcribed (written down) as soon as possible afterwards and this will be done by the researcher. If there are significant time constraints, some of the transcription could be done by a paid transcriber. If this is the case, then the transcriber will have signed a confidentiality agreement.

Once transcription has been completed by the researcher or the transcriber, the video recording will be safely deleted, leaving only your audio recordings and your written transcript which will have been link-anonymised by removing your name and replacing it with a code number. Your

audio recording will be safely stored in the researcher's password-protected University M: drive.

For telephone interviews, your voice recording will be transcribed and link-anonymised as soon as possible after your interview. Your audio recording will be safely transferred to the researcher's password-protected M: drive for storage, and deleted from the recording device.

The main person who will have access to your audio recordings is the researcher. There will be a data analyst working alongside the researcher who will help to analyse the interviews using the link-anonymised written transcripts. They will be asked to sign a confidentiality agreement and they will not ordinarily have access to your voice recording unless there is a strong reason for this e.g. if it is impossible to interpret a transcript without hearing a short section of the recording. Access to your audio recording by the analyst will not be possible unless the research supervisor has granted permission for this. The researcher supervisors will also not ordinarily have access to your audio recordings unless there is a significant concern about the study that means that they need to access these to uphold the integrity of the research.

In terms of the duration of data storage, the zoom video recordings will be deleted as soon as they have been transcribed, as explained above. The audio recordings will be stored securely until the end of the researcher's PhD (6 years from 1 January 2018), at which point they will be safely deleted. The link-anonymised transcripts will be stored for a further 3 years after the end of the researcher's PhD to allow time for publication. Any quotes from the interview that are printed in reports will be written in a way that no-one can work out that you took part in the study.

The only way that your confidentiality would be broken would be if, during the interview, information about a safeguarding concern was reported (such as an immediate risk of harm to self or others, or serious unprofessional conduct by the dental professional). This is in line with University policy.

8. What are your choices about how your information is being used?

You can stop being part of the research study at any time without giving a reason. Your interview data can be removed from the study up until the interviews analysis is complete, after which it will not be possible to withdraw your interview from the data set. Analysis should be completed about a year after the last interview is conducted.

We need to manage your records in specific ways for the research to be reliable. This means that we won't be able to let you see or change the data we hold about you. Research could go wrong if the data is removed or changed.

If you agree to take part in this study, you will have the option to take part in future research using your anonymised interviews transcripts. This option is indicated on the consent form.

9. What are the possible disadvantages and risks of taking part?

There are no known risks. However, if there are any questions you would prefer not to answer, then there is no obligation to do so. If, for whatever reason, you were to become upset during the interview, you could stop it completely, or stop it for a while or continue with your camera off (if the interview is on zoom) – whatever you feel comfortable with. You also have the option of discussing questions or concerns with your supervising dentist or hygienist afterwards.

10. What are the possible benefits of taking part?

There may be no direct benefit to you from taking part, however this research will help us gain a better understanding of how gum (periodontal) disease is (and could be) explained to patients in order to train future dental professionals.

11. How will we use information about you?

The dentists and dental hygienists at your dental clinic who participating in this study will need to use clinical information about your gum disease status in order to decide whether to give you the information pack inviting you to consider joining this research project.
If you decide to join, the researcher will need to use information from you in order to conduct this research. This information will include: your name, preferred contact details, gender, age and first language. This information will be held securely by the researcher in this study. People will use this information to do the research or to check your records to make sure that the research is being done properly.
People who do not need to know who you are will not be able to see your name or contact details, your data will have a code number instead. The main person who will have access to your personal details is the researcher. The researcher's supervisors will only access your personal details if there is a good reason for this, e.g. if there is a safeguarding concern or if something has gone wrong in the study.
The research team will use your link-anonymised interview transcripts to do the research. The researcher will keep your personal details and your link-anonymised data separately on her password protected University M: drive. Your personal details and recordings will be stored securely until the end of her PhD study at which point they will be deleted (see Section 12).

Please also see the University Privacy Notice for research participants https://dataprotection.leeds.ac.uk/wp-content/uploads/sites/48/2019/02/Research-Privacy-Notice.pdf and the email address of the University's Data Protection officer: dop@leeds.ac.uk

Also see the NHS (HRA)'s general guidance on data protection: https://tinyurl.com/pjc8e8xk

12. What happens to my research data after the study?

Once the researcher has finished the study, some of your data will be kept so the results can be checked. Your audio recording will be deleted at the end of the researcher's PhD (6 years from 1 January 2018). However, your link-anonymised written transcripts will be kept for three years after the end of the researchers' PhD to allow for publication. Your link-anonymised written transcripts could also be used for other future research, if you choose this on the consent form. Your name and contact details will have been deleted at this point and so other researchers won't be able to contact you to ask about future research.

13. What will happen to the study results?

The results of this study will be written up as a PhD thesis and might be presented at scientific conferences and/or in journals. If you wish to have a copy of the results, please leave a contact address on the consent form. We will write our reports in a way that no-one can work out that you took part in the study.

14. Who is funding this study?

There is no external funding for this study. The study is part of a PhD (University of Leeds).

15. Who has reviewed this study?

All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed and granted a favourable opinion by East Midlands-Leicester South Research Ethics Committee.

16. Where can you find out more about how your information is used?

You can find out more about how we use your information:

- at www.hra.nhs.uk/information-about-patients/
- our leaflet available from www.hra.nhs.uk/patientdataandresearch
- by asking one of the research team (see contact details in Section 18 below).

- by sending an email to the University's Data Protection Officer: Clare Skinner, Head of Research Integrity and Governance, at governance-ethics@leeds.ac.uk
- by ringing a member of the research team (see Section 18 below for details or by ringing the University's Data Protection Officer on: 0113 3434897).

17. Who can I contact if I have any complaints about this study?

If you have any questions or complaints about this study you can contact the researcher or the researcher's supervisor/s about it.

Researcher: Marion Bowman PhD student, School of Dentistry, University of Leeds, LS2 9LU, e-mail: m.c.bowman@leeds.ac.uk , 0113 343 6199

Researcher's supervisors: Dr A. Tugnait on: 0113 3432683 or A.Tugnait@leeds.ac.uk , or Dr K. Vinall-Collier on: 0113 3439686 or K.A.Vinall@leeds.ac.uk .

If you are not happy after that, you can contact the Data Protection Officer: Clare Skinner, Head of Research Integrity and Governance, at governance-ethics@leeds.ac.uk. If you are not happy with their response or believe they are processing your data in a way that is not right or lawful, you can complain to the **Information Commissioner's Office** (www.ico.org.uk or 0303 123 1113).

11.2.4 Consent form

UNIVERSITY OF LEEDS

IRAS Project ID: 279070 REC Reference: 21/EM/0208

Participant consent form: Short title: (GUMDISCUSS)

Title: Difficult dental conversations: Discussing gum (periodontal) disease

Name of the researcher: Marion Bowman

Initials please

1. I confirm I have read and understood the information sheet dated 28 October 2021 (version 2) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

2. I understand that I don't have to take part in this project and that I am free to withdraw at any time (up until my response has been anonymized and analysed) without giving any reason, and without my medical care or legal rights being affected. ☐

3. I understand that the collected data during this study will be stored link-anonymously. I give permission for the research team (the researcher, transcriber, data analyst and researcher supervisors) to have access to the data I provide. ☐

4. I agree to anonymous quotes from my interview being used in the write up. ☐

Choose either 5a or 5b below:

5a. I agree to my interview being recorded (video/audio recorded) using Zoom. ☐

OR

5b. I agree to my interview being audio recorded (for a telephone interview - if you do not have access to the internet / a computer). ☐

Optional section: *Please initial either Yes or No.*

6. I would like to receive information about the findings of this study.

Yes ☐ No ☐

If yes, these are my contact details so that I can be sent a report when it's ready:

_____

7. I agree to the researcher contacting me for a short follow-up enquiry after the main interview if there is something needing to be checked.

Yes ☐ No ☐

8. I agree to the (anonymised) data collected from me to be used for future research purposes after the completion of the study.

Yes ☐ No ☐

Conclusion

9. I understand that my confidentiality would need to be broken if, during the interview, information relating to a safeguarding concern came to light (such as an immediate risk of harm to self or others, or serious unprofessional conduct by the dental professional). This is in line with University policy. ☐

10. I consent (agree to take part in the above study. ☐

Participant ……. Signature … …..... Date …./…./…..

Researcher…… … ……Signature … . ..... Date …./…./…..

The participant and researcher will each have copies of this consent form.

11.2.5 Interview Schedule

MARION BOWMAN IRAS 279070 INTERVIEW SCHEDULE 28 OCTOBER 2021. VERSION 2

Semi-Structured Interview Schedule for Stage 2:

Interviewing Members of the public / patients who have gum (periodontal) disease

INTRODUCTION:

Intro: Hello. I'm Marion, I'm studying dental conversations about gum disease, to hopefully get some ideas for how to shape training on this for dental professionals in the future.

First language check: Would it be possible to check what your first language is before we start?

Opener: Could you tell me a bit about your experience of having gum disease? (Boberg, et al., 2003) What has it been like?

