THE DEVELOPMENT OF A PSYCHOMETRIC SCALE FOR THE ASSESSMENT OF EMOTIONAL VULNERABILITY IN VICTIMS OF CRIME

OURANIA MARANDOS

Thesis submitted for the degree of Doctor of Philosophy

University of York

Department of Psychology

April 2005

ABSTRACT

This thesis explores the psychological correlates of victimisation and, in particular, the assessment and treatment of psychological distress in victims of crime. The thesis begins with a systematic review of the effectiveness of interventions in reducing psychological symptoms in victims of crime. The focus of the thesis, thereafter, is on the development of a psychometric scale to assist criminal justice practitioners in the assessment of emotional vulnerability in victims of crime.

An initial item pool was generated from victims' responses to an open-ended questionnaire. Exploratory factor analysis of the preliminary scale, which was administered to a large sample of victims of crime, uncovered two factors, which were labelled Emotional Vulnerability and Crime-Specific Anger. Both subscales demonstrated high internal consistency and test-retest reliability. The factor structure of the new scale, labelled the Victim Reactions Scale, was confirmed in a new sample of victims of crime using structural equation modelling techniques. The subscales were found to correlate meaningfully with conceptually similar constructs. The Emotional Vulnerability scale demonstrated strong correlations with measures of posttraumatic stress disorder and anxiety. Crime-Specific Anger was associated with measures of anger and in the subsample of male victims also demonstrated substantial correlations with measures of psychological distress. An experimental study showed that high scores on the Emotional Vulnerability scale were strongly related to an attentional bias towards crime-related threat words. Emotional Vulnerability also demonstrated associations with demographic and victimisation variables, which were consistent with the literature on victims of crime.

In conclusion, this thesis presents evidence for the reliability and construct validity of a new victim-specific psychometric scale, which is thought to measure emotional vulnerability and anger in relation to a criminal victimisation experience. The Victim Reactions Scale, in particular the Emotional Vulnerability subscale, could potentially be used within the criminal justice system to identify victims of crime who are in need of more in depth psychological assessment and treatment.

CONTENTS

ABSTRACT **2**

CONTENTS **3**

LIST OF TABLES **8**

LIST OF FIGURES **10**

LIST OF APPENDICES **11**

ACKNOWLEDGEMENTS **13**

DECLARATION **13**

CHAPTER 1 ..... **14**

THE PSYCHOLOGICAL CORRELATES OF CRIMINAL VICTIMISATION: A REVIEW OF THE LITERATURE **14**

1.1 INTRODUCTION 14

1.1.1 Overview of the thesis *14*

1.1.2 Definition of key terms *16*

1.2 THEORETICAL BACKGROUND 16

1.2.1 Stress theories *17*

1.2.2 Behavioural and cognitive theories *19*

1.3 PSYCHOLOGICAL RESPONSES TO CRIMINAL VICTIMISATION 23

1.4 INDIVIDUAL DIFFERENCES IN ADJUSTMENT AFTER VICTIMISATION 30

1.5 OVERVIEW OF THE FOLLOWING CHAPTERS 32

CHAPTER 2 ..... **34**

ASSESSING THE EFFECTIVENESS OF INTERVENTIONS DESIGNED TO SUPPORT VICTIMS OF CRIME: A SYSTEMATIC REVIEW OF PSYCHOLOGICAL OUTCOMES **34**

2.1 INTRODUCTION 34

2.1.1 Victim assistance programmes *36*

2.1.2 Objectives of the systematic review *39*

2.2 METHOD 39

2.2.1 Criteria for inclusion and exclusion of studies in the review *39*

2.2.1.1 Types of participants 41

2.2.1.2 Types of interventions 41
2.2.1.3 Types of outcome measures 42
2.2.1.4 Types of studies 42
2.2.2 Search strategy for identification of relevant studies 42
2.2.2.1 Search terms 42
2.2.2.2 Years searched 43
2.2.2.3 Resources searched 43
2.2.3 Description of methods used in the component studies 44
2.2.4 Details of study coding categories 45
2.2.4.1 Data extraction 45
2.2.4.2 Quality assessment checklists and procedures 45
2.3 RESULTS 47
2.3.1 Summary of included studies 47
2.3.2 Intensive interventions 49
2.3.2.1 Description of studies 49
2.3.2.2 Methodological quality 57
2.3.2.3 Results 60
2.3.2.4 Summary 66
2.3.3 Short-term interventions 68
2.3.3.1 Description of studies 68
2.3.3.2 Methodological quality 75
2.3.3.3 Results 77
2.3.3.4 Summary 82
2.4 DISCUSSION 83
2.4.1 Statement of principal findings 83
2.4.2 Interpretation of findings 83
2.4.3 Limitations of the review 85
2.4.4 Recommendations 86

CHAPTER 3 88

CONSTRUCTION OF A NEW SCALE TO MEASURE PSYCHOLOGICAL RESPONSES TO CRIMINAL VICTIMISATION 88

3.1 INTRODUCTION 88
3.2 METHOD 94
3.2.1 Item generation study 94

3.2.1.1 Participants 94
3.2.1.2 Procedure 95
3.2.2 Construction of the preliminary scale 97
3.2.3 Distribution of the preliminary scale 99
3.2.3.1 Participants 101
3.2.3.2 Procedure 103
3.3 RESULTS 105
3.3.1 Descriptive statistics 105
3.3.2 Exploratory factor analysis 106
3.3.3 Multidimensional analysis of the VRS subscales 110
3.3.3.1 Factor 1: Emotional Vulnerability 111
3.3.3.2 Factor 2: Crime-Specific Anger 112
3.3.4 Construction of a shorter version of the Victim Reactions Scale 114
3.3.5 Gender 117
3.3.6 Reliability 119
3.3.6.1 Internal consistency 119
3.3.6.2 Test-retest reliability 120
3.4 DISCUSSION 122

CHAPTER 4 124

CONFIRMATORY FACTOR ANALYSIS OF THE VICTIM REACTIONS SCALE 124

4.1 INTRODUCTION 124
4.2 METHOD 128
4.2.1 Procedure 128
4.2.1.1 Pencil and paper questionnaire 128
4.2.1.2 Internet questionnaire 129
4.2.2 Participants 132
4.2.3 Confirmatory factor analysis using AMOS 137
4.2.4 Construction of parcels 140
4.2.5 Data preparation 141
4.3 RESULTS 144
4.3.1 Item-based confirmatory factor analysis 144
4.3.1.1 Victim Reactions Scale/long 144
4.3.1.2 Victim Reactions Scale/short 145

4.3.1.3 Discussion of item-based analyses 146
4.3.2 Parcel-based confirmatory factor analysis *147*
4.3.2.1 Victim Reactions Scale/long 147
4.3.2.2 Victim Reactions Scale/short 149
4.3.2.3 Discussion of parcel-based analyses 151
4.3.3 Parcel-based confirmatory factor analyses for female participants *152*
4.4 DISCUSSION 153

CHAPTER 5 ..... **156**

CONCURRENT VALIDATION OF THE VICTIM REACTIONS SCALE **156**

5.1 INTRODUCTION 156
5.1.1 Anxiety and mood disorders *157*
5.1.2 Anger *160*
5.1.3 Coping *163*
5.1.4 Emotional response styles *165*
5.2 METHOD 167
5.2.1 Participants *167*
5.2.2 Measures *169*
5.3 RESULTS 174
5.3.1 Descriptive statistics *174*
5.3.2 Correlations between the Victim Reactions Scale and the criterion measures *177*
5.3 DISCUSSION 188
5.3.1 Emotional Vulnerability *188*
5.3.2 Crime-Specific Anger *189*
5.3.3 Conclusions *191*

CHAPTER 6 ..... **194**

THE RELATIONSHIP BETWEEN THE EMOTIONAL STROOP INTERFERENCE EFFECT AND EMOTIONAL DISTRESS IN VICTIMS OF CRIME **194**

6.1 INTRODUCTION 194
6.2 METHOD 200
6.2.1 Participants *200*
6.2.2 Materials *201*

6.2.3 Questionnaire measures *203*
6.2.4 Procedure *203*
6.3 RESULTS 204
6.3.1 Threat ratings *204*
6.3.2 Error rates *205*
6.3.3 Main analyses *206*
6.4 DISCUSSION 212

CHAPTER 7 ..... **217**

AN EXAMINATION OF DEMOGRAPHIC AND VICTIMISATION VARIABLES IN RELATION TO EMOTIONAL VULNERABILITY IN VICTIMS OF CRIME **217**

7.1 INTRODUCTION 217
7.1.1 Features of the index crime *217*
7.1.2 Victimisation history *218*
7.1.3 Demographic characteristics *219*
7.2 METHOD 221
7.2.1 Participants *221*
7.2.3 Procedure *222*
7.3 RESULTS 222
7.3.1 Descriptive statistics *222*
7.3.2 Correlations *223*
7.3.3 Regression analyses *226*
7.3.4 Analyses by gender *228*
7.3.4.1 Female victims 229
7.3.4.2 Male victims 232
7.4 DISCUSSION 237

CHAPTER 8 ..... **241**

CONCLUSIONS AND IMPLICATIONS **241**

REFERENCES **266**

APPENDICES **286**

LIST OF TABLES

TABLE 2.1 INFORMATION ON THE NATURE AND DELIVERY OF THE INTENSIVE INTERVENTIONS 50
TABLE 2.2 CHARACTERISTICS OF THE SAMPLES INCLUDED IN THE STUDIES OF INTENSIVE INTERVENTIONS 53
TABLE 2.3 PERFORMANCE OF THE STUDIES OF INTENSIVE INTERVENTIONS AGAINST THE QUALITY ASSESSMENT CRITERIA 59
TABLE 2.4 INFORMATION ON THE STUDY DESIGN, OUTCOME MEASURES, AND RESULTS OF THE STUDIES OF INTENSIVE INTERVENTIONS 61
TABLE 2.5 INFORMATION ON THE NATURE AND DELIVERY OF THE SHORT-TERM INTERVENTIONS 69
TABLE 2.6 CHARACTERISTICS OF THE SAMPLES INCLUDED IN THE STUDIES OF SHORT-TERM INTERVENTIONS 72
TABLE 2.7 PERFORMANCE OF THE STUDIES OF SHORT-TERM INTERVENTIONS AGAINST THE QUALITY ASSESSMENT CRITERIA 76
TABLE 2.8 INFORMATION ON THE STUDY DESIGN, OUTCOME MEASURES, AND RESULTS OF THE STUDIES OF SHORT-TERM INTERVENTIONS 78
TABLE 3.1 TWO-FACTOR OBLIQUE ROTATION OF PRELIMINARY ITEMS 109
TABLE 3.2 TWO-FACTOR OBLIQUE ROTATION OF EMOTIONAL VULNERABILITY ITEMS 112
TABLE 3.3 TWO-FACTOR OBLIQUE ROTATION OF CRIME-SPECIFIC ANGER ITEMS 114
TABLE 3.4 ITEM-TOTAL CORRELATIONS FOR THE ITEMS RETAINED IN THE VRS/SHORT 116
TABLE 3.5 INTERCORRELATIONS BETWEEN THE VRS SUBSCALES 117
TABLE 3.6 DESCRIPTIVE STATISTICS FOR VRS/LONG SUBSCALES 118
TABLE 3.7 DESCRIPTIVE STATISTICS FOR VRS/SHORT SUBSCALES 119
TABLE 3.8 INTERNAL CONSISTENCY OF THE VRS SUBSCALES BY GENDER 120
TABLE 3.9 TEST-RETEST RELIABILITY OF THE VRS SUBSCALES BY GENDER 122
TABLE 4.1 MEAN SCORES (SD) ON THE VRS SUBSCALES FOR THE PAPER & PENCIL QUESTIONNAIRE AND THE INTERNET SAMPLES 136
TABLE 4.2 CRONBACH'S ALPHA FOR THE VRS SUBSCALES IN SAMPLE USED FOR THE CONFIRMATORY FACTOR ANALYSIS 137
TABLE 4.3 RELIABILITY AND DIMENSIONALITY OF THE PARCELS USED FOR CFA OF THE VRS 141

TABLE 4.4 MARDIA'S COEFFICIENT OF MULTIVARIATE KURTOSIS FOR THE ITEMS AND PARCELS INCLUDED IN THE CFA OF THE LONG AND SHORT FORMS OF THE VRS 143
TABLE 4.5 GOODNESS OF FIT INDICES FOR THE ONE- AND TWO-FACTOR STRUCTURE OF THE 55-ITEM VRS (DERIVED FROM ITEM-BASED ANALYSES) 145
TABLE 4.6 GOODNESS OF FIT INDICES FOR THE ONE- AND TWO-FACTOR STRUCTURE OF THE 22-ITEM VRS (DERIVED FROM ITEM-BASED ANALYSES) 146
TABLE 4.7 GOODNESS OF FIT INDICES FOR THE ONE- AND TWO-FACTOR STRUCTURE OF THE 55-ITEM VRS (DERIVED FROM PARCEL-BASED ANALYSES).....147
TABLE 4.8 GOODNESS OF FIT INDICES FOR THE ONE- AND TWO-FACTOR STRUCTURE OF THE 22-ITEM VRS (DERIVED FROM PARCEL-BASED ANALYSES).....150
TABLE 4.9 GOODNESS OF FIT INDICES FOR THE PARENT AND 22-ITEM VRS (DERIVED FROM PARCEL-BASED ANALYSES) FOR FEMALE VICTIMS OF CRIME (N = 218).....152
TABLE 5.1 DESCRIPTIVE STATISTICS FOR THE CRITERION MEASURES USED FOR THE CONCURRENT VALIDATION OF THE VRS 175
TABLE 5.2 INTERCORRELATIONS BETWEEN THE PSS-SR AND THE VRS SUBSCALES ..178
TABLE 5.3 INTERCORRELATIONS BETWEEN THE BDI-II AND THE VRS SUBSCALES 180
TABLE 5.4 INTERCORRELATIONS BETWEEN THE STAI AND THE VRS SUBSCALES 181
TABLE 5.5 INTERCORRELATIONS BETWEEN THE STAXI AND THE VRS SUBSCALES 183
TABLE 5.6 PEARSON CORRELATIONS BETWEEN THE CSQ AND THE VRS SUBSCALES.186
TABLE 5.7 INTERCORRELATIONS BETWEEN THE ECQ AND THE VRS SUBSCALES 187
TABLE 6.1 DESCRIPTIVE STATISTICS FOR AVERAGE THREAT RATINGS OF THE EMOTIONAL STROOP TASK WORDS GIVEN BY VICTIMS AND NONVICTIMS 205
TABLE 6.2 DESCRIPTIVE STATISTICS FOR ERRORS MADE BY VICTIMS AND NONVICTIMS. 205
TABLE 6.3 RELIABILITY COEFFICIENTS FOR THE SELF-REPORT MEASURES (CRONBACH'S ALPHA) AND STROOP INTERFERENCE SCORE (SPEARMAN-BROWN SPLIT-HALF RELIABILITY).....207
TABLE 6.4 DESCRIPTIVE STATISTICS FOR THE SELF-REPORT MEASURES AND THE STROOP INTERFERENCE SCORE.....208
TABLE 6.5 PEARSON CORRELATION COEFFICIENTS BETWEEN THE QUESTIONNAIRE MEASURES AND THE EMOTIONAL STROOP INTERFERENCE SCORE FOR THE TOTAL SAMPLE (N = 67) 209
TABLE 6.6 PEARSON CORRELATION COEFFICIENTS BETWEEN THE SELF-REPORT MEASURES AND THE EMOTIONAL STROOP INTERFERENCE SCORE FOR VICTIMS AND NONVICTIMS.....209

TABLE 6.7 SUMMARY OF HIERARCHICAL MULTIPLE REGRESSION ANALYSIS WITH STAI TRAIT ANXIETY AND VICTIMISATION STATUS AS PREDICTORS OF THE EMOTIONAL STROOP INTERFERENCE SCORE (N = 67) 211
TABLE 6.8 PEARSON CORRELATION COEFFICIENTS BETWEEN THE SELF-REPORT MEASURES AND THE EMOTIONAL STROOP INTERFERENCE SCORE FOR VICTIMS (N = 42) 212
TABLE 7.1 DESCRIPTIVE STATISTICS FOR THE VRS SCALES (N = 475) 222
TABLE 7.2 DESCRIPTIVE STATISTICS OF THE DEMOGRAPHIC AND VICTIMISATION VARIABLES FOR THE COMBINED SAMPLE (N = 475) 223
TABLE 7.3 INTERCORRELATIONS BETWEEN POTENTIAL PREDICTOR VARIABLES AND THE VRS SUBSCALES (N = 475) 225
TABLE 7.4 SUMMARY OF HIERARCHICAL REGRESSION ANALYSIS FOR VARIABLES PREDICTING EMOTIONAL VULNERABILITY (N = 475) 228
TABLE 7.5 INTERCORRELATIONS BETWEEN PREDICTOR VARIABLES AND THE VRS SUBSCALES FOR FEMALE VICTIMS (N = 344) 230
TABLE 7.6 SUMMARY STATISTICS FOR THE PREDICTOR VARIABLES IN THE SUBSAMPLE OF FEMALE VICTIMS (N = 344) 231
TABLE 7.7 SUMMARY OF HIERARCHICAL REGRESSION ANALYSIS FOR VARIABLES PREDICTING EMOTIONAL VULNERABILITY IN FEMALE VICTIMS (N =344) 232
TABLE 7.8 INTERCORRELATIONS BETWEEN PREDICTOR VARIABLES AND THE VRS SUBSCALES FOR MALE VICTIMS (N = 131) 234
TABLE 7.9 DESCRIPTIVE STATISTICS FOR THE PREDICTOR VARIABLES IN THE SUBSAMPLE OF MALE VICTIMS (N = 131) 235
TABLE 7.10 SUMMARY OF HIERARCHICAL REGRESSION ANALYSIS FOR VARIABLES PREDICTING EMOTIONAL VULNERABILITY IN MALE VICTIMS (N =131) 236

LIST OF FIGURES

FIGURE 2.1 CRITERIA FOR INCLUDING STUDIES IN THE SYSTEMATIC REVIEW 40
FIGURE 3.1 TYPE OF INDEX CRIMES BY GENDER REPORTED BY THE EXPLORATORY FACTOR ANALYSIS SAMPLE (N = 247) 102

FIGURE 3.2 PERCENTAGE OF EXPLORATORY FACTOR ANALYSIS SAMPLE (N = 247) BY GENDER WHO HAD SOME CONTACT WITH VICTIM SERVICES OR HAD RECEIVED PROFESSIONAL HELP 103
FIGURE 3.3 SCREE PLOT OF THE 79 ITEMS SUBJECTED TO EXPLORATORY FACTOR ANALYSIS 107
FIGURE 3.4 SCREE PLOT OF EMOTIONAL VULNERABILITY ITEMS 111
FIGURE 3.5 SCREE PLOT OF CRIME-SPECIFIC ANGER ITEMS 113
FIGURE 4.1 PARCEL-BASED CONFIRMATORY MODEL OF THE TWO-FACTOR STRUCTURE OF THE VRS/LONG 149
FIGURE 4.2 PARCEL-BASED CONFIRMATORY MODEL OF THE TWO-FACTOR STRUCTURE OF THE VRS/SHORT 151
FIGURE 6.1 AVERAGE TIME TAKEN BY VICTIMS AND NONVICTIMS TO NAME THE COLOUR OF THREAT AND NEUTRAL WORDS IN THE EMOTIONAL STROOP TASK 206

LIST OF APPENDICES

APPENDIX 2.1 DATA EXTRACTION SHEET 287
APPENDIX 2.2 QUALITY ASSESSMENT CHECKLIST 289
APPENDIX 3.1 OPEN-ENDED QUESTIONS INCLUDED IN THE ITEM GENERATION STUDY 291
APPENDIX 3.2 SCENARIOS 291
APPENDIX 3.3 PRELIMINARY SCALE 295
APPENDIX 3.4 STATEMENT OF INFORMED CONSENT 300
APPENDIX 3.5 QUESTIONS RELATING TO THE INDEX CRIME FROM SECTION A OF THE PRELIMINARY QUESTIONNAIRE 302
APPENDIX 3.6 TERMINAL OBLIQUE ROTATION OF PRELIMINARY ITEMS 302
APPENDIX 3.7 VICTIM REACTIONS SCALE (55-ITEM VERSION) 306
APPENDIX 4.1 PARTICIPANT CHARACTERISTICS OF THE PAPER AND PENCIL AND INTERNET SAMPLES 309
APPENDIX 5.1 INTERCORRELATIONS BETWEEN THE PSS-SR AND THE VRS/LONG SUBSCALES 310
APPENDIX 5.2 INTERCORRELATIONS BETWEEN THE BDI-II AND THE VRS/LONG SUBSCALES 311

APPENDIX 5.3 INTERCORRELATIONS BETWEEN THE STAI AND THE VRS/LONG SUBSCALES 312
APPENDIX 5.4 INTERCORRELATIONS BETWEEN THE STAXI AND THE VRS/LONG SUBSCALES 313
APPENDIX 5.5 INTERCORRELATIONS BETWEEN THE CSQ AND THE VRS/LONG SUBSCALES. 316
APPENDIX 5.6 INTERCORRELATIONS BETWEEN THE ECQ AND THE VRS/LONG SUBSCALES 317
APPENDIX 6.1 WORDS INCLUDED IN THE WORD-RATING EXERCISE ADMINISTERED TO VICTIMS OF CRIME (N=17) IN ORDER TO SELECT THREAT WORDS FOR THE EMOTIONAL STROOP TASK 317
APPENDIX 6.2 THREAT WORDS AND MATCHED NEUTRAL WORDS INCLUDED IN THE EMOTIONAL STROOP TASK 318
APPENDIX 6.3 STATEMENT OF INFORMED CONSENT GIVEN TO PARTICIPANTS WHO TOOK PART IN THE EMOTIONAL STROOP STUDY 319
APPENDIX 6.4 WRITTEN INSTRUCTIONS GIVEN TO PARTICIPANTS COMPLETING THE EMOTIONAL STROOP TASK 320
APPENDIX 7.1 PARTICIPANT CHARACTERISTICS FOR THE COMBINED SAMPLE (N = 475) BY GENDER 321

ACKNOWLEDGEMENTS

First, a big thank you to all the people who took part in my research without whom this work would not have been possible and to all the organizations and individuals that helped in distributing questionnaires to victims of crime.

I would like to thank my supervisor Dr Jane Clarbour for her enthusiasm, invaluable guidance and for giving me confidence in myself. I am also grateful to the other members of my Research Committee, Dr Peter Hatcher and Prof. Cynthia McDougall, for their constructive comments. Special thanks to Professor Cynthia McDougall for suggesting that I pursue a PhD and for helping me gain funding for the research. Thank you also to Dr Rainer Banse for his excellent advice. Also, thanks to Amanda Perry for reviewing studies for my systematic review and giving me encouragement when I needed it most.

I would like to thank London Probation for making this research possible by supporting me with a grant for three and a half years. Special thanks go to John Powls, Stephen Moran, and the research team for their support and encouragement. Also, thank you to all the people I shared an office with over the years for their willingness to help out and support my research.

Finally, I am indebted to my family and friends, especially my parents for always believing in me and Jamie for getting me through the difficult times and putting up with me over the past few years. I couldn't have done it without you all.

DECLARATION

The literature review, data collection, analyses, and conclusions drawn are the result of my own work. Where literature was reviewed in conjunction with other parties the conclusions drawn are my own.

Chapter 1

The psychological correlates of criminal victimisation: A review of the literature

1.1 INTRODUCTION

1.1.1 Overview of the thesis

The most recent British Crime Survey (Finney & Toofail, 2004) estimated that 11.7 million crimes were committed against adults during 2003/2004. The majority of these (77%) were property crimes (i.e., theft, vandalism, and burglary) but a substantial number were violent incidents (i.e., common assaults, wounding, and mugging), accounting for 23% of the total number of crimes. The experience of a crime may result in a range of short-term and longer-term problems for the victim, including financial loss, physical injury, feelings of depression, fear, anger, disturbance of sleeping and eating patterns, and an inability to work (Shapland, 1986; Newburn, 1993). It has been suggested that the emotional correlates of crime may have more serious and long-lasting consequences than injuries or financial matters (e.g., Bard & Sangrey, 1979). Most victims of crime recover emotionally with time but a minority may demonstrate adverse psychological symptoms for a substantial period of time and even develop psychological disorders (Resick, 2001). Psychological disorders that have been observed in victim populations include Posttraumatic Stress Disorder (PTSD), depression, substance abuse, and panic disorder (e.g., Falsetti & Resnick, 1995).

PTSD has been particularly associated with exposure to violent and sexual crime. The American Psychiatric Association's (1994) Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (*DSM-IV*) organises PTSD symptoms into three distinct symptom clusters:

a) Re-experiencing or intrusion symptoms, which include nightmares or flashbacks of the traumatic event.
b) Numbing and avoidance symptoms, which include avoiding stimuli (e.g., activities, places or people) that have been associated with the traumatic event and displaying a lack of emotional affect.

c) Arousal symptoms, which include difficulties sleeping, irritability, or concentration problems.

For a *DSM-IV* diagnosis of PTSD to be established, a number of criteria must be met. These include exposure to a traumatic event and at least one intrusion symptom, three numbing and/or avoidance symptoms, and two arousal symptoms for a minimum period of one month after exposure to the event (Falsetti & Resnick, 2000). The *DSM-IV* definition of a traumatic event that satisfies the PTSD stressor criterion is that the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others and the person's response involved intense fear, helplessness, or horror (as cited in Resick, 2001). To receive a diagnosis of PTSD victims of crime would need to have suffered a crime that falls under the stressor definition as well as demonstrate the postulated symptom constellation.

Solomon and Canino (1990) found that although victims of a natural disaster did not satisfy criteria for a PTSD diagnosis, they demonstrated increased levels of generalised anxiety relative to a control group that had not been exposed to the disaster. The results of this study prompted Solomon and Maser (1990) to suggest that it is "...important not to overemphasize PTSD as the only possible clinical outcome resulting from exposure to traumatic stress" (p. 1627). Burnam et al. (1988) examined the prevalence of psychological disorders other than PTSD in a sample of 432 victims of sexual assault in a retrospective cross-sectional study. Prevalence rates were compared to a matched sample of 432 nonvictims. The authors found significantly higher rates of major depression, mania, drug abuse or dependence, phobias, panic disorder, and obsessive-compulsive disorder in the victim group. There were no statistically significant differences between groups in incidence of schizophrenia, alcohol abuse dependence, or antisocial personality disorder.

It follows that some victims of crime might require more extensive support than that provided by crisis interventions, which usually offer support in the short-term (Newburn, 1993). It is important, therefore, to examine the nature of the psychological impact of crime on victims so that appropriate support may be provided if the psychological effects of crime persist in the long-term. The present thesis is primarily concerned with the psychological correlates of criminal victimisation focusing, in

particular, on the development and validation of a new psychometric scale to assess feelings, thoughts, and behaviours in relation to a criminal victimisation experience. The purpose of this measure will be to assist practitioners within the criminal justice system, who come into contact with victims of crime, in referring victims of crime to relevant support services.

The literature review in this chapter will discuss research on the psychological correlates of criminal victimisation in adult victims of crime. The first section will begin with a brief overview of general stress theories and will then focus on theories that have been put forward to specifically explain why being a victim of crime may result in long-term psychological distress and in some cases the development of psychological disorders, such as PTSD. Next will follow a discussion of research studies that have examined the psychological well-being of victims of a range of crimes in comparison to nonvictims. Research has suggested that there are individual differences in people's responses to crime. The final section of this chapter will, therefore, look at some of the variables that may relate to individual differences in adjustment after a victimisation experience.

1.1.2 Definition of key terms

For the purposes of this thesis the term *victim* will be used to refer to anyone who feels they have suffered a crime against their person or property or against a person they are close to. This means that victimisation will be self-reported and the participants themselves will, essentially, define what constitutes a crime. The term *criminal victimisation* or *victimisation* will be used to refer to the event of being a victim of crime without implying that the crime had a psychological impact on the victim.

1.2 THEORETICAL BACKGROUND

"A good theory of trauma response should be able to describe the reactions that have been observed clinically, should increase our ability to predict who will develop problems (or not), and should point to the elements of effective treatment" (Resick, 2001; p. 57). A number of theories have been put forward in an attempt to explain the psychological correlates of crime. The theories discussed in this section are based on

general stress theory and two major psychological paradigms, namely behavioural and cognitive theory. This section concludes with a discussion of the stress-diathesis hypothesis of psychopathology and its potential relevance to the development of psychological disorders in victims of crime. The literature on the psychological impact of crime has focused more on PTSD than any other psychological disorder associated with criminal victimisation. Some of the theories discussed in this section have, therefore, focused primarily on explaining the development and maintenance of PTSD symptoms in victims of crime.

1.2.1 Stress theories

Early stress theories focused on the relationship between environmental stressors and the physical stress response, which is referred to as the fight-or-flight response (Atkinson, Atkinson, Smith, Bem, & Nolen-Hoeksema, 1996). When an individual is exposed to a stressful event, the hypothalamus triggers the activation of the sympathetic and the adrenal-cortical neuroendocrine systems. The sympathetic system is mainly responsible for the series of bodily changes that have been associated with the stress response (e.g., an increase in heart rate, muscle tension). The adrenal-cortical system signals the pituitary gland to produce stress hormones, such as cortisol, which regulate glucose levels in the blood. These physiological responses are designed to help animals and humans in dealing with immediate physical threats, such as an attack. Many stressful events in modern-day life are not short-term and heightened physiological arousal over a prolonged period of time can be detrimental (Atkinson et al., 1996). Chronic arousal and, in particular, the sustained activation of the hypothalamic-pituitary-axis has been associated, for example, with susceptibility to illness (e.g., Jemmott & Locke, 1984; Jemmott et al., 1985).

Building on the fight-or-flight response, Berkowitz (1983) put forward a neo-association cognitive model that posits two major dimensions of response to aversive events, fear and anger. Feelings of fear are thought to lead to avoidance behaviours, whereas feelings of anger may lead to aggressive behaviour. It is suggested that genetic predispositions, environmental learning and the conditions surrounding the aversive event interact to determine individual differences in the fight-or-flight response. In an attempt to examine individual differences in people's responses to the same stressor, later stress theories recognised the importance of psychological variables in determining

an individual's responses to stress. For example, Lazarus and colleagues (e.g., Lazarus & Folkman, 1984) argued that the psychological and physiological effects of a stressful experience are mediated by the individual's appraisal of the situation and his/her available coping resources. An event was considered to be stressful when the individual believed that dealing with that event was beyond their capabilities. Events occurring in the environment were thought to be appraised by the individual in order to determine whether they were "relevant to his/her well-being, and if so, in what ways" (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; p. 992). Moreover, the individual's response to the event was thought to be affected by his/her coping mechanisms, which were defined as "the person's constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as [stressful]" (Folkman et al., 1986; p. 993). Research on coping initially focused on two main coping mechanisms: emotion-focused coping, which aims to regulate the emotions that may arise from a stressful experience, and problem-focused coping, which aims to actively minimise, remove, or reappraise the impact of the stressor (e.g., Lazarus & Folkman, 1984). Another important coping strategy was later identified and involves avoidance behaviours that distract the individual from the stressor (e.g., Parker & Endler, 1996). The relationship between coping mechanisms and the psychological correlates of victimisation will be examined later in the thesis (see Chapter 5).