A. BECOMING AWARE OF, OR BEING INFORMED OF THE PRESENCE OF THE CONDITION:

Overarching question: Realisation: *Could you tell me about how you found out you had gum disease*.

Onset: When do you think it **started**? How did it start? At which point did you really **feel sure** that you had gum disease? Why? **How did you find** out? Is it possible that you had had it for some time without knowing?

Symptoms: Could I ask **what symptoms** you were having at the time? How did the symptoms **affect** you? Did you know what the **symptoms meant** at the time?

Diagnosis / disclosure: (if you found out from a dental professional, not on your own): Can you remember anything the **dental professional said** at the time? Was there anything that **stuck in your mind**? How did you **feel** / **what were you thinking** when you were told?

Explanation: What kinds of conversations about gum disease have you had with dental professionals?

- Have you had any really **good explanations** relating to gum disease that you remember?* (Fitzgerald, et al., 2008b)
- Have you had any **poor explanations** relating to gum disease that you remember?* (Fitzgerald et al., 2008b)

*Add detail of the situation, process of discussion, how both parties behaved, atmosphere, significance of discussion and impact on self-management (Peltola et al., 2018).

- What works best for you in an explanation? Prompt - your comments on:

- visuals (charts, x-rays, mouth mirror); importance of visuals being of your own mouth
- questions (the DP asking you questions e.g. to check what you know or are feeling) and time for you to ask questions
- how many key points in each appointment (length of explanation vs treatment time)
- repetition of key points
- use of dental terms
- your position in dental chair during explanation (up, down, face-to-face / not)

Knowledge: What did you **know** about gum disease at the start (before the realisation that you had it)? How did this knowledge change?

Progression: If I may ask, how did the gum disease **develop** over time?

B. SEVERITY, RISK AND CONSEQUENCES

Overarching question: Severity: *Do you remember ever thinking 'this is really affecting me now, I need to take it seriously? (or something like that). If so, could you tell me more about that moment. Why did you come to that conclusion? Was it as the same time you were given an explanation from a dentist or hygienist or did you come to that conclusion on your own? Would you use the word* ***serious*** *for gum disease – do you feel it is a serious condition?*

Beliefs about consequences:

- What do you know about the **consequences** of gum disease if it progresses?
- Were you told about the end consequence of gum disease (**tooth loss**)?
- Were you told about the possibility that it can be linked to **other body issues** when it was explained to you?
- If not, would you have **liked to be told** about these consequences? If so, at what stage and why? How would you have liked to be told – if you weren't?
- If I may ask, have you **lost any teeth** to gum disease?

Intentions: How i**mportant** is oral health in your view?

Honesty: How important is it to you that the dental professional is **straight with you at the start**, e.g. explains in detail about the seriousness of your condition, whether the treatment will work or not, and if the treatment will be one-off or repetitive?

Relationship /affect: How important is informal chat and establishing a relationship with the dental professional to you? If you were feeling upset by your mouth and gums, would you prefer **reassurance** or would you **prefer the facts**?

C. TAKING OWNERSHIP

Overarching question: Ownership / Behaviour Change: Do you remember a moment where you thought, I have got to make changes to my lifestyle to make a difference to the gum disease? What triggered this? Was it at the same time as you thought – this is serious / were told by a dental professional? Was that change my lifestyle change *Have you **changed anything** in your tooth brushing routine over the time you have had the gum condition? Detail: What changes did you make? **Why** did you make these changes? **When** did you make these changes? Have the changes made the difference you wanted?*

Roles: How do you see your role and your dental professional's role in treating your gum disease?

Behaviour regulation: If I may ask, have those changes become **permanent habits**? If so, **how long** did it take to turn those changes into permanent habits? **What helped** to make those changes permanent?

Memory and attention: Are there situations where you think your oral hygiene routine would be likely to **slip**. Is there anything in your lifestyle that might **make it difficult** to keep up with oral hygiene?

Reinforcement: If you do slip at all, is there anything that triggers you to go back to your oral hygiene regime again? Did you feel that your dental professional was **encouraging and motivating** you in your oral hygiene routine, or do you motivate yourself?

Goals: Did any DP's ever **set goals** for oral hygiene with you? Did you feel **comfortable** with the goals that were set? How do you feel about having goals? Would you prefer to set your **own goals**?

Belief in capability/ self-efficacy: How **confident** do you feel that you would be able to identify any future problems with your gums and be able to do something about it? Did you at any point in your journey with gum disease feel that it was **too big a problem** to solve?

Skills: Do you feel you have been equipped with the necessary **skills** and knowledge to keep up with your oral home care in the long term?

Social influences: Do you ever **discuss** your gum disease with **other people**? Why or why not? Do you feel there is anyone in your social circle that **supports you** in dealing with gum disease?

Environmental context: If I may ask, has dealing with gum disease been financially **costly** to you and costly in terms of your **time**? **Barriers:** Was there anything that made it **difficult to get dental treatment** when you first felt you needed it?

CONCLUSION:

Feelings: To summarise: what have been some of the negatives of having the condition: e.g. some of your fears, frustrations, difficulties or things you were uncertain about over the time (Boberg, et al., 2003).

Optimism: Have there been any **positives** since taking action and commencing your treatment programme? Do you feel **confident** about seeing your dentist and feel optimistic about the problem being sorted? Has this **changed over time**?

Advice / conclusion: What **advice** would you give to someone who might be developing gum disease? What advice would you like to give **dental professionals** about how to explain gum disease to patients? How would you **have liked** gum disease to have been **explained to you**? What would **improve communication** between DP's and patients regarding gum disease?

At end ask about : *(frame it as optional: explain why makes a difference – as has an influence on presentation of periodontal disease)*

Gender: _____ **Age:** _____

Ethnicity:_____

Check whether they want to be contacted when the report is ready. If so, check details correct.

If not yet emerged in the interview – check the following:

Dental care / priority: Could I ask whether you were visiting the **dentist regularly** during this time? Did you ever **skip** dental appointments? Was dental care a **priority** at the time?

Dental anxiety: If I may ask- many people are nervous about going to the dentist - but I wonder how worried do you generally **feel about going to the dentist**?

GENERAL PROMPT QUESTIONS AROUND THE THREE OVERARCHING QUESTIONS:

Tell me more about…

What would you have liked to happen?

Can you say more about that?

How did you feel?

What do you mean by [word]

Was ..... useful?

11.2.6 Ethical approval: DREC: 040820/MB/305

From: Julie McDermott <J.K.McDermott@leeds.ac.uk>
Sent: Monday, August 17, 2020 12:44 PM
To: Marion Bowman <M.C.Bowman@leeds.ac.uk>
Cc: David Wood <D.J.Wood@leeds.ac.uk>; Aradhna Tugnait <A.Tugnait@leeds.ac.uk>
Subject: DREC ref: 040820/MB/305 - Difficult dental conversations: Discussing gum (periodontal) disease

Dear Marion

DREC ref: 040820/MB/305

Study title: Difficult dental conversations: Discussing gum (periodontal) disease

Thank you for re-submitting the amended documentation for the above ethics application to the Dental Research Ethics Commitee (DREC). The application has been re-reviewed and I am pleased to inform you that it has been approved.

Documents reviewed

Document name	Version number
Ethics application	Dated 10/08/2020
Protocol	Version 1, August 2020
Participant information sheet	Version 2, August 2020
Consent form	Version 2, August 2020
Invitation letter (PPI)	Version 2, August 2020
Invitation letter (participant)	Version 2, August 2020
Facebook ad	Version 1, August 2020
Interview schedule	Version 2, August 2020

With best wishes for the success of your project.

Please note: You are expected to keep a record of all your approved documentation, as well as documents such as sample consent forms, signed consent forms, participant information sheets and all other documents relating to the study, including risk assessments. This should be kept in your study file, and may be subject to an audit inspection. If your project is to be audited, you will be given at least 2 weeks' notice.

It is our policy to remind everyone that it is your responsibility to comply with Health and Safety, Data Protection and any other legal and/or professional guidelines there may be.

Kind regards,

For and on behalf of

Professor David Wood

DREC Chair

11.2.7 An example of linguistic markers for agency from the codebook

LINGUISTIC CODE BOOK

NB: Codebook sections: Agency, Affect and Control were influenced by: Conner, U. and Lauten, K. 2014. A linguistic analysis of diabetes patient's talk in eds Hamilton, H.E. and Chou, W.S. *The Routledge Handbook of Language and Health Communication*, Routledge: London.

AGENCY

Domains:

- Brushing
- Use of floss / tepe
- Attendance
- Smoking
- Diet

Example domain: Brushing

Category	**Low**	**Moderate**	**High**
Could be propositions or Single adverbs of extent degree and manner, adverbial clauses of time or Pre-modifying stance adverbs Or hedges (moderate agency) Or other..	When your gums are sore, you probably don't clean them as you should T9. I brush every day but minimally because it's so sensitive now. T2	I have a really good brush in the morning, but at night, to be honest, I can't always be bothered or remember T10. I don't always do the full two minutes in the morning and whilst I'm cleaning my teeth I'm often walking around checking my emails. T3	I have a really good brush in the morning. T10 I'm brushing, like proper, you know. T1 I fairly quickly got an electric toothbrush, and that was great. God, revelation, that was brilliant, what a nice mouth feel. T3

Domain: Use of floss / tepes

Category	Low	Moderate	High
Could be propositions or Single adverbs of extent degree and manner, adverbial clauses of time or Pre-modifying stance adverbs Or hedges (moderate agency)Or other..	I resisted flossing, because I don't, I can't do it, I don't like flossing… I resisted that T3. I'm not keen on the flossing T1	[The tepes]… are much easier. I'm much happier with those, [however]… There are time factors in the morning, I don't always use the tepe brush T3	I were quite conscious to … make sure that I did clean my teeth, you know, and use the brushes as well T1

Diet (* no examples in this sample)

Category	Low	Moderate	High
Could be propositions or Single adverbs of extent degree and manner, adverbial clauses of time or Pre-modifying stance adverbs Or hedges (moderate agency) Or other..	*	I, you know, sort of, changed my diet completely, well certainly cutting out sugary products T1	*

Attendance

Category	Low	Moderate	High
Could be propositions or Single adverbs of extent degree and manner, adverbial clauses of time or Pre-modifying stance adverbs Or hedges (moderate agency) Or other..	I would say at least about 10 years [of not visiting the dentist] T3	I nearly didn't go back [to the dentist]....in actual fact, when I reflected, what he said, I believed... I started to trust him T3	I was going once a week for this intensive treatment. T1 I've been seeing my dentist regularly every six months T10

Smoking (* is no examples in this sample)

Category	Low	Moderate	High
Could be propositions or Single adverbs of extent degree and manner, adverbial clauses of time or Pre-modifying stance adverbs Or hedges (moderate agency) Or other..	He did say about tooth loss, he would say every time, you've got to stop smoking, you've got to stop smoking T10	I didn't immediately stop smoking T3 I did give up smoking... I wouldn't put it down as a direct result of [being told by the dentist that smoking was linked to gum disease] T3	*

11.3 Supporting documents for Stage 3 of fieldwork (simulated patient roleplays)

11.3.1 Invitation letter for potentially participating tutors

UNIVERSITY OF LEEDS

The Leeds Teaching Hospitals NHS
NHS Trust

University of Leeds School of Dentistry with the Dental Hospital at Leeds.
Clarendon Way, Leeds LS2 9LU
Tel. Switchboard 0113-244 0111
Dental School Fax: 0113-343 6282

Invitation Letter

Dear Potential Participating Clinician Date: 18 July 2022

Re: Explaining periodontal (gum) disease to simulated patients

We would like to invite you to consider taking part in a PhD study about gum (periodontal) disease explanations. The title of the study is:

'Difficult dental conversations: Discussing gum (periodontal) disease'

In the first and second stages of this PhD study, interview findings showed that participating dental professionals differed markedly in their approaches to explaining periodontal disease, and also that people with periodontal disease showed a range of preferences for how the condition could be explained. The aim of this stage of the study is to set up experimental simulations to explore how different provider approaches and simulated patient profile combinations might interact. The intended outcome of the study is to share insights on what combination of explanation approaches and patient profiles seems more likely to lead to an intention towards oral health behaviour change. It is hoped that these findings will feed into the training of future dental students in communications.

You are under no obligation to take part in this study, but if you would like to consider it, then please feel free to consult the attached Information Sheet and example Consent form. Just to let you know that your contact details and interaction data will be kept safe and secure. We will follow all privacy rules and any quotes will be anonymous.

Kind regards,

Marion Bowman, m.c.bowman@leeds.ac.uk, School of Dentistry, University of Leeds.

Contact details for the research team:

Members of the study team:		
Marion Bowman PdD student; School of Dentistry University of Leeds Worsley building, Clarendon Way LS2 9LU Telephone:0113 3438619 e-mail: m.c.bowman@leeds.ac.uk	**Dr A. Tugnait** Associate Professor in Restorative Dentistry, Honorary Speciality Dentist Leeds Dental Institute, Worsley building, Clarendon Way, LS2 9LU Telephone: 0113 3432683 e-mail: A.Tugnait@leeds.ac.uk	**Dr. Karen Vinall-Collier** Lecturer in Dental Public Health School of Dentistry, University of Leeds, Worsley building, Clarendon Way, LS2 9LU Telephone: 0113 3439686 e-mail: K.A.Vinall@leeds.ac.uk

11.3.2 Invitation letter for potentially participating students

UNIVERSITY OF LEEDS

The Leeds Teaching Hospitals NHS
NHS Trust
University of Leeds School of Dentistry with the Dental Hospital at Leeds.
Clarendon Way, Leeds LS2 9LU
Tel. Switchboard 0113-244 0111
Dental School Fax: 0113-343 6282

Invitation Letter for Students

Dear Student Date: 17 July 2022

Re: Explaining periodontal (gum) disease to simulated patients

You may be asked if you would like to take part in Simulated Patient interactions as part of your communications teaching commencing [insert date], which will have a periodontal disease focus. Taking part in this activity and having it recorded for students' own review and reflection is part of the ordinary teaching in this course. However, I would like to invite you to take part in a PhD study in which your interaction would be further analysed. The title of the study is: 'Difficult dental conversations: Discussing gum (periodontal) disease'

The aim of the study is to explore how different communications approaches, combine with different simulated patient profiles to create a situation in which the SP feels most empowered to try to make lifestyle changes in order to stabilize the condition. It is hoped that these findings will feed into the training of future dental students in communications.

You are under no obligation to take part in this simulated patient interaction and the associated study. Please read the attached Information Sheet, and Consent form, and also feel free to email Marion Bowman m.c.bowman@leeds.ac.uk to ask questions about the study.

Just to let you know that your contact details and interaction data will be kept safe and secure. We will follow all privacy rules and any quotes from the interaction will be anonymous.

Kind regards,

Marion Bowman, m.c.bowman@leeds.ac.uk, School of Dentistry, University of Leeds.

PhD Researcher:		
Marion Bowman PdD student; School of Dentistry University of Leeds Worsley building, LS2 9LU Telephone:0113 3438619 e-mail: m.c.bowman@leeds.ac.uk	**Supervisor** **Dr A. Tugnait** Associate Professor in Restorative Dentistry, Leeds Dental Institute, Worsley building, Clarendon Way, LS2 9LU Telephone: 0113 3432683 e-mail: A.Tugnait@leeds.ac.uk	**Supervisor** **Dr. Karen Vinall-Collier** Lecturer in Dental Public Health School of Dentistry, University of Leeds, Worsley building, LS2 9LU Telephone: 0113 3439686 e-mail: K.A.Vinall@leeds.ac.uk

11.3.3 Participant Information Sheet (tutors / students / SPs)

UNIVERSITY OF LEEDS

Participant information sheet: Short title: (GUMDISCUSS): Tutors

Title: Difficult dental conversations: Discussing gum (periodontal) disease

We would like to invite you to take part in the above named study. Before you decide, please read the information below which provides more detail about the study. The researcher (referred to as 'I') will go through the information with you and answer any questions you may have. The sponsor of this research study is the University of Leeds, so 'we' below refers to the University.

1. **Who is doing this study?**

This study is being conducted by a researcher from the School of Dentistry at the University of Leeds as part of her PhD qualification. Marion Bowman is not a dental professional, but works in the Dental School. The researcher's main supervisor is a dentist (Dr A. Tugnait).

2. **What is the purpose of this study?**

The purpose of this study is to conduct an in-depth exploration of conversations about gum (periodontal) disease providers and simulated patients (SPs) in an OSCE-style interaction. This exploration aims to determine what combination of provider communication styles and SP character profiles is most likely to result in an SP intention towards lifestyle change. If you choose to take part, I would like to discourse analyse the recordings of two short interactions between you and SPs. The rationale for this study is to use the findings to shape communications training of future dental professionals.

3. **Why have I been chosen? (Tutors / postgraduate students)**

You have been chosen because you are dental professional working at the University of Leeds or a postgraduate student who is also a registered dental professional studying at the University of Leeds.

3.Why have I been chosen? (Undergraduate students)

You have been chosen because you are a Dental Surgery or Dental Hygiene Therapy (DHDT) student. You will be having an SP discussion about periodontal disease as part of of your teaching.

3.**Why have I been chosen (Simulated patients)?**

You have been chosen because you are a Simulated Patient involved in conducting roleplays with Year 3 Dental Surgery students.

4. Do I have to join this study?

No. If you do not want to join in this study, you do not have to.

5. What will happen if you take part in this study?

If you take part in this study you will be invited to take part in two Simulated Patient (SP) interactions of approximately 7 – 8 minutes each. So the minimum time commitment would be about 15 – 20 minutes. If you wish to, you could also receive feedback from the SP on their perception of how the interaction went, but this is totally optional. If you would like to receive feedback this could be given verbally just after the interaction or it could be sent by email afterwards – please indicate your preference on the consent form. Your interactions will be recorded and later discourse analysed. Discourse analysis uses identified language patterns to aid in interpreting the underlying dynamics in a conversation.

The recordings will be used for research purposes only, no other students or staff outside the research team will be able to view the recordings.