An example of a stress theory that has been applied to people's responses to traumatic events is Hobfoll's (1989) Conservation of Resources theory, which views stress as a reaction to the loss or threat of loss of resources. Resources include objects (e.g., house), conditions (e.g., marriage), personal characteristics (e.g., self-esteem), and energies (e.g., knowledge). According to this theory, traumatic events, such as criminal victimisation, result in a sudden loss of important resources, such as safety, trust, and control (Hobfoll, 1991). It is thought that initial negative reactions to traumatic events are inevitable but with time it is expected that individuals will recover from the effects of most traumatic events, especially if they have many resources. Stress theories tend to support the delivery of interventions soon after the crime has occurred in order to help the victim achieve balance or increase their resources (e.g., Hobfoll, 1991), which, in turn, is thought to reduce their psychological distress (Resick, 2001). The results of a systematic review of victim interventions (see Chapter 2) suggested, however, that crisis intervention is not effective in reducing psychological symptoms associated with

criminal victimisation. Furthermore, Resick (2001) pointed out that although stress theories can explain general responses to victimisation, they do not explain longer-term reactions such as the development of PTSD, depression, and phobias.

1.2.2 Behavioural and cognitive theories

A number of authors (e.g., Kilpatrick, Veronen, & Resick, 1982) have used behavioural theory and, in particular, Mowrer's (1947) two-factor theory of classical and operant conditioning to explain some of the psychological symptoms that have been associated with criminal victimisation. It has been suggested that in line with the principles of classical conditioning, the strong response evoked by a traumatic event (e.g., intense fear) can become associated with neutral stimuli present at the time of the incident. These neutral stimuli can, in turn, bring about the same feelings that were so intensely experienced at the time of the crime. For example, a woman who was a victim of robbery at night by a male offender may associate men and darkness with the emotions evoked by the crime. As a result, she may avoid going out at night and she may also feel especially uneasy and fearful in the presence of men. Operant conditioning principles come into this theory to explain why the link between the conditioned stimuli and the conditioned responses is not extinguished over time providing no further traumatic events occur. When the conditioned stimuli are avoided, negative emotional reactions, such as anxiety and fear, are reduced. This can result in the reinforcement of behaviours that help the victim avoid the conditioned stimuli. Although behavioural theories offer an explanation for crime victims' tendency to be fearful and engage in avoidance behaviours, they do not adequately explain why victims of crime may suffer from intrusive thoughts, flashbacks and nightmares about the trauma (Resick, 2001). Several cognitive theories have been put forward to explain, in particular, the development of re-experiencing or intrusion symptoms after a traumatic event.

Cognition refers to "the mental processes involved in perceiving, recognising, conceiving, judging, and reasoning" (Davison & Neale, 1998; p. 45). Cognitive theories were traditionally associated with experimental psychology but later also achieved prominence in the study of emotional disorders. According to J. M. G. Williams, Watts, MacLeod, and Mathews (1997) the expansion of cognitive theory into the study of emotional disorders was primarily influenced by the theories developed by Beck (e.g., Beck, 1976) and Bower (e.g., Bower, 1981). Beck developed his theory in

relation to depression and anxiety through clinical observation of the effectiveness of cognitive treatment. Beck's theory is based on the concept of schemata (Neisser, 1976). The term 'schema' describes a hypothetical structure in memory that consists of an organised collection of knowledge that an individual has accumulated during his or her lifetime. Schemata are thought to affect the way we perceive, interpret, and remember events. If an event does not fit one's schema, it may be edited or, alternatively, the event may be interpreted in such a way that it fits the schema. According to Beck's theory, depression is related to schemata that perpetuate negative beliefs about the self, the world, and the future, whereas the schemata most prominent in anxiety disorders relate to feelings of vulnerability and danger. Bower and his colleagues (e.g., Bower, 1981; Gilligan & Bower, 1984) developed a network theory of emotions. They proposed that emotions are represented in memory by specific nodes, which are connected through associative pathways to other nodes that represent anything (e.g., events, thoughts, emotional states) that relates to that emotion. An emotional response is, therefore, thought to activate the nodes of associated feelings and thoughts. It follows that interpretations of events, for example, are semantically linked to mood state at the time of the event.

Cognitive theories of the impact of crime on victims focus on distorted cognitions that may develop after being exposed to a traumatic event, such as a crime. For example, victims of a crime may blame their actions or personality characteristics for what happened. Foa, Steketee, and Rothbaum (1989) suggested that a fear network develops in memory, which holds detailed information about the crime, including sensory information, the feelings that the crime brought about, and the victim's interpretations of the event. This fear network can be activated by anything the victim has associated with the crime. The information in the fear network then enters consciousness bringing about intrusion symptoms. As a result, the victim avoids anything that may remind him or her of the crime so as to escape these intrusive thoughts. According to this theory, it should be possible to reduce psychological symptoms experienced by victims of crime by exposing them to the traumatic memory in a safe environment to bring about changes to the fear network. In Chapter 2, several victim treatments that follow these principles are reviewed and their effectiveness in reducing the negative correlates of crime provides some evidence to support the central tenets of this theory. Furthermore, the concept of an activated fear network suggests that a diagnosis of PTSD may be associated with a tendency for victims of crime to attend more to cues related to their

trauma. Several experiments using the emotional Stroop task have indeed shown that victims of crime who have been diagnosed with PTSD tend to show a significantly higher degree of attentional bias towards trauma-related words than victims who do not meet PTSD diagnostic criteria (e.g., Foa, Feske, Murdock, Kozac, & McCarthy, 1991). Chapter 6 will discuss these experiments in more detail and will also present results from a new experiment that examined the emotional Stroop effect in victims of general crime. In summary, this information-processing theory is very much concerned with the structure of the cognitive processing of the crime and the mechanisms behind maintenance of symptoms and avoidance behaviours (Resick, 2001).

Social cognitive theories focus on the meaning the victim attaches to the crime and how they integrate the experience in their lives. Janoff-Bulman (1989) has proposed that criminal victimisation challenges people's basic assumptions. These basic assumptions are thought to relate to three separate dimensions: the extent to which people believe that the world is a good place, that the world is meaningful, and that they are worthy of good outcomes. It is suggested that the experience of a crime cannot be readily accounted for by victims' pre-existing assumptions and that victims must find a way to integrate the experience with prior assumptions. Janoff-Bulman (1989) proposes two ways of doing this. The victim can either re-evaluate the experience to fit in with prior assumptions (e.g., by attaching a positive meaning to the event). This process, however, can sometimes lead to faulty interpretations, such as victims blaming themselves for the crime. Alternatively, the victim can revise their prior assumptions. For example, someone who used to believe in the basic goodness of people may start believing that people cannot be trusted. This can sometimes lead to over-accommodation of the event and bring about feelings of extreme distrust and excessive avoidance behaviours. A limitation of this theory is that it does not adequately explain the impact of crime on people who already hold negative assumptions about the world, other people and themselves (Resick, 2001).

More recently, Brewin, Dalgleish, and Joseph (1996) put forward a theory of trauma responses that combined the central tenets of the information-processing and social-cognitive theories outlined above. Brewin et al. (1996) proposed that there are two types of emotional response to criminal victimisation: immediate reactions that are conditioned during the event, primarily fear, and secondary reactions (e.g., feelings of guilt or anger) that result from the search for meaning about the event that takes place at

a later stage in time. The authors also distinguished between two types of emotional processing. The first involves the activation of what they call Situationally Activated Memories (SAMs). As opposed to memories that are retrieved consciously, Brewin et al. (1996) postulate that SAMs are detailed memories of traumatic events (similar to the fear networks introduced by Foa et al., 1989) that are retrieved automatically when the victim is exposed to either internal or external reminders of the traumatic event. When this happens, the victim experiences flashbacks of the event along with the kind of feelings and physiological arousal symptoms that were experienced during the traumatic event. Brewin et al. (1996) suggested that trauma-specific SAMs may be altered by pairing them with bodily states or feelings (e.g., reduced arousal) that are in conflict with the information originally contained in the SAMs. Again, this is very similar to the proposals made by Foa et al. (1989) regarding exposure treatment and the modification of the fear network. The second element of emotional processing suggested by Brewin et al. (1996) is based on social cognitive theories (e.g., Janoff-Bulman, 1989) and involves the search for meaning and attributions of blame in order to integrate the traumatic experience with prior assumptions about the world and the self. A side-effect of this conscious attempt to gain an understanding of the event is that it may trigger the SAMs and result in flashbacks of the event. Brewin et al. (1996) proposed that by resolving the conflicts between the traumatic experience and pre-existing assumptions, secondary symptoms, such as guilt, will be reduced. This may also result in reminders of the event being associated with more positive feelings and, thus, lead to a reduced accessibility of the original SAMs. To summarise, Brewin et al.'s (1996) theory of the impact of trauma recognises two levels of processing of traumatic events and proposes that both elements need to be addressed for successful resolution of the traumatic experience.

Rates of lifetime PTSD range from 35% to 70% for victims of rape, 15.7% to 33% for victims of sexual assault, 3.5% to 58.3% for victims of physical assault, and 16.7% to 28.2% for victims of robbery or burglary (Kilpatrick & Resnick, 1993). A PTSD diagnosis is often comorbid with an array of other psychological disorders, such as obsessive-compulsive disorder, panic disorder, and major depression (Kilpatrick & Resnick, 1993). It is clear that not all victims of crime will go on to develop a psychological disorder, however serious the crime, suggesting that some people may be more vulnerable to developing serious psychological problems after a victimisation experience. The diathesis-stress paradigm, which was originally put forward to explain

the development of schizophrenia in the 1960s, proposes that psychopathology is the result of an interaction between a predisposition towards psychopathology and biological or psychological stress (Davison & Neale, 1998). This paradigm has also been applied to depressive disorders (Monroe & Simons, 1991) and could explain why for some people the impact of crime may lead to the development of psychological disorders. The following section will discuss research studies that have examined the psychological responses of victims of a range of crimes.

1.3 PSYCHOLOGICAL RESPONSES TO CRIMINAL VICTIMISATION

Measuring the absolute psychological impact of crime on victims is not an easy task. For a truly prospective study design, precrime levels of psychological distress would need to be compared to postcrime levels. It is impossible to know who will experience crime and, thus, baseline data for victims prior to the crime are difficult to obtain (Norris, Kaniasty, & Thompson, 1997). Furthermore, it is difficult to disentangle the effects of crime on psychological well-being from the effects of other life events, personal circumstances, and current mental health. This is especially problematic because many of the outcome measures used in victim studies ask participants about their general mental health state rather than asking more specific questions regarding their response to crime. The majority of studies that will be discussed in this section have measured psychological outcomes only after the crime has occurred. Limited prospective data are available from large longitudinal studies (e.g., Norris & Kaniasty, 1994), which will also be considered.

Research on the psychological impact of crime began in the 1970s with an initial narrow focus on female victims of rape. Furthermore, early studies examined the psychological profile of crime victims without comparing them to a control group of nonvictims. It was, therefore, difficult to draw conclusions about the relationship between crime and participants' psychological distress. Kilpatrick, Veronen, and Resick (1979), however, included a control group in their study, which examined the psychological distress levels of 46 female rape victims and compared them to 35 women who had not been raped. The participants were asked to complete the Derogatis Symptom Checklist (SCL-90R; Derogatis, 1977), the Modified Fear Survey (MFS; Veronen & Kilpatrick, 1980), the Profile of Mood States Scale (McNair, Lorr, &

Droppleman, 1971), and the State Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970). Kilpatrick et al. (1979) found that compared to the control group, victims of rape exhibited significantly higher levels of a range of psychological symptoms (e.g., anxiety, depression, anger, and fear) a few days after the rape and one month later. Although the victim group showed marked improvement at three and six months, levels of anxiety were still higher than the control group. Furthermore, at six months the victim group scored significantly higher than the control group on the MFS subscales measuring classical fears, social-interpersonal fears, failure/loss of self-esteem, and rape fears. However, due to the limited sample the results of this study cannot be readily applied to victims of other types of crimes or male victims. Although the control group in this study was matched to the victim group on age, ethnicity, and neighbourhood, the authors did not report information on the participants' history of mental illness or other life events that may also be related to psychological outcomes. Moreover, the assessment instruments, with the exception of the MFS subscale relating to rape fears, measured general mental health, thus making it difficult to disentangle the effects of the crime from the effects of other life events or previous mental illness.

The research presented in the current thesis is concerned with victims of any crime and it is, therefore, important to look at the psychological impact of a range of different crimes. Qualitative studies of the impact of criminal victimisation have revealed that some degree of psychological suffering is common across a range of different types of crimes (Zedner, 2002). Even for the more common offences (e.g., burglary) typical initial reactions include fear, shock, and anger (Maguire, 1991). Kilpatrick et al. (1985) carried out a large population survey into the relationship between violent crime and mental health outcomes. The randomly selected sample comprised 2,004 women from Charleston County in South Carolina. Comparisons were made between victims and nonvictims on three outcome measures, which were assessed using three closed questions. This method of assessment is questionable as it relied on just one question for each outcome measure and the questions included terms that are essentially subjective, such as 'nervous breakdown'. The victim group included victims of a range of violent crimes including rape, sexual molestation, robbery, and aggravated assault. The authors noted that questions about other types of crimes were not included in the survey; hence, the nonvictim sample may have included victims of nonviolent crime, such as burglary or theft. Kilpatrick et al. (1985) found that the victim sample reported significantly more incidents of nervous breakdowns, suicidal ideation and suicide

attempts than the nonvictim sample. The authors also collected data regarding the timing of the nervous breakdowns and suicide attempts in relation to the index crime but only for the victims of sexual offences. This information indicated that the majority of incidents of nervous breakdowns and suicide attempts had occurred after the crime. It should be noted that as a retrospective study the accuracy of information on the timing of the mental health outcomes was reliant on participants' memories of past events, which can be fallible.

In an extension of the above study, Kilpatrick, Saunders, Veronen, Best, and Von (1987) conducted more in depth interviews with a subsample of the women about their lifetime experiences of crime. They contacted 933 women from the original sample and successfully interviewed 399 of them. The authors did not report how the 933 women who were contacted to take part in the extension of the study were selected, which may have important ramifications for the conclusions drawn. Comparisons were made between the original sample and the subsample on demographic variables, which indicated some differences on age, ethnicity, and income. However, no comparisons were reported on prevalence of crime. Indeed, prevalence of crime in the subsample was much higher than what was reported for the original sample by Kilpatrick et al. (1985). Over 75% of the 391 women had experienced at least one crime during their lifetime as opposed to 20.8% in the original sample. The rate of sexual offences in the subsample was also higher than expected; over half the women in the subsample reported being a victim of a sexual offence compared to 13.5% in the original sample. It is not clear whether a different interview procedure was used in the current study to assess lifetime prevalence of crime, which may have resulted in an increase in reported incidents of crime. Notwithstanding the above reservations regarding the selection of the subsample, this study suggested that victims of a range of violent crimes may demonstrate crime-related PTSD. Using a modified version of the Diagnostic Interview Schedule (Robins, Helzer, Croughan, & Ratcliff, 1981), Kilpatrick et al. (1987) found that amongst the women, who had suffered at least one crime, 27.8 % had developed PTSD at some point after the crime and current PTSD was present in 7.5 % of the sample. Incidence of PTSD was greatest among victims of rape, aggravated assault, completed molestation and burglary. The average time since the crime had occurred was 15 years but this was not controlled for in the analyses. Moreover, PTSD rates for the nonvictim group were not reported.

The studies discussed so far have focused exclusively on violent and sexual crime. As suggested by the British Crime Survey figures quoted earlier in this chapter, property crime is far more prevalent than violent crime. It is, therefore, also important to investigate the psychological effects on victims of property crimes. Wirtz and Harrell (1987) interviewed 273 victims of crime within one month of the crime and six months later. Levels of psychological distress were measured using 12 items from the Modified Fear Survey (Veronen & Kilpatrick, 1980), 18 items from the state scale of the State-Trait Anxiety Inventory (Spielberger et al., 1970), and a stress scale measuring physical symptoms (B. E. Smith, Cook, & Harrell, 1985). The authors were particularly interested in comparing the symptom profiles of victims who had been assaulted (e.g., victims of rape and physical assault) with victims who had not been assaulted (e.g., victims of burglary and robbery). They found that although victims who had been assaulted showed higher levels of fear, anxiety, and stress, the two groups essentially demonstrated qualitatively similar psychological symptoms. The authors, however, did not compare the victim groups to a nonvictim control group so it is not possible to infer that the participants in this study displayed higher levels of psychological symptoms than would be expected if they had not been victims of crime. Furthermore, the gender composition of the sample was not specified. Additionally, some of the victims had received support in the form of a victim and/or witness assistance programme but because R. F. Cook, Smith, and Harrell (1987) had found that this intervention did not have an effect on victims' psychological symptoms, Wirtz and Harrell (1987) did not control for the presence of this intervention in their study (see Chapter 2 for a detailed review of R. F. Cook et al., 1987).

More recently, Norris and Kaniasty (1994) conducted a large longitudinal study to examine the psychological impact of crime on victims. They interviewed 807 participants at three six-monthly intervals and the final sample comprised 105 victims of violent crime (i.e., assault with or without a weapon, robbery, and rape), 227 victims of property crime (i.e., vandalism, theft, and burglary), and 190 nonvictims. The focus of the study was on psychological symptoms relating to a crime that had been experienced in the six months prior to the onset of the study. Compared to other studies in this research area, the sample included a fairly large proportion of male victims of crime (41%) and as the participants were selected randomly the sample was not limited to victims who had reported the crime to the police or were receiving professional support. The nonvictims, however, differed from the crime victims on several

demographic variables including age, education, marital status, and levels of exposure to crime prior to the six-month period that was examined in the current study. The Brief Symptom Inventory (BSI; Derogatis & Spencer, 1982) was used to measure levels of depression, anxiety, somatization, hostility, and phobic anxiety. Two additional measures were developed by the authors to measure fear of crime and crime-related avoidance behaviours.

Norris and Kaniasty (1994) found that victims of crime demonstrated significantly higher levels of psychological symptoms than nonvictims. Furthermore, victims of violent crime displayed increased psychological distress relative to victims of property crime. Victims demonstrated elevated scores relative to nonvictims on all the scales administered suggesting that criminal victimisation is associated with several psychological outcomes. Comparisons with norms established by Derogatis and Spencer (1982) revealed that the scores obtained by the nonvictims on the Brief Symptom Inventory scales were similar to norms for nonpatient adults. The victim samples demonstrated higher scores than nonpatient adults but lower scores than norms established for psychiatric samples. Interestingly, the highest scores for both victim groups were found on the fear and avoidance scales as opposed to any of the Brief Symptom Inventory scales. It is possible that this is due to the fact that these were the only two scales that asked for responses specific to a victimisation experience rather than general mental health questions. Alternatively, it could be an artefact of the measurement scales as the nonvictim group also scored higher on these scales relative to the Brief Symptom Inventory scales. Although these new scales of fear and avoidance were found to be internally consistent, they comprised only six and five items each and did not appear to have been extensively validated.

As the study was not prospective and the victim and nonvictim groups differed on several variables, it is difficult to attribute the increased levels of psychological distress reported by the victims solely to the crimes suffered during the six-month study period. Norris and Kaniasty (1994), therefore, carried out regression analyses in an attempt to clarify the relationship between crime and psychological symptoms. First, exposure to crime during the six-month study period was significantly related to levels of distress even when controlling for the effects of demographic variables and exposure to crime before the study period. Furthermore, after the first interview, it was found that a proportion of the participants had been exposed to further crimes. Levels of

psychological symptoms at the first interview therefore formed the baseline for a prospective investigation into the effects of subsequent crimes. Analyses were carried out controlling for symptom levels at the first measurement point and these found a statistically significant effect of subsequent exposure to crime on all the psychological outcomes measured six months later and on some of the psychological outcome measures at 12 months. It is possible, however, that events other than crime, which may have occurred during the inter-testing interval, could have also had an effect on the outcome measures.

In an earlier study, Skogan (1987) used a similar method to investigate the relationship between victimisation and fear of crime. Skogan (1987) conducted two interviews that were one year apart with a random sample of 1,738 participants. The first interview was to provide baseline data to examine the relationship between any subsequent crimes and levels of fear of crime at the second interview. Fear of crime was measured using several scales, constructed specifically for this study, that asked participants to rate how worried and concerned they were about personal (i.e., violent) and property crime and also whether they engaged in behaviours to defend themselves and their properties. Apart from reporting satisfactory internal consistency for the scales, no information on the construction and further validation of the scales was reported. The results of regression analyses, controlling for levels of crime and fear at baseline, indicated a statistically significant relationship between recent violent or property crime and the crime-related outcome measures of fear. The only statistically nonsignificant relationship was between violent crime and home protection behaviours.

A crime that was not included in the studies discussed above is murder. In the case of murder, the family of the deceased are considered to be the victims. Mezey, Evans, and Hobdell (2002) investigated the impact of murder on 35 family members of murdered victims. Mezey et al. (2002) found high levels of self-reported psychological distress such as symptoms of PTSD, anxiety, and depression as measured by a battery of questionnaires including the Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979) and the General Health Questionnaire (Goldberg & Williams, 1988). Participants also reported a statistically significant overall increase in the intake of psychotropic medication since the murder. The findings of this study suggest that the families of murder victims demonstrate similar types of psychological symptoms to victims of other crimes. The findings are limited, however, in that there was no comparison to a

nonvictim sample or to other victims of crime. Furthermore, the sample was drawn from Victim Support schemes in the UK and may, therefore, not be representative of victims who do not seek support. Again, the sample was predominantly female with only four male victims included in the sample.

In summary, the literature reviewed in this section has demonstrated that victims of property, violent, and sexual crime tend to display higher levels of a range of psychological symptoms when compared to nonvictims. It has also been shown that victims of different types of crime demonstrate varying levels of psychological distress but are characterised by similar symptom profiles. The limitations of these types of studies have also been discussed and it has been emphasised that it is difficult to isolate the effect of crime on psychological symptoms from other factors, such as other life events and levels of psychological distress prior to experiencing a crime. Furthermore, psychological effects associated with criminal victimisation can persist over time and/or get worse and, thus, lead to the diagnosis of psychological disorders (Resick, 2001). Psychological disorders were, therefore, also examined in relation to criminal victimisation. It is, therefore, important that victims of crime are adequately supported in the aftermath of crime and referred to appropriate services if they demonstrate signs of developing long-term psychological problems. A discussion of support services for victims of crime is presented in Section 2.1.1 of Chapter 2, followed by a systematic review of the effectiveness of psychological interventions in reducing the negative correlates of crime.

It is also worth noting that a variety of measures were used to assess the effects of crime on victims. The majority of these were clinical measures of psychopathology, which were not developed specifically for victims of crime and may, thus, fail to measure adverse psychological responses that are particularly relevant to the experience of crime. A number of authors constructed measures specifically for the purposes of their study but these did not appear to have been thoroughly validated. The assessment of the psychological effects of crime will be more thoroughly examined in Chapter 3 of this thesis, which will also describe the construction of a new scale to assess victims' specific reactions to crime. The next section of this chapter will examine variables that may relate to individual differences in psychological responses to crime.

1.4 INDIVIDUAL DIFFERENCES IN ADJUSTMENT AFTER VICTIMISATION

A number of variables have been examined with a view to determine why some victims of crime develop psychological disorders and others do not. These include demographic characteristics, psychological adjustment prior to the crime, objective features of the crime, and victims' subjective perceptions of the crime (Davis, Taylor, Lurigio, 1996). Davis et al. (1996) carried out a longitudinal study to investigate the relationship between a number of variables and psychological distress in victims of crime. The sample consisted of 181 victims of robbery, nonsexual assault and burglary. Participants were interviewed in person approximately one month after the crime and again three months later; the second time over the telephone. Psychological distress was measured using a composite score that was derived by factor analysis of participants' responses to three questionnaires: the Derogatis Symptom Checklist 90-R (Derogatis, 1977), the Impact of Event Scale (Horowitz et al., 1979), and the Affect Balance Scale (Derogatis, 1975). The following variables were entered as predictors of psychological distress into a hierarchical multiple regression analysis: demographics (i.e., age, sex, education), previctimisation adjustment (i.e., counselling in the year prior to the index crime and experience of other crimes prior to the index crime), features of the index crime (i.e., type of crime, extent of injury, victims' belief that their life was in danger during the crime), and victim perceptions (i.e., questions relating to the basic assumptions postulated by Janoff-Bulman & Frieze, 1983). As the participants were not assessed prior to the crime occurring, the measures addressing previctimisation adjustment were retrospective.

The regression analyses conducted by Davis et al. (1996) suggested that increased levels of psychological symptoms at one month postcrime were significantly related to being female, younger, viewing the world as less meaningful and having fewer positive self-appraisals. Increased levels of distress four months postcrime were significantly related to lower levels of education, suffering injury and a threat to life during the crime, and viewing the world as less meaningful and having fewer positive self-appraisals. However, when psychological distress one month after the crime was partialled out, only education and threat to life remained statistically significant predictors of distress at four months. It is worth noting that distress at one month accounted for 63% of the variance in distress four months after the crime.

Weaver and Clum (1995) conducted a meta-analysis to examine psychological distress in victims of interpersonal violence. Most of the studies included only female victims of violence in their samples but nine out of 32 studies looked at mixed-gender samples. An examination of the mixed-gender studies suggested that the larger the proportion of female victims in the sample, the higher the levels of psychological distress. Weaver and Clum (1995) reported that age, race, and level of education were not statistically significant predictors of psychological distress in the studies included in their meta-analysis.

Kilpatrick et al. (1989) compared victims of crime who had been diagnosed with PTSD ($n = 82$) to victims who did not suffer from PTSD ($n = 212$). Crime-related PTSD was assessed using a series of questions based on the *DSM-III* criteria for PTSD; these questions were phrased in such a way as to be linked to the crimes experienced by the participants. Kilpatrick et al. (1989) found that victims who were suffering from PTSD were significantly younger, more likely to have been a victim of at least one rape, to have been injured during the crime, and to have feared for their life. Moreover, the time elapsed since the most recent crime was significantly less for victims with PTSD.

A number of studies have shown that the type of crime suffered by a victim is related to postvictimisation adjustment and recovery. For example, victims of violent crime show increased distress relative to victims of property crime (e.g., Friedman, Biscoff, Davis, & Person, 1982; Norris & Kaniasty, 1994). In addition to the more objective characteristics of the crime, studies have shown that subjective perceptions of the incident are also important determinants of postcrime adjustment. The results of a longitudinal study carried out by Norris and Kaniasty (1991) suggested that the effect of violent crime on beliefs about safety, self-esteem, and trust had an indirect effect on psychological symptoms postcrime. Moreover, a change in beliefs about safety was related to the psychological symptoms demonstrated by victims of property crime. Weaver and Clum (1995) also found that victim perceptions such as appraisal of the victimisation, self-blame, and perceived life threat were more predictive of psychological distress than more objective features of the crime, such as injury and the presence of a weapon.

Psychological adjustment before the crime has also been associated with psychological distress after a victimisation experience (e.g., Calhoun & Atkeson, 1982). Furthermore, Burgess and Holmstrom (1978) noted that the more difficulties experienced by the rape victims in their sample prior to the crime, the longer it took for them to recover from the effects of the crime. Victimisation history has also been associated with psychological distress in victims of crime. For example, Resick (1988) found that the number of prior victimisation experiences reported by rape victims was associated with levels of adverse psychological symptoms up to one year after the crime.

A number of research studies have, therefore, demonstrated that recovery from a criminal victimisation experience may depend on a range of different variables. These variables are not exclusively tied to the nature of the crime experienced, but are also related to victim characteristics and adjustment prior to the crime. Later in this thesis (see Chapter 7), levels of psychological distress in a large sample of victims of crime will be examined in relation to demographic and victimisation variables.

1.5 Overview of the following chapters

The literature discussed in this chapter has suggested that criminal victimisation is associated with a range of psychological problems and that some victims may develop long-term maladaptive responses and psychological disorders. Chapter 2 will go on to present a systematic review of the available evidence on the effectiveness of psychological interventions in treating the psychological correlates of crime. The results of the systematic review suggested that intensive cognitive-behavioural treatment designed specifically for use with victims of crime is effective in reducing PTSD, depression, anxiety, and fear. The resources available to support victims of crime in the UK, however, are scarce and if intensive interventions are to be offered to victims of crime it is important to identify victims who are emotionally vulnerable and may benefit from more intensive psychological treatment. The remainder of the thesis will, therefore, focus on the development and validation of a psychometric instrument that aims to identify victims of crime in need of intensive psychological support. Chapter 3 presents the construction of the Victim Reactions Scale (VRS), which was developed with a view to being used by criminal justice practitioners with limited clinical expertise. A preliminary item pool was derived from victims' responses to an open-ended questionnaire about a crime that had happened to them and from their

responses to a scenario study. The preliminary scale was administered to a large sample of victims of crime and their responses were analysed using exploratory factor analysis (see Chapter 3). The factor structure of the VRS was further examined in a new sample of victims of crime using confirmatory factor analytic techniques (see Chapter 4). The findings along with a detailed critique of the use of structural equation modelling to assess the factor structure of lengthy questionnaires are presented in Chapter 4. The VRS was also completed alongside a range of established measures in order to examine the concurrent validity of the new scales. The relationship between the VRS and criterion measures relevant to victims of crime is explored in Chapter 5. Furthermore, Chapter 6 presents an experimental study that examined the relationship between attentional bias towards crime-related threat words and emotional distress in victims of crime. Finally, Chapter 7 discusses the results of correlation and multiple regression analyses, which explored the relationship between a range of demographic and criminal victimisation variables and the subscales of the Victim Reactions Scale. The final chapter presents a discussion of the overall findings of the present thesis in relation to the assessment and treatment of the psychological correlates of criminal victimisation. Recommendations are made for practice and for future research.

Chapter 2

Assessing the effectiveness of interventions designed to support victims of crime: A systematic review of psychological outcomes

2.1 INTRODUCTION

A systematic review "involves the application of scientific strategies, in ways that limit bias, to the assembly, critical appraisal, and synthesis of all relevant studies that address a specific clinical question" (D. J. Cook, Mulrow, & Haynes, 1997; p. 376). A systematic review, therefore, differs from a traditional, narrative literature review in many ways (D. J. Cook et al., 1997). First, the question asked by a systematic review is focused while a literature review may look at a broad topic. Furthermore, when conducting a systematic review, studies of potential relevance are located on the basis of a comprehensive search of published and unpublished material using a consistent search strategy. The selection of studies to include in the review is then carried out using predefined inclusion and exclusion criteria. Once the relevant studies have been retrieved, these are examined in a structured manner using data extraction forms, specifically tailored to the type of studies under review. A systematic review also includes an assessment of the quality of the studies, enabling the reviewers to thoroughly appraise the methodology used and whether the authors have attempted to minimise potential bias. Most stages of the systematic review are carried out independently by at least two reviewers. If a systematic review is conducted appropriately and the above methodology is adhered to and clearly reported, it can be replicated and any conclusions drawn can be said to be based on an unbiased review of all the available rigorous evidence on a specified topic. Conversely, in a literature review, the search strategy and subsequent selection of studies are often not specified and are, therefore, open to bias. Literature reviews include critical appraisal of the studies but this is not always structured and, as a result, may not be impartial. The methodology of a literature review is not usually clearly reported so replication is not possible and the conclusions drawn are not always evidence-based.