6. Will my interaction be anonymised?

Yes. The recordings will be stored safely on the researcher's university M: drive as soon as possible after filming and will be deleted from the recording device. After being safely stored, the recordings will be transcribed. Transcription will take place as soon as possible after safe storage. Transcription will mainly be done by the researcher, however a professional transcriber may be used due to time pressure. If this is the case the professional transcriber will sign a confidentiality agreement before transcribing.

After transcription, the interaction will be anonymised and given a code. The code link document which has your name and the number of your transcript will be stored separately from the anonymised transcripts, and from the recordings. All data will be stored securely on the researcher's password protected university M: drive.

The main person who has access to your recordings is the researcher, who will be working with an independent analyst during the analysis phase. This independent analyst will sign a confidentiality agreement before beginning analysis. The researcher's supervisors will not ordinarily have access to the recordings unless there is a strong justification, e.g. if there are serious concerns about the integrity of the research.

In terms of the duration of data storage, the recordings will be stored until the end of the researcher's PhD study (6 years from January 2018).

Any quotes from the interaction that are printed in reports will be written in a way that no-one can work out that you took part in the study.

7. Can I withdraw from the study at any time?

Yes, you are free to withdraw your consent up until the end of July 2022 (the end of the teaching year). After that point transcription and analysis will be underway.

8. What are the possible disadvantages and risks of taking part?

There are no known risks. However, feel free to email any questions to the researcher. If however, you become uncomfortable during the interaction, you could stop it completely, or stop for a while and continue when feeling better.

9. What are the possible benefits of taking part?

This research will help us gain a better understanding of the some of the communications styles used to explain periodontal disease to SP and how these explanations are perceived by different SP character profiles, in order to train future dental professionals.

10. **How will we use information about you?**

In this study we will need to ask you your name, university email address, gender and first language. We will keep your personal information safe and secure, and it will only be accessed by the researcher's supervisors if the research needs to be checked. We will keep your contact details and your anonymised data separately on the researcher's password protected University M: drive. Your recording will be stored securely until the end of her PhD study (6 years from January 2018) at which point it will be deleted.

Please also see the University Privacy Notice for research participants https://dataprotection.leeds.ac.uk/wp-content/uploads/sites/48/2019/02/Research-Privacy-Notice.pdf

Your anonymous transcript will be kept for a further 3 years after the completion of the researcher's PhD to enable publication.

11. What will happen to the study results?

The results of this study will be written up as a PhD thesis and might be presented at scientific conferences and/or in journals. Your anonymised data might also be used for future research (if you have opted for this on the consent form).

12. Who is funding this study?

There is no external funding for this study. The study is part of a PhD (University of Leeds).

13. Who has reviewed this study?

This study has been reviewed by the University of Leeds Ethics Committee to ensure that this study is fair and ethical.

14. Who can I contact if I have any complaints about this study?

You can contact the researcher's supervisors: Dr A. Tugnait on: 0113 3432683 or e-mail: A.Tugnait@leeds.ac.uk or Dr K. Vinall-Collier on :0113 3439686 or e-mail: K.A.Vinall@leeds.ac.uk.

Thank you for reading this sheet

If you have any questions, concerns or you need any further information, please contact:

Marion Bowman PhD student

School of Dentistry, University of Leeds, Worsley building, Clarendon Way, LS2 9LU

Telephone:0113 343 6199

e-mail: m.c.bowman@leeds.ac.uk

11.3.4 Consent form: Tutors / Students / Simulated patients

Participant consent form: Short title: (GUMDISCUSS)

Title: Difficult dental conversations: Discussing gum (periodontal) disease

Name of the researcher: Marion Bowman **Initials please**

1. I confirm that I am a: registered dental professional employed by or studying at the University of Leeds / a student at the University of Leeds / a simulated patient actor (circle correct option above) ☐
2. I confirm I have read and understood the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
3. I understand that I don't have to take part in this project and that I am free to withdraw at any time (up until my response has been anonymized and analysed) without giving any reason, and without my medical care or legal rights being affected. ☐
4. I understand that the collected data during this study will be stored anonymously. I give permission for the researcher at the School of Dentistry and her associated collaborators to have access to the data I provide. ☐

5. I agree to my interaction being recorded. ☐

6. I agree to anonymised quotes from my interaction being used in the write up. ☐

7. OPTIONAL: I agree to the (anonymised) data collected from me to be used for future research purposes. ☐

8. OPTIONAL: I would like to receive feedback from the Simulated Patient (circle one): ☐

(verbally after the interaction) (by email: _____)

9. I consent (agree) to take part in the above study.

Participant ..... Signature ..... Date ..../..../.....

Researcher.....Signature ..... Date ..../..../.....

11.3.5 Ethical approval: DREC: 040222/MB/343

From: Julie McDermott <J.K.McDermott@leeds.ac.uk>
Sent: Tuesday, July 19, 2022 10:26 AM
To: Marion Bowman <M.C.Bowman@leeds.ac.uk>
Cc: Sophy Barber <S.K.Barber@leeds.ac.uk>
Subject: DREC ref: 040222/MB/343 - GUMDISCUSS 3B

Dear Marion

DREC ref: 040222/MB/343

Study title: GUMDISCUSS 3B

I am pleased to inform you that your updated documents for the above study have been reviewed by the Dental Research Ethics Committee (DREC) and can confirm that the amendment request has been given ethical approval based on the documentation reviewed as per below. Please retain this email as evidence of ethical approval of the amendment in your study file.

Documents reviewed

Document	Version number/date
Notice of amendment form	Dated 18.07.2022
Ethics application form	Dated 18.07.2022
Protocol	Version 2, July 2022
Invitation letter	Version 2, July 2022
Participant information sheet	Version 2, July 2022
Consent form	Version 2, July 2022

Please notify DREC if you intend to make any further amendments to the research as all changes must receive ethical approval prior to implementation. Please see contact Julie McDermott for further information if required.

Please note: You are expected to keep a record of all your approved documentation, as well as documents such as sample consent forms, risk assessments and other documents relating to the study. This should be kept in your study file, which should be readily available for audit purposes. You will be given a two week notice period if your project is to be audited.

It is our policy to remind everyone that it is your responsibility to comply with Health and Safety, Data Protection and any other legal and/or professional guidelines there may be.

With best wishes for the success of your study.

For and on behalf of

Dr Sophy Barber

DREC Deputy Chair

11.3.6 Ethical Approval: HRA: IRAS 279070

From: Medicine and Health Research Governance <governance-ethics@leeds.ac.uk>
Sent: Tuesday, December 14, 2021 9:08 AM
To: Marion Bowman <M.C.Bowman@leeds.ac.uk>
Subject: FW: IRAS 279070. HRA & HCRW Approval issued

Dear Marion,

Congratulations on receiving HRA Approval for your study.

In line with the HRA email below you will now need to obtain confirmation of their capacity and capability to undertake the research from the relevant NHS organisations R&D departments (where applicable as per the HRA Approval letter) before you commence recruitment to the study. The sponsor delegates the responsibility to the Chief Investigator to supply the R&D offices and the local research teams with the relevant HRA approved documents for their study (local document pack).

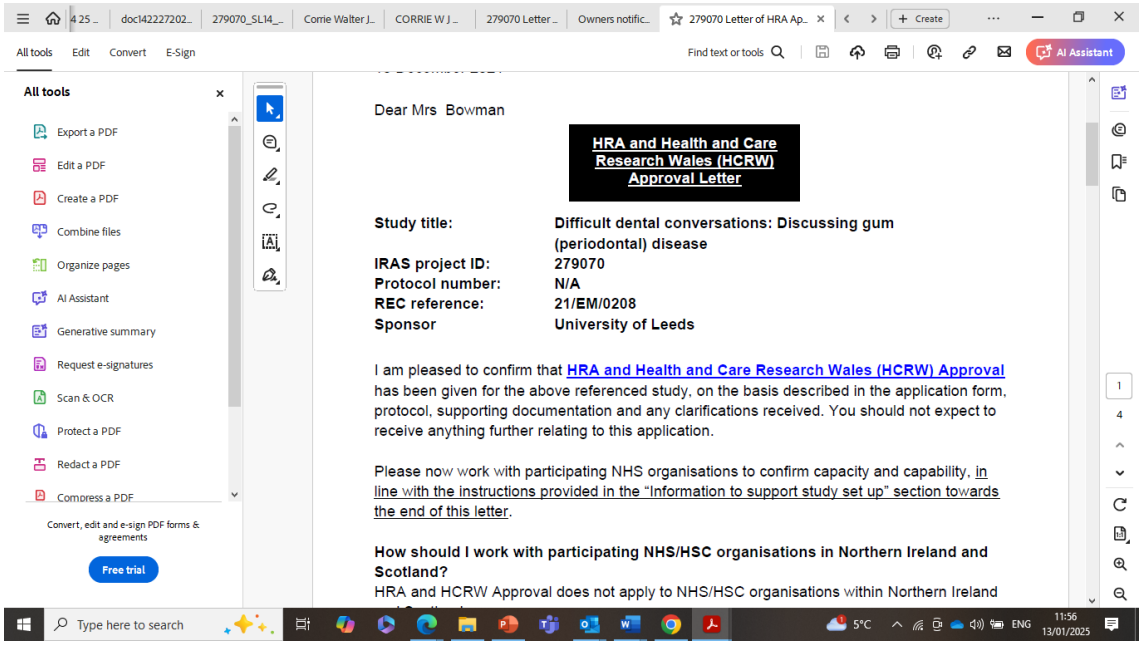
When you have a moment, would you mind please, sending me copies of all of the final HRA approved documents for the study for our sponsor files?

Thank you,

Yours,

Jean

Copy of Approval letter from HRA (document is in pdf form only)



Dear Mrs Bowman

HRA and Health and Care Research Wales (HCRW) Approval Letter

Study title:	**Difficult dental conversations: Discussing gum (periodontal) disease**
IRAS project ID:	**279070**
Protocol number:	**N/A**
REC reference:	**21/EM/0208**
Sponsor	**University of Leeds**

I am pleased to confirm that HRA and Health and Care Research Wales (HCRW) Approval has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications received. You should not expect to receive anything further relating to this application.

Please now work with participating NHS organisations to confirm capacity and capability, in line with the instructions provided in the "Information to support study set up" section towards the end of this letter.

How should I work with participating NHS/HSC organisations in Northern Ireland and Scotland?

HRA and HCRW Approval does not apply to NHS/HSC organisations within Northern Ireland

11.3.7 Simulated Patient Character Briefs

11.3.7.1 Character: Ray Patel

Simulated Patient Information

This character is based on a real interview with someone who has gum disease – names have been changed. The following are key quotes from this interview – there is no obligation to use them in your roleplay at all. They are included just as background to help to get into the role:

> "There's no point in being embarrassed about it – you've lost some teeth. I've been lucky in that sense though that I've never had bleeding or pain with it".
>
> "But if it has progressed and the person has their own way of doing their routine, and would have to start all over, it might be difficult, but still you would need to stop and shock".

Name: Ray Patel

Age: 50's

Profile: British Asian male

Lifestyle: current and long-term smoker (15 a day since 16); visits friends on the weekends and may have a few whiskies with them, has regular routines and habits that are resistant to change.

Profession / occupation: formerly in the military, currently employed in private security.

Medical history: Nothing significant – occasional over the counter medication for headaches.

Dental history: You like your dentist, he is a family friend, you have been seeing him for 'donkey's years'. He does a 'clean up' every time. You take him every problem, and he sorts it out whenever there's an emergency, and he helps you keep hold of the teeth you have got. However, you think that modern dentistry is just money-orientated – young people these days get braces even for a few wonky teeth.

Brushing habits general approach: You were taught a cleaning regime in the first weeks of joining the military so you clean your teeth that way, at a 45 degree angle and all that. You've seen people, though, who instead of a good hygiene routine, just give it a quick once over – maybe people are lazy, or not bothered, or haven't been taught.

Actual brushing habits: You have a really good brush in the morning, but at night – to be honest - you can't always be bothered or remember, or if you're tired then you go straight to bed, so the second brushing might not always happen, but you can't start the day without a good brushing.

Scenario: Your old dentist retired during COVID and there is a new dentist at the practice where you usually go. When you saw this new dentist, you were in the chair for '5

minutes' and he referred you to the LDI. The new dentist said something about 'inflamed gums' when he was referring you. But you've not got much bleeding (a bit now and then) or any pain from your gums so you don't really see what this is about.

Thinking about it though, you suppose gums should be a pink colour and yours are kind of purple now, so they are maybe a bit discoloured. There is also probably a bit of looseness in a couple of back teeth, but you haven't thought much about it. In any case, you went to visit your dad recently - he used to have a fine pair of teeth – no fillings - but about 10 -15 years ago a lot of them have loosened off – maybe it was his diet? Who knows the cause, but now he's only got a couple left. Maybe it's just what happens when you get older – no need to be embarrassed about it. So, you will not be that surprised by your diagnosis. You are not anxious about going to the dentist, in any case, when you were playing sport in the military years ago, some teeth got knocked out (there were no gum shields in those days), and you were put right by a dentist in the military that they called the 'butcher dentist'.

Responses: You will respond well to:

- a dental professional who engages and builds up a rapport with you and you feel is taking time with you.
- a clear explanation pointing out aspects of your own oral condition
- repetition in an explanation is fine – repeating in different ways to make the point is ok
- having dental treatment is fine, you regard yourself as brave / macho
- being told the consequences of not changing your lifestyle habits very clearly, strongly and directly (shock) as your habits are long established and resistant to change
- someone who addresses your belief (you think losing teeth is inevitable as you get older - it happened with your dad) directly, but kindly.
- An almost blunt message in everyday language e.g. 'you need to stop this in its tracks, if you don't it can be bad, you can start losing teeth, stop it before it all goes to pot - your teeth don't come back in your lifetime'.

You will not respond well to:

- a rushed appointment with little rapport building
- unclear or jargon-filled explanation that doesn't seem to apply to you – you will revert to old routines
- a very gentle approach to discussing the need for behaviour change – you will see no need to change, in any case you have no pain from your gums and no bleeding
- being told to stop smoking (you've been told this a lot by various people, and you've tried to quit before without success), unless the shock of the consequences of continuing to smoke feels real and immediate
- being told to change your brushing routine unless you are very clear about the consequences of not changing it (shock value)

Rating: When the student has left on completion of the interaction, please rate the students using the following scales and give some free feedback:

I feel that the student showed respect for me and acted in a caring and professional manner

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

I feel that the student's explanation of gum disease was clear.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

After this consultation, I think that my gum condition is serious.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

I intend to make changes to my lifestyle as a result of the consultation with this student.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

11.3.7.2 Character: Judy Whitelock / Adoma

Simulated Patient Information

This character is based on a real interview with someone who has gum disease – names have been changed. The following are key quotes from this interview – there is no obligation to use them in your roleplay at all. These are included as background to help get into the role.

- "I prioritized having a roof over my children's heads. Rather than having dental work for me."
- "I approach my life in a fatalistic way… [possibly] a future without teeth… as they fall out one by one" "I feel like I'm a lost cause"
- "I've let myself go for various reasons that are meaningful to me"

Name: Judy Whitelock / Adoma

Age: 50's

Profile: Female White British / BAME background

Background: You are separated from your husband and have three adult kids, one of whom is severely disabled. Over the years you have been so busy trying to earn enough money to feed the kids and also care for your son with his complex needs, your own health has not been a priority. What you have learned over the years is that the times when you have temporarily focussed on your own needs, things have gone wrong with your son and so then it has become worse for you. Also, if you are honest, you now have an aversion to dental and medical care. Your son attacked you on a number of occasions in the past before his medication was stabilized. These attacks, together with your own negative experience of having an extraction without adequate pain relief, have left you with an aversion to dental and medical care. You do not want to subject yourself to any more poking and prodding. You have stopped going to the doctor and the dentist. Dentistry, and lying down, and not being able to speak, is a massively disempowering act, it's a sort of trigger.

You don't drink (apart from a couple of glasses of wine with a friend, but that is not often), but you have smoked from the age of 16 (about 15 cigarettes a day). It helps to relieve stress and it feels like the only time that is actually just 'your time' when you can have a break.

Profession / occupation: Hourly paid online work, transcription & proofreading – work from home.

Medical history: Nothing significant – occasional over the counter medication for headaches. Although there may be other issues you don't yet know about. You have deliberately missed your cervical smear and breast checks, as well as your over 50's health check.

Dental History: You had not been to the dentist for a very long time. You are not in pain with your teeth at the moment, and there's not much bleeding from your gums (a bit from

time to time). Recently you mentioned how long it has been to your friend and so she took you to her own dentist for a visit. You were very scared of going and didn't see it as a priority, but you didn't want to let your friend down – she has helped you a lot in the past. She went with you and made sure it was only going to be an examination (no treatment) and that this could be done sitting up in the dental chair. You were shaking throughout the whole thing. That dentist then referred you to the LDI for 'inflamed gums'. You were very shaken afterwards and have not thought much about what the dentist said. You are reluctant to attend the LDI but were persuaded by your friend – and given a lift. She thinks it will be good to find out what the referral is about.

Brushing habits: Toothbrushing is really not one of your priorities. Brushing depends what is happening with your son and if you have had enough sleep. You just use an ordinary toothbrush – for short snatches of time. There are a couple of teeth at the back that seem a bit loose so you are avoiding them so they don't dislodge. They aren't actively giving trouble so they are not a priority.

Summary: you will respond well to:

- Someone who acknowledges your priorities, has empathy for your situation and is willing to explore options that take account of your need to care for your son
- Someone who is kind and reassuring; someone you could develop a good relationship with
- Someone who can give you a truthful prognosis; a real heart to heart about the seriousness of your personal gum condition & how it could play out in the future (but kindly)
- Knowing about other wider impacts of gum disease, e.g. on mental or bodily health generally. There needs to be enough convincing evidence for it to become more of a priority.
- Someone who isn't too persuasive – you make your own decisions in order to cope at home
- Someone who makes good eye contact and has a proper 2-way conversation with you
- Being signposted to any information so that you can read up more and think about on your own at home - maybe a leaflet or a website to go to.