Systematic reviews, however, can be resource-intensive. For example, to ensure that the search for relevant studies is fully inclusive, a wide range of resources (e.g., both published and unpublished research) needs to be consulted. This may result, as in the

case of the present systematic review, in the retrieval of a large number of references. It is necessary then to scan the abstracts of all of these references for potentially relevant pieces of research. However, it is not always possible to ascertain from an abstract whether the research satisfies the inclusion criteria of a systematic review. It is, therefore, necessary to be over-inclusive at this stage and obtain the full reports of all studies that could be relevant to the review as well as any studies that do not provide enough information in the abstract to enable a decision to be made. This is a time-consuming process and usually only a small number out of the total references scanned actually satisfy the inclusion criteria of the review. Furthermore, systematic reviews require that two reviewers carry out key stages of the review process. The two reviewers work independently at each stage and then check their work for discrepancies. If discrepancies arise, the two reviewers are required to revise their work until agreement is reached. If necessary a third reviewer is called in to arbitrate. This process, although labour-intensive, helps to ensure that the review is based on the data collected rather than the biases an individual reviewer may bring to the examination of the literature.

Systematic reviews have increasingly been used in the past few years to assess the effectiveness of healthcare interventions. The Cochrane Collaboration was set up in 1993 specifically to encourage the completion of systematic reviews of research in the medical field and ensure that the results are readily accessible to enable practitioners to make evidence-based decisions. It was later recognised that systematic reviews may be a useful tool to use in other applied areas of study. Consequently, the Campbell Collaboration was established in 2000 to promote systematic reviews on the effects of social, educational, and behavioural interventions. Within the Campbell Collaboration, the Crime and Justice group has been set up to investigate the evidence available on the effectiveness of interventions that aim to reduce crime and improve justice.

The present chapter reports on a systematic review of the best available evidence on the effectiveness of interventions designed to support victims of crime with respect to psychological outcomes[1]. After a rigorous peer-review process, the protocol for this review has been accepted by the Campbell Collaboration's Crime and Justice Group

[1] The results of this systematic review were presented at the Third Annual International Campbell Collaboration conference (Marandos, 2003).

and can be found on the Campbell Collaboration website[2]. A systematic review was undertaken in preference to a general literature review, as it would enable both a comprehensive overview and critical appraisal of the literature in this area of study and identify which interventions are effective in psychologically supporting victims of crime.

The present chapter begins by giving a brief overview of victim assistance programmes and the reasons behind conducting a systematic review on this topic. A detailed description of the methodology of the review is provided, followed by a narrative summary of the results. The discussion focuses on the overall conclusions that can be drawn from the available evidence, a methodological critique of the studies and recommendations for further research. The chapter concludes with some potential limitations of the present systematic review.

2.1.1 Victim assistance programmes

Victim assistance programmes were set up in the 1980s in an attempt to alleviate the effects of criminal victimisation but in many cases these were implemented without prior research into the actual needs of victims of crime (Shapland, 1986). Victim assistance programmes are, therefore, varied in their nature and intensity. A common type of intervention offered to victims of crime is crisis intervention or supportive counselling which typically involves a session with a counsellor or trained volunteer. This approach has been widely adopted in the UK, a prime example being Victim Support, a large voluntary organisation that has set up schemes to support victims of crime nationally (B. Williams, 1999). Interventions may also be offered to victims of crime within the criminal justice system and can take the form of visits by police officers (e.g., Winkel & Vrij, 1993) or support provided in court to witnesses (e.g., the Witness Service in the UK). Furthermore, the Probation Service in the UK provides information to victims of serious sexual and violent offences about the offenders' sentence and subsequent release arrangements if their offender has been sentenced to 12 months or more in prison (B. Williams, 1999).

Maguire and Corbett (1987) drew attention to the lack of research into the effectiveness of interventions that are offered to victims of crime in reducing psychological

[2] http://www.campbellcollaboration.org/doc-pdf/supportvictimsprot.pdf

symptoms. They carried out a small-scale study to find out whether Victim Support in the UK made a difference to victim recovery. They compared a group of 26 victims who had been visited by a Victim Support volunteer to a matched control group of victims who had not received this service. No statistically significant differences were found between the two groups on a variety of self-report measures. However, some consistent patterns emerged which indicated that a greater number of victims in the experimental group than in the control group were coping better at follow-up.

R. F. Cook et al. (1987) compared victims that had been assigned to a victim and/or witness assistance programme to a sample of victims who did not receive this service. Although the former group of victims reported that taking part in the programme had helped them, no statistically significant differences were found between the two groups on measures of fear, anxiety, stress, and adjustment that were administered one month postcrime and again four to six months later. The authors noted, however, that the experimental and control groups were not strictly comparable because referrals to the intervention group were often made on the basis of need. Davis (1987), on the other hand, randomly assigned a sample of 249 victims to either a crisis intervention with supportive counselling, a crisis intervention with cognitive restructuring, material assistance, or a control group that received no treatment. The victims were assessed three months later but, again, no differences were revealed between the four groups on a range of psychological symptoms including depression, anxiety, avoidance, intrusion, and fear of crime.

Moving away from the crisis intervention approach, researchers in the United States have developed a number of cognitive-behavioural treatment interventions specifically for use with victims of crime. These are based on cognitive-behavioural theory (see Section 1.2.2 in Chapter 1 of this thesis for a discussion of behavioural and cognitive theory in relation to the psychological symptoms demonstrated by victims of crime) and are delivered according to a structured protocol, usually at least three months after the crime has occurred. One example of a cognitive-behavioural treatment for victims of crime is cognitive processing therapy (Resick, Nishith, Weaver, Astin & Feuer, 2002). This treatment involves structured exposure to the traumatic memory of the crime through talking or writing about the incident in detail, as well as training in anxiety management techniques.

Davis and Henley (1990) reviewed the literature on victims of crime and reported that studies evaluating victim interventions had started emerging in the literature. However, they pointed out that although the most common programmes offered to victims take a crisis intervention approach, most effectiveness studies in this area had evaluated cognitive-behavioural treatment especially for rape victims. For example, a recent study by Foa, Hearst-Ikeda, and Perry (1995) examined the efficacy of a brief cognitive-behavioural programme in reducing PTSD and depression in female victims of sexual or nonsexual assault. The 10 victims that took part in the programme showed statistically significant reductions in some PTSD symptoms and depression compared to a matched group of female victims that did not receive the treatment. This suggests that cognitive-behavioural treatment programmes are effective in reducing adverse psychological symptoms in victims of rape. The sample size, however, was small and limited to female victims of specific crimes; any positive effect introduced by the intervention may, therefore, not be applicable to the wider population of crime victims.

The results of the above studies provide evidence for and against the effectiveness of interventions delivered to victims of crime. Victim services involve expenditure on the part of governments and individuals and, therefore, the efficacy of these services in alleviating the impact of criminal victimisation needs to be known if funding is to be sustained (Maguire, 1991). Furthermore, it is important that people who need support after suffering a crime are offered a service that has been shown to be helpful. To quote from the final report of the American Psychological Association's Task Force on the Victims of Crime and Violence (1984): "Both those who seek help and those who pay for services deserve interventions for which the efficacy is known or is under systematic study" (p. 100). It has already been mentioned that evaluations of victim services and treatment programmes have been appearing in the literature since at least the late 1980s. The next step is to identify these evaluations and synthesize the evidence to date on the effectiveness of interventions delivered to victims of crime.

Systematic reviews in the area of criminal victimisation are currently underway. Four such review titles have been registered with the Campbell Collaboration[3]. However, these are either focusing on specific types of crimes such as domestic violence and child sexual abuse (Feder, Mackenzie & Wilson, 2000; MacDonald, Ramchandani, & Higgins, n.d.) or specific types of interventions such as restorative justice (Sherman &

[3] http://www.campbellcollaboration.org/library.html

Strang, 2000) and repeat victimisation programmes (Farrell & Webster, 2000). Furthermore, the Wider Public Health Report (Contributors to the Cochrane Collaboration and the Campbell Collaboration, 2000) cites further reviews of interventions for child abuse and neglect. However, these reviews do not look at the effectiveness of programmes delivered to victims of other types of crimes, such as burglary, assault, sexual assault and rape. The present systematic review proposes to address this gap in the research literature. However, to avoid duplication of the systematic reviews mentioned above, the present review will not include studies that evaluate interventions that exclusively target domestic violence, child sexual or physical abuse, and child neglect victims. Furthermore, evaluations of interventions that focus on restorative justice or repeat victimisation will also be excluded. In summary, the purpose of this systematic review is to find out what interventions have been shown to help victims of crime recover from the negative psychological correlates of criminal victimisation. This will include but not be limited to, victims of burglary, robbery, sexual or nonsexual assault, and rape.

2.1.2 Objectives of the systematic review

This systematic review had the following objectives:

1. To present the evidence to date on 'what works' in reducing the negative psychological (emotional, cognitive, or behavioural) correlates of crime among victims.
2. To assess the scientific rigour of the studies included in the review.
3. To identify gaps in this research area and make recommendations for further research.

2.2 METHOD

2.2.1 Criteria for inclusion and exclusion of studies in the review

Only studies that satisfied all of the inclusion criteria and none of the exclusion criteria were included in this review. The process of study selection is summarised in Figure 2.1.

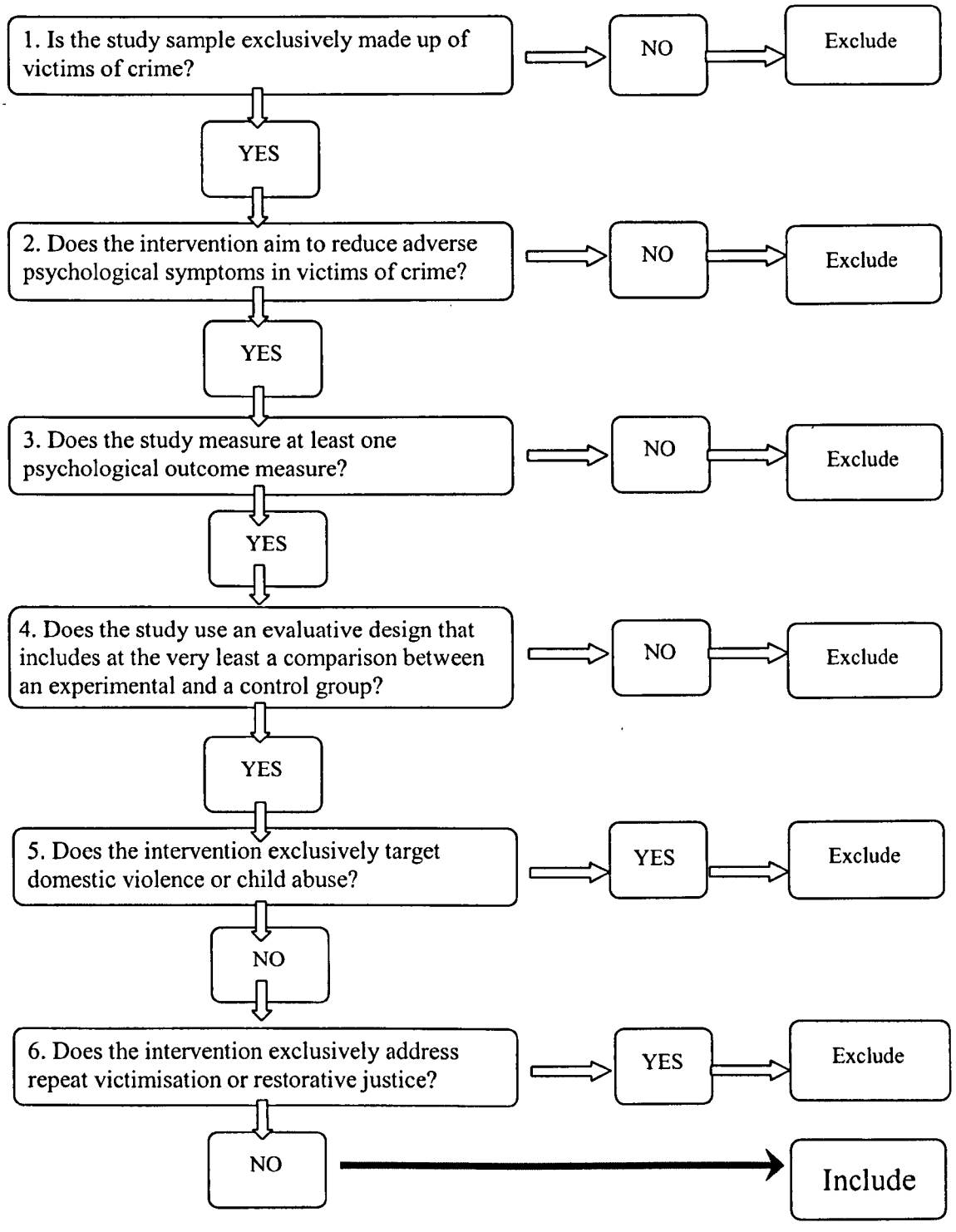

Figure 2.1 Criteria for Including Studies in the Systematic Review

The titles and, where available, the abstracts of references identified through the searches were scanned for relevance using the inclusion and exclusion criteria. A study was considered eligible for inclusion if the answer to questions one to four was positive

(i.e., yes) and the answer to questions five to six was negative (i.e., no). At this stage, the full report of any study that was judged to be potentially relevant to the review was obtained. The full reports of these studies were then re-assessed for relevance. It should be noted that due to lack of resources a single reviewer conducted most of the study selection process. If there were doubts about the inclusion or exclusion of a study, a second reviewer was consulted. A more detailed description of the inclusion and exclusion criteria is presented in the following sections.

2.2.1.1 Types of participants

Studies involving direct victims of crime regardless of gender, age, or severity of crime were eligible for inclusion in the present review. Within the context of this systematic review, a direct victim of crime was defined as anyone who has suffered a crime against their person or property.

2.2.1.2 Types of interventions

Interventions were considered regardless of their duration and intensity. The interventions examined by this review aimed to help victims recover from the negative psychological (emotional, cognitive, or behavioural) correlates of a criminal victimisation experience. When the aim of a study was not clear it was defined by the outcome measures the authors had used.

As mentioned in the introduction to this chapter, interventions focusing on restorative justice and repeat victimisation as well as interventions specially designed to support victims of domestic violence, child sexual or physical abuse and child neglect were excluded from this review. If a study included victims of the crimes mentioned above but also victims of other types of crimes, the study was included in the review. Studies that included victims of general trauma in their samples and were, therefore, not examining the effectiveness of interventions exclusively in victims of crime were excluded. This is because an intervention may have a differential effect, for example, on victims of accidents relative to victims of crime (see for example, Tarrier, Sommerfield, Pilgrim, & Humphreys, 1999).

2.2.1.3 Types of outcome measures

For a study to be included, it had to measure at least one psychological outcome that was relevant to the victims who had received the intervention. As there is no consensus regarding the specific psychological outcomes against which the effectiveness of supportive programmes for crime victims should be measured, all psychological outcomes (i.e., all outcomes relevant to the recovery of victims from the emotional, cognitive, and behavioural effects of criminal victimisation) were considered at this stage. Outcome measures commonly used in this field of study include the Beck Depression Inventory (Beck, Ward, Mendelson, Mock & Erbaugh, 1961), the State-Trait Anxiety Inventory (Spielberger, 1983), and the PTSD Symptom Scale – Self-Report (Foa, Riggs, Dancu & Rothbaum, 1993).

2.2.1.4 Types of studies

Only studies using an evaluative design that included *at the very least* a comparison between a control and an experimental group (i.e., a group that receives an intervention and a group that either receives no intervention or a placebo intervention) were considered for inclusion.

2.2.2 Search strategy for identification of relevant studies

Both published and unpublished research studies were considered eligible for inclusion in this review. Attempts were made not to confine the review to studies written in the English language.

2.2.2.1 Search terms

A combination of search terms was used to search the electronic databases and research registers. The search strategy was developed with the assistance of an experienced librarian at the University of York. The following search terms as well as related terms were used in appropriate combinations: intervention, programme, treatment, service, outreach, counselling, protection, information, effectiveness, efficiency, assessment, evaluation, appraisal, review, analysis, experiment, support, help, assist, coping, crime,

offender, victim, sufferer, injured party. The search strategy was adapted for use in different databases according to the classification system of each database. When the format of a particular database did not permit use of this search strategy, a broader search was carried out (e.g., by combining fewer categories of search terms).

2.2.2.2 Years searched

No limits were placed with regard to year of publication when searching the electronic databases. When searching the reference lists of primary records, only studies published from 1980 onwards were retrieved.

2.2.2.3 Resources searched

1. *Electronic Databases:* PsychINFO, Criminal Justice Abstracts, Criminal Justice Periodicals Index, Social Sciences Citation Index (SSCI), Science Citation Index (SCI), Applied Social Sciences Indexes and Abstracts (ASSIA), Public Affairs Information Service International (PAIS), MEDLINE, CAREDATA, PILOTS (traumatic stress database), Science Direct, Sociological Abstracts, Dissertation Abstracts, Database of Abstracts of Reviews of Efectiveness (DARE), Clinical Evidence, Cinahl.
2. *Research Registers:* Social, Psychological, Educational and Criminological Trials Register (SPECTR); National Research Register (research in progress); Victimology Research database and the Victim Services and Victimisation Prevention database (maintained on the International Victimology website).
3. *Reference Lists:* The reference lists of primary studies and reviews identified via the electronic databases that satisfied the inclusion criteria were scanned for relevance to the systematic review.
4. *Researchers:* Academics working in the field of victims of crime were contacted to provide information on unpublished or ongoing research. In addition to this, a request for information on relevant research was published in the British Psychological Society's official monthly publication, the Psychologist, in January 2003. Furthermore, information on the review and the type of studies that were to

be included was posted on the Victimology Research Database of the International Victimology website[4].

5. *Other Sources:* System for Information on Grey Literature in Europe (SIGLE); Victim Support, and other relevant organisations; The Open Government web site, which contains the full texts of all government publications, including Home Office Publications; The Victims of Crime Publications of the National Criminal Justice Reference Service.

On completion of the database and other searches, the references were imported into the reference manager Endnote and assessed for relevance to the present systematic review.

2.2.3 Description of methods used in the component studies

The studies included in the review employed an intervention versus comparison group research design with measurements taken either at posttreatment only, both at pretreatment and posttreatment, or at pretreatment, posttreatment and further follow-up points. The comparison group included either victims who received no intervention, victims who were on a waiting list and received an intervention after a specified amount of time, or victims who received a placebo intervention, which is thought not to have the desired effect. Some studies compared multiple interventions to one control group.

The following study designs were included in the review: randomised controlled trials (RCTs), quasi-experimental studies, and cohort studies. In a RCT, participants are randomly allocated to the intervention and control groups. The important feature of RCTs is the randomisation process, which is thought to reduce bias "because both known and unknown determinants of outcome are on average evenly distributed between intervention and control groups" (Khan, ter Riet, Popay, Nixon & Kleijnen, 2001, p. 5). Quasi-experimental studies differ from RCTs only in that the allocation of participants to groups is not randomised. Instead, it is under the control of the researcher who could unintentionally introduce bias in the selection of the participants that form the intervention group and the participants that form the control group. Finally, a cohort study includes a comparison between naturally occurring groups, for example, victims of crime who have received an intervention and victims of crime who have not (Khan et al., 2001).

[4] http://www.victimology.nl

The effectiveness of the interventions under evaluation was judged in this systematic review by comparing the intervention group with the control group on the outcome measures administered at posttreatment and follow-up. Within-group differences from pretreatment to posttreatment were not reported, as these are not a good indication of the impact of interventions. This is because participants may change from pretreatment to posttreatment for reasons other than taking part in a specific treatment programme. Changes between pretreatment and posttreatment may instead reflect changes with time that would have taken place regardless of the treatment programme, events other than the treatment which occur in the participants' lives and changes that result from the administration of the outcome measures at pretreatment (Mitchell & Jolley, 2001).

2.2.4 Details of study coding categories

2.2.4.1 Data extraction

Two reviewers independently extracted information from the selected studies using a pre-specified data extraction sheet (see Appendix 2.1). When information required by the data extraction sheet was not reported, attempts were made to contact the authors directly. When this was not possible, the reviewers noted that the information had not been reported. When the information extracted by the two reviewers was in conflict, the two reviewers discussed the discrepant information with reference to the written account of the study. A decision was made after evidence had been located in the report of the study that satisfied both reviewers. When agreement was reached, the data were transferred into appropriate tables.

2.2.4.2 Quality assessment checklists and procedures

Two reviewers independently assessed the methodological quality of the selected studies using a specially designed quality assessment checklist that included information on the possible biases that may be present within study designs. Clarke and Oxman (2001) acknowledged that "None of the currently available scales for measuring the validity or 'quality' of trials can be recommended without reservation" (Section 6.7.2). Furthermore, Khan et al. (2001) proposed that reviewers develop a quality assessment instrument that is specific to the topic area under review. After defining "the quality construct" and "the purpose of quality assessment" (p. 8), it is suggested

that reviewers select a relevant generic quality assessment tool and adjust it according to the biases that are pertinent to the specific topic area under review. This method was employed to construct the quality assessment checklist used in the present review.

The purpose of the quality assessment was to examine the internal and construct validity of the study methodology used in the included studies. Mitchell and Jolley (2001) define internal validity as the "the degree to which the study demonstrates that the treatment caused a change in behaviour" (p. 171) and construct validity as "the degree to which the study measures and manipulates the underlying psychological elements the researcher claims to be measuring and manipulating" (p. 23). After defining the purpose of the quality assessment in this review, quality assessment criteria from the following sources were considered for inclusion in the quality assessment checklist: Khan et al. (2001); Greenhalgh (2001); Clarke and Oxman (2001); Troia (1999); Sherman et al. (1997); Verhagen et al. (1998), and Foa and Meadows (1997). After looking at all the available literature, it was decided that there were six main ways of minimising bias in the type of intervention studies included in this review. If a study has a low risk of bias we can be more confident that the study is internally valid. If, on the other hand, the risk of bias is high, the results obtained may "depart systematically from the 'true' results" (Khan et al., 2001, Section 2.5.2). The full quality assessment checklist can be found in Appendix 2.2 but the main criteria for a study that has a low risk of bias are outlined below:

1. The intervention and control groups were similar on demographic characteristics and pretreatment symptoms.
2. Attrition from the original sample was fully reported and the potential effects of attrition on the results were assessed and, if necessarily, controlled for statistically.
3. If the control group received a placebo as opposed to no intervention, potential bias due to differences in the delivery of the intervention and the placebo conditions were controlled for.
4. Evidence was provided that the intervention deliverers had adhered to the intervention or placebo protocols.
5. The outcome measures were shown to be valid and reliable.
6. The outcome assessors were not made aware of the condition the participants they were assessing had been allocated to.

The quality assessment also addressed the external validity of the results obtained by the included studies. Mitchell and Jolley (2001) define external validity as "the degree to which the results could be generalized to different participants, settings or times" (p. 26). Mitchell and Jolley (2001) advised that conducting a study on a "large, random sample of participants" (p. 27) would increase the applicability to the population of interest. With regards to generalising results to other settings, it is important to demonstrate that a result obtained in a controlled academic setting, for example, may be obtained in a more realistic setting. The discussion of the external validity of the studies has, therefore, focused on the inclusion and exclusion criteria used for the selection of participants, the sample size, and the setting in which the interventions were delivered.

As with the data extraction, the quality assessment of the studies was necessarily limited to what was reported in the written accounts of the research studies, although attempts were made to obtain further information from the authors if necessary. When there was disagreement between the two reviewers with respect to the quality assessment of a study, both reviewers discussed their conflicting views with reference to the full report of each study. A decision was made after evidence had been located in the paper that satisfied both reviewers. Information on both the internal and external validity of the studies has been taken into account in the discussion of the results of each study and the research and practice recommendations that have resulted from this systematic review.

2.3 RESULTS

The data collected from the data extraction and quality assessment were summarised in appropriate tables and narrative form.

2.3.1 Summary of included studies

Over 2,000 references were retrieved through the searches. After screening the titles and abstracts, 126 studies were identified as possibly relevant to the review. Further references were retrieved from the reference lists of these studies. After retrieving the full copies of these references, the two reviewers agreed that 20 studies met all of the inclusion criteria and none of the exclusion criteria and were, therefore, included in the review.

The primary aim of the majority of the included studies was to help victims recover from a criminal victimisation experience. Other aims included increasing the use of crime prevention measures and satisfaction with the criminal justice system.
The majority of the included studies (13) were carried out in the USA. Three studies were carried out in the Netherlands, two studies in the UK, one study in France and one study in Spain. Four research groups accounted for a large proportion of the included studies.

The included studies evaluated interventions targeting the effects of a range of crimes, namely sexual and nonsexual assault, childhood sexual abuse, domestic assault, attempted homicide, rape, robbery, theft, and burglary. The studies that included victims of domestic assault and child sexual abuse did not exclusively target these crimes, as the interventions under investigation were offered to victims of other crimes as well.

Eight studies targeted only victims of sexual offences while the rest included victims of a mixture of different crimes. Nine studies included only female victims of crime in their evaluations. The remaining studies either included a mixed gender sample or did not specify the gender of the sample.

The effectiveness of the interventions was judged by looking at whether there were any statistically significant differences between the intervention and control groups at posttreatment and follow-up. A wide range of outcome measures were used. Most of the studies used published scales, questionnaires, or interviews. A number of authors designed measures specifically for the purposes of their evaluations. However, they did not always indicate the method of construction of these measures or demonstrate their validity and reliability. The outcome measures most frequently used across the included studies were the Beck Depression Inventory (Beck et al., 1961), the Impact of Event Scale (Horowitz et al., 1979), the State-Trait Anxiety Inventory (Spielberger, 1983), and the PTSD Symptom Scale- Self-report or Interview (Foa et al., 1993).

There was great variability across the included studies with regards to the nature and intensity of the interventions, the qualifications of the people who delivered the interventions, the outcome measures, and the methodological quality. Half of the

studies examined the effectiveness of relatively intensive interventions, which comprised several structured sessions. The other half of the studies investigated the effectiveness of short-term interventions, which generally involved one, relatively unstructured, session. The studies of intensive interventions and the studies of short-term interventions were summarised separately in order to facilitate valid comparisons across studies.

2.3.2 Intensive interventions

2.3.2.1 Description of studies

Ten of the included studies evaluated intensive interventions, that is, interventions consisting of more than two sessions of a structured nature. Eight of the studies were carried out in the USA, one in France and one in Spain. A detailed summary of the interventions evaluated by the studies in this subgroup is presented in Table 2.1.

The specific treatments evaluated include gradual self-exposure with cognitive re-structuring (Echeburua, Corral, Zubizarreta, & Sarasua, 1997), Stress Inoculation Training (Foa, Rothbaum, Rigss, & Murdock, 1991; Foa et al., 1999; Resick, Jordan, Girelli, Hutter, & Marhoefer-Dvorak, 1988), Prolonged Exposure (Foa et al., 1991; Foa et al., 1999; Resick et al., 2002), Cognitive Processing Therapy (Resick & Schnicke, 1992; Resick et al., 2002), a brief cognitive-behavioural programme (Foa et al., 1995; Andre, Lelord, Legeron, Reignier & Delattre, 1997), a psycho-educational intervention (Anderson & Frank, 1991) and Eye Movement Desensitization and Reprocessing (Rothbaum, 1997).

The interventions examined in this subgroup of studies were based on behavioural and cognitive-behavioural treatment techniques, which have been adapted for use with victims of crime. For example, modified versions of Meichenbaum's (1974) Stress Inoculation Training program (e.g., Foa et al., 1999) have been administered to victims of crime and consist of training in anxiety management skills, such as problem solving and thought stopping. Prolonged Exposure treatment programmes for victims of crime (e.g., Foa et al., 1999) incorporate stages of imaginal exposure to the memory of the traumatic event, either through talking or writing about the event, and real life exposure to safe but anxiety provoking situations.

Table 2.1 *Information on the Nature and Delivery of the Intensive Interventions*

First author, Year	Type of intervention(s)	Focus of intervention	Setting	Delivery	Duration
Anderson, 1991	Psycho-educational intervention	Concerns of recent rape victims	University of Pittsburgh, USA	Counsellors; no information on qualifications or training.	Four sessions
Andre, 1997	Cognitive-behavioural intervention	Reduction of short- and long-term impact of violence against the person	Transport company (RATP), France	Psychiatrists; no information on special training, detailed instruction manual provided.	One to six sessions (45-60 minutes); M = 2.3 sessions; 1 per week
Echeburua, 1997	Gradual self-exposure with cognitive restructuring	Treatment of chronic PTSD in victims of sexual aggression	Psychological Counselling Centres for Women of the Basque County, Spain	An experienced clinical psychologist (one of the authors); no information on special training	Six sessions; total of 7 hours in length; 1 per week
Foa, 1991	1. Stress Inoculation Training (SIT) 2. Prolonged Exposure (PE)	Reduction of PTSD	Medical college of Pennsylvania, USA	Six qualified female therapists hired specifically for the project; training was provided	Nine 90-minute sessions; 1 per week
Foa, 1995	Brief cognitive-behavioural prevention program.	Arrest the development of PTSD.	Centre for Treatment and Study of Anxiety, Medical College of Pennsylvania, USA.	One of the authors but qualifications not reported; supervised by the first author.	Four 2-hour sessions; 1 per week.
Foa, 1999	1. Prolonged Exposure (PE). 2. Stress Inoculation Training	Reduction of PTSD.	Centre for Treatment and Study of Anxiety,	Female clinical psychologist; received	Two 120-minute sessions plus seven

Table 2.1 (continued)

First author, Year	Type of intervention(s)	Focus of intervention	Setting	Delivery	Duration
	(SIT). 3. Combined Treatment (PE-SIT).		Medical College of Pennsylvania, USA.	training in using manuals that specified precise treatment guidelines.	90-minute sessions; 2 per week.
Resick, 1988	1. Stress Inoculation (SI). 2. Assertion Training (AT). 3. Supportive Psychotherapy & information (SP). [Group treatments]	Improvement of long-term reactions of rape victims.	University of Missouri, USA.	Primary therapist: Clinical psychologist; co-therapist: clinical psychologist or trained clinical graduate student.	Six 2-hour sessions.
Resick, 1992	Cognitive Processing Therapy [Group treatment].	Treatment of chronic, rape-induced PTSD and depression.	University of Missouri, USA.	Main therapists: the two authors; Co-therapists: Three female clinical psychology graduate students.	Twelve 90-min sessions; 1 per week.
Resick, 2002	1. Cognitive Processing Therapy (CPT). 2. Prolonged Exposure (PE).	Treatment of PTSD.	University of Missouri, USA.	Eight women with doctorates in clinical or counselling psychology or a background in cognitive-behavioural psychology.	CPT: Ten 60-min & two 90-min sessions; PE: One 60-min & eight 90-min sessions; 2 per week.
Rothbaum, 1997	Eye-movement desensitisation and reprocessing (EMDR).	Treatment of PTSD.	Emory University, USA.	The author who received training in the delivery of EMDR.	One assessment session & three 90-minute sessions of EMDR; 1 per week.

These treatment programmes are based on the principles of systematic desensitisation (Wolpe, 1958), which involves graded exposure to feared situations. Cognitive restructuring has also been included in treatment programmes for victims of crime (e.g., Resick et al., 2002) in order to challenge negative thought patterns, which are assumed to be maintaining maladaptive behaviours and adverse emotions (Davison & Neale, 1998). Beck's cognitive therapy of depression employed cognitive restructuring techniques (Beck, Rush, Shaw, & Emery, 1979). Eye Movement Desensitization and Reprocessing (EMDR) also involves the use of cognitive techniques, such as prolonged exposure to the traumatic memory and cognitive restructuring, but during the treatment sessions the patient follows the therapist's finger, which is moving back and forth (Rothbaum, 1997).

The interventions evaluated by this subgroup of studies were generally very focused, with the majority specifically designed to reduce PTSD. The interventions were delivered by clinical psychologists or other qualified therapists; one exception was the intervention examined by Anderson and Frank (1991), which was delivered by counsellors whose qualifications and training were not specified. Furthermore, the majority of the interventions were intensive. The duration of the entire treatment plans ranged from a minimum of 2.3 sessions (average number of sessions attended by the participants in the study by Andre et al., 1997) to a maximum of twelve sessions (Resick & Schnicke, 1992). Individual sessions lasted from 45 minutes (e.g., Andre et al., 1997) to two hours (e.g., Foa et al., 1995).

The participants in these studies were victims of assault, sexual assault, and rape. The majority of studies (seven out of ten) focused solely on female victims of sexual offences. Nine out of the ten studies included only female crime victims in their study sample, while Andre et al. (1997) did not state the gender of their participants. Generally, the sample sizes for each condition included in the study were small. These ranged from 7 participants (Resick et al, 1988) to a maximum of 69 participants (Anderson & Frank, 1991). Participants in the control groups received no intervention (e.g., Foa et al., 1995; Resick et al., 1988), a placebo intervention (e.g., Echeburua et al., 1997), or standard treatment (e.g., Andre et al., 1997). Further information on the samples included in the studies of intensive interventions is displayed in Table 2.2.

Table 2.2 *Characteristics of the Samples Included in the Studies of Intensive Interventions*

First author, Year	Type of crime	Sample size, gender and mean age (*SD*)	Time since victimisation	Recruitment	Eligibility Criteria
Anderson, 1991.	Rape.	*N* = 132: I = 69, C = 63; 100% female; 25.4 years (+/- 9.0).	Not reported.	Referrals from the Allegheny Centre for Victims of Violent Crime or Pittsburgh Action against Rape between September 1978 and October 1988.	Recent rape victims; contact with rape crisis centres through which referrals were made.
Andre, 1997.	Violence	*N* = 132: I = 65, C = 67; gender n/s; 35.2 years.	The pre-intervention assessment took place on average 14 days after the victimisation.	All bus drivers of a French urban transport company who had been attacked during the five-month period from October 1993-March 1994 were invited to participate.	Bus drivers of the French urban transport company; attacked during the five-month period from October 1993 to March 1994; agreed to participate in the research.
Echeburua, 1997.	Sexual aggression (45% childhood sexual abuse, 55% rape in adulthood)	*N* = 20: I = 10, C = 10; 100% female; 20.0 years (7.09).	Victims of sexual abuse in childhood: *M* = 114 months, range = 12-240 months Victims of rape	Victims of sexual aggression seeking treatment at the Counselling Centres for Women of the Basque County in Spain from April to December 1993.	Women aged over 16; experience of some form of sexual aggression; current diagnosis of PTSD; the victimisation had occurred at least 3 months ago.

Table 2.2 (continued)

First author, Year	Type of crime	Sample size, gender and mean age (*SD*)	Time since victimisation	Recruitment	Eligibility Criteria
			in adulthood: *M* = 39 months, range = 6-204 months.		
Foa, 1991.	Rape	*N* = 45 (completed treatment): SIT = 14, PE= 10, SC = 11, C = 10; 100% female; 31.8 years (8.2).	3 months-12 years, *M* = 6.2 years, *SD* = 6.7 years.	Referrals from local professionals and victim assistance agencies, recruitment by local newspaper advertisements and patients from an assessment study on responses to rape.	Female rape victims; diagnosis of PTSD; rape occurred at least three months before participation in the study; absence of current or previous diagnosis of organic mental disorder, schizophrenia or paranoid disorders, severe depression requiring immediate psychiatric treatment, bipolar depression or depression with delusions, hallucinations or bizarre behaviour; absence of current alcohol or drug abuse; offender not spouse or family member; literacy in English.
Foa, 1995.	Sexual assault (50%), Non-sexual assault (50%)	*N* = 20: I = 10, C= 10; 100% female; I: 31.70 years (11.48); C: 31.30 years (8.49)	I: *M* = 15.0 days (*SD* = 19.15) C: *M* = 9.40 days (*SD* = 3.13)	Participants were referred to the Centre for Treatment and Study of Anxiety at the Medical College of Pennsylvania by local police officers, victims' advocate counsellors and hospital	Recent victim of sexual or non-sexual assault; diagnosis of PTSD; literacy in English; aged between16 to 65 years; willingness to participate and sign consent form; absence of current diagnosis of organic mental disorder, schizophrenia, bipolar disorder, depression with psychotic features, substance dependence, or delusional disorder; serious suicidal ideation;

Table 2.2 (continued)

First author, Year	Type of crime	Sample size, gender and mean age (*SD*)	Time since victimisation	Recruitment	Eligibility Criteria
				emergency personnel.	offender not man with whom the victim maintained an intimate or live-in relationship.
Foa, 1999.	Rape or attempted rape (72 %), Aggravated assault or assault with a weapon (28%).	*N* = 96: PE = 23, SIT = 19, PE-SIT = 22, C = 15; 100% female; 34.9 years (10.6).	Not reported	Not reported	PTSD primary diagnosis; index assault occurred after the age of 16; absence of current schizophrenia, bipolar disorder, organic mental disorder, alcohol or drug dependence, severe suicidal ideation; not in ongoing intimate relationship with assailant.
Resick, 1988.	Rape.	*N* = 37 (completed treatment): SI = 12, AT = 13, SP = 7, C = 13; 100% female; 28.8 years (7.1).	3 months to 34 years post-victimisation.	Responded to media and posted announcements or referrals from victim assistance agencies and were then interviewed about taking part in the study.	Raped at least 3 months previously; never been victims of incest; had no severe competing pathology; reported problems with rape-related fear and anxiety.
Resick, 1992.	Rape.	*N* = 39: I = 19, C = 20; 100% female; 30.6 years (7.3).	*M* = 6.4 years.	Participants were referred from victim assistance agencies and mental health professionals or were self-referrals.	Occurrence of rape at least 3 months before study; reporting of significant PTSD symptoms; not incest victims; absence of severe competing pathology.

Table 2.2 (continued)

First author, Year	Type of crime	Sample size, gender and mean age (*SD*)	Time since victimisation	Recruitment	Eligibility Criteria
Resick, 2002.	Rape.	*N* = 121 (completed treatment): CPT = 41, PE = 40, C = 40; 100% female; 32 years (9.9).	*M* = 8.5 years (*SD* = 8.5 years).	Not reported	Experience of a discrete incident of completed rape in childhood or adulthood; at least 3 months post-trauma; if on medication, stabilized; if history of substance dependence must have been off the substance for at least 6 months; absence of current psychosis, developmental disabilities, suicidal intent, current parasuicidal behaviour, current dependence on drugs or alcohol, illiteracy, current abusive relationship or being stalked.
Rothbaum, 1997	Rape	18 (completed study): I = 10, C = 8; 100% female; I: *M* = = 31.6 years (9.8); C: *M* = 37.5 (11.1).	I: *M* = 62.2 months, *SD* = 53.3. C: *M* = 155.8 months, SD = 106.6 months	Referred by local rape crisis centres and other professionals; self-referrals through local media publicity.	Completed rape; victimisation took place at least 3 months prior to participation in study; diagnosis of PTSD; absence of alcohol or drug dependence; no use of cocaine in the past 60 days.

Note. I = Intervention group; C = Control group; SIT = Stress Inoculation Training; PE = Prolonged Exposure; SC = Supportive Counselling; SI = Stress Inoculation; AT = Assertion Training; SP = Supportive Psychotherapy; CPT = Cognitive Processing Therapy.

2.3.2.2 Methodological quality

All of the quality assessment criteria were satisfied by at least one study, indicating that all the suggested techniques to minimise bias can be feasibly applied to this type of research. None of the studies, however, succeeded in satisfying all of the criteria. A detailed presentation of each study's performance against the quality assessment criteria is presented in Table 2.3. Further information in relation to the study design of each study is presented in Table 2.4.

Most of the authors reported sufficient information to demonstrate the equivalence or partial equivalence of the intervention and control groups on demographic characteristics and pretreatment levels on the outcome measures. Andre et al. (1997) and Resick et al. (1988) did not, however, provide a clear indication of equivalence.

In two studies all of the participants completed the treatment plans (Foa et al., 1995 and Echeburua et al., 1997). Andre et al. (1997) reported that all the participants in the experimental group received at least one session of the intervention under investigation with the average number of sessions attended reaching 2.3 sessions. The remaining studies reported dropouts from treatment ranging from 8.5 % to 36.8% of the sample.

The attrition rates at posttreatment and follow-up assessments were high in most studies, reaching a maximum of 40% at 6 months in the study by Andre et al. (1997). Some studies, however, reported relatively lower attrition rates. For example, Resick and Schnicke (1992) lost approximately 5.3 % of their completer sample at posttreatment while Rothbaum (1997) and Foa et al., (1995) reported attrition rates of 10% at posttreatment and follow-up. Resick et al. (2002) reported an average attrition at posttreatment across measures of 8.2%. A notable exception is the study by Echeburua et al. (1997), which followed up all of the participants in both the intervention and control groups for a year. Considering the high dropout and attrition rates that were generally present, it is noteworthy that the majority of authors did not fully discuss attrition and its implications. Only two studies reported the use of statistical techniques to examine the effects of attrition on the results (Foa et al., 1999 and Resick et al., 2002).

Controls for possible bias due to the characteristics of the person who delivered the intervention versus the control intervention (i.e., placebo or standard treatment) are not necessary for studies that have a control group that does not receive any intervention. Therefore, for four studies this criterion was not applicable (Foa et al., 1995; Resick et al., 1988; Resick & Schnicke, 1992; Rothbaum, 1997). In the Echeburua et al. (1997) study the same person delivered both the intervention and placebo conditions, thus protecting against bias due to deliverer characteristics. Two studies examined possible deliverer effects statistically (Foa, Rothbaum, et al., 1991 and Foa et al., 1999), while the remaining three did not report any controls for this type of possible bias (Anderson & Frank, 1991; Andre et al., 1997; Resick et al., 2002).

Three studies (Foa et al., 1999, Resick et al., 2002 and Rothbaum, 1997) reported the completion of treatment adherence ratings by independent assessors. Two further studies (Foa, Rothbaum, et al., 1991 and Resick et al., 1988) used some other procedure to ensure the faithful implementation of treatment protocols but this relied on judgements made by the authors rather than an independent assessor. The remaining studies did not report using any such controls.

The studies in this subgroup used published self-report measures or interviews to assess the symptom levels demonstrated by intervention and control participants before and after the intervention. Most of the studies reported some information on the psychometric properties of the outcome measures but the information provided generally focused on the reliability of the measures rather than their validity (e.g., concurrent or predictive validity). Furthermore, most of the measures had not been validated extensively in victim populations (e.g., the Beck Depression Inventory, Beck et al., 1961).

Four studies (Foa, Rothbaum, et al., 1991; Foa et al., 1995; Foa et al., 1999; Rothbaum, 1997) reported blinding of the outcome assessors to the group allocation of participants. The remainder did not report the use of this technique.

Table 2.3 *Performance of the Studies of Intensive Interventions against the Quality Assessment Criteria*

First author, Year	Equivalence of intervention and control groups	Control for effects of attrition	Control for possible deliverer-by-condition confounding	Evidence of adherence to intervention/ placebo protocol	Validity and reliability of measures	Blinding of outcome assessors
Anderson, 1991.	Partly Adequate	Inadequate	Inadequate	Inadequate	Inadequate	Inadequate
Andre, 1997.	Not clear	Inadequate	Inadequate	Inadequate	Inadequate	Inadequate
Echeburua, 1997.	Adequate	Adequate	Adequate	Inadequate	Partly Adequate	Inadequate
Foa, 1991.	Partly Adequate	Partly Adequate	Partly Adequate	Partly Adequate	Partly Adequate	Adequate
Foa, 1995.	Partly Adequate	Partly Adequate	n/a	Inadequate	Partly Adequate	Adequate
Foa, 1999.	Adequate	Adequate	Partly Adequate	Adequate	Partly Adequate	Adequate
Resick, 1988.	Not clear	Inadequate	n/a	Partly Adequate	Partly Adequate	Inadequate
Resick, 1992.	Partly Adequate	Partly Adequate	n/a	Inadequate	Partly Adequate	Inadequate
Resick, 2002.	Partly Adequate	Adequate	Inadequate	Adequate	Partly Adequate	Inadequate
Rothbaum, 1997.	Adequate	Partly Adequate	n/a	Adequate	Partly Adequate	Adequate

Note. n/a = not applicable.

The majority of the studies in this subgroup investigated the effectiveness of interventions on samples that were limited to female victims of sexual crimes. Furthermore, most of the studies in this subgroup applied strict criteria to the selection of participants and carried out the evaluations in controlled clinical environments, thus limiting the applicability of the results to specific populations and settings. For example, a number of studies excluded victims of crime with a mental health history (e.g., Resick et al., 2002). Population surveys have shown, however, that there is a high incidence of prior mental illness in victims of crime, the presence of which compounds the psychological effects of criminal victimisation (e.g., Davis et al., 1996). The results of the studies in this subgroup, therefore, cannot be applied with confidence to victims of crime in general.

2.3.2.3 Results

Information on the results of each of the studies in this subgroup is presented in Table 2.4. Seven of the ten evaluations of intensive interventions that were included in this review found some statistically significant differences between the intervention and control groups at posttreatment. The participants who received the cognitive-behavioural intervention in the Echeburua et al. (1997) study, showed a significant improvement in PTSD compared to the participants who received the progressive relaxation training. Similar results were obtained by Foa et al. (1995), who compared victims who received a brief cognitive-behavioural treatment to victims who only completed the assessments. Furthermore, Foa, Rothbaum, et al. (1991) reported a significant decrease in PTSD severity and avoidance symptoms for the stress inoculation group as opposed to the supportive counselling and the waiting list group. Apart from a decrease in PTSD symptoms, Foa et al. (1999) also demonstrated improved outcomes on depression and state anxiety for the victims who received prolonged exposure, stress inoculation training and a combination treatment when compared to the waiting list control group. Moreover, Resick et al. (2002) reported an improvement in symptoms of PTSD and depression for victims who had either received prolonged exposure or cognitive processing treatment as opposed to a 'minimal attention group'. Finally, Rothbaum (1997) reported a significant reduction in PTSD and depression for participants who received EMDR treatment.

Table 2.4 Information on the Study Design, Outcome Measures, and Results of the Studies of Intensive Interventions

First author, Year	Study Design	Type of control group	Assessment points	Outcome measures	Results
Anderson, 1991	RCT	Psychological Support (placebo).	Post-treatment; 3-month follow-up.	1. BDI (Beck et al, 1961). 2. Veronen-Kilpatrick Fear Survey Schedule (Kilpatrick et al., 1979).	No significant differences were found between the intervention and control group on the outcome measures at post-treatment or 3-month follow-up.
Andre, 1997	RCT	Usual medical-social care offered by company.	6 months post-treatment.	French translations of the following measures: 1. The Hospital Anxiety and Depression Scale (HAD; Zigmond & Snaith, 1983). 2. IES (Horowitz et al., 1979). 3. Beck's Sociotropy-Autonomy Scale (SAS; Beck, Epstein, Harrison, & Emery, 1983). 4. Eysenck's Personality Inventory (EPI; H. J. Eysenck & Eysenck, 1964).	The intervention group scored lower than the control group on the intrusion subscale of the Impact of Event Scale at 6 months.
Echeburua, 1997	RCT	Progressive relaxation training (placebo).	Post-treatment; 1, 3, 6, & 12-month follow-up.	1. Structured PTSD interview based on the Scale of Severity of Posttraumatic Stress Disorder Symptoms (Echeburua, Corral, Sarasua, Zubizarreta, Sauca, 1994). 2. Modified Fear Survey (Veronen & Kilpatrick, 1980). 3. STAI (Spielberger et al., 1970). 4. BDI (Beck et al., 1961) 5. Scale of Adaptation (Echeburua & Corral, 1987).	The intervention group scored significantly lower than the control group on the global PTSD scale and the subscales of intrusion, avoidance, and arousal at posttreatment and all the follow-up points (1,3,6, & 12 months). The intervention group scored significantly lower than the control group on the measures of fear, depression and adaptation at the 12-month follow-up.

Table 2.4 (continued)

First author, Year	Study Design	Type of control group	Assessment points	Outcome measures	Results
Foa, 1991	RCT	Wait-list control (WL). Supportive Counselling (SC; placebo).	Post-treatment	1. Assault reaction interview (117 questions assessing PTSD symptoms, lifestyle changes, sexual behaviour, physical and psychiatric problems & legal issues). 2. PTSD severity (interviewers rated severity of PTSD symptoms) 3. Rape Aftermath Symptom Test (RAST; Kilpatrick, 1988). 4. STAI (Spielberger et al., 1970; only state anxiety scale). 5. BDI (Beck et al., 1961).	Participants in the Stress Inoculation Treatment group scored significantly lower on PTSD severity and avoidance symptoms than participants in the Supportive Counselling and the Wait-List control groups. No differences were found at posttreatment between groups on the RAST, STAI, or BDI. No differences were found at follow-up between the Stress Inoculation, Prolonged Exposure, or Supportive Counselling groups on any of the outcome measures (no follow-up data for WL).
Foa, 1995	Quasi-experimental with matched control group.	Assessment Only.	Post-treatment; 5.5 months post-assault.	1. PSS (Foa et al., 1993). 2. BDI (Beck et al., 1961).	At 2 months the intervention group had improved significantly more than the control group on PTSD total symptom severity and the 3 symptom clusters separately. Fewer victims from the intervention group relative to the control group met diagnostic criteria for PTSD. No significant group difference on BDI depression. At 5.5 months the intervention group had improved

Table 2.4 (continued)

First author, Year	Study Design	Type of control group	Assessment points	Outcome measures	Results
					significantly more than the control group on PTSD total, PTSD intrusion, and BDI depression. There was no significant group difference on the prevalence of PTSD diagnosis.
Foa, 1999	RCT.	Wait-list control group.	Post-treatment.	1. PSS-Interview (PSS-I; Foa et al., 1993) 2. Social Adjustment Scale (SAS; Weissman & Paykel, 1974; only the global scale) 3. BDI (Beck et al., 1961) 4. STAI (STAI; Spielberger, 1983; only state anxiety scale)	Prolonged Exposure, Stress Inoculation Treatment, and PE-SIT groups lower than control group on PTSD, depression and state anxiety. Prolonged Exposure group lower than 'PE-SIT' group on state anxiety.
Resick, 1988	Not clear	Wait-list control	I: 1 week post-treatment C: six weeks or more after being put on the waiting list	1. Derogatis Symptom Checklist (SCL-90-R; Derogatis, 1977; depression, anxiety, phobic anxiety, paranoia, & psychoticism scales) 2. Veronen-Kilpatrick Modified Fear Survey (MFS; Veronen & Kilpatrick, 1980; 4 sub-scales – vulnerability, sexual and social evaluation, failure fears) 3. Tenessee Self-Concept Scale (TSCS; Fitts, 1965; overall self- esteem, physical, family and social self-esteem)	No comparisons made between the control group and the intervention groups. No significant differences found between the three intervention groups.

Table 2.4 (continued)

First author, Year	Study Design	Type of control group	Assessment points	Outcome measures	Results
				4. Adult Self-Expression Scale (ASES; Gay, Hollandsworth, & Galassi, 1975) 5. Emotion Thermometer (Obanion & Veronen, 1978; mean intensity and mean frequency of the three fears). 6. IES (Horowitz et al., 1979).	
Resick, 1992	RCT	Wait-list control	Post-treatment	1. Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1977; depression and PTSD [Saunders, Arata, & Kilpatrick, 1990] scales only) [Over the course of this study participants were administered different batteries of tests and the SCL-90-R was the only measure that all the participants completed].	No significant differences between the intervention and control groups on SCL-90 depression or PTSD at posttreatment. A significant Group x Session interaction was accounted for by a greater decrease in SCL-90 depression and PTSD from pretreatment to posttreatment by the intervention group.
Resick, 2002	RCT	Minimal attention condition	Post-treatment 3-month and 9-month follow-up	1. Clinician-Administered PTSD Scale (CAPS; Blake et al., 1990) 2. PSS (Foa et al., 1993) 3. BDI (Beck et al., 1961) 4. Trauma-Related Guilt Inventory (TRGI; Kubany et al., 1996)	Significantly lower PTSD and depression in the Cognitive Processing Therapy and Prolonged Exposure groups relative to the control group. No significant difference in PTSD diagnostic status between the two intervention groups.

Table 2.4 (continued)

First author, Year	Study Design	Type of control group	Assessment points	Outcome measures	Results
Rothbaum, 1997	RCT	Wait-list control	4 weeks post-treatment	1. PSS (Foa et al., 1993) 2. IES (Horowitz et al., 1979) 3. Rape Aftermath Symptom Test (RAST; Kilpatrick, 1988) 4. STAI (Spielberger et al., 1970) 5. BDI (Beck et al., 1961) 6. Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986)	The intervention group scored significantly lower on the PSS, IES and BDI than the control group at posttreatment. No significant differences between the intervention and control groups were found for the RAST, STAI and DES.

Note. RCT = Randomised Controlled Trial; BDI = Beck Depression Inventory; STAI = State-Trait Anxiety Inventory; IES = Impact of Event Scale; PSS = Posttraumatic stress disorder Symptom Scale.

It is worth noting that most of the studies discussed in this section assessed participants on a range of outcome measures and did not find statistically significant differences between the experimental and control groups on all of the outcome measures. For example, Foa, Rothbaum, et al. (1991) found a significant improvement in PTSD symptoms for victims who received stress inoculation treatment relative to victims in the control groups, but there were no differences between groups on depression and anxiety. Two of the studies did not demonstrate any significant differences between the intervention and control groups at posttreatment (Anderson & Frank, 1991; Resick & Schnicke, 1992). Furthermore, Resick et al. (1988) did not report any direct statistical comparisons between the intervention groups and the control group and Andre et al. (1997) only reported outcomes at follow-up.

Most of the studies followed up the intervention groups past the posttreatment assessment but not the participants in the control groups as they were often on waiting lists and went on to receive treatment themselves. Only three studies (Andre et al., 1997; Echeburua et al., 1997; Foa et al., 1995) followed up both the intervention and control groups past the posttreatment assessment point. More specifically, Andre et al. (1997) reported that the intervention group had less intrusion symptoms than the control group six months after receiving the intervention. In the study carried out by Echeburua et al. (1997), the intervention group demonstrated an improvement on PTSD at one, three, six, and 12 months, as well as a positive change on measures of depression, fear and adaptation at the 12 month follow-up. This improvement was over and above the improvement shown by the participants who received a placebo intervention consisting of progressive relaxation training. Foa et al. (1995) also noted benefits for the intervention group at follow-up, who demonstrated a reduction in symptoms of PTSD and depression five and a half months after the assault.

2.3.2.4 Summary

The findings from the studies of intensive victim interventions are promising. The majority of these studies noted an improvement in some of the outcome measures for the intervention group. Three studies did not report a statistically significant improvement for the intervention group over and above the control group. One of these (Resick et al., 1988) did not report the statistical analyses necessary to make a comparison between the intervention and control groups. Anderson and Frank (1991)

compared the intervention group to a placebo condition, which was just as intensive and structured as the active intervention but without the cognitive-behavioural component. Both groups of victims had improved significantly on measures of depression and anxiety at posttreatment and at three months but there were no significant differences between groups at any of the assessment points. It is possible, therefore, that the placebo intervention may have been just as effective in alleviating psychological symptoms as the intervention condition. Finally, in the third study (Resick & Schnicke, 1992) the difference in outcome between the intervention and control groups approached statistical significance, suggesting that the intervention may have had a small effect on the outcome measures; this difference may have reached statistical significance had the sample size been larger. A more recent study by the same lead author (Resick et al., 2002) investigated the effectiveness of the same intervention in a larger sample of crime victims and found a statistically significant effect.

The methodology of studies on the effectiveness of cognitive-behavioural treatment with victims of crime has seen a vast improvement over the years in an applied area of research where controlled studies are extremely difficult to conduct. There is still scope for improvement but researchers are increasingly including controls that attempt to minimise bias, as demonstrated by the two most recent studies (Foa et al., 1999; Resick et al., 2002). One limitation, however, of more controlled studies are the difficulties presented in generalising the results to victims of crime in general and to the kind of settings where interventions may be more commonly delivered.

In conclusion, cognitive-behavioural treatments have been found to be effective in improving adjustment in victims of crime and alleviating psychological symptoms that have been associated with criminal victimisation, including PTSD, depression, anxiety, and fear. However, these results can only be applied with confidence to female victims of sexual offences and, potentially, to female victims of nonsexual assault.

2.3.3 Short-term interventions

2.3.3.1 Description of studies

Ten of the studies included in the review investigated the effectiveness of short-term interventions, that is, interventions that involve, on average, one session that is relatively unstructured. The duration of the intervention is not predetermined and if more than one session is administered this is usually at the discretion of the individual who is delivering the programme. Counsellors delivered half of the interventions and police officers the other half. Five of the studies were carried out in the USA, two in the UK and three in the Netherlands. Table 2.5 includes a more detailed description of the interventions evaluated by the studies in this subgroup.

The interventions evaluated included: immediate crisis intervention and delayed crisis intervention (R. F. Cook et al., 1987), visits by a Victim Support volunteer (Maguire & Corbett, 1987), supportive counselling and cognitive re-structuring (Davis, 1987), an educational 17-minute audio-visual presentation before a forensic rape examination (Resnick, Acierno, Holmes, Kilpatrick, & Jager, 1999), psychological debriefing (Rose, Brewin, Andrews, & Kirk, 1999), and victim contact by police officers (Winkel, 1989, 1991; Winkel & Vrij, 1993; Skogan & Wycoff, 1987; Rosenbaum, 1987). Two of these studies (Davis, 1987 and Resnick et al., 1999) incorporated a cognitive-behavioural component in the intervention.

The aim of the majority of these interventions was to relieve the general impact of crime. The interventions delivered by police officers also aimed to increase satisfaction with the police service and the use of crime prevention measures. Most of the studies in this subgroup did not focus on alleviating specific psychological symptoms. The video presentation examined by Resnick et al. (1999), however, was specifically designed to reduce anxiety during forensic rape examinations and prevent postrape PTSD, panic and anxiety. Rose et al. (1999) focused on the assessment of PTSD and depression to measure the effectiveness of psychological debriefing but the intervention was not specifically designed to reduce these psychological symptoms.

Table 2.5 *Information on the Nature and Delivery of the Short-Term Interventions*

First author, Year	Type of intervention(s) (I)	Focus of intervention	Setting	Delivery	Duration
Cook, 1987.	1. Crisis Intervention Service (CIS). 2. Delayed Service (DS).	To alleviate problems victims may face and provide assistance to the police and prosecution.	Pima County Victim/Witness Program, USA.	Crisis intervention counsellors; not specified for delayed services.	Not stated.
Davis, 1987.	1. Supportive Counselling (SC). 2. Cognitive Re-structuring (CR). 3. Material Assistance (MA).	To help crime victims recover from the emotional effects of crime.	Victim Services Agency, New York, USA.	8 counsellors from the Victim Services Agency who had volunteered for the study; trained in the use of cognitive restructuring by an experienced clinical psychologist.	91% of SC group and 82% of CR group: 1 session.
Maguire, 1987.	Visit by Victim Support volunteer.	To enhance recovery from a victimisation.	Community, UK.	Victim Support volunteers.	Not reported.
Resnick, 1999.	Video presentation prior to forensic rape examination (in addition to standard treatment).	To minimise anxiety during forensic rape exams and prevent post-rape PTSD, panic and anxiety.	Central medical facility, USA.	Not stated for the video presentation; standard service included a brief meeting with a rape crisis counsellor.	17 minutes.
Rose, 1999.	1. Psychological debriefing (PD). 2. Education only (E).	To prevent adverse psychological reactions to criminal victimisation.	Community, UK.	Two of the authors with relevant experience and training.	1 session; PD: 1 hour, E: 30 minutes.

Table 2.5 (continued)

First author, Year	Type of intervention(s) (I)	Focus of intervention	Setting	Delivery	Duration
Rosenbaum, 1987	Contact with police officers with victim-focused training.	To enable the victim to interpret the offence in the most positive light so that the victim can regain personal control over the environment.	Community, USA.	Police officers who had attended special training.	Not reported.
Skogan, 1987	Police contact over the phone.	To increase victims' satisfaction with the police and the number of positive measures taken to protect their homes from repeat victimisation; to decrease victims' fear of crime.	Community, USA.	Police officers.	1 telephone call.
Winkel, 1989	Police contact programme.	Provision of psychological and practical support.	Community (victim's home), The Netherlands.	Police officers who had attended a 3-day training programme.	1 visit.
Winkel, 1991.	Police visit.	To increase victim satisfaction with the police and willingness to take reasonable preventive measures; to decrease fear.	Community (victim's home), The Netherlands.	Police officers who had attended special training.	1 visit.
Winkel, 1993	Police crisis intervention.	Facilitation of problem- and emotion-focused coping.	Community (victim's home), The Netherlands.	Police officers who had completed a special training programme.	1 visit.

The interventions were delivered by counsellors, trained volunteers, or police officers. Only one of the studies on counselling programmes specified the qualifications and training of the counsellors (Rose et al., 1999). Four out of the five studies on police programmes reported that the police officers received special training. The majority of interventions examined by this subgroup of studies consisted of one session. A small percentage (under 20%) of the participants in Davis (1987) received two or more sessions. Also, R. F. Cook et al. (1987) and Maguire and Corbett (1987) did not specify whether there were any follow-up sessions. The police programmes generally consisted of one phonecall or visit and the duration of these contacts with victims was not reported.

Some of the studies in this subgroup tested relatively large samples of a range of victims. A more detailed description of the samples included in the studies of short-term interventions is included in Table 2.6. Where reported, the sample sizes used for the police interventions ranged from 115 to 485 participants. R. F. Cook et al. (1987) included over 100 victims in each group (i.e., intervention and control groups) while the studies by Davis (1987) and Rose et al. (1999) included about 50 victims in each group. The sample sizes tested by Maguire and Corbett (1987) and Resnick et al. (1999) were more modest. The participants were victims of a mixture of crimes, including snatch theft, robbery, burglary, rape, domestic violence, sexual assault, and nonsexual assault. Three of the police interventions only targeted victims of burglary. Resnick et al. (1999) targeted only female victims of rape. The remaining studies included both male and female victims of crime or did not specify the gender of their sample. The majority of control groups received no intervention except the control group in Resnick et al. (1999), which received standard care. Where reported, the interventions were administered soon after the criminal victimisation experience.