You will not respond well to:

- A dentist that seems harsh, rushed or too persuasive in any way
- A dentist that doesn't acknowledge your current priorities and the reasons for them (caring for your son, earning as much as you can in between, and putting his needs first)
- Someone that makes suggestions that seem unnecessarily time consuming
- A lecturing approach about lifestyle change (brushing habits or smoking)
- An appeal to enhancing your physical appearance
- A lack of realistic information about the consequences of not treating the condition (an evasive, nuanced or vague approach). It needs to feel urgent but delivered kindly.
- Treatment suggestions that seem invasive without accompanying reassurance – your body language might start to show that you want to leave the room.

Rating: When the student has left on completion of the interaction, please rate the students using the following scales and give some free feedback:

I feel that the student showed respect for me and acted in a caring and professional manner

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

I feel that the student's explanation of gum disease was clear.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

After this consultation, I think that my gum condition is serious.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

I intend to make changes to my lifestyle as a result of the consultation with this student.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

11.3.7.3 Character: Kesia Wood

Simulated Patient Information

This character is based on a real interview with someone who has gum disease – names have been changed. The following are key quotes from this interview – there is no obligation to use them in your roleplay at all. These are included just as background to help get into the role.

- "I were really upset about it, so I just stopped going. Yeah, which is probably cutting me nose off to spite me face a little bit"
- "whenever I had to brush my teeth, it always brought home to me how damaged they were. So I don't want to face it, you know, in a way."
- "I just wanted her to be a bit careful with me because me teeth are not perfect teeth and she needed to be a bit more respectful to me, is that the right word?"
- "I mean, it's affected my whole life and I feel like it's totally self-inflicted. I'm just experiencing the consequences of my poor actions... it just needs to be handled with sensitivity... you know if somebody had said to me, Look, you know, a part of your genes has caused this, it isn't just you, maybe I'd have helped myself a bit more. I don't know...".
- "That's what it takes – a bit of time and motivation rather than condemnation."

Name: Kesia Wood

Age: 50's

Profile: White British female

Lifestyle: Been smoking since 16. Now down to 2 or 3 cigarettes a day and a bit more on a night out. You have been thinking about quitting completely but are not sure how to go about it because it is a bit of a habit, particularly during breaks at work and socially. You drink maybe three glasses of wine at the most on weekend, but not otherwise. You have started to eat more healthily now after being given a Mediterranean cooking course as a gift from a friend.

Profession / occupation: Used to run a holiday entertainment centre, now working part time in a call centre.

Medical history: Nothing significant – occasional over the counter medication for headaches.

Dental History: You tend to 'umm and aaah' about visiting the dentist. You will make an appointment and then cancel it and then phone to reschedule it and maybe cancel again. There have been long periods in between dental visits in the past. So in a way the pandemic was a bit of a relief because you just couldn't go. Recently you have thought about going because your front teeth are a bit stained. You would like them to look a bit better. Also, if you are honest there are a couple of teeth at the back that feel a bit loose, but you don't want to think too much about that.

Brushing habits: You always brush at least once every day, but not always twice a day. It depends how you are feeling. There are times when you don't really want to face looking at your teeth. You know they don't look great because of the staining and that. You can't get the stains off anyway. Sometimes there is a bit of bleeding when you brush. You don't like to think about that either.

Scenario: Recently you plucked up courage to go the dentist now that appointments are available after COVID. The dentist did an examination and said something about 'inflamed gums' and then referred you to the LDI periodontology clinic. You are not sure what this is about and are really not sure whether you should go or not, but you have got this far, so...

Summary: you will respond well to:

- A gentle empathetic approach with lots of reassurance
- Respectful approach that does not make you feel embarrassed in any way, e.g. if the condition is normalized (it is widespread / common) you will respond well to this.
- Someone who is willing to have a natter with you before starting to do treatment – to make you feel comfortable. You need to feel like you have a good relationship with the dentist, as you are a bit scared of being there. If this is the case, you will want to attend more regularly and try to implement advice.
- Someone who helps you to feel that this is not all your fault and empowers you to feel you can make a difference to avoid the end consequences of the condition. Encouragement and praise would really help you to feel better – feeling that the dentist believes you can do it.
- Clear simple explanation – technical terms are not needed. Explanation mustn't feel rushed.
- Only a very gentle reference to the possible consequences of not addressing the condition.

You will not respond well to:

- A harsh approach – with little explanation
- A lot of emphasis on the consequences of gum disease (losing teeth)
- Blame – if you think someone is implying that you caused it to yourself you are likely to feel like you want to give up and not try – self blame is debilitating – you don't want people to think you haven't looked after yourself.
- Not being given hope of improvement (e.g. the damage is done!) as this could make you feel that trying is pointless
- If you feel the conversation is not going well, you may revert to avoidant behaviour and try to cut the visit short, you don't really want to face this.
- Detailed goal setting – you feel you might not be able to do it – general encouragement would be better.

Rating: When the student has left on completion of the interaction, please rate the students using the following scales and give some free feedback:

I feel that the student showed respect for me and acted in a caring and professional manner

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

I feel that the student's explanation of gum disease was clear.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

After this consultation, I think that my gum condition is serious.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

I intend to make changes to my lifestyle as a result of the consultation with this student.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

11.3.7.4 Character: Sam Williams

Simulated Patient Information:

This character is based on a real interview with someone who has gum disease – names have been changed. The following are key quotes from this interview – there is no obligation to use them in your roleplay at all. They are included just as background to help get into the role.

> Initially: "I knew that having a lot of treatment would be expensive … he [the dentist] said I should consider taking out one of the plans their dental practice has … I did consider not going back" "I thought - do I really need all of this? – or is it just a money spinner for the dental practice"
>
> Later after discussion of consequences of not doing treatment and after being shown photographs of his mouth over several appointments: "I started to trust him. And the more I went, the more I started to trust and … respect his medical knowledge and integrity, and I didn't feel that … I was being ripped off."
>
> Finally: "… it's all settled down now, I think it's just a case of being very resigned to the fact I've got to have these quite expensive medical dental treatments on a regular basis. And … ultimately that's my fault for not being more proactive at an early age, and starting smoking when I was 16."

Name: Sam Williams

Age: 50's

Profile: White British male

Lifestyle: Been smoking since age 16. You have been cutting down now to 2 or 3 cigarettes a day and a bit more when socialising, and have read a book about quitting, but you still feel the need for a cigarette when you feel stressed at work. It is getting harder to smoke during the teaching day, as it isn't great if you get spotted by your pupils. You drink on weekends with friends at the pub if there's football on – three or four pints – not as much as you used to drink on a Friday night. You have been eating more healthily since your partner has been making you lunches to take to school instead of relying on the canteen, but on the weekends you eat whatever is around.

Profession / occupation: Secondary school teacher.

Medical history: Nothing significant – occasional over the counter medication for headaches.

Dental history: You have not been a regular attender at the dentist – there have been long gaps, you have only gone when you have pain (and money to go). You are not anxious about visiting the dentist, you are just a bit sceptical about whether what they are offering is strictly necessary. Recently one of your pupils asked you about a front tooth that is discoloured 'what happened to your tooth sir?' It was embarrassing to be asked this in front of the class. You hadn't noticed it before and have figured that you should start

taking a bit more care of your teeth; maybe get them whitened or something. If you think about it, there are a couple of teeth at the back that are a bit loose as well – there is no pain, though. Perhaps those back teeth can get sorted at the same time. Also sometimes there's a bit of bleeding when you brush.

Brushing habits: Brushing depends on how much of a rush you're in to be honest, especially in the mornings when you have to get to school on time. Before you leave, you often walk around, brushing and checking your emails at the same time. Sometimes your partner reminds you to brush. Time is short, but there is time for brushing in the evenings. You don't get al.,ong with flossing and don't floss. It's fiddly – what's the point of it? You use a manual toothbrush. Sometimes there is a little bit of bleeding when you brush – not much - which you regard as normal.

Scenario: You visited a dentist recently, now that appointments are available after COVID. The dentist did an examination and said something about 'inflamed gums' and then referred you to the LDI periodontal clinic. You are not sure what this is about and are wondering if it is necessary – it's not easy to get time off.

Summary: You will respond well to:

- The dental professional finding out what you already know first before explaining, so that the information doesn't come across as a patronising lecture.
- Show and tell using X rays and/or photos to show you visually what is happening with your oral health – you need to be convinced that it worth spending time on this.
- Being given the consequence of no treatment clearly, honestly and straightforwardly using clinical facts and probability. You respect medical knowledge and you need the 'shock factor' – you need to be told to take it seriously e.g. "If you don't give up smoking it will get worse and you will lose teeth". You really don't want to lose teeth.
- Having clear goals and targets, e.g. if the dentist was to use figures like a certain plaque free score to reach in order for you to get the whitening done, you would respond well to that. Having longer term plans and goals would be good too.
- Some praise and encouragement would be good, e.g. towards changing your brushing regime or smoking habits. You accept that smoking has probably caused damage – it's just one of those things – you don't feel too much of a sense of shame or blame about it.
- Feeling like you are making your own decisions and not being pushed into things.
- The idea of working in partnership with the dentist, you are prepared to do your part if he does his. You would like a clear idea of the roles. You work in a team at school anyway.

You will not respond well to:

- A feeling of being lectured when you already know the information – if the dental professional doesn't find out what you know to start with.
- Being talked down to – you can understand medical information if it is given clearly.