Table 2.6 *Characteristics of the Samples Included in the Studies of Short-Term Interventions*

First author, Year	Type of crime	Sample size, gender and mean age (*SD*)	Time since victimisation	Recruitment	Eligibility Criteria
Cook, 1987.	Sexual assault, Domestic assault, Assault, Robbery, Burglary.	*N* = 323: CIS = 109; DS = 114; C = 100; gender n/s, age n/s.	Within 1 month postcrime; CIS usually provided on scene.	Police officers referred victims to the crisis intervention services.	None stated
Davis, 1987.	Burglary (39%), Robbery (34%), Assault (24%), and Rape (2%).	*N* = 249 (181 completed treatment): SC = 53; CR = 26; MA = 53; C = 49; gender n/s; age n/s.	Not stated.	From police felony complaint records in eight New York precincts.	None stated.
Maguire, 1987.	Burglary, Snatch theft, Assault.	*N* = 52: I = 26; C = 26; gender n/s; age n/s.	Not stated	Participants selected from sample of victims (*N* = 242) who had been interviewed as part of large-scale study on the effects of crime and Victims Support schemes.	Victims of burglary, snatch theft or assault who initially rated themselves 'very much' or 'quite a lot' affected by the offence; had to match a non-VSS-contacted victim fully on several variables.
Resnick, 1999.	Rape 100%.	*N* = 48: I = 15; C = 33; 100 % female; 30.63 years (10.78).	Within 72 hours.	Women presenting for a postrape exam at a central medical facility who were considered able to give informed consent were asked to participate in the study.	Aged 18 years or more; victims of forced vaginal, oral or anal penetration within the previous 72 hours who had reported the rape to the police and had consented to a forensic post-rape medical examination;

Table 2.6 (continued)

First author, Year	Type of crime	Sample size, gender and mean age (*SD*)	Time since victimisation	Recruitment	Eligibility Criteria
					absence of severe injury, mental retardation, acute psychosis, extreme distress or agitation, inebriation, or exhaustion.
Rose, 1999.	Actual physical assault (94%) Threatened physical assault (4%) Actual/ threatened sexual assault (4%).	*N* = 157: PD = 54; E = 52; C = 51; 25% female; 35 years (13), range = 18-76.	Within 1 month postcrime; *M* = 21 days, *SD* = 5.6, range = 9-31.	Local police and medical services assisted with the identification of potential participants who were then sent a letter asking them if they would like to participate in "a study of attitudes to crime and punishment"; the treatment component of the study was not mentioned at this stage.	Over 18 years; victims of a violent crime including actual or attempted physical or sexual assault or bag snatch; assault by nonmember of household; willing to talk about their traumatic experience; victimisation within past month; lived within study area.
Rosenbaum, 1987.	Assault, Robbery, Burglary.	*N* not reported; 54.7% female; Median = 40 years; range = 17-85.	Not stated.	The Detroit Police Department provided the research team with the names and phone numbers of victims who had been in contact with the police officers participating in the study.	Victims of aggravated assault, personal robbery or residential burglary who had been in contact with police officers who were taking part in the study and had received the relevant training; offender was a stranger.

Table 2.6 (continued)

First author, Year	Type of crime	Sample size, gender and mean age (*SD*)	Time since victimisation	Recruitment	Eligibility Criteria
Skogan, 1987.	'Conventional' household crimes.	*N* = 485: I = 235; C = 250; gender n/s; age n/s.	82% within 1 month postcrime.	From police incident reports at a police department in Houston.	Houston residents; aged 13 or over; victims of conventional personal or household crimes; not victims of rape or survivors of murder victims.
Winkel, 1989.	Burglary 100%.	*N* = 115: I = 58; C = 57; 49% female; 48 years.	A few weeks postcrime.	Not clear.	Victims of burglary who had reported their victimisation to the police.
Winkel. 1991	Burglary 100%.	*N* = 250: I = 92; C = 158; 52% female; 46 years.	Not stated	Victims of burglary from 3 municipalities, who had reported the crime to the police in the 18 months preceding the study.	Victims who had reported a burglary in the past 18 months.
Winkel, 1993.	Burglary 100%	*N* = 165: I = 64; C = 101; 60% female; age n/s.	In principle, within half an hour of reporting the crime to the police.	Police personnel randomly asked victims in 2 police force areas whether they wanted to participate in a study on perceptions of crime.	Victims of burglary.

Note. I = Intervention group; C = Control group.

2.3.3.2 Methodological quality

The performance of each of the studies in this group against the quality assessment criteria is presented in more detail in Table 2.7. Further information in relation the study design of each study is presented in Table 2.8.

The studies in this subgroup did not satisfy many of the quality assessment criteria. A notable exception is the study carried out by Rose et al. (1999), a randomised controlled trial, which satisfied all but one of the criteria, either partly or in full. The intervention and control groups were comparable on all variables examined, apart from level of education. Attrition was partly addressed and the issue of possible deliverer confounding was examined statistically. Furthermore, evidence was given, albeit not from an independent party, that the intervention protocol had been adhered to. The outcome measures were all published scales although the information given on their psychometric properties was limited. The outcome assessors, however, appeared to be aware of the group allocation of the participants.

The remaining nine studies offered partial (Davis, 1987; Maguire & Corbett, 1987; Resnick et al., 1999; Winkel & Vrij, 1993) or no evidence regarding the equivalence of the intervention and control groups. Pretreatment equivalence of symptoms could not be established for any of the police studies because the outcome measures were only administered postintervention. Furthermore, attrition was either not discussed at all or, if levels of attrition were reported, statistical controls had not been put into place. Seven of the studies did not require controls for possible deliverer effects because the control group received no intervention. Controls were not put into place against possible confounding due to deliverer characteristics by Resnick et al. (1999) or Winkel and Vrij (1993). Rosenbaum (1987) matched the police officers on sex and race and then randomly allocated them to either the intervention or control group, thus providing some protection against deliverer effects.

Table 2.7 *Performance of the Studies of Short-Term Interventions against the Quality Assessment Criteria*

First Author, Year	Equivalence of intervention and control groups	Control for effects of attrition	Control for possible deliverer-by-condition confounding	Evidence of adherence to intervention/ placebo protocol	Validity and reliability of measures	Blinding of outcome assessors
Cook, 1987	Inadequate	Inadequate	n/a	Inadequate	Inadequate	Inadequate
Davis, 1987	Partly Adequate	Inadequate	Inadequate	Inadequate	Partly Adequate	Inadequate
Maguire, 1987	Partly Adequate	Inadequate	n/a	Inadequate	Inadequate	Inadequate
Resnick, 1999	Inadequate	Inadequate	Inadequate	Inadequate	Partly Adequate	Inadequate
Rose, 1999	Partly Adequate	Partly Adequate	Partly Adequate	Partly Adequate	Partly Adequate	Inadequate
Rosenbaum, 1987	Inadequate	Inadequate	Partly Adequate	Partly Adequate	Inadequate	Inadequate
Skogan, 1987	Inadequate	Inadequate	n/a	Inadequate	Inadequate	Adequate
Winkel, 1989	Inadequate	Inadequate	n/a	Inadequate	Inadequate	Inadequate
Winkel. 1991	Inadequate	Inadequate	n/a	Inadequate	Inadequate	Inadequate
Winkel, 1993	Inadequate	Inadequate	Inadequate	Partly Adequate	Inadequate	Inadequate

Note. n/a = not applicable.

Only two studies provided evidence to indicate adherence to the intervention protocols (Rosenbaum, 1987; Winkel & Vrij, 1993) and only Skogan and Wycoff (1987) reported blinding of the outcome assessors to the group allocation of the participants. Most of the outcome measures used were specifically designed for the studies but the method of their construction was not elaborated upon and, generally, there was not enough information given to judge their validity and reliability. Resnick et al. (1999) used mostly published scales to assess the outcome of their intervention and provided information on the psychometric properties of some, but not all, of the outcome measures used in their study.

Eligibility criteria were not elaborated upon in most of these studies and usually consisted only of a statement specifying the type of crime targeted, thus widening the potential applicability of the results. Conversely, Rose et al. (1999) and Resnick et al. (1999) reported an extensive list of eligibility criteria, which may limit the applicability of their findings to a specific group of victims.

2.3.3.3 Results

The results of the studies in this subgroup are described in more detail in Table 2.8. Follow-up assessments were limited to postintervention only in this subgroup. Maguire and Corbett (1987) did not report any statistical analyses. Davis (1987) and Rose et al. (1999) found no differences between groups. R. F. Cook et al. (1987) only found some differences at the first of the two assessment points but these pointed towards more difficulties experienced by the participants in the intervention group. However, the authors stated that they were later made aware that referrals to services had been made on the basis of need. This is a common problem of studies, which do not randomly allocate participants to the intervention and control groups.

Resnick et al. (1999) reported a decrease in anxiety and subjective distress for the intervention group at the posttreatment assessment, suggesting that prior education through a video presentation can decrease anxiety during a forensic rape examination. It is not clear, though, whether this decrease in anxiety is transient or more long-term. There is not, therefore, enough evidence yet to suggest that this intervention is effective in preventing postrape PTSD, panic and anxiety. The same authors in an extension of their original study are currently investigating this latter hypothesis.

Table 2.8 *Information on the Study Design, Outcome Measures, and Results of the Studies of Short-Term Interventions*

First author, Year	Study Design	Type of control group	Assessment points	Outcome measures	Results
Cook, 1987	Not clear.	No service.	1 month postcrime, 4-6 month follow-up.	An interview consisting of scales measuring fear, anxiety and stress; questions about social/behavioural adjustment; questions about financial costs; questions about views of the victim services program and the criminal justice officials.	Postcrime: Higher anxiety and stress in Crisis Intervention group More difficulties with daily activities in Delayed Service group. Follow-up: No significant group differences.
Davis, 1987	RCT	No interventi on.	3 months post-treatment.	1. Affect Balance Scale (Derogatis, 1975). 2. Impact of Event Scale (Horowitz et al., 1979). 3. Symptom Checklist 90-R (Derogatis, 1977). 4. Fear of crime (specifically developed for this study). 5. Behavioural Adjustment Index (specifically developed for this study).	At 3 months postcrime, no significant differences were found between the four groups on any of the measures of psychological adjustment.
Maguire, 1987	Quasi-experimental with matched control	No contact with Victim	3-6 weeks postcrime.	1. General Health Questionnaire (GHQ-60; Goldberg, 1978). 2. Statements relating to the impact of the crime on the victims, e.g. 'very	No statistical analyses were reported. Some trends towards more improvement of the Intervention group were noted

Table 2.8 (continued)

First author, Year	Study Design	Type of control group	Assessment points	Outcome measures	Results
	group.	Support volunteer.		frightened', 'very angry'.	
Resnick, 1999	Pseudo-random assignment to groups.	Standard treatment.	Post-treatment, 6-week follow-up.	1. Subjective Units of Distress Scale (SUDS; Wolpe, 1973). 2. Beck Anxiety Inventory (BAI; Beck & Steer, 1990; administered post-intervention only) 3. Posttraumatic Symptom Scale-Self-Report (PSS-SR; Foa et al., 1993; administered only at 6-week follow-up)	Average post-exam SUDS and scores on the BAI were significantly lower among participants who watched the video than those who didn't watch it. Follow-up data on the PSS-SR were not available.
Rose, 1999.	RCT.	Assessment Only.	6 & 11-month follow-up.	1. Posttraumatic Symptom Scale-Self-Report (Foa et al., 1993). 2. Impact of Event Scale (Horowitz et al., 1979). 3. Beck Depression Inventory (Beck et al., 1961).	No significant differences were found between groups on either of the outcome measures.
Rosenbaum, 1987.	Quasi-experimental (non-matched control	Contact with police officers who had	Post-treatment (within 2 weeks post-crime).	A telephone survey consisting of approximately 200 items assessing the emotional and physiological impact of victimisation; the victim's social cognition (i.e., their cognitive	The only significant difference between the intervention and the control group was on one of the items assessing fear of crime. Victims in the experimental group were less "concerned about robbery or assault while walking alone in

Table 2.8 (continued)

First author, Year	Study Design	Type of control group	Assessment points	Outcome measures	Results
	group).	not received victim-focused training.		interpretation of the offence); fear and vulnerability; crime prevention awareness and behaviour; response towards the criminal justice system.	neighbourhood at night".
Skogan, 1987.	RCT.	No intervention.	Post-intervention.	Multiple-item scales measuring fear of personal attack; perceived extent of local personal crime; extent of local property crime; satisfaction with police services; neighbourhood satisfaction; preventative behaviours.	No significant differences were found between the intervention and control group on any of the outcome measures.
Winkel, 1989.	RCT.	No intervention.	Post-intervention.	1. Fear of crime (14 items relating to fear inside the home and fear outside the home. 2. Attitudes towards extreme prevention (23 items relating to possible prevention measures inside the home and outside the home).	The intervention group demonstrated more positive attitudes towards extreme preventative measures (e.g., extreme mobilisation indoors) than the control group. This was an unwanted side effect of the intervention.

Table 2.8 (continued)

First author, Year	Study Design	Type of control group	Assessment points	Outcome measures	Results
Winkel. 1991	Quasi-experimental; (nonmatched control group).	No interventi on [C]	Post-intervention	Several short scales to assess satisfaction with police action; attitude towards the police; agreement that burglary an opportunity crime; perceived burglary prevention; perceived violence protection; risk orientation; preventive willingness; fear of crime indoors; fear of crime outdoors; subjective victimisation risk; expected negative impact of victimisation; response generalisation.	The intervention group received increased scores in a positive direction on several of the scales relative to the control group (e.g., had a more favourable attitude towards the police, felt more protected from burglary, demonstrated an increased willingness to take preventive measures) But, victims with an external risk-orientation in the intervention group showed increased fear of crime indoors and female victims in the intervention group increased fear of crime indoors.
Winkel, 1993	Quasi-experimental (nonmatched control group).	No interventi on	Post-intervention	1. Police-related variables. 2. Emotion-focused coping. 3. Problem-focused coping.	The intervention group demonstrated increased satisfaction with the police, higher perceived police protection, more preventative measures, and fewer avoidance behaviours outside the home than the control group.

Skogan and Wycoff (1987) found no statistically significant differences between the intervention and control groups. Some significant differences were noted between the experimental and control groups by the remaining studies on police programmes but these were generally found on a selection of variables within scales only, rather than the full scale (e.g., 'concern about robbery or assault while walking alone in neighbourhood at night outside' rather than a composite measure of fear; Rosenbaum, 1987). It is not appropriate, however, to compare individual items within a composite scale as the reliability of a single item in predicting actual behaviour will be considerably reduced (P. Kline, 2000), unless the measurement of attitude is taken shortly before the proposed behaviour is due to occur (Fishbein & Ajzen, 1975).

Two studies noted that the police programmes under investigation resulted in a number of unwanted effects. Winkel (1989) observed that the victims who had been contacted by the specially trained police officers demonstrated more favourable attitudes towards extreme prevention than victims in the control group. Moreover, although Winkel (1991) found some favourable effects of the intervention on items within scales, participants in the intervention group with an external risk-orientation demonstrated increased fear indoors as well as increased perceived risk of burglary. In a later study by Winkel and Vrij (1993), however, the police communication programme was modified slightly and did not result in any unwanted effects for the intervention group.

2.3.3.4 Summary

The studies in this subgroup do not support the effectiveness of short-term interventions that take a crisis intervention or supportive counselling approach in alleviating the negative effects of victimisation. Resnick et al. (1999) demonstrated a reduction in anxiety during a forensic rape examination but this may not extend to the psychological correlates of the victimisation experience.

Furthermore, the police programmes did not result in any improvements to the well-being or attitude of victims when compared to a control group not receiving the intervention. In fact, two studies found that the intervention participants showed increased fear and extreme prevention measures compared to the control group. These studies underline the importance of assessing the effectiveness of interventions offered

to victims of crime as they can also have adverse effects if not designed and delivered in an appropriate manner.

The studies in this subgroup, apart from Rose et al. (1999), did not attempt to control for bias in the design and methodology and, therefore, preclude definitive conclusions about the effectiveness of the interventions under investigation. The study by Rose et al. (1999) provided a much more reliable set of data, which demonstrated that one session of psychological debriefing or education did not result in a reduction of psychological symptoms relative to the control group. In conclusion, the interventions in this section were not shown to be more effective than standard care or assessment only conditions.

2.4 DISCUSSION

2.4.1 Statement of principal findings

Ten studies evaluated intensive interventions that were based on principles of cognitive and behavioural theory. Seven of these studies demonstrated an improvement for the intervention group, over and above the control group, in some of the psychological outcomes examined. A further ten studies evaluated short-term interventions that were either delivered by trained volunteers, counsellors, or police officers. This group of studies did not support the effectiveness of short-term interventions, as nine out of ten studies did not demonstrate a reduction in psychological symptoms for the intervention group relative to the control group.

2.4.2 Interpretation of findings

The interventions found to be effective in reducing psychological symptoms associated with criminal victimisation were intensive and based on a sound theoretical framework. The cognitive-behavioural interventions examined in this review were generally delivered to victims of crime who were suffering from high levels of psychological symptoms and the focus of the interventions was to reduce these psychological symptoms. Furthermore, professional clinicians delivered the interventions according to structured treatment protocols. It is also of note that these studies were the most

rigorous in methodology. Conversely, the short-term interventions were unstructured, potentially inconsistent across participants and were not grounded in psychological theory. Furthermore, these interventions were delivered to random samples of victims, who were not necessarily demonstrating high levels of psychological symptoms, by volunteers, counsellors, or police officers, who had received limited training in delivering the interventions. Interestingly, some of the features of successful victim interventions identified in this review parallel the principles of 'What Works' programmes, that is, programmes that have been found to be effective in reducing re-offending (see for example, Hollin, 1999). The results of meta-analytic reviews (e.g., Lipsey, 1992) highlighted a number of key characteristics of effective treatment programmes for offenders. For example, effective treatment programmes target offenders who are at a medium to high risk of recidivism and focus on their criminogenic needs (i.e., factors that are associated with their risk of recidivism). Furthermore, effective treatment programmes are structured, based on cognitive-behavioural principles and delivered in a way that will engage offenders. The importance of treatment integrity has also been recognised in that effective treatment programmes are carried out by trained practitioners, are managed effectively throughout, and are implemented according to the original design and aims of the treatment. The intensive interventions found to be effective in reducing adverse psychological symptoms in victims of crime by the present review were characterised by many of the principles of 'What Works' programmes. This was not the case for the short-term victim interventions, which were not found to be effective in reducing psychological symptoms in victims of crime.

There was a marked difference in the results obtained for the intensive versus the short-term interventions. Part of the explanation is likely to be related to the factors described above, but it is also possible that the studies examining short-term interventions failed to demonstrate a statistically significant effect due to methodological flaws. For example, many of the short-term intervention studies did not administer the outcome measures to the participants before the intervention. If the participants in the intervention group demonstrated higher levels of psychological symptoms than the control group at pre-intervention then it would be difficult to uncover an effect of treatment over and above the control group at the postintervention assessment. Had possible baseline differences been assessed, these could have been controlled for statistically.

Another potential contributing factor could be the limited use by the short-term intervention studies of valid and reliable outcome measures that have been shown to be appropriate for the specific population being assessed. Furthermore, it is important to ensure that control participants are not receiving any components of the intervention, either as part of a placebo intervention or of their own accord, as this may result in the concealment of a treatment effect. This may have been the case in one of the studies of intensive interventions (Anderson & Frank, 1991), as the intervention was compared to a placebo, which was just as structured and intensive.

In conclusion, the present systematic review suggested that intensive cognitive-behavioural interventions are effective in reducing psychological symptoms in victims of crime, while short-term interventions do not result in an improvement over and above the control group. The services most often offered to victims of crime in the UK are of a crisis intervention approach. While these services may be appropriate for the majority of victims, more intensive and professional services are potentially beneficial for victims who demonstrate high levels of psychological symptoms relating to a criminal victimisation experience.

2.4.3 Limitations of the review

As discussed in the introduction to this chapter, when conducted appropriately, a systematic review can provide evidence-based conclusions. It is important, therefore, that any possible weaknesses of the methodology and their implications are discussed. Although every effort was made to identify all studies relevant to the review question, it is possible that this was not fully accomplished, especially with regards to unpublished material. The majority of studies included in the review were published in peer-reviewed journals. This may reflect a bias in the search strategy or, alternatively, this may have resulted from the strict inclusion criteria with respect to methodology. Furthermore, although two reviewers, who worked independently, carried out most stages of the review, resource-constraints resulted in only one reviewer completing the first stage of the study selection phase. This may have introduced some bias in the study selection. In addition, the critical appraisal of the studies is necessarily limited to what has been reported in the written account of a research study, as it was not possible to contact all the authors for clarification. This may have resulted in instances of

misrepresentation of the methodology if, for example, a control had been put in place but not reported.

Furthermore, the present review did not include a quantitative synthesis of the results of the evaluation studies. This is, primarily, because the studies included in the review differed substantially on a number of factors, for example the types of outcome measures used to evaluate the effectiveness of the interventions. Deeks et al. (2001) recommended: "where there are important differences between the studies in terms of participants, interventions, outcomes, and methods that are thought potentially to relate to study results, it is usually not sensible to estimate an overall average effect" (p. 4). It may, however, be possible to synthesise subgroups of studies that are similar on the key characteristics mentioned above but this was beyond the scope of the present thesis.

2.4.4 Recommendations

A number of recommendations can be made on the basis of this systematic review with regards to future research and practice in the area of victim interventions. First, there is a need for more studies in this research area to follow up both the intervention and control groups beyond the posttreatment assessment so as to investigate the long-term effects of interventions (i.e., whether the gains of treatment are maintained or indeed improvement continues with time). It is also recommended that only outcome measures that have been found to be valid and reliable with the specific victim population studied are used. Furthermore, it is suggested that outcome measures are standardised across studies in this area of research to facilitate comparisons of the results obtained. Future research could also investigate whether the delivery of cognitive-behavioural treatments by professional therapists is key to their effectiveness or whether trained volunteers would be just as effective. In addition to this, it is important to investigate whether intensive cognitive-behavioural interventions can be administered successfully in more applied settings and to a wider range of victims (e.g., male victims and victims of property crimes). Moreover, it is recommended that intensive counselling programmes are assessed in future research studies to examine whether the short duration of treatment in this subsample of studies contributed to their lack of effectiveness or whether it was the nature and delivery of the programmes.

The evidence presented in this systematic review suggests that intensive cognitive-behavioural interventions can be effective in reducing some of the psychological problems that have been associated with criminal victimisation. However, these interventions are intensive, focused, and expensive to administer, and would, therefore, not be appropriate for all victims of crime regardless of levels of psychological distress. It is recommended that victims who demonstrate high levels of psychological symptoms in relation to a victimisation experience should be targeted for intensive cognitive-behavioural treatment.

The studies included in the present review used a wide range of outcome measures to assess victims of crime. The majority of these were not designed specifically for use with victims of crime and their validity and reliability had not always been thoroughly examined. Moreover, the lack of consistency in measuring victim outcomes made it difficult to compare the relative effectiveness of the interventions across studies. The remaining chapters of this thesis will, therefore, examine the development and validation of a new psychometric instrument designed to facilitate the psychological assessment of victims of crime in applied settings and encourage referrals to victim support services and, where appropriate, intensive psychological interventions. The next chapter begins with a critical analysis of the outcome measures used in the studies reviewed in the present chapter and then goes on to describe the development of a new psychometric scale for the assessment of psychological responses to criminal victimisation.

Chapter 3

Construction of a new scale to measure psychological responses to criminal victimisation

3.1 INTRODUCTION

The present chapter reports on the construction and validation of a psychometric scale for assessing psychological (emotional, cognitive, and behavioural) responses to criminal victimisation[5]. As demonstrated in Chapter 1, a range of psychological responses to criminal victimisation have been reported in the literature. Furthermore, the systematic review reported in the previous chapter indicated that intensive cognitive-behavioural treatment programmes could be successful in reducing some of the negative psychological symptoms that have been associated with criminal victimisation (e.g., PTSD and depression). These interventions, however, are time-consuming and resource-intensive and potentially only effective when administered to victims of crime, who are experiencing high levels of psychological distress. However, members of staff within the criminal justice system who come into contact with victims of crime often have to rely on personal judgment when deciding whether or not to refer victims to support services. It is possible, therefore, that they are not entirely consistent in their ability to recognise symptoms of psychological disorders and make appropriate referrals.

In a review of the literature on victim services, Maguire (1991) suggested that organisations such as Victim Support are not necessarily reaching all victims of crime that are in need of assistance. Early Victim Support schemes in the UK focused more on victims of property crimes. Maguire (1991) pointed out that 90% of their clients in the early 1980s were victims of burglary, whereas by the 1990s this figure had fallen to 67%. As they became more experienced, Victim Support schemes expanded their services to include victims of sexual and violent crimes. For example, a Victim Support scheme in the London borough of Lambeth reported that victims of property crimes accounted for the majority of the referrals they received (75%) but a substantial proportion were victims of violent crimes (23%). However, only 1% were victims of sexual offences (Victim Support Lambeth, 2003).

[5] The development of the scale was presented at the 2004 Annual Conference of the British Psychological Society (Marandos & Clarbour, 2004).

Furthermore, in their quest to balance their scarce resources against the increasing demand for their services, the majority of schemes can no longer make indiscriminate visits but rather send letters to victims or phone them first and then offer them a visit by a volunteer. Maguire (1991) stressed that it is difficult to judge whether victims who are most at need actually receive a service. Victim Support in the UK relies heavily on referrals received from the police. Maguire and Corbett (1987) suggested that police referrals used to be biased towards certain victims of crime to "the exclusion of groups, such as young male victims of violence, who may be considered 'undeserving' of help" (p. 409). Furthermore, the selection of which victims to contact from the referrals received was often based on the scheme coordinator's "hunch" (Maguire & Corbett, 1987). Victims of crime can approach Victim Support schemes themselves but self-referrals are problematic, as not all victims who are finding it difficult to cope will actively seek support (Maguire, 1991). Skogan, Davis, and Lurigio (1990) interviewed victims who had not taken up support services. They found that although half of the sample felt they did not need further support, over 25% cited time and transport constraints, and the remainder of the sample indicated that they felt they would not receive the help they needed or simply felt uncomfortable taking up the service. This may be especially true for male victims of crime who may perceive victim services as offering primarily emotional support. Ashton and Fuehrer (1993) examined the relationship between gender and the type of social support sought and found that men were more likely to seek information and practical support while women were more likely to request emotional support.

Psychological tools used to assess victims of crime vary from general diagnostic measures to scales specifically designed to assess responses to traumatic events, including crime. The systematic review, discussed in the previous chapter, uncovered a multitude of measures that have been used to assess the psychological effects of crime on victims. Many of the studies included in the systematic review reported the use of self-report measures, such as the Beck Depression Inventory (Beck et al., 1961) and the State-Trait Anxiety Inventory (Spielberger, 1983). However, these measures were not constructed for use with victims of crime and are, therefore, not specific to the experiences of victims of crime. The questions, instead, tap into feelings, thoughts, or behaviours that are indicators of general psychopathology, rather than reactions to a

specific event. Moreover, the validity and reliability of these measures in crime victim populations has not been thoroughly examined.

Measures that are more specific to victims of trauma have concentrated on the assessment of PTSD. As mentioned in Chapter 1, PTSD is a specific response to trauma that has also been documented in victims of crime. A qualified clinician can make a diagnosis of PTSD after carrying out a structured clinical interview, such as the Clinician Administered PTSD scale (CAPS; Blake et al., 1990). Foa, Cashman, Jaycox, and Perry (1997) reported that most clinical interviews for the diagnosis of PTSD had been validated on combat veterans. One exception is the PTSD Symptom Scale – Interview (PSS-I; Foa et al., 1993), which was developed on a sample of female victims of rape and non-sexual assault. A number of self-report scales have also been developed, primarily to assess the severity of PTSD symptoms. For example, Foa et al. (1993) developed a self-report measure of PTSD alongside the PSS-I, the PTSD Scale-Self Report (PSS-SR), which was later extended to include information about the trauma that is necessary for a diagnosis of PTSD (Foa et al., 1997). Information on the psychometric properties of the PSS-SR is presented in Chapter 5 of this thesis (see Section 5.2.2). The items that make up self-report measures of PTSD have been adapted from the *DSM* diagnostic criteria for PTSD and tend to be lengthy and complex.

It is important that victims of crime that develop PTSD are accurately diagnosed and given appropriate treatment (Rose, 2002). However, it is not possible to diagnose PTSD on the basis of a self-report measure and practitioners within the criminal justice system who may come into contact with victims of crime and Victim Support volunteers would not usually be qualified to carry out diagnostic interviews. Moreover, research has shown that the symptom profile of victims of crime is diverse (Norris et al., 1997) and not all victims who experience psychological distress after a crime will necessarily display the specific symptoms that are part of a PTSD diagnosis. As demonstrated in Chapter 1, victims of crime may suffer from a variety of other psychological symptoms, such as depression, anxiety, and phobias (Falsetti & Resnick, 1995). In conclusion, although measures of PTSD draw on specific responses to traumatic events, they focus exclusively on the diagnostic criteria of PTSD and as such may not be inclusive of the range of responses that have been documented in victims of crime (see Chapter 1). Furthermore, these measures were developed for use with

victims of trauma and, therefore, may fail to uncover specific dimensions of response to criminal victimisation.

Norris and Kaniasty (1994) found that although the levels of psychological symptoms of depression, somatization, hostility, anxiety, and phobic anxiety demonstrated in a sample of victims of crime were above the levels demonstrated by nonpatient norms and a nonvictim sample, they were below levels identified in psychiatric samples. This suggests that victims of crime, in general, should not be approached in a similar way to psychiatric populations. Furthermore, a specific event (i.e., the crime) is thought to have acted as a trigger for the development of the psychological disorder. Although psychopathology measures may be useful indicators of whether symptoms of a psychological disorder are present, the diverse symptom profile of crime victims would suggest that existing psychopathology measures do not encompass the variety of emotional responses victims of crime may experience. Each of the studies included in the systematic review discussed in the previous chapter used a variety of questionnaires and interviews to measure a range of different possible psychological outcomes. This may be possible in a research context but it would not be feasible to administer many different measures within a criminal justice environment due to time and resource constraints.

Several of the studies included in the systematic review designed specific measures for use in nonclinical victim populations. For example, Skogan and Wycoff (1987) developed multiple-item scales to measure, among other things, victims' fear of personal attack, perceived extent of local personal and property crime, and satisfaction with police services. These scales, however, were narrow in focus and did not attempt to encompass the emotional, cognitive, and behavioural effects of crime on victims. Rosenbaum (1987), on the other hand, administered a large survey of around 200 items to assess many aspects of victims' responses to crime including the emotional and physiological impact of victimisation, victims' social cognitions, fear and vulnerability, crime prevention awareness and behaviour, and responses towards the criminal justice system. The author reported that the survey was based on an extensive search of the literature on victim responses but no information was given on the validity, reliability, or any other psychometric properties of the measure.

To summarise, existing measures used to assess psychological responses to criminal victimisation are not inclusive of the range of responses that have been identified in the literature. An additional problem with existing measures is that they have not been developed exclusively for victims of crime and the psychometric properties of the measures that have (e.g., Rosenbaum, 1987) are yet to be established. There appears to be a need, therefore, for a psychometrically constructed assessment instrument that can be used in applied nonclinical forensic settings to reliably measure victims' psychological responses to crime. Therefore, a primary aim of the current study was to develop a new psychometric assessment instrument on a broad nonclinical sample of victims of crime.

There are several statistical methods for constructing new scales. Many popular psychological measures, especially in applied clinical and medical areas, have been constructed using the criterion-keyed method (P. Kline, 2000). In this method of scale construction, items are selected for inclusion if they discriminate between the criterion group (e.g., clinically depressed patients) and a control group. P. Kline (2000) advised against the use of this method for a number of reasons. First, this method is dependent on accurately selecting the criterion group but selecting a group of people with a particular clinical condition can be difficult as diagnoses are not always reliable. Furthermore, P. Kline (2000) emphasised that the process of selecting items for inclusion in a scale solely on the basis that they discriminate between two groups of people, may result in a set of items that are not actually meaningful. Finally, scales constructed using the criterion-keyed method cannot be readily generalised to populations other than the particular criterion group used to select the items. In preference to the criterion-keyed method, P. Kline (2000) recommended using factor-analytic techniques to develop a scale. This statistical technique uses the variations in scores on a set of variables of a large sample of the target population to extract a smaller number of underlying dimensions. P. Kline (2000) maintains that if this method is used correctly and on appropriate samples and "...if the validating process indicates that the factor is not a specific or some unwanted variable, such factor analytic tests are close to the psychometric ideal" (p. 173).

Factor analysis has been criticised because it produces more than one possible solution and the selection of the final solution is essentially a subjective decision. Thurstone (1947) first argued that the aim of factor analysis should be to reach the most

parsimonious solution and, therefore, the simple structure rotation should be chosen as the final solution. In order to reach simple structure, however, the factor analysis must be methodologically sound as technical errors may lead to unreliable solutions (Cattell, 1978). First, the items entered into a factor analysis should adequately sample the whole range of variables that relate to the behaviour under investigation. As the output given by factor analysis can only be as good as the items that are entered into it in the first place, the items included in the preliminary scale must be meaningful to the target population. Streiner and Norman (1995) argued that the potential recipients of a scale are "an excellent source of items" (p. 16) that has generally been overlooked in scale construction; they suggested the use of focus groups or in-depth interviews with the measure's intended target population. Instead of selecting items from existing psychopathology scales, which are potentially not relevant to victim responses, the items for the present scale were, therefore, taken directly from victims' responses to an open-ended questionnaire and a scenario study. This method of item generation was used to help ensure that the items in the scale would be meaningful to victims of crime.

In addition to carefully selecting the item pool, the ratio of observations (i.e., participants) to variables must be large enough to avoid the creation of mathematical artefacts and the observations should ideally cover the entire variance of the variables (P. Kline, 2000). The exploratory factor analysis described in the present chapter was carried out on the responses of a large sample of victims of crime that satisfied the recommended minimum observation to variable ratio of 3:1 recommended by P. Kline (1991). An effort was also made to include victims of different types of crime who displayed a wide range of responses to their experience of crime, thus ensuring that the variance of variables was not limited. Finally, once a factor structure is reached through exploratory factor analysis, it is necessary to validate it against several external criteria (P. Kline, 2000). For example, if the items entered into a factor analysis were basically paraphrases of each other, there is a danger that the emerging factors are bloated specifics rather than true group factors. A bloated specific, however, will not correlate with criterion variables. The factor structure that emerged through the exploratory factor analysis described in this chapter was, therefore, validated extensively by examining its construct validity in the remainder of this thesis.

The practical application of the scale was also central to its development. It is envisaged that criminal justice practitioners could use the new measure to help them

refer victims to appropriate psychological services. Currently, specialist psychological services for victims of crime in the UK are limited. Some Victim Support schemes offer trauma-counselling services for victims of serious crime (Victim Support Lambeth, 2003). Victims of crime may also be referred to a counsellor or psychologist through a General Practitioner but the waiting lists are generally long and not many will specialise in the treatment of victims of crime (Victim Support, 2002). Trauma clinics, such as the Traumatic Stress Service at Maudsley Hospital in London, may also offer treatment to victims of crime who suffer from PTSD but victims usually have to be referred by a General Practitioner or other appropriate agency.

In summary, this chapter describes the development of a psychometric scale that encompasses a range of responses to crime and can provide a starting point for the identification of victims that require further psychological assessment and treatment. The instrument was constructed on a large sample of victims of crime using factor-analytic scale construction methods. The initial items were generated from an open-ended questionnaire and scenario study and the preliminary scale was administered to a large sample of victims of crime. The responses of 247 victims of crime were subjected to an exploratory factor analysis, which resulted in a new 55-item scale of psychological responses to criminal victimisation, labelled the Victim Reactions Scale (VRS).

3.2 METHOD

3.2.1 Item generation study

3.2.1.1 Participants

The questionnaires were distributed to an opportunity sample of men and women who had been victims of crime at some point during their lifetime. Victims of any type of crime were considered eligible to take part in this study. The sample of 45 victims of crime (mean age = 26.49 years, *SD* = 10.14, range = 19 – 70) comprised 21 men and 23 women. One participant did not specify their gender. The sample was drawn from both the student population of the Psychology Department at the University of York (60%) and the general community (40%), including victims approached by the Victim Liaison Service of the National Probation Service in London.

Four of the questionnaires were incomplete but the data present was, nevertheless, utilised. Thirty-four (75.5%) of the participants were White and the remainder of the sample comprised seven (15.6%) participants who were Asian, three (6.7%) participants who were Black, and one (2.2%) participant of mixed ethnic origin. The majority of the participants were students (66.6%) or employed (26.7%). The number of crimes experienced by the participants ranged from 1 to 15 ($M = 2.96$, $SD = 2.76$). Participants were asked to answer a series of questions with reference to a crime that had happened to them, which will be referred to henceforth as the index crime. A wide range of index crimes were reported by the current sample: theft and criminal damage (26.7%), burglary (22.2%), street robbery (15.6%), assault (15.6%), harassment (4.4%), indecent or sexual assault (8.9%), rape (4.4%), and murder of a loved one (2.2%). The time elapsed since the index crime differed amongst participants ($M = 3.94$ years, $SD =$ 4.27); this varied from a crime that was still ongoing at the time of completing the questionnaire (victim of harassment) to a crime that had happened 20 years ago.

3.2.1.2 Procedure

An open-ended questionnaire was specifically designed for administration to victims of crime. The aim of the questionnaire was to draw out a wide range of emotional, cognitive and behavioural responses to being a victim of crime. The questionnaire was divided into three sections. The first section asked respondents to provide demographic information, including their age, gender, educational level, and ethnic background as well as information relating to their criminal victimisation history. In the second section, participants were asked to answer open-ended questions about their feelings, thoughts and behaviours relating to a crime that had happened to them (see Appendix 3.1). The questions asked participants about their reactions soon after the crime as well as current responses to the crime. Participants, who had been victims of crime more than once, were asked to choose the crime they felt had affected them most and answer the questions with that crime in mind.

The first two sections of the questionnaire were identical for all participants. For the third section of the questionnaire, six scenarios or vignettes of a crime were created (see Appendix 3.2). The scenarios were used to get participants' perspective on crimes other than the one they had directly experienced and also to give them the opportunity to

answer questions in the third person. It was envisaged that the scenarios would generate a wider range of possible responses and that participants may express their own feelings and thoughts more readily when talking about how somebody else might be feeling. To facilitate participants in imagining how the victim in each scenario may have responded to the crime described, all the scenarios involved victims of the same gender as the participant. Furthermore, for the scenarios to be age-appropriate, slightly different scenarios were written for participants who were aged 16 to 20 and for participants who were aged 21 and over. There is no specific age that marks the transition from adolescence to adulthood: "the chronological age...varies from about 14-21" (Kimmel & Weiner, 1995; p. 4) but the specific age grouping chosen in this study was thought to be appropriate because a high proportion of the participants were students aged less than 21 years.

Male and female as well as adult and adolescent perpetrators featured in the scenarios. The perpetrators' gender and age were balanced equally across the six scenarios. The crimes described in the scenarios included, in order of presentation, a burglary with no perpetrator contact, a street robbery, a racially motivated assault, an incident of domestic violence, a sexual assault by a friend and a rape by a stranger. The scenarios were presented to all participants in the same order. The scenarios were ordered so that the first two were more commonly encountered crimes (Finney & Toofail, 2004) while the latter four crimes were designed to be of a more serious and traumatic nature, and therefore, more likely to evoke an emotional response. It was decided that the crimes should be presented in order of increasing trauma to ease participants into the exercise. The questions relating to the scenarios asked for imagined responses to the incident soon after the crime and three months after the incident. This time lag was chosen because previous research (e.g., Atkeson, Calhoun, Resick, & Ellis, 1982; Kilpatrick et al., 1979) has shown that for most crime victims, psychological symptoms will stabilise about three months after the crime. For this reason, many of the intervention studies described in the previous chapter (e.g., Resick et al., 2002) only included participants who had experienced a crime at least three months before the start of the study and were still displaying psychological symptoms.

3.2.2 Construction of the preliminary scale

A large pool of items was generated from the responses to the open-ended questionnaire and scenarios. The purpose of this exercise was to create items that reflect the psychological responses of real victims of crime. The linguistic flavour and content of the items generated by the participants was retained. The items generated from all groups of participants (i.e., both genders and age groupings) were combined to form a preliminary item pool.

Obvious duplications and double-barrelled items (i.e., items that effectively ask two separate questions) were excluded (P. Kline, 2000). Furthermore, negatively worded items (i.e., items that contained words with negative prefixes or words such as 'not' or 'never') were revised as they have been found to suffer from poor validity (Streiner & Norman, 1995). For example, the item 'I do not feel anxious' was rewritten without the word 'not' to produce the item 'I feel anxious'. As a result, a number of items that had a positive meaning were turned into items that had a negative meaning and vice versa. Finally, items that were crime-, gender-, or situation-specific (e.g., 'When I think about it, I feel angry that no-one even noticed what happened') were either excluded or revised to ensure they would be applicable to victims of crime in general. Items from the scenario study were transformed into the first person. This was thought to be appropriate as the proposed scale is being developed for use in an applied environment and all potential items need to be relevant to a wide range of victims of crime regardless of type of crime. Hypothetical items (e.g., 'If I was mugged, I would consider trying to catch the perpetrators') are unlikely to have face validity for all victims of crimes.

The reduced item pool was then shown to criminal justice professionals working with victims of crime in the Probation Service and staff from voluntary agencies working with victims of crime (i.e., Victim Support and the Witness Service). Their opinion was sought, as they are potentially the practitioners that will ultimately be using the questionnaire to assess victims' psychological responses. They were especially concerned about items that featured suicidal ideation and self-harm as there are currently no mechanisms in place within the criminal justice system that would enable victim workers to deal effectively and urgently with respondents who might endorse these items. Any items that victim workers felt were inappropriate were excluded from the item pool. This exercise resulted in the removal of six items. A preliminary scale

was constructed and subjected to a pilot study of four female and two male victims of crime (mean age = 27.33 years, *SD* = 6.98). The participants found that some of the items were either not sufficiently clear or they were not applicable to what had happened to them. For example, the item 'I am still annoyed with the people I reported the crime to.' would not be applicable to victims who had not reported the crime. Based on the pilot study, seven items were excluded or revised, resulting in a final item pool of 142 items.

The proposed scale aims to measure the degree of psychological response to criminal victimisation; therefore, a continuous response scale was chosen in preference to a categorical scale. A Likert response scale was selected that ranged from *strongly disagree* to *strongly agree*. As the scale was bipolar, an odd number of categories would allow respondents to take a neutral position whereas an even number would force them to either agree or disagree with the statement. Streiner and Norman (1995) maintain that whether or not a response scale should allow respondents the opportunity to take a neutral position depends on the nature of the research. It was thought that an even number of categories would be appropriate for the present scale as the items refer to an event that all respondents have experienced. Furthermore, it is anticipated that the scale will be used for initial screening purposes and therefore forcing respondents to decide between endorsing an item or not will enable a more complete picture of their psychological response in relation to their criminal victimisation experience.

Streiner and Norman (1995) advised using a minimum of five to seven categories to increase the reliability of the scale. Therefore, it was decided to use a six-point response scale. The 142 items were fully randomised and are shown in Appendix 3.3. The final format of the preliminary scale, therefore, comprised 142 items with a six-point Likert response scales that were labelled *strongly disagree, disagree, mildly disagree, mildly agree, agree,* and *strongly agree*. Pilots indicated that the scale could be completed within twenty minutes. This, however, was expected to vary between respondents depending on the nature of the crime they had experienced and how much this had affected them.

3.2.3 Distribution of the preliminary scale

The aim was to access crime victims who had been involved with the criminal justice system (e.g., victims who had reported the crime to the police or victims whose offender had been sentenced) but also crime victims who had not had any contact with the criminal justice system (i.e., victims who never reported the crime to the police). Norris et al. (1997) have stressed the difficulties in conducting research on victims of crime: "Whereas crime is all too common from a population perspective, crime victims are rare in a research sense" (p. 148). At the time of their research, the annual rate of violent crime was estimated at 5%, meaning that, on average, only 25 people out of a sample of 1000 would have experienced a violent crime in the past six months. It is important when constructing a scale using factor analytic methods to have an adequate sample size. Therefore, anyone who had been a victim of crime during his or her lifetime, regardless of when the crime had happened, were eligible for inclusion in the present study. This would also enable the resulting scale to be administered, in practice, to a victim of crime regardless of the time that had elapsed since the crime occurring. This will increase the utility of the measure, as some victims do not seek support for a crime that has happened to them until years after the event, especially in cases of child sexual abuse. Moreover, victims who are in need of support sometimes slip through the net and are not identified until much later in the criminal justice process, for example, when they are contacted by the Probation Service after their offender has been sentenced to prison, which may be months or years after the crime happened.

To summarise, all victims of crime aged 16 and over, regardless of gender, type of crime experienced, how long ago the crime had happened and whether or not they felt it had affected them, were eligible for inclusion. Although the sample of crime victims used in this study was an opportunity sample, participants were drawn from many different sources so that the sample would be as representative as possible. The different sources are described below.

Questionnaires were given to victim workers at two Victim Support schemes (one in London and one in the North of England), a Witness Service Scheme in a London magistrates' court, and Probation Victim Liaison Services in London, East Yorkshire, Lancashire, Lincolnshire, and Northamptonshire. All victim workers were given instructions to guide the administration of the questionnaire. They were given

information on the target group for this study and advised to introduce the study to victims of crime they met through their work only if they felt it was appropriate to do so. They were also advised to stress that participation in the study was entirely voluntary and that all information given would remain confidential. It was recommended that participants should complete the questionnaire in their own time unless a potential participant was unable to complete the questionnaire on their own and the victim worker was willing to provide assistance.

It was recognised, however, that victims solely approached via criminal justice and voluntary agencies may result in a limited and biased sample. The Victim Liaison Service of the National Probation Service is only required to contact victims who have reported the crime to the police and their offender has subsequently been tried and sentenced to prison for twelve months or more. Victims who are seen by the Witness Service are in court either because they have been called to be witnesses or because their case is on trial and they have chosen to view the proceedings. Victim Support aims to support victims of crime regardless of whether they have reported the crime to the police. The great majority of victims approached by Victim Support, however, are identified from referrals given to the individual schemes by the Police. For example, Victim Support Lambeth (2003) reported that they received 86% of their referrals from the police; the remainder came from other Victim Support schemes (10%), other agencies (1%), and only 3% from victims themselves.

To avoid such biases in the sample, participants were also sought through the community, in general. The following groups of people were, therefore, directly approached: students and staff of the Department of Psychology at the University of York; school pupils and their parents attending an Open Day held at the University of York; students at a sixth-form college in East London; staff at London Probation headquarters; and delegates at a criminal justice seminar held in York. Potential participants were asked whether they had ever been victims of crime. If they responded affirmatively, they were asked whether they would like to take part in the research study. The research was also advertised in the following sources: the University of York magazine, which is distributed to all staff; the University of York website; the Psychologist, the British Psychological Society's monthly publication; the Yorkshire Evening Press; the London Probation electronic notice board and newsletter. People

who had been victims of crime and who were interested in taking part in the research were encouraged to contact the researcher directly.

3.2.3.1 Participants

The sample for the analysis of the initial item pool comprised 260 victims of crime. Cases with more than three incomplete responses in Section B of the questionnaire (i.e., the preliminary scale) were discarded. This resulted in a final sample of 247 participants with a mean age of 31.65 years (*SD* = 16.25, range = 16 – 86). Eleven participants did not state their gender on the questionnaire. Of the remaining 236 participants, 166 (70.3%) were female (mean age = 30.17 years, *SD* = 15.63, range =16 – 86) and 70 (29.7%) were male (mean age = 35.10 years, *SD* = 17.70, range = 16 – 78). Three respondents did not state their ethnicity. Of the remaining 244 respondents, 86.1% were White, 4.1% Asian, 5.2% Black, 2.4% Mixed, and 2% Chinese or any other ethnic group.

Of the 243 participants who stated their occupation: 48.1% were students at university, school, or college; 37.9% were employed; 2.5% were unemployed; 7.4% were retired, and 4.1% did not fall into any of the above categories. The educational level of the sample was high and this is most likely due to the high proportion of students in the sample. Five respondents did not answer the question asking them what level of formal education they had reached. Of the respondents who selected one of the options provided, 5% had no qualifications, 16.9% had GCSE passes or equivalent, 20.7% had A levels or equivalent, 36.8% had or were in the process of studying for an undergraduate degree, 12.8% had or were in the process of studying for a postgraduate degree or other qualification, 6.6% had a vocational or other qualification, and 1.2% stated that they preferred not to disclose their formal educational qualifications.

The sample as a whole had experienced an average of 2.58 crimes during their lifetime (*SD* = 2.00, range = 1 – 12,). As mentioned earlier, respondents were asked to indicate the crime they felt had affected them most and answer the remainder of the questionnaire with that crime in mind. Seven respondents did not provide this information. For the remaining 240 respondents, the crimes that affected them most can be divided into the following categories: burglary (30.8%), theft and vehicle-related theft (24.2%), criminal damage (1.7%), mugging or street robbery (12.9%), assault

(13.3%), indecent assault (3.3%), sexual assault (3.3%), rape (4.6%), child sexual abuse (1.7%), and murder of a loved one (1.3%). Seven crimes did not fit into the above categories. These were harassment (2), kidnapping (2), attempted murder (1), being held hostage during an armed robbery (1), and child physical abuse (1). The proportion of property, violent and sexual index crimes that were reported in the sample is presented in Figure 3.1 below.

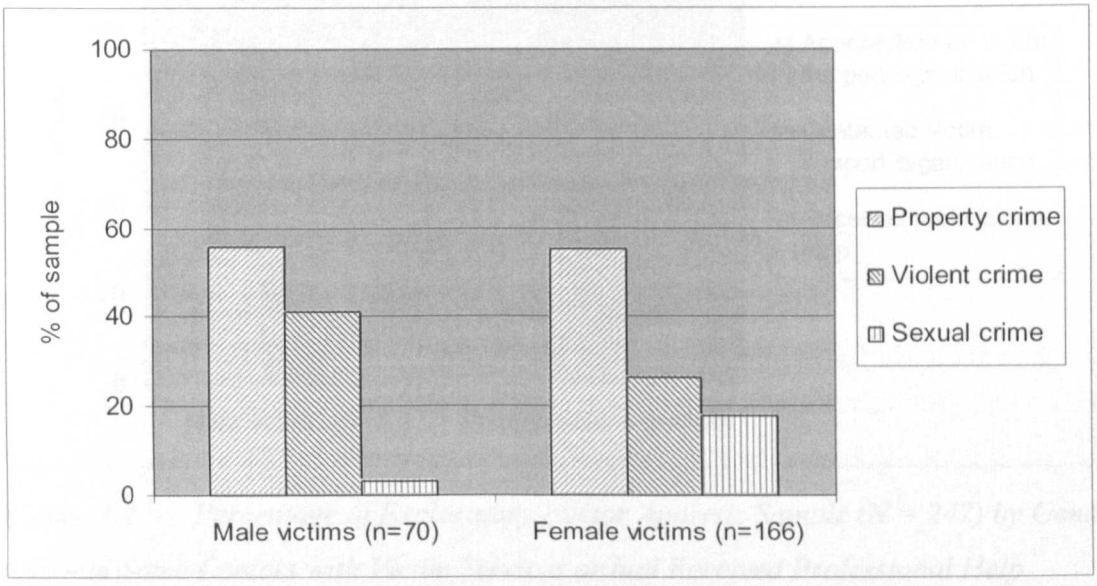

Figure 3.1 Type of Index Crimes by Gender Reported by the Exploratory Factor Analysis Sample (N = 247)

Most of the respondents (73.2%) stated that they had reported the crime to the police, while for a minority (19%) their offender was someone they knew, ranging from an acquaintance to a close relative. The time that had elapsed since the index crime differed greatly between participants: 28.7% of the index crimes happened less than a year ago; 30.4% took place between one to five years ago; and 29.6% happened more than five years ago (information on the time elapsed since the index crime was missing for 11.3% of the participants).

Figure 3.2 displays the percentage of respondents by gender that had some contact with an organisation that offers support or information to victims of crime and also the proportion of the sample that received professional support. Thirty two percent of the total sample was approached (either by phone, letter, leaflet or visit) by an organisation that supports victims of crime, primarily Victim Support. Notably, none of the male victims and only 6.9% of the female victims in the sample reported that they had

contacted such an organisation themselves for support or information, confirming the reservations outlined in the introduction of this chapter regarding self-referrals. A small proportion of the sample also reported receiving professional support in dealing with the effects of the index crime, mainly from their General Practitioner or a counsellor.

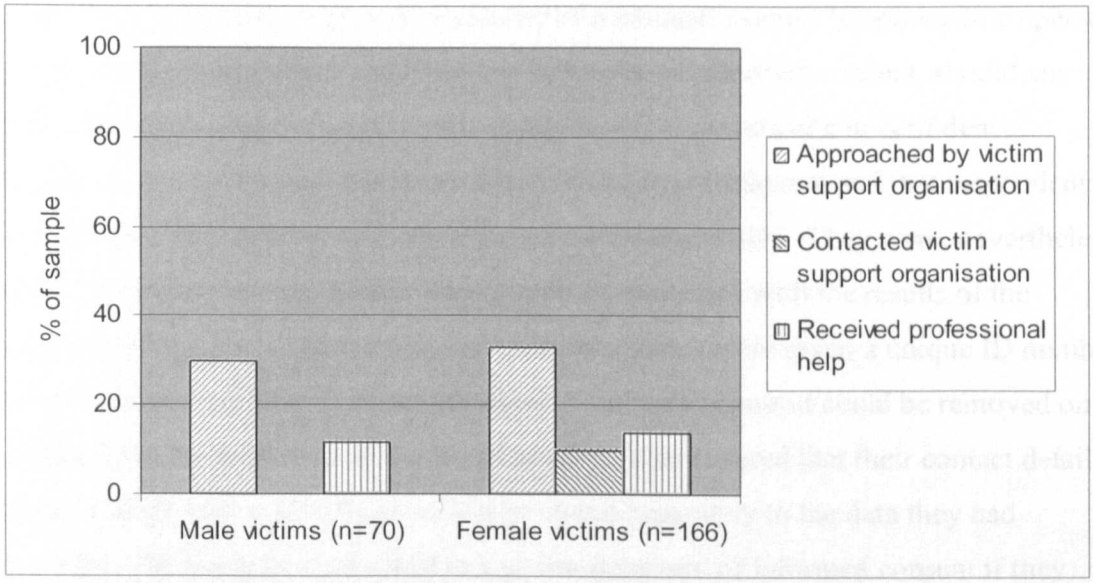

Figure 3.2 Percentage of Exploratory Factor Analysis Sample (N = 247) by Gender who had Some Contact with Victim Services or had Received Professional Help

Finally, it should be mentioned that the majority of participants did not receive anything in exchange for their participation in this study, with the exception of 50 undergraduate students from the Department of Psychology at the University of York who received course credit for their participation in this study.

3.2.3.2 Procedure

The questionnaire was first submitted to the Ethics Committee at the Department of Psychology of the University of York and was approved for administration to victims of crime aged 16 and above. All respondents received a questionnaire pack that included a statement of informed consent, the questionnaire and a prepaid envelope. The questionnaire was self-report and respondents completed it in their own time and then returned it in the prepaid envelope provided. It was, therefore, important that the statement of informed consent was as informative as possible and that the instructions were clear as there would not normally be an opportunity for respondents to ask the researcher for clarifications.

The statement of informed consent explained the nature and purpose of the study (see Appendix 3.4). As the questionnaire was of a sensitive nature, it was recognised that some respondents may find it emotionally difficult to complete it. It was, thus, clearly stated that if they felt uncomfortable at any point, they should feel free to stop completing the questionnaire. The number of a national support telephone line operated by Victim Support was also given on the statement of informed consent, should any respondents have felt the need to talk about the crime to someone in confidence. Moreover, it was stressed that all data would remain confidential and that respondents were not required to identify themselves on the questionnaire. They were, nevertheless, given the option to do so should they want to be contacted with the results of the research or take part in further studies. All participants were given a unique ID number on their questionnaire so that the statement of informed consent could be removed on receipt from the remainder of the questionnaire. This ensured that their contact details, if they had chosen to give them, would be stored separately to the data they had provided. Participants were asked to sign the statement of informed consent if they agreed to complete the questionnaire.

The questionnaire was divided into two sections. Section A was designed to elicit demographic and victimisation information. The first set of questions asked respondents to indicate their gender, age, nationality, ethnicity, occupation, and education. Respondents were also asked to provide some information about their criminal victimisation history. It is recognised that victims of crime may experience more than one crime during their lifetime. This was verified in the current sample as respondents reported having suffered an average of 2.58 crimes. To enable further analyses that could relate scores on the scale with the type of crime experienced, it was decided that victims of more than one crime should be asked to complete the preliminary scale with reference to one crime. Therefore, respondents who had been victims of crime more than once were asked to identify the crime they felt had affected them most and to answer all remaining questions with that specific crime in mind, which will be referred to henceforth as the index crime. The remainder of Section A comprised questions relating to the index crime, which are listed in Appendix 3.5.

Section B of the questionnaire contained the preliminary item pool. The instructions stressed that there were no wrong or right answers and that respondents should try to

give the first answer that comes to mind, as recommended by P. Kline (2000). Respondents were asked to respond to the items with reference to the crime they indicated in Section A had affected them most. Furthermore, they were instructed to respond to the items in relation to how they were feeling at that moment in time rather than when the crime had happened. This is because the majority of victims of crime recover with time and if the proposed scale is to be used for initial screening purposes, it is important that it measures victims' current psychological responses.

3.3 RESULTS

3.3.1 Descriptive statistics

The frequency distribution of all the items was assessed. For the purposes of the response frequency analysis, the six response alternatives were divided into those that reflected agreement with the item (i.e., *strongly agree, agree, mildly agree*) and those that reflected disagreement with the item (i.e., *strongly disagree, disagree, mildly disagree*). An 80/20% frequency split was applied to the two groups of response alternatives (i.e., agree vs. disagree) to assess response bias (P. Kline, 1994). Items that were found not to discriminate well between respondents (i.e., over 80% of the sample agreed or disagreed with the item) were removed from subsequent analyses. This procedure resulted in the removal of 53 items (items 9, 11, 17, 20, 25, 27, 30, 32, 35, 37, 38, 39, 40, 41, 43, 46, 49, 51, 53, 54, 55, 62, 66, 69, 74, 78, 80, 81, 84, 85, 87, 88, 92, 98, 100, 102, 106, 107, 110, 111, 115, 117, 120, 121, 124, 129, 133, 135, 136, 139, 140, and 142) from the initial pool of 142 items. This exercise resulted in the removal of most of the positive valence items, such as 'I am generally happy', indicating that positive items in this instance did not discriminate adequately between victims of crime who were suffering from increased psychological distress and those who were coping well. Following this exercise, a scan of the remaining items revealed that a small number of items were similar to each other. Therefore, a further ten items (items 7, 15, 24, 47, 48, 64, 90, 105, 122, 134) were removed from subsequent analyses.

Furthermore, any cases with more than three missing values were excluded from any further analyses. This resulted in the exclusion of 13 cases from the final sample. Any cases with one to three missing values were kept in the analyses but the missing values

were alternately replaced with the two middle range options of the scale, mildly disagree and mildly agree. The remaining dataset, therefore, comprised 79 items and the sample size of 247 participants satisfied the minimum recommended participant to item ratio of 3:1 (P. Kline, 1991).

3.3.2 Exploratory factor analysis

First, a correlation matrix was generated to examine the intercorrelations between the 79 items. A substantial proportion of the variables were highly correlated and most of the correlation coefficients were found to exceed .30. Bartlett's test was highly significant ($p < .01$) suggesting the presence of statistically significant relationships between the variables. The determinant of the correlation suggested that the matrix may suffer from multicollinearity or singularity. However, closer inspection of the correlation matrix revealed that none of the intercorrelations were above .80 suggesting that the current dataset did not suffer from extreme levels of multicollinearity or singularity (Field, 2000). The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was above the minimum recommended level of .5 and the measures of sampling adequacy, which are displayed along the diagonals of the anti-image correlation matrix, were all above .50 providing support for the adequacy of the sample for each pair of variables (Field, 2000).

After it was determined that the current dataset was suitable for factor analysis, a Scree plot (see Figure 3.3) was computed using principal components factoring as recommended by P. Kline (1991). Seventeen factors had an eigenvalue above one but this method of factor extraction has been shown to overestimate the number of factors within a dataset (Cattell, 1978). The 17-factor solution was examined, nevertheless, but was rejected as some factors did not load any items and a number of items demonstrated multiple cross-loadings between the factors. Therefore, the Scree plot was used for guidance (Cattell, 1966).