- Vague or general explanations or terms that are not explained well. You expect clear explanations as explaining stuff is your day job.
- Not being clearly shown what is happening in your mouth. The visual side is very important to you – you haven't really viewed your mouth in this way before.
- Being offered treatments that are time consuming and don't seem clearly justified.
- Not being given the consequences of not having the treatment.
- Not being given clear goals to reach.
- A lack of clarity about your role and the dentist's role in this.

Rating: When the student has left on completion of the interaction, please rate the students using the following scales and give some free feedback:

I feel that the student showed respect for me and acted in a caring and professional manner

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

I feel that the student's explanation of gum disease was clear.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

After this consultation, I think that my gum condition is serious.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

I intend to make changes to my lifestyle as a result of the consultation with this student.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agreeCharacter: Keith Simpson

Simulated Patient Information

This character is based on a real interview with someone who has gum disease – names have been changed. The following are key quotes from this interview – there is no obligation to use them in your roleplay at all. These are included just as background to help to get into the role:

- "I'm like brushing proper, you know."
- "I don't really have a sweet tooth anyway"
- "the dentist said to me – if anything, you over-brush"

11.3.7.5 Character: Keith Simpson

Simulated Patient Information

Age: 50's

Profile: White British male

Lifestyle: Former smoker. Started smoking at 16 behind the bike sheds. You gave up 30 years ago when the kids were growing up because it wasn't good for them to see you doing that. Not really a drinker, just a beer or a glass of wine if you go out for a meal with your wife. You try to eat a healthy diet.

Profession / occupation: Retired with grandkids. Used to run a business supplying parts in the motor trade.

Medical history: Nothing significant – occasional over the counter medication for headaches.

Dental history: You visit a dental practice regularly but have not been recently due to COVID. You had few dental problems like fillings and that over the years. There is some bleeding most times when you brush, but you see this as normal. If you are honest there is some looseness with a couple of back teeth, but there is no pain.

Brushing habits: Your teeth are as important to you as your eyes – both need regular checking. You want your teeth to be the best they can be, so you go 'hammer and tongs' at your teeth with a manual toothbrush every morning (not evening) – you were taught by your parents to brush your teeth once a day. You have never tried flossing.

Scenario: You haven't been to the dentists for quite a while because of the COVID pandemic. When you did go last, you saw a different dentist and they said something about 'inflamed gums' inflammation and referred you to the LDI. To be honest you are a bit apprehensive about dental visits generally, dentists are not your favourite people, you are not sure what this 'inflamed gums' means to you. But being a bit apprehensive doesn't stop you from attending the dentist regularly, you like to do the right thing and for others to notice this.

Your reaction to your diagnosis: You would be gutted. It would concern you a lot, really. It would have a massive effect on you and make you feel determined to do your part with brushing and changing your diet as well, if needed. Generally if you are determined to do something, you will make that change immediately, and easily, if you are given precise instructions on how to do it. You also want to have a good image in the eyes of the professionals.

Responses: You will respond well to:

- Goal setting, e.g. a target plaque free score to aim for, or a reduction in pocket depth.
- A clear precise explanation of the condition which can include exact numerical information
- Technical terms in the explanation – if they are explained clearly
- A clear consequence that is explained in an evidence-based way, e.g. 'unfortunately there is a strong likelihood that you will lose teeth in the next few year if the condition isn't stabilized'
- An assurance that you will be given regular feedback on your condition at dental visits
- Any affirmation of your positive self-image and the changes you have already made to your lifestyle

You will NOT respond well to:

- Any sense of blame – you can't bear feeling that this is your fault. You will get very defensive if there is a sense of blame, as you feel you are already working hard on your lifestyle – you gave up smoking, you watch your diet and you are doing your best with brushing. It was just that you haven't been told any different about your brushing or how to use interdental aids or whatever.
- Pessimism or a negative outlook – you want a sense of hope and positivity to look forward into the future with – you want to feel that you are going in the right direction. You have never felt despondent about anything.

Rating: When the student has left on completion of the interaction, please rate the students using the following scales and give some free feedback:

I feel that the student showed respect for me and acted in a caring and professional manner

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

I feel that the student's explanation of gum disease was clear.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

After this consultation, I think that my gum condition is serious.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

I intend to make changes to my lifestyle as a result of the consultation with this student.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

11.3.7.6 Character: Joan Harding

Simulated Patient Information

This character is based on a real interview with someone who has gum disease – names have been changed. The following are key quotes from this interview – there is no obligation to use them in your roleplay at all. These are included just as background to help you to get into the role.

Identity: Key quote: "the more information I get from reputable sources, the better I can control my condition." "I work things out myself" "More information is good, I don't put my head in the sand. To me more information just means, I'm more in control" "it's incumbent upon me to make certain I can keep my mouth and teeth as healthy as I can"

Name: Joan Harding

Age: 50's

Profile: White British female

Lifestyle: former smoker (gave up 20 years ago); occasional glass of wine only, fairly healthy diet.

Profession / occupation: Retired - volunteers at Citizen's Advice Bureau and an age charity.

Medical history: Nothing significant – occasional over the counter medication for headaches. You had a breast cancer scare about 10 years ago, but it turned out to be just fatty tissue, and you are all fine now, but you can see the importance of regular check-ups and getting clear information. You also did a lot of reading about breast cancer at the time and that helped you to understand what was going on and to manage your anxiety about it while waiting for the results of the biopsy.

Dental history: You don't really like going to the dentist, you have to sort of steel yourself to go, but you do go, as you don't want any more health scares. You know it's important. You were going pretty much once a year before COVID. You have a some bleeding on brushing most of the time (doesn't everyone?), but no pain. If you think about it, though, a couple of the teeth at the back are a bit loose.

Attitude towards dentistry: You feel like a 'wuss' at the dentist. You are not phobic, but you are scared and really tense up which is due to the school dentist experience as a child and also an extraction when I was about 10. You had this extraction and the tooth broke and they almost had to send you to hospital because your blood pressure plummeted and you remember screaming. It had a huge impact on your relationship with dentists. It's not a phobia but you find it very difficult to go.

Brushing habits: You know you are not doing, perhaps as well as you could, but then you are still brushing your teeth twice a day - most days - (with an ordinary tooth brush). You don't floss much. Flossing is hard because your teeth are quite close together and you

find that a bit painful. That's just how your teeth are – actually - a lot of people would perhaps not have this problem.

Scenario: You haven't seen a dentist for a long while due to the COVID pandemic. You were not able to get an appointment until recently and when you did, the dentist said something about 'inflamed gums' and referred you to the LDI periodontology clinic. You are not sure exactly why, and want more information about what is going on.

Response to the diagnosis: You will be shocked because you believe in taking responsibility for all aspects of your health and may feel embarrassed and that 'this is all down to you' – if the news is not put across with empathy. However, a key driver in the light of this diagnosis will be for you to get as much accurate information about this condition as you can so you can try to control it.

Summary: you will respond well to:

- Knowing the full facts (detailed information that seems to come from quality sources) which is put across in patient-accessible language with terms explained. You would like to know the scientific terms because then you can look things up on the internet afterwards.
- Having a full understanding of the condition, its prognosis, and the possibility of flare ups is important, so you know what to expect.
- Being told about the clinical consequences of not treating the condition upfront – but being given these facts in a soft empathetic way.
- A dental professional that shows empathy as you are a patient who is scared at the dentist.
- Clear evidence-based recommendations. You are highly motivated to take any lifestyle change suggestions on board if there seems to be good evidence for the recommendations, e.g. if you have to step up your brushing practices you will do so with extra care and will closely follow what's been suggested.

You will NOT respond well to:

- An unclear explanation, or one that you feel is too 'dumbed down', or is too sparse and has left important details out – this will result in you asking a lot of questions and showing some dissatisfaction.
- A lack of empathy for your feelings of anxiety at the dentist
- A lack of sensitivity / discretion - feeling that you are being blamed for the condition this will result in defensiveness, it would not "endear you" to the dentist. In your view, you were not doing too badly with what you understood about oral hygiene before this visit – before you had this new information.
- Recommendations for lifestyle change that don't seem evidence-based or 'not proven' you might wonder if these are just a ploy to make money – scepticism.
- An implication was that the dental condition was caused by bad hygiene, it wouldn't "endear you" to the dentist because you think you are not doing too badly.

Rating: When the student has left on completion of the interaction, please rate the students using the following scales and give some free feedback:

I feel that the student showed respect for me and acted in a caring and professional manner

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

I feel that the student's explanation of gum disease was clear.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

After this consultation, I think that my gum condition is serious.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

I intend to make changes to my lifestyle as a result of the consultation with this student.

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

11.3.8 An example of a comparison table used for SP roleplay analysis

Keith Simpson and Dental tutors

Participants	Detailed scoring	Staging	History	Treatment	Tooth loss consequence	Timing
Male Dental Surgery Tutor and Actor B 20/20	Respect 5/5 Explanation 5/5 Severity 5/5 Change intent 5/5	Greeting (not pt name) Referral elicited (open) Diagnosis Explanation History check and advice Treatment	- Smoking - Brushing (only once a day elicited) - Later family history	Detailed. LA use, deep clean Many appointments	Mentioned directly 3 times, indirectly 1 time	7:00 mins
Female Dental Surgery Tutor no. 1 and Actor B 19/20	Respect 5/5 Explanation 4/5 Severity 5/5 Change intent 5/5	Greeting (not pt name) Referral elicited (open) Brushing and advice Explanation- plaque Smoking and advice Explanation (gesture), Treatment	- Smoking - Brushing (only once a day elicited)	Brief Clean up in pockets Not all done at once	Mentioned indirectly 4 times	7:30 mins

Participants	Detailed scoring	Staging	History	Treatment	Tooth loss consequence	Timing
Female Dental Surgery Tutor no. 2 and Actor B 19/20	Respect 5/5 Explanation 4/5 Severity 5/5 Change intent 5/5	Greeting (no pt name check) Referral stated Brushing / smoking Warning shot Diagnosis / explanation Treatment	- Smoking - Brushing - (only once a day elicited)	Brief Deep cleaning	Mentioned indirectly 1 time. Also gum disease systemic link.	6:36 mins
Male Dental Surgery Tutor and Actor B 16/20	Respect 4/5 Explanation 4/5 Severity 4/5 Change intent 4/5	Greeting (no pt name check) Referral elicited (open Q) Diagnosis without cause Smoking – link to case Brushing / flossing – link to case Explanation Treatment	- Smoking - Brushing - (daily frequency **NOT** elicited)	Very Brief Advanced measurements, cleaning advice	Mentioned as loose teeth 6 times (directly and indirectly)	7:25 mins

Participants	Detailed scoring	Staging	History	Treatment	Tooth loss consequence	Timing
Female Dental Surgery tutor and Actor B 15/20	Respect 4/5 Explanation 3/5 Severity 4/5 Change intent 4/5	Greeting (no pt name check) Referral elicited (2 open Q) Very detailed history Periodontal measurements Brushing technique detailed Brushing at night detailed explanation of rationale	- General health, - Systems check, - Alcohol - Dental anxiety, - Age /Smoking - Brushing (only once a day elicited)	Very brief (check)	One mention – (negative) not concerned about you losing teeth at the moment	8:23 mins

Keith Simpson Actor B: DHDT students

Participants	Detailed Scoring	Staging	History	Treatment	Tooth loss consequence	Timing
Female DHDT student and Actor B 18/20 no 1	Respect 4/5 Explanation 4/5 Severity 5/5 Change intent 5/5	Greeting (not pt name) Disclosure (irreversible) Brushing history Explanation – night brushing, general brushing advice Partial explanation – smoking Further OH advice	Smoking Brushing (once a day elicited)	Not mentioned	Not mentioned	6:40
Female DHDT student and Actor B 18/20 no 2	Respect 5/5 Explanation 4/5 Severity 4/5 Change intent 5/5	Greeting (pt name checked), Open Q about referral Smoking history then alcohol history (detailed) and recreational drugs history Brushing history / advice Explanation: plaque / brushing Further OH advice	Smoking Alcohol Recreational drugs Brushing (once a day elicited)	Not mentioned	Not mentioned	6:30

Participants	Scoring	Staging	History	Treatment	Toth loss consequence	Timing
Female DHDT student and Actor B 14/20	Respect 4/5 Explanation 3/5 Severity 3/5 Change intent 4/5	Greeting (pt name checked) What brings you in - open Q (referral not mentioned) Smoking / brushing / alcohol Explanation – smoking Partial explanation – brushing Brushing advice Partial explanation – smoking Further OH advice (Flossing) Brushing, bleeding and recession	Smoking Alcohol Brushing (once a day elicited)	Not mentioned	Not mentioned	**7:35**

Participants	Scoring	Staging	History	Treatment	Tooth loss consequence	Timing
Female DHDT student and Actor B 13/ 20	Respect 4/5 Explanation 3/5 Severity 3/5 Change intent 3/5	Greeting (no pt name) Referral understanding elicited 2 x open questions Diagnostic disclosure Smoking history Partial explanation smoking Brushing history Thoughts about diagnosis Treatment	Smoking Brushing (once a day elicited but not commented on)	Detailed Deep scaling, pocket measurements, regular visits	Not mentioned	**7:48**

11.3.9 An example interaction map used for SP roleplay analysis

Key: Explanations of abbreviations used in interaction map

Abbreviation	Code	Example	Personalized or standard
Clinician			
Cex	Clinical explanation	Gum disease is caused by bacteria on the gum line.	Standard
Cex (t)	Clinical explanation (tailored)	I'm afraid quite a lot of the supporting bone around your back teeth has been lost.	Personalized
Ccq	Clinical closed question	Do you smoke? Are you fit and well?	Standard
Cj	Clinical jargon	You have periodontitis. How many units of alcohol do you drink?	Personalized
Educator			
Ee	Educator eliciting	Do you have any idea what inflamed gums might mean?	Personalized
Epc	Educator Pause and check	How are you feeling about what I have said so far?	Personalized
Eproc	Educator Processing time	It's a lot to take in, you can sit on this information and can come back and ask any questions next time	Personalized

Rapport builder			
RBe	Rapport Builder Empathy, including echoing	You must be getting quite sick of everybody advising you to quit smoking.	Personalized
RBaf	Rapport Builder Affirmation	That's amazing that you have cut down your smoking in such a short time.	Personalized
RBreass	Rapport Builder, reassurance	If you could get comfortable with me for a start, it's only me you'll be seeing.	Personalized
RBr	Rapport Builder Rapport	Oh, you teach woodwork, I used to enjoy woodwork, but I kept getting splinters.	Personalized
RBoq or RBcq	Rapport builder open or closed questions	Could you tell me more about the negative dental experiences you mentioned? Is the dental environment still an issue for you?	Personalized
Mentor			
Mr	Mentor Roles	We can treat you here, but the changes you make at home will make the biggest difference.	Personalized
Mex	Mentor Explanation	The interdental brushes come in different sizes. We can look for the ones that suit your mouth best.	Personalized
Moq	Mentor Open question	May I ask why? (you don't use interdental brushes) (negative framing) How did you go about reducing your smoking? (positive framing)	Personalized

Professional			
Psp	Professional Signposting	Is it ok if I ask you a few questions about your social history?	Standard
Pconf	Professional Confidentiality	Just to let you know everything is confidential.	Standard
Pch	Professional consent check	Is that ok with you?	Personalized
Pd	Professional defensive	It's my job to make you aware of the link between smoking and gum disease.	Standard

Map 1: SP Judy Whitelock with Dental Hygiene Therapy Student 19/20 (after Roberts et al., 2003)

Tailored / Personalized	**Thematic Staging**	**Generic / Standard**
	1 Greeting: Hi how are you? Pt not named.	
Ee (elicit) 6 referral - something you are aware of? Ee (elicit) 8 do you know why you have been referred? RBreass (reassurance) 11 this'll be the best place for you to get some treatment.	2 – 23 Confirm purpose of visit (referral and gain consent for aspects of today's visit) CRUX 23 -25 Pt reacts negatively to treatment suggestion	Cex 10 you've got some gum disease Psp / Pch12 good idea for us to look through your social history if you don't mind Cex 17 we can try and identify things that might be making the gum disease worse for you Pch 18 sound good to you? Cex 22 then we'll have a think about doing some treatment

Tailored / personalized	Thematic Staging	Generic / standardized
RBcq 32 you seem quite anxious – not comfortable?	26 -66 Reassurance sequence, but still need treatment, more reassurance.	
RBoq 34 RB anything I can do to make you more comfortable?		
RBcq 36 is it the environment or an issue in the past?		
RBcq 37 issue in the past?		
RBe 40 (normalizing) a lot of people feel that way, it can be quite invasive		Cex 43 Sometimes we do have to do treatment
Mex 45 you deserve to have a healthy mouth	CRUX 46 pt health belief, teeth fall out don't they?	
Mex 47–49 we would like to prevent them coming out – if you're comfortable to work alongside us	50-52 pt no response	
RBreass 51 it's quite a daunting place		
RBreass 53 it's a loud environment		
RBreass 57 only me you'll be seeing, if you could get comfortable with me		

Epc 62 ask me anything RBreass 65 I just want to make you feel as comfortable as possible ok?		Cex 55 you've been referred for a reason Pch 59 is that ok with you?
	67 -87 Social history	Psp / Pch couple of questions / drinking alcohol and things - is that ok? Ccq 80 78 82 84 86
RBe 90 (empathy through echoing) – that's the only way you can find relief RBreass 97 if you change your mind we'll be able to help you.	88-98 Smoking cessation	Ccq 88 ever thought about reducing or stopping at all?
RBr 105 you can choose what you want to do with that information	99 - 107 Link between smoking and gum disease – but giving pt right to choose	Cex 99-103 – link between smoking and gum disease Plegal 103 – it's my job to make you aware of the link (between gum disease and smoking)
Cex 114 – 1118 tailored – yours is the more advanced type	109- 128 Gum disease explanation	Cex 109-113 gum disease explanation

RB affirmation / rapport (humour) 119-121 we've still got 50% bone there - it's not a death sentence Mroles 123-5 we can try and keep these as long as possible, not something I'd like us to give up on		Pch 125 is that ok with you? Pch 127 is that alright?