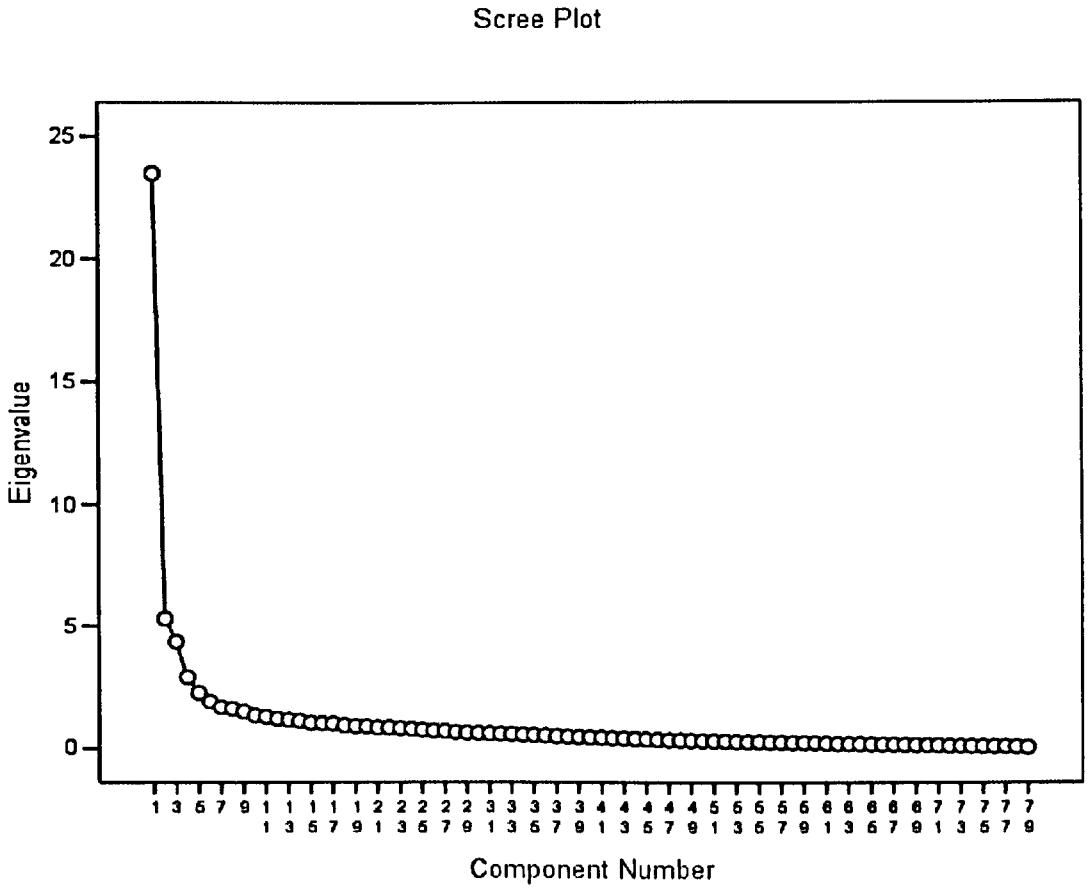

Figure 3.3 Scree Plot of the 79 Items Subjected to Exploratory Factor Analysis

The analyses were performed using principal-axis factoring, in preference to principal components analysis, with oblique rotation using the Statistical Package for the Social Sciences (SPSS, version 11.1). According to P. Kline (1994) common factor analysis (e.g., principal axis factoring) is preferable to principal components analysis because it separates out the unique variance of the variables (i.e., error and specific variance) from their common variance. Moreover, the factors extracted by common factor analysis, which are always fewer than the number of variables, are hypothetical constructs that account for the relationships between the variables in the dataset but are not completely defined by them. An oblique rotation was selected in preference to orthogonal rotation because there was no theoretical reason to suggest that the emerging factors would not be correlated (P. Kline, 2000). In addition to this, P. Kline (1991) proposes that oblique rotations are the best way of reaching simple structure. The method of rotation used was Direct Oblimin, recommended by Jennrich and Sampson (1966), with a loading

criterion of .30. Orthogonal (Varimax) rotations were subsequently examined but these analyses resulted in many double-loading items, confirming the presence of intercorrelations between the factors. These analyses were, therefore, rejected in favour of oblique rotation.

The single-factor solution indicated that the scale might be unidimensional, as 65 out of 79 (82.3%) items loaded on to one factor. However, as the Scree plot suggested the presence of more than one factor, multiple-factor solutions were also examined. For exploratory purposes up to six factors were extracted but the four-, five-, and six-factor solutions loaded an insufficient number of items on factors (i.e., less than 10 items) and contained a high number of items that loaded on more than one factor. P. Kline (2000) recommends a minimum of ten items per factor: "...ten items is the absolute minimum for a reliable scale and the more the items the higher the reliability" (p. 162). Therefore, these solutions were discarded.

The three-factor solution did not contain many double loading items but the third factor only loaded seven items. The items retained in this factor referred to feelings of guilt and self-blame. Victims of crime often blame themselves for the occurrence of the crime and this, according to Janoff-Bulman (1989) may be an attempt to reconcile the crime with their previous expectations of people and the world. This dimension of victim response is meaningful and potentially important but because of the low number of items loading on the third factor the three-factor solution was discarded.

A two-factor solution was subsequently examined. This solution did not contain many double loading items and both factors loaded in excess of ten items. Although the unrotated single-factor extraction suggested the possibility of a unidimensional scale, the two-factor oblique rotation resulted in two factors that were clearly semantically distinct. As it was the most meaningful and parsimonious solution, the two-factor solution was accepted as the terminal rotation. The factor loadings were generally very high, the highest loadings being .872 and .778 for Factors 1 and 2 respectively. Stevens (1992) has recommended that a loading of .30, typically used to retain items in exploratory factor analysis (Field, 2000), can be considered statistically significant for a sample size of 300 cases but for a sample size of 200 cases a loading above .364 is recommended. As the current sample contains less than 300 participants, the loading criterion was increased to .40. This process further reduced the number of items with

secondary loadings and produced two clear factors without any double-loading items. Two items were, nevertheless, removed from each factor because they contained secondary loadings close to .40 and the difference between the loadings of these items on each of the two factors was less than .10. The item 'I keep wishing this had never happened to me' loaded .460 on Factor 1 and .374 on Factor 2. In addition, the item 'I am bitter' loaded .414 on Factor 2 and .384 on Factor 1. The five highest loading items on each of the two final factors are displayed in Table 3.1.

Table 3.1 *Two-factor Oblique Rotation of Preliminary Items*

Item No.	Statement	Factor Loading	
		Factor 1	Factor 2
Item 114	I have lost my confidence	.872	-
Item 99	I feel anxious	.842	-
Item 61	I feel depressed	.836	-
Item 2	I feel that I need support because of what happened to me	.803	-
Item 126	I feel self-conscious	.771	-
Item 79	I want justice	-	.778
Item 116	I am angry at the person/people who did this to me	-	.766
Item 14	I want revenge	-	.706
Item 73	I resent the offender(s) for what they've done	-	.698
Item 56	I want to inflict harm on the person/people who did this to me	-	.657

Note. Factor 1 = Emotional Vulnerability; Factor 2 = Crime-Specific Anger.

Factor 1 emerged much more strongly accounting for most of the variance explained (29.1 %). This indicates that it is a general factor that reflects the predominant emotional response amongst victims of crime. Factor 1 comprised 39 items. The highest loading item on Factor 1 was 'I have lost my confidence' and the remaining items continued to reflect feelings of vulnerability, worry and nervousness. Some of the items retained in Factor 1 refer to symptoms of psychological disorders that have been associated with criminal victimisation, such as PTSD, depression, and anxiety. For example, the items 'I keep reliving the incident in my head', 'I feel irritable', and 'I

avoid going out alone in the dark' describe the intrusion, arousal and avoidance symptoms of PTSD. Rumination of the event was also featured in this factor. Factor 1 was, therefore, labelled Emotional Vulnerability.

Factor 2, while accounting for a much smaller proportion of the variance (6.0 %), was meaningfully distinct from Factor 1. It is, thus, a secondary but distinct factor, loading 16 items. The highest loading item on Factor 2 was item 17: 'I want justice'. The items in this factor were all related to feelings of enduring anger and frustration, mainly directed towards the offender or the criminal justice system. This factor was, therefore, labelled Crime-Specific Anger. Anger is an emotion that has been consistently mentioned in the literature on victims of crime (e.g., B. Williams, 1999). There has not been a concentrated effort, however, to measure the different aspects of anger in relation to criminal victimisation and to examine its relationship to psychological outcomes.

The terminal oblique rotation is shown in full in Appendix 3.6. Factor 1 and Factor 2 together explained 35.05% of the total variance. An examination of the association between Emotional Vulnerability and Crime-Specific Anger revealed a significant positive correlation ($r = .52, p < .01$), confirming the decision to conduct an oblique rotation. Negatively loaded items were recoded, generating possible scores on the two subscales ranging from 0 to 195 for Emotional Vulnerability (EV) and from 0 to 80 for Crime-Specific Anger (CSA). The final 55-item scale was named the Victim Reactions Scale and is presented in Appendix 3.7.

3.3.3 Multidimensional analysis of the VRS subscales

The exploratory factor analysis reported in the previous section uncovered two higher-order dimensions of victim reaction, which were labelled Emotional Vulnerability (EV) and Crime-Specific Anger (CSA). Lower-order models of personality, such as the 16 Personality Factor Test (16PF; Cattell, Eber, & Tatsuoka, 1970) contain many factors that describe specific aspects of personality in more detail. These models tend to contain items that demonstrate multiple cross-loadings (Clarbour, 2001). In order to further explore the lower-order constructs contained within each of the VRS factors, each factor was further examined using exploratory factor analysis.

3.3.3.1 Factor 1: Emotional Vulnerability

A Scree plot of the items retained in the Emotional Vulnerability scale was computed using principal components factoring, which is displayed in Figure 3.4 below.

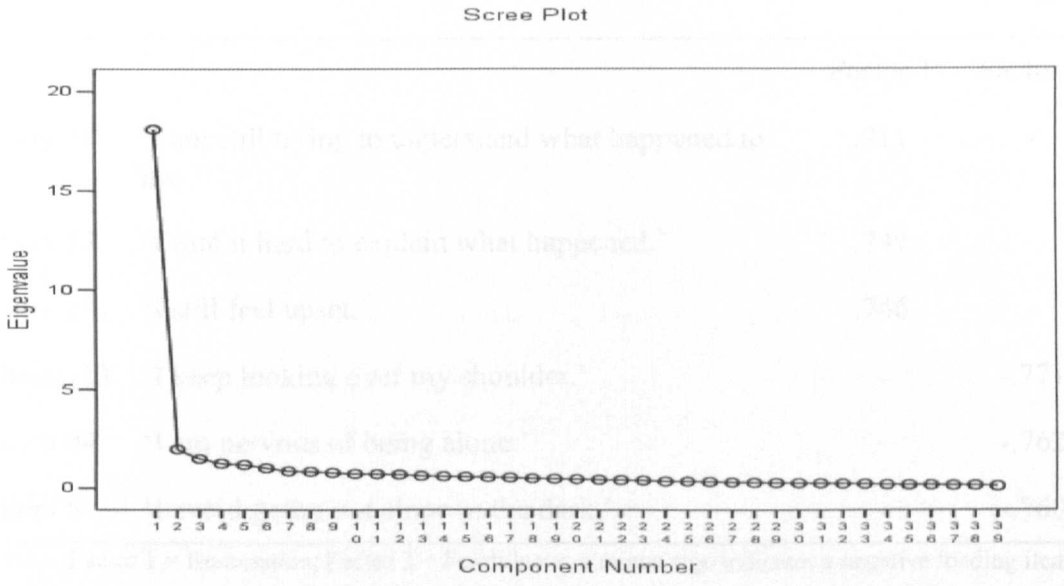

Figure 3.4 Scree Plot of Emotional Vulnerability Items

Six factors had eigenvalues above one but the Scree plot indicated the presence of two or three lower-order factors, which were examined using oblique (Direct Oblimin) principal-axis factoring. The three-factor solution was discarded because the third factor was not semantically distinct from the first factor. The two-factor structure offered the most parsimonious and interpretable structure. There were many double loadings across the two factors but this was expected, as the items were all part of the same higher-order factor. However, two semantically distinct factors emerged.

Factor 1 loaded 29 items. The highest loading item on Factor 1 was 'I am still trying to understand what happened to me' which indicates rumination of the event. This construct was reflected in most of the remaining items. Factor 2 loaded 10 items. The highest loading item on Factor 2 was 'I keep looking over my shoulder' and the remainder of the items also reflected feelings of fearfulness and nervousness. All but one of the items ('I am trusting') loaded negatively on to this factor. The three highest loading items on Rumination and Fearfulness are displayed in Table 3.2. The two

lower-order dimensions contained within the higher order factor of Emotional Vulnerability were highly correlated ($r = .80, p < .01$).

Table 3.2 Two-factor Oblique Rotation of Emotional Vulnerability Items

Item No.	Statement	Factor Loading	
		Factor 1	Factor 2
Item 71	'I am still trying to understand what happened to me.'	.811	-
Item 57	'I find it hard to explain what happened.'	.749	-
Item 101	'I still feel upset.'	.746	-
Item 113	'I keep looking over my shoulder.'	-	-.771
Item 94	'I am nervous of being alone.'	-	-.762
Item 5	'I avoid going out alone in the dark.'	-	-.760

Note. Factor 1 = Rumination; Factor 2 = Fearfulness; a minus sign indicates a negative loading item.

3.3.3.2 Factor 2: Crime-Specific Anger

A Scree plot was computed using principal components factoring (see Figure 3.5). Three factors had eigenvalues above one and the Scree plot suggested the presence of two or three lower-order factors. Factors 2 and 3 of the three-factor solution loaded only two and three items respectively. The items in Factor 2 related to the items retained in Factor 1, suggesting that the higher-order factor of Crime-Specific Anger may be better explained by two lower-order factors. A two-factor structure was, therefore, examined using oblique (Direct Oblimin) principal-axis factoring. The two-factor solution offered an interpretable structure and there was only one double loading item, indicating the possible presence of two quite distinct lower-order factors.

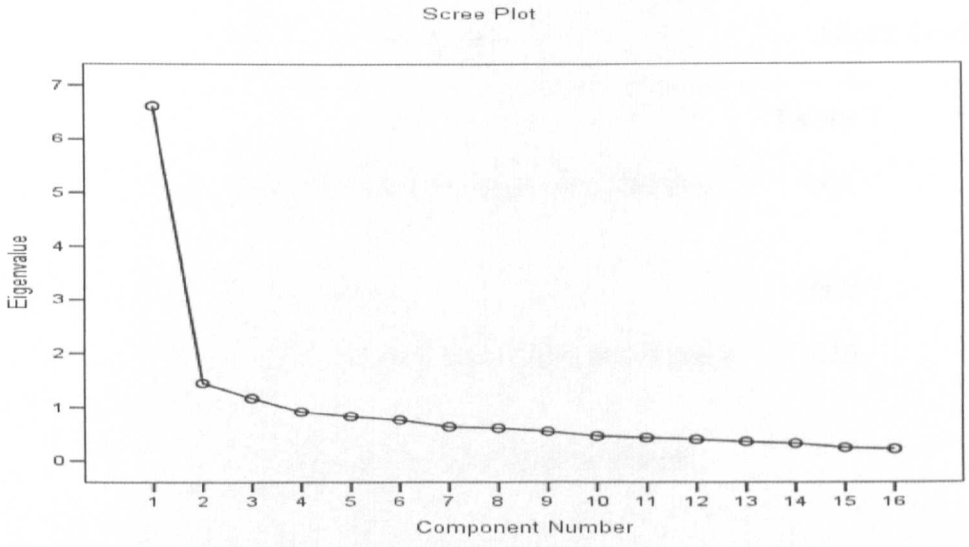

Figure 3.5 Scree Plot of Crime-Specific Anger Items

The highest loading item on Factor 1 was 'I am angry at the person/people who did this to me', which describes feelings of anger towards the perpetrator(s). The remaining items continued to reflect these feelings, which were also directed towards the criminal justice system and some items (e.g., 'I *still* get angry when I think about it') also suggested an element of rumination. Factor 2 loaded four items. The highest loading item was 'I want to inflict harm on the person/people who did this to me'. These items all reflected malevolent or malicious anger. The majority of the items loaded on Factor 1 (12 items) and only four items loaded on Factor 2, suggesting that Crime-Specific Anger is mainly explained by one lower-order factor relating to ruminative anger but also comprises elements of malevolent anger. The three highest loading items on Ruminative Anger and Malevolent Anger are displayed in Table 3.3. The two lower-order dimensions contained within the higher-order factor of Crime-Specific Anger were highly correlated ($r = .64$, $p < .01$).

Table 3.3 Two-factor Oblique Rotation of Crime-Specific Anger Items

Item No.	Statement	Factor Loading	
		Factor 1	Factor 2
Item 116	'I am angry at the person/people who did this to me.'	.661	-
Item 59	'I feel it was unfair'	.660	-
Item 31	'Telling other people about it helps me express my anger.'	.610	-
Item 56	'I want to inflict harm on the person/ people who did this to me.'	-	-.847
Item 14	'I want revenge.'	-	-.791
Item 104	'I feel hate.'	-	-.725

Note. Factor 1 = Ruminative Anger; Factor 2 = Malevolent Anger; a minus sign indicates a negative loading.

3.3.4 Construction of a shorter version of the Victim Reactions Scale

The 55-item scale, which was constructed using the factor analytic methods described above, is too long to be practically useful in many applied settings. As mentioned in the introduction to this section, the scale is being constructed specifically for use within the criminal justice system to inform referrals to support services. For this reason it was decided to also develop a shorter version of the scale for criminal justice practitioners and proceed to validate it alongside the 55-item scale, which may be more useful for research purposes. If the shorter version is found to have adequate validity and reliability, then it will be recommended for use in applied environments.

P. Kline (1991) describes simple structure as "a solution which maximises the number of zero or near zero loadings" (p. 15) and results in factors that contain a few high loading items. The 55 items retained in the original scale were further reduced using an approach that would accomplish simple structure. Only items that loaded above .40 on one factor and below .10 on the other factor were retained. This process resulted in 21 items being retained in Factor 1 and 11 items in Factor 2 (items 126, 101, 71, 19, 12, 4, 21, 60, 72, 34, 65, 42, 44, 112, 68, 33, 36, and 50 were removed from Factor 1 and items 125, 28, 104, 59, and 97 were removed from Factor 2). In order to maximise

comparability of the scores obtained on Factor 1 and Factor 2 and reduce still further the number of items in the scale only the 11 highest loading items were retained on Factor 1 (items 113, 8, 5, 83, 67, 57, 94, 10, 130, and 123 were removed from Factor 1). This is a method commonly used in test construction (D. Roger, personal communication, September 5, 2003). The shortened scale therefore contained 22 items equally distributed across the two factors.

The three highest loading items on each of the two factors were identical to the three highest loading items on the two factors of the 55-item scale (see Table 3.1). However, most of the items in the longer form of Emotional Vulnerability that reflected fearfulness were not retained in the shortened form of the scale. The items retained in the short forms of the Emotional Vulnerability and Crime-Specific Anger subscales are presented in Table 3.4 along with the corrected item-total correlations for each item.

Negatively loaded items were recoded and the possible scores ranged from 0 to 55 for both Emotional Vulnerability and Crime-Specific Anger. The strength of the association between the two factors of the 22-item scale was lower ($r = .34, p < .01$) than for the two factors of the 55-item scale ($r = .52, p < .01$). This was expected because the items retained in the 22-item scale loaded highly on one factor and near zero on the other, which reduced the relationship between the two factors. Pearson correlation coefficients between the long and short forms of the VRS subscales are shown in Table 3.5. As expected, the long and short forms of Emotional Vulnerability and Crime-Specific Anger were highly correlated.

Table 3.4 Item-total Correlations for the Items Retained in the VRS/short

VRS/long item no.	Item	Item-total correlation
	Emotional Vulnerability	
3	I have lost my confidence.	.86
26	I feel anxious.	.81
21	I feel depressed.	.80
29	I feel that I need support because of what happened to me.	.78
14	It affects my day-to-day life.	.77
36	I find it painful to think about the crime.	.73
45	I think my self-esteem has been damaged.	.73
13	I keep reliving the incident in my head.	.76
16	I am jumpy.	.68
20	I feel irritable.	.75
44	I cry about small things.	.63
	Crime-Specific Anger	
10	I want justice.	.68
5	I am angry at the person/people who did this to me.	.70
49	I want revenge.	.64
34	I resent the offender(s) for what they've done.	.67
28	I want to inflict harm on the person/people who did this to me.	.62
51	I would be happy if the offender(s) went to prison.	.59
30	I have forgiven the offender(s).	.54
19	I am angry at the criminal justice system.	.47
25	Telling other people about it helps me express my anger.	.47
17	I am still annoyed simply because of the inconvenience it caused.	.39
52	I want to let as many people as possible know what happened to me.	.39

Note. Appendix 3.7 includes a full list of the items included in the VRS/long; the item-total correlation represents the correlation between each item and the total factor score if the given item is not included in calculating the factor score.

Table 3.5 Intercorrelations between the VRS subscales

	EV/long	EV/short	CSA/long	CSA/short
EV/long	-	.96**	.52**	.42**
EV/short		-	.42**	.34**
CSA/long			-	.98**
CSA/short				-

Note. EV/long = Emotional Vulnerability subscale of the 55-item VRS; EV/short = Emotional Vulnerability subscale of the 22-item VRS; CSA/long = Crime-Specific Anger subscale of the 55-item VRS; CSA/short = Crime-Specific Anger subscale of the 22-item VRS.

** $p < .01$.

3.3.5 Gender

The sample used for the exploratory factor analysis contained a much higher proportion of female than male victims of crime (70.6% female) but the sample was not sufficiently large to conduct separate factor analyses for male and female participants. As demonstrated in Chapter 1, much of the research on the psychological correlates of victimisation has focused on female victims of crime. For example, in their meta-analysis of studies on the psychological distress of victims of interpersonal violence, Weaver and Clum (1995) found only nine out of 32 studies included male victims of crimes in their samples. Moreover, they found that female victims displayed increased levels of psychological distress than male victims of crime. Gender differences will, therefore, need to be examined carefully in the validation studies of the VRS.

Descriptive statistics for the scores obtained by male and female victims of crime on the longer forms of Emotional Vulnerability and Crime-Specific Anger are displayed in Table 3.6. An independent samples *t* test found that mean scores for male victims of crime differed significantly from those of female victims of crime on EV[6] (t (234) = -3.55, $p < .01$) but not on CSA (t (234) = 0.57, $p > .05$). In the current sample, female victims of crime demonstrated higher levels of Emotional Vulnerability than male victims, which is in line with previous research on victims of crime, which has shown

[6] Due to significant levels of skewness, the EV scores were transformed using a square root transformation.

that female victims generally display higher levels of psychological distress than male victims (e.g., Davis et al., 1996; Weaver & Clum, 1995).

Table 3.6 Descriptive Statistics for VRS/long subscales

	M	*SD*	Range
EV/long			
Female victims (n = 166)	72.54	41.68	0 – 175
Male victims (n = 70)	52.13	33.63	3 – 149
Total sample (N = 247)	65.44	40.40	0 – 175
CSA/long			
Female victims (n = 166)	42.03	15.87	0 – 75
Male victims (n = 70)	43.31	15.35	12 – 70
Total sample (N = 247)	42.34	15.88	0 – 75

Note. EV/long = Emotional Vulnerability subscale of the 55-item VRS; CSA/long = Crime-Specific Anger subscale of the 55-item VRS.

Descriptive statistics for the scores obtained by male and female victims of crime on the short forms of Emotional Vulnerability and Crime-Specific Anger are displayed in Table 3.7. An independent samples t test of the short forms of the two factors found that the mean scores for male victims of crime again differed significantly from those of female victims of crime for Emotional Vulnerability (t [234] = -3.48, $p < .01$) but not for Crime-Specific Anger (t [234] = 1.39, $p > .05$). Furthermore, an inspection of the means displayed in Table 3.7 indicated that both female and male victims obtained higher scores on CSA than EV. Wilcoxon Signed- Rank test of participants' mean scores on the VRS/short factors demonstrated that scores on CSA and EV were significantly different for both female and male victims (female victims [n = 166]: z = -7.15, $p < .01$; male victims [n = 70]: z = -6.93, $p < .01$). This suggests that victims of crime may be more likely to feel angry than emotionally vulnerable in relation to a criminal victimisation experience. This is also supported by the distribution of scores; the scores for CSA approximated a normal distribution whereas the scores for EV were positively skewed.

Table 3.7 Descriptive Statistics for VRS/short subscales

	M	*SD*	Range
EV/short			
Female victims (n = 166)	18.31	14.32	0 – 53
Male victims (n = 70)	11.53	10.25	0 – 42
Total sample (N = 247)	15.95	13.48	0 – 53
CSA/short			
Female victims (n = 166)	27.69	11.09	0 – 52
Male victims (n = 70)	29.87	10.81	6 – 48
Total sample (N = 247)	28.28	11.18	0 – 52

Note. EV/short= Emotional Vulnerability subscale of the 22-item VRS; CSA/short = Crime-Specific Anger subscale of the 22-item VRS.

3.3.6 Reliability

3.3.6.1 Internal consistency

The internal consistency of the long and short forms of the VRS was examined in the sample used for the exploratory factor analysis (N = 247; see Section 3.2.3.1 of this chapter for a full description of the sample). The internal consistency, as measured by Cronbach's alpha, was high for both the short and long versions of Emotional Vulnerability and Crime-Specific Anger.

The alpha coefficients are displayed in Table 3.8. The alpha coefficients all exceeded the acceptable minimum of .70 (Nunnally, 1978), although the coefficients obtained for Crime-Specific Anger were slightly lower for the short form relative to the long form. The internal consistency of the scales was also found to be satisfactory when examined separately for male and female victims of crime.

Table 3.8 Internal Consistency of the VRS Subscales by Gender

	Coefficient Alpha	
	EV	CSA
55-item VRS		
Female victims (n = 166)	.97	.91
Male victims (n = 70)	.96	.90
Total sample (N = 247)	.97	.90
22-item VRS		
Female victims (n = 166)	.95	.86
Male victims (n = 70)	.92	.86
Total sample (N = 247)	.94	.86

Note. VRS= Victim Reactions Scale; EV = Emotional Vulnerability; CSA = Crime-Specific Anger.

3.3.6.2 Test-retest reliability

According to P. Kline (2000), the test-retest reliability of a scale should be measured on a large sample of the target population and the inter-testing interval should be at least three months. P. Kline (2000) recommends a minimum test-retest reliability coefficient of .8 for a scale to be considered reliable. Participants from the sample used for the exploratory factor analysis, who had provided their contact details, were sent a test-retest questionnaire at least three months after the first questionnaire administration. For some participants the inter-testing interval was as long as eight months. Ninety-seven victims of crime from the original sample (mean age = 29.59 years, *SD* = 14.46, range = 17 – 79) completed the test-retest questionnaire. Of the 95 participants who stated their gender on the questionnaire, 73 (76.8%) were female (mean age = 27.88, *SD* = 14.22, range = 17 – 79) and 73 (23.2%) were male (mean age = 35.50, *SD* = 14.63, range = 19 – 65,). The majority of participants were White (90.7%), while the remaining 9.3% were Asian (1%), Black (2%), Mixed (2%), and Chinese or any other ethnic group (4.1%).

Most of the participants were either students (52.6%) or employed (36.1%), while the remainder were unemployed (4.1%), retired (5.2%), or did not fall into either of these

categories (2.1%). The educational level of the sample was high and again this was probably due to the high percentage of students that took part: 3.1% had no qualifications, 10.3% had GCSE passes or equivalent, 18.6% had A levels or equivalent, 43.3% had or were in the process of studying for an undergraduate degree, 15.4% had or were in the process of studying for a postgraduate degree or other qualification, and 7.1% had a vocational or other qualification (2.2% did not provide this information).

The sample as a whole had experienced an average of 2.63 crimes during their lifetime (*SD* = 2.44, range = 1 – 11,). The crimes reported by participants as having affected them most can be divided into the following categories: burglary (20.8%), theft and vehicle-related theft (26%), criminal damage (3%), mugging or street robbery (13.5%), assault (11.5%), indecent assault (3.1%), sexual assault (6.3%), rape (5.2%), child sexual abuse (1%), and murder of a loved one (1%). Eight crimes did not fit into the above categories. These were harassment (4), attempted kidnapping (1), being held hostage during an armed robbery (1), child physical abuse (1), and a house break-in by a homeless person suffering delusions. One respondent did not provide this information. The time that had elapsed since the index crime at the time of answering the first questionnaire differed greatly between participants: only 5.2% of the index crimes had happened less than a month before answering the questionnaire; 29.8% had taken place in the past year; 34% had occurred between one to five years ago; and 24.7% happened more than five years ago (information on the time elapsed since the index crime was missing for 6.2% of the participants).

The test-retest reliability of both the long and short versions of Emotional Vulnerability and Crime-Specific Anger was found to be satisfactory in the total sample and in the subsamples of male and female victims. Pearson correlation coefficients for the total sample and by gender are displayed in Table 3.9. According to Foa et al. (1997) "... moderate test-retest reliability scores are expected in a sample of recent trauma victims, whose rates of recovery vary greatly across victims" (p.447). The majority of victims in the current sample, however, completed the first questionnaire more than three months after the crime had occurred when the effects of criminal victimisation are thought to have stabilised (Resick, 2001). It should be noted, however, that it was not possible to control for factors such as victims receiving treatment during the inter-testing interval.

Table 3.9 Test-Retest Reliability of the VRS Subscales by Gender

	Test-Retest Correlations	
	EV	CSA
55-item VRS		
Female victims (n = 77)	.87	.80
Male victims (n = 20)	.93	.80
Total sample (N = 97)	.88	.80
22-item VRS		
Female victims (n = 77)	.82	.79
Male victims (n = 20)	.93	.79
Total sample (N = 97)	.84	.79

Note. VRS = Victim Reactions Scale; EV = Emotional Vulnerability; CSA = Crime-Specific Anger.

3.4 DISCUSSION

This chapter has presented the construction of the Victim Reactions Scale, a 55-item scale that measures psychological responses to criminal victimisation. It comprises two correlated subscales, Emotional Vulnerability and Crime-Specific Anger. A 22-item version of the scale was also constructed for use in applied settings. Both the longer and shorter versions of the subscales were found to have excellent internal consistency and test-retest reliability.

It is important to discuss some of the limitations of the scale construction exercise. Most of the limitations relate to whether the sample used for the exploratory factor analysis was representative of victims of crime in general. First, the gender distribution of the sample was uneven. Three times as many women as men were included in the sample. This may have biased the results of the factor analysis towards female responses to crime. Gender differences were briefly discussed in this chapter but they will also be examined further in subsequent chapters of this thesis, which report on the validation of the scales, to examine whether the scale is applicable to both female and male victims of crime. Furthermore, the educational level of the sample was relatively high, partly because a large proportion of the participants were University students.

Educational background has been related to psychological outcomes after victimisation, with victims from lower educational levels exhibiting increased psychological distress (e.g., Davis et al., 1996). The advantages of the scale construction exercise presented in this chapter were that it was based solely on a victim sample that included victims of many different types of crimes. Moreover, the sample was not exclusively drawn from a student population with at least half of the participants having been recruited from other sources. This is reflected in the age of the participants in the sample, which ranged from 16 to 86 years.

The parent (55 items) and short (22 items) forms of the VRS were both found to be highly reliable, that is, they are internally consistent and scores demonstrate stability over time. The remainder of the thesis will examine the validity of the VRS, that is, whether it "measures what it claims to measure" (p. 17, P. Kline, 2000). First, the following chapter will further examine the factor structure of the VRS using confirmatory factor analysis.

Chapter 4

Confirmatory factor analysis of the Victim Reactions Scale

4.1 INTRODUCTION

The previous chapter presented the results of exploratory factor analysis of the responses of 247 victims of crime to a preliminary pool of 142 items that were derived from victims' responses to an open-ended questionnaire and scenario study. In Exploratory Factor Analysis (EFA) "an instrument designed to assess a domain of functioning is factor-analyzed to identify separable dimensions, representing theoretical constructs, within the domain" (Floyd & Widaman, 1995; p. 286). EFA was also used in Chapter 3 to reduce the number of items that would make up the final scale. The resulting scale has been named the Victim Reactions Scale (VRS) and was shown through EFA to measure two dimensions of victim reaction. The number of items was reduced from 142 items to 55 items, which were shown to load above .40 on one factor and below .30 on the other factor. The VRS, therefore, comprises two subscales, labelled Emotional Vulnerability (EV) and Crime-Specific Anger (CSA), which are moderately correlated. Both subscales have been shown to have satisfactory internal consistency and test-retest reliability. Moreover, a shorter form of the VRS consisting of 22 items was also constructed for use by criminal justice practitioners, which will be validated alongside the 55-item VRS.

As part of the investigation into the construct validity of the VRS, the present chapter aims to further examine the factor structure of the VRS using Confirmatory Factor Analysis (CFA). CFA is based on Structural Equation Modelling (SEM) techniques and can be used to confirm already formulated hypotheses regarding the factor structure of a measurement instrument. In this case, the hypothesised factor structure is based on the results of the EFA, which was reported in Chapter 3. A detailed model will, therefore be specified that will include two correlated factors (EV and CSA) that load 39 and 16 items respectively. The shorter version of the VRS will also be examined, which comprises two correlated factors that load 11 items each. CFA will, therefore, be used to assess whether the factor structure that was uncovered through EFA can be confirmed on the responses of a new sample of victims of crime. Furthermore, the hypothesized two-factor structure of the VRS will be compared to a unidimensional structure.

As with EFA, to carry out CFA it is necessary that the data satisfy a number of assumptions. There are, however, some differences in the type of assumptions that the data need to satisfy for EFA and CFA. For example, principal axis factoring, the EFA approach that was used in Chapter 3, is not affected by multivariate nonnormality (Floyd & Widaman, 1995). On the other hand, maximum likelihood factoring, the technique most commonly used in CFA, requires that the data demonstrate multivariate normality. It has been shown in 'Monte Carlo' type simulation studies that multivariate nonnormality presents difficulties when fitting models especially when other assumptions are violated, such as having an inadequate sample size (Hu, Bentler, & Kano, 1992). Furthermore, SEM techniques require even larger sample sizes than EFA. Whereas a ratio of three cases per questionnaire item is considered adequate for EFA (P. Kline, 2000), a considerably larger sample size is needed for CFA. For example, R. B. Kline (1998) has recommended a minimum ratio of ten participants per parameter and Bentler and Chou (1987) have suggested a minimum ratio of five participants per parameter when the data satisfy SEM assumptions of normality. Parameters are the relationships that are represented between the variables in a model, including the relationships between each item and its corresponding factor, between each item and its unique variance (specific and error variance), and between the two factors. The model for the 55-item VRS, therefore, contains a total of 111 parameters and a sample size of 555 participants would be needed to satisfy the minimum ratio of participants to variables suggested by Bentler and Chou (1987).

Another problem in confirming models that have been suggested by EFA is that the factors uncovered by EFA may account for only a small percentage of the total variance. This is a problem for CFA because the measurement of the fit of a model is based on the amount of variance that is not explained by the factors and the more variance left unexplained the worse the fit (Floyd & Widaman, 1995). Principal axis factoring of the items that were retained on the VRS subscales demonstrated that the higher order dimensions of Emotional Vulnerability and Crime-Specific Anger accounted for about half of the observed variance in the dataset used for the exploratory factor analysis (i.e., 46.12% of the variance was accounted for by the 55-item VRS and 54.24% by the 22-item VRS; see Section 3.2.3.1 of Chapter 3 for a description of the exploratory factor analysis sample).

In CFA, every observed variable (i.e., questionnaire item) is specified to have two sources of variance: variance that is explained by the latent variable or factor that the item is hypothesized to load on to and the item's unique variance, which includes specific variance and error variance. Specific variance "can arise from the particular form of the items in the test... and from the particular content" (P. Kline, 1994; p. 42), whereas error variance is due to random factors that may occur during measurement, such as testing conditions or the respondent's mood (P. Kline, 1994). Little, Cunningham, Shahar, and Widaman (2002) have argued that CFA of complex models (e.g., models containing 10 observed variables) may produce spurious correlations between the unique variances of observed variables. Furthermore, complex models are likely to include observed variables that share specific variance. For example, the items: 'I feel anxious' and 'I feel jumpy' from the EV subscale may share specific variance due to their association with general anxiety. The presence in the data of correlations between the unique variance of observed variables that were not predicted in advance will result in reduced model fit. It is, therefore, difficult to confirm the factor structure of long questionnaires, "especially if this means that more than five to eight items are free to load on each latent variable" (Floyd & Widaman, 1995; p. 293).

Another problem relating to the CFA of questionnaires is that questionnaire items are invariably measured using a categorical scale, in the case of the VRS a six-point Likert scale ranging from zero to five. The constructs measured by questionnaires, however, are generally regarded as continuous. Categorical variables can be problematic for SEM techniques as it has been shown that correlations between two variables are lower than expected when the variables are categorical as opposed to continuous (Bollen & Barb, 1981). Techniques have been developed specifically for the analysis of categorical measures but these cannot be realistically used in applied research areas as they require very large sample sizes and can accommodate only a limited number of observed variables (Byrne, 2001). It is generally accepted that categorical variables may be analysed using methods designed for continuous variables as long as the variables are measured on at least a five- or six-point scale and are normally distributed (e.g., Bentler & Chou, 1987; Bollen & Barb, 1981).

Due to the numerous problems associated with carrying out CFA of lengthy questionnaires, a number of authors (e.g., Kishton & Widaman, 1994; Floyd & Widaman, 1995) have recommended the use of item parcelling. Instead of representing

each of the items of the questionnaire as separate observed variables, parcels are constructed by combining several items from within a factor. There is, however, some controversy surrounding the use of parcelling in CFA. Bandalos (2002) carried out two simulation studies to investigate some of the effects of item parcelling in CFA. The first study found that item parcelling reduced problems associated with categorised and nonnormally distributed variables and resulted in improved model fit. The second study, however, found that with multidimensional items, item parcelling resulted in higher levels of acceptance of a misspecified model than item-based analyses. Bandalos (2002), therefore, recommended against the use of parcelling when the factor structure is multidimensional or has not been previously examined. Parcelling can, therefore, be recommended in order to reduce the bias associated with categorised and/or nonnormally distributed items only if questionnaire items are known to be unidimensional.

Little et al. (2002) recently presented an interesting discussion of parcelling, which included a number of arguments in support of and against the use of item parcelling. One of the advantages of parcels concerns their psychometric properties. Compared to items, parcels are found to demonstrate higher reliabilities, higher communalities, and a larger ratio of common to unique factor variance. Furthermore, parcels can reduce the nonnormality of item-level data (if present) and the limitations associated with the use of categorical variables. Another obvious advantage of parcels is that their use results in fewer parameters and, in turn, in a more favourable participant to parameter ratio, especially when sample sizes are small. Moreover, Little et al. (2002) argued that residuals are less likely to be correlated when using parcels as specific error is reduced. On the other hand, Little et al. (2002) are in agreement with Bandalos (2002) regarding the disadvantages of using parcelling when the constructs and items represented in a model are multidimensional, as parcels tend to obscure the precise relationships between each item and its corresponding factor. Moreover, Little et al. (2002) point out that parcels are necessarily measured on a different scale than the individual items of a questionnaire but this is not a problem in the present study as Likert scales are arbitrary by nature (West, Finch, & Curran, 1995). To summarise, item parcelling has a number of advantages when carrying out CFA of a long questionnaire but parcels may obscure the true factor structure of a scale if the items within parcels are multidimensional. In light of this, both item-based and parcel-based confirmatory analyses will be carried out and interpreted with caution. The remainder of this chapter will, therefore, present the

findings of CFA using item-based and parcelling techniques for both the 55-item VRS (VRS/long) and the 22-item VRS (VRS/short).

4.2 METHOD

4.2.1 Procedure

The VRS/long, developed through EFA in Chapter 3, was distributed to a new sample of victims of crime. The order of the 55 items was fully randomised. Two formats of the questionnaire were developed, a paper and pencil questionnaire and a computer-based Internet questionnaire. Anyone who had ever been a victim of crime was eligible to participate in this study (see Section 3.2.3 of Chapter 3 for further information on eligibility criteria). Victims of crime who had completed the preliminary questionnaire for the exploratory factor analysis reported in Chapter 3 were not eligible to participate. The development and administration of the two formats of the VRS are described in two separate sections below.

4.2.1.1 Pencil and paper questionnaire

Respondents received a questionnaire pack that included a statement of informed consent, a questionnaire, and a pre-paid envelope. All the questionnaires comprised a section requesting demographic information (see Section 3.2.3.2 of Chapter 3), criminal victimisation information (see Appendix 3.5[7]), and the 55-item VRS. In order to collect data for the concurrent validation of the VRS, which is reported in Chapter 5, one or more additional self-report measures were added to the questionnaire pack. The statement of informed consent was identical to that used for the development of the scale (see Appendix 3.4) apart from a brief paragraph that introduced the additional self-report measures that were included for the concurrent validation of the scale. Pilot studies indicated that it would take participants approximately 20 to 40 minutes to complete the questionnaire pack, depending on the number of additional measures included in the pack.

[7] Three additional questions were included in the questionnaire that was administered to the confirmatory factor analysis sample: 'Were you physically injured during the crime?'; 'Did the case go to court?'; 'If yes, were you satisfied with the outcome of the case in court?'.

Participants were drawn from a variety of sources so that the sample of victims of crime would be as representative as possible. Questionnaires were initially distributed to undergraduate and postgraduate students of the Department of Psychology at the University of York, UK and postgraduate students of the Department of Psychology at the University of Surrey, UK. At the end of lectures, the author made an announcement concerning the research and eligibility for participation. Questionnaires were then distributed to students who expressed an interest in participating. Questionnaires were also given to victim workers at a Victim Support scheme in London and Probation Victim Liaison Services in London and Northamptonshire. Furthermore, questionnaires were given to the Vice Chair of Victims' Voice, a Federation of victims' agencies in the UK, who distributed them to victims of crime (along with information leaflets) at a conference, held by the North of England Victims' Association. Additionally, the research was advertised in PsyPAG, a UK publication for postgraduate students and in a newsletter for the division of South-West psychologists. Anyone interested in taking part in the research was advised to contact the author directly.

Furthermore, a leaflet was designed that explained the nature of the research, which was distributed along with questionnaires in a number of public areas in London. These public areas included the London Probation Library, the reception area of the Royal London Hospital in Whitechapel, and St James's Library in Westminster. The leaflets advised readers to take away a questionnaire if they wished to take part in the research or to contact the author for further information. The response rate from this particular method of questionnaire distribution was not favourable so it was not extended to other public places.

4.2.1.2 Internet questionnaire

In order to increase the sample for the CFA and to obtain responses from a wider range of victims of crime, an Internet questionnaire was developed, which could be accessed via the World-Wide Web. Internet-Mediated Research (IMR) has recently gained popularity and studies into issues specific to IMR have began to emerge. One of the advantages of IMR is the low cost and relative ease with which data from large samples may be collected via the Internet (Hewson, 2003). Furthermore, Joinson (1999) found that social desirability was reduced in Internet samples.

An issue of concern in IMR is whether data collected via the Internet are more biased than data collected via other methods. Hewson, Yule, Laurent, and Vogel (2003) have argued that the present widespread use of the Internet is resulting in a more diverse population of Internet users. Furthermore, a number of studies have compared characteristics of Internet and non-Internet samples and have found that differences between these two types of samples are often in favour of the Internet sample. For example, M. A. Smith and Leigh (1997) found statistically significant differences between an Internet and a non-Internet sample on age and gender, with the Internet sample containing a wider range of ages and a higher proportion of male participants than the non-Internet sample. The non-Internet sample contained a higher proportion of female participants. This same bias towards female participants was also present in the sample used for the EFA presented in Chapter 3. Furthermore, Krantz, Ballard, and Scher (1997) found that their Internet sample was more diverse in terms of age, ethnicity, and country of origin than a non-Internet sample. It is worth noting that the non-Internet samples in the research studies described above consisted exclusively of undergraduate psychology students, a type of sample that is commonly used in psychological research (Sieber & Saks, 1989).

The design of the current Internet questionnaire followed recommendations made by Hewson et al. (2003). The questionnaire was developed using HyperText Markup Language (HTML) in a basic text editor. Every attempt was made to ensure that the Internet questionnaire was user-friendly. The questionnaire was formatted so that it would be presented in the centre of the computer screen regardless of the available resolution. In order to keep the length of the Internet questionnaire to a minimum only the demographic section and the 55-item VRS were included on the Internet version of the questionnaire. An additional question was included at the end of the questionnaire, which requested participants to indicate how they had found out about the questionnaire. The Internet questionnaire was launched on the World-Wide Web using a facility provided by the Department of Psychology at the University of York, which allows members of the Department of Psychology to place a questionnaire on the Internet and retrieve incoming information through a secure data file.

The questionnaire was preceded by a webpage, which introduced the research. Links to information about the authors of the research and the university they were affiliated to were also provided. The main part of the introductory page incorporated the statement

of informed consent that was included in the paper and pencil version of the questionnaire but with some modifications. Due to concerns about the security of research conducted over the Internet some additional precautions were taken. As recommended by Hewson et al. (2003), participants were not given the option to leave their name and contact details. It was also pointed out that participants might want to complete the questionnaire in private, as some of the questions were personal. As it is not possible to ask participants to sign a statement of informed consent on the Internet, potential participants were asked to give their informed consent by clicking on a button labelled 'Go to questionnaire', which automatically directed them to the main questionnaire. It was pointed out that if they did not wish to take part in the study they should click the back button on their browser. It was further explained that participants could withdraw their responses from the study by pressing the 'Withdraw' button, which was located at the bottom of the main questionnaire page.

The main questionnaire was identical in content to the paper and pencil version. The author's contact details were given again at the beginning of the Internet questionnaire in case participants had trouble with the web page. Depending on the format of each question, an appropriate response format was selected. For open-ended questions (e.g. 'Please list the different types of crime you have experienced') blank text boxes were provided. For closed questions, either radio buttons or drop-down menus were selected depending on the number of options given. When a large number of options were provided (e.g., when respondents were asked to state their 'Ethnicity') a drop-down menu was provided. When there were a small number of available options, radio buttons were provided. After a number of different formats of presentation had been tested on a pilot sample, the VRS items were given radio button options that were fully labelled. After completing the questionnaire, respondents were asked to press a button labelled 'Submit Questionnaire', which directed all their responses to a secure file that could only be accessed by the author of the questionnaire using a password. Respondents were also given the opportunity to withdraw their data from the study by pressing a button labelled 'Withdraw from study'. When respondents submitted their responses by pressing the submit button they were directed to a debriefing page, which thanked them for their participation and gave the author's e-mail address for queries and suggestions.

Following recommendations made by Hewson et al. (2003), the Internet questionnaire was advertised using a variety of methods:

1. An e-mail was sent to staff and students of the Department of Psychology at the University of York and to the author's colleagues and friends. The e-mail included a link to the questionnaire so that recipients of the e-mail could take part if they so wished. Recipients were also asked to forward the e-mail to people they thought might be interested in taking part. Information about the research was also included in the International Victimology Website newsletter, which is sent to members via e-mail.
2. A link to the Internet questionnaire was posted on a dedicated web page for IMR called 'Psychological Research on the Net'[8], which is maintained by the American Psychological Society; on the International Victimology Website[9]; and on the Centre for Criminal Justice Economics and Psychology website[10].
3. Messages describing the research and providing a link to the Internet questionnaire were posted on news, psychology-related, and general electronic discussion boards. In addition, a message was posted on the London Probation staff notice board, which included the website address of the Internet version of the questionnaire.
4. The questionnaire could be located through general search engines (e.g., 'Google') using appropriate search terms (e.g., 'crime' and 'questionnaire')
5. Leaflets and posters, which included the website address of the Internet questionnaire, were distributed in public places at the University of York and across London.

The responses to the Internet questionnaire were screened carefully for duplications based on the date of birth of respondents.

4.2.2 Participants

There were 147 valid responses to the paper and pencil questionnaire and 149 valid responses to the Internet questionnaire. The responses for the two types of questionnaires were combined for all the analyses and the final sample, therefore,

[8] http://psych.hanover.edu/Research/exponnet.html
[9] http://www.victimology.nl
[10] http://www.york.ac.uk/criminaljustice

comprised 296 participants. The total sample comprised 218 female victims and 75 male victims (information on gender was missing for three participants). The average age of the participants was 30.98 years (*SD* = 12.96, range = 16 – 82). For the female participants, the average age was 30.42 years (*SD* = 12.85, range = 16 – 82) and for the male participants it was 31.82 years (*SD* = 12.58, range = 16 – 64). Of the 280 participants who answered the question on ethnicity, the majority stated that they were White (87.5%), while the remaining participants stated that they were Asian (2.2%), Black (3.2%), Mixed (1.9%), Chinese (2.5%), or an ethnic group not listed (2.9%). It should be noted that of the participants who stated they were White, a substantial proportion were not White British (35.10%). In terms of occupation, 48% of the participants were employed, 40.5% were students, 1.0% unemployed, 2.4% retired, and 8.1% either did not fall into any of the above categories or did not answer this question. The level of education of the sample was high with 55.8% having obtained an undergraduate degree or above.

The participants had experienced an average of 2.88 crimes (*SD* = 3.31, range = 1 – 20). The participants were asked to answer the VRS with reference to the crime they felt had affected them most, which will be referred to henceforth as the index crime. The index crimes comprised many different types of crimes including burglary (20.0%), theft (24%), criminal damage (3.7%), street robbery (6.4%), assault (10.5%), indecent or sexual assault (3.8%), rape or child sexual abuse (11.5%), domestic violence (4.7%) and murder of a loved one (4.1%). Forty-eight percent of the index crimes were classified as property crimes, 35.3% as violent crimes, 16.7% as sexual crimes, and 0.3% did not fit into the above categories. The time elapsed since the index crime varied: 24.7% had happened a year ago or less, 36.5% had happened between one and five years ago, and 35.5% had happened more than five years ago. Furthermore, 33.8% of participants stated that they knew their offender and 24.7% were injured during the index crime. In terms of involvement with the criminal justice system, 71.6% of participants reported the crime to the police and 12.5% stated that their case went to court. Moreover, 22.0% had been approached by an organisation that provides support or information to victims of crime, 10.8% had made contact themselves with such an organisation, and 17.6% had received professional help in relation to the index crime. Respondents to the Internet questionnaire were also asked to indicate how they had found out about the questionnaire study. Of the 129 participants who responded to this question, 26.4% had been sent an e-mail with information about the research, 21.7% had seen an

announcement on a website, 20.9% had read a posting on an internet discussion group, 8.5% had located the questionnaire through an internet search engine, and 22.5% had been introduced to the American Psychological Association's research page containing the questionnaire during a psychology class.

Participant characteristics were also examined separately for the two different types of questionnaire administration. Some statistically significant differences were noted in the nature of the samples obtained by the two types of questionnaire administration. The Internet sample comprised a higher proportion of male participants (30.9%) than the paper and pencil sample (19.7%; $\chi^2[1, N = 296] = 4.43, p < .05$), which is in line with previous research (e.g., M. A. Smith & Leigh, 1997). The paper and pencil sample comprised a much higher proportion of British participants (83.6% vs. 36.7%; $\chi^2[1, N = 296] = 66.96, p < .01$) and students (57.2% vs. 26.6%; $\chi^2[1, N = 296] = 31.25, p < .01$) than the Internet sample. The average age of participants in the paper and pencil sample ($M = 28.67$ years, $SD = 14.15$) was significantly lower than that of the Internet participants ($M = 33.28$, $SD = 11.23$; $t[290] = -3.08, p < .01$). This is not surprising as a high proportion of the paper and pencil questionnaires were administered to university students in the UK whereas the Internet questionnaire was potentially accessible worldwide. Respondents to the Internet questionnaires were also asked to indicate their country of residence. Less than half of the participants were resident in the UK (35.37%). The majority of participants lived in the USA (47.62%) and the remaining 17.01% lived in Australia, Belgium, Canada, Denmark, Germany, Greece, the Netherlands, Nigeria, South Africa, and Spain.

Participants in the Internet sample had experienced significantly more crimes ($M = 3.45$, $SD = 4.22$, range = 1 – 20) than the participants in the paper and pencil questionnaire sample ($M = 2.31$, $SD = 1.84$, range = 1 – 10; $t[203.02]$[11] $= -3.02, p < .01$). Furthermore, there was a significant relationship between type of index crime and type of questionnaire administration ($\chi^2[2, N = 296] = 10.20, p < .01$), which may be accounted for by the higher proportion of sexual crimes reported by the Internet sample (23.5% vs. 9.7%). There was also a significant relationship between type of questionnaire administration and time elapsed since the index crime ($\chi^2[2, N = 296] = 13.54, p < .01$). A higher proportion of the index crimes reported by the paper and

[11] The *t* statistics for 'equal variances not assumed' are reported because Levene's test was statistically significant.

pencil questionnaire participants had happened less than a year ago (34.3% vs. 17.1%), whereas a higher proportion of the index crimes reported by the Internet sample had happened more than five years ago (45.3% vs. 27.9%).

A higher proportion of respondents to the Internet sample knew their offender (39.6% vs. 28.1%; $\chi^2[1, N = 296] = 4.57, p < .05$) and had been injured during the index crime (35.6% vs. 17.4%; $\chi^2[1, N = 296] = 10.47, p < .01$). There was no relationship between type of questionnaire administration and proportion of participants who had reported the index crime to the police ($\chi^2[1, N = 296] = 2.92, p > .05$) and cases that went to court ($\chi^2[1, N = 296] = 2.80, p > .05$). There was no difference between the two subsamples in the proportion of participants who made contact themselves with a relevant support organisation ($\chi^2[1, N = 296] = 0.66, p > .05$), but a higher proportion of participants who completed the paper and pencil questionnaire stated that they had been approached by a relevant support organisation (28.3% vs. 16.1%; $\chi^2[1, N = 296] = 5.73, p < .05$). Finally, more participants in the Internet sample had received professional help in relation to the index crime (26.2% vs. 9.0%; $\chi^2[1, N = 296] = 15.39, p < .01$). Participant characteristics for the two subsamples are presented in more detail in Appendix 4.1.

Despite the differences noted above between the two subsamples, independent *t* tests revealed that there were no statistically significant differences in average EV or CSA scores between the two types of questionnaire administration. Therefore, the responses from these two samples were combined to form one dataset. Gender differences were examined for the combined sample using independent *t* tests. Female victims scored higher than male victims on the EV subscale ($t\ [165.07]$[12] $= -4.51, p < .01$) but there was no difference on CSA scores ($t\ [291] = -1.06, p > .05$). Mean scores on the VRS subscales for the combined sample and the two subsamples are displayed in Table 4.1.

[12] The *t* statistics for 'equal variances not assumed' are reported because Levene's test was statistically significant.

Table 4.1 Mean Scores (SD) on the VRS Subscales for the Paper & Pencil Questionnaire and the Internet Samples

	VRS/long		VRS/short	
	EV	CSA	EV	CSA
		Combined Sample		
Female victims (n = 218)	78.10 (46.21)	45.17 (17.00)	20.59 (15.15)	29.67 (12.01)
Male victims (n = 75)	54.75 (35.73)	42.83 (15.13)	12.91 (11.91)	29.57 (10.55)
Total sample (N = 296)	72.03 (44.70)	44.75 (16.58)	18.56 (14.71)	29.78 (11.68)
		Paper & Pencil Sample		
Female victims (n = 115)	74.55 (42.65)	46.44 (15.46)	19.38 (14.16)	30.80 (11.15)
Male victims (n = 29)	58.21 (37.16)	44.97 (15.44)	13.90 (12.39)	30.48 (10.74)
Total sample (n = 147)	71.08 (41.66)	46.49 (15.48)	18.15 (13.87)	30.98 (11.10)
		Internet sample		
Female victims (n = 103)	82.07 (49.81)	43.74 (18.54)	21.94 (16.14)	28.41 (12.84)
Male victims (n = 46)	52.57 (35.03)	41.48 (14.93)	12.28 (11.68)	29.00 (10.51)
Total sample (N = 149)	72.96 (47.64)	43.04 (17.49)	18.96 (15.52)	28.59 (12.14)

Note. VRS/long = 55-item Victim Reactions Scale; VRS/short = 22-item Victim Reactions Scale; EV = Emotional Vulnerability; CSA = Crime-Specific Anger.

The internal reliability of both VRS subscales, as measured by Cronbach's alpha, was examined in the total sample and separately for the two types of questionnaire administration (paper & pencil vs. Internet questionnaire). The coefficient alphas were satisfactory in both male and female victims and were very similar across the two different types of questionnaire administration. The coefficients for the VRS subscales

in the combined sample and the two different methods of questionnaire administration are presented in Table 4.2 below.

Table 4.2 Cronbach's Alpha for the VRS Subscales in Sample used for the Confirmatory Factor Analysis

	VRS/long		VRS/short	
	EV	CSA	EV	CSA
	Combined Sample			
Female victims (n = 218)	.97	.91	.94	.87
Male victims (n = 75)	.96	.88	.93	.83
Total Sample (N = 296)	.97	.91	.94	.87
	Paper & Pencil Sample			
Female victims (n = 115)	.97	.91	.94	.87
Male victims (n = 29)	.96	.90	.93	.85
Total Sample (N = 147)	.97	.90	.94	.87
	Internet Sample			
Female victims (n = 103)	.97	.92	.95	.87
Male victims (n = 46)	.96	.87	.93	.83
Total Sample (N = 149)	.97	.91	.95	.86

Note. VRS/long = 55-item Victim Reactions Scale; VRS/short = 22-item Victim Reactions Scale; EV = Emotional Vulnerability; CSA = Crime-Specific Anger.

4.2.3 Confirmatory factor analysis using AMOS

The software programme that was used in the current study to carry out CFA was AMOS version 5 (Arbuckle, 2003). AMOS allows the user to specify the hypothesised model graphically and run analyses based directly on the graphical representations (i.e., the path diagrams). The different models were, therefore, initially represented graphically in AMOS. The latent variables (i.e., the factors) were represented using ellipses and the observed variables (i.e., the questionnaire items or parcels) were represented using rectangles. The factors were assumed to have a causal effect on the items and this relationship was represented using a unidirectional arrow from each latent

variable to the observed variables that were hypothesized to load on to it. The unique variance of each observed variable (item or parcel), which includes both specific and error variance, was also represented in the model. The unique variance was represented using a small circle with a unidirectional arrow pointing towards the observed variable.

The method of estimation used in the present study was maximum likelihood estimation, which is the most commonly used method of estimation in SEM (R. B. Kline, 1998). Maximum likelihood estimation requires a number of assumptions to be met, which were discussed in the introduction to this chapter and will be examined in relation to the current dataset in Section 4.2.5. The most commonly used index of model fit is the Pearson chi-square statistic, whereby a low and statistically nonsignificant chi-square statistic demonstrates good overall fit of a model. The chi-square statistic is the value that is reached when the sample size (minus one) is multiplied by the minimum fit function, hence the sensitivity of the chi-square to sample size (Byrne, 2001). If a model is to be found to fit the data well it should produce "parameter estimates that yield predicted covariances that are as close as possible to the observed values in a particular sample", thus, minimising the fitting function and the value of the chi-square (R. B. Kline, 1998; p. 127). A number of authors (e.g., Byrne, 2001; R. B. Kline, 1998), however, have highlighted some limitations of the chi-square statistic and have recommended that additional measures of fit be consulted. First, large sample sizes, which are a requirement of structural equation modelling techniques, tend to inflate the chi-square statistic (e.g., Hu & Bentler, 1995; Loehlin, 1998). Furthermore, when CFA is conducted using nonnormally distributed data, the value of the chi-square is increased, especially if the variables are categorical and skewed in both directions (West et al., 1995).

A number of alternative fit indices have been developed that can be used in addition to the chi-square to assess the fit of a model. Two main types of fit indices can be distinguished: absolute fit indices, which assess the absolute proportion of explained variance, and incremental or comparative fit indices, which examine the proportion of explained variance relative to a baseline model (Hu & Bentler, 1995). The different fit indices are not always in agreement as they assess different aspects of model fit and there is, therefore, a lack of consensus as to which of the available fit indices should be used. The selection of fit indices reported in this chapter is based on the recommendations of various authors (e.g., R. B. Kline, 1998; Hoyle & Panter, 1995; Hu

& Bentler, 1999) and includes the Goodness-of-Fit Index (GFI; Joreskog & Sorbom, 1981), the Comparative Fit Index (CFI; Bentler, 1989), the Tucker-Lewis Index (TLI; Tucker & Lewis, 1973), the Standardised Root Mean Squared Residual (SRMR; Bentler, 1995), and the Root Mean Square Error of Approximation (RMSEA; Steiger & Lind, 1980).

The GFI, CFI, and TLI range from zero to one with higher values indicating a good fit. The GFI is an absolute index of fit that measures the proportion of covariances in the data that are accounted for by the model; values close to one are considered to represent a close fit, with a value of one indicating perfect fit (R. B. Kline, 1998). The CFI and the TLI are both incremental fit indices. The CFI and TLI compare the fit of the hypothesised model to that of a null model with no correlations between the observed variables. The CFI is less sensitive to sample size than other fit indices and the TLI includes a correction for the effect of model complexity. CFI and TLI values above .90 used to be considered satisfactory but, more recently, it has been suggested that values above .95 are indicative of an acceptable fit, although the TLI may overly reject true models when sample sizes are small (Hu & Bentler, 1999).

The SRMR and the RMSEA should be close to zero if a model represents a good fit for the data. The SRMR is a standardised expression of the average covariance residuals, which are the difference between the covariances observed in the dataset and the covariances predicted by the hypothesised model (R. B. Kline, 1998). If the fit of model were perfect, the value of the SRMR would be zero. R. B. Kline (1998) suggested that values of SRMR below .10 are acceptable, but Hu and Bentler (1999) suggested a cutoff value of around .08 for the fit of a model to be considered satisfactory. The RMSEA is a measure of how badly a model would fit in the population and is expressed per degree of freedom (Loehlin, 1998). The RMSEA is affected by the number of free parameters present in the model and all other things being equal the more degrees of freedom in a model, the lower the RMSEA (MacCallum, Browne, & Sugawara, 1996). Perfect fit would be expressed with a zero value of the RMSEA. Generally, RMSEA values under .05 are thought to indicate a close fit of the model to the data, values between .05 and .08 a reasonable fit, values between .08 and .10 a mediocre fit, and values above .10 a poor fit (Browne & Cudeck, 1993; MacCallum et al., 1996). Hu and Bentler (1999) suggested a cutoff of .06 for the

RMSEA but also found that the RMSEA overly rejected true models when sample sizes were relatively small (e.g., $N = 250$).

4.2.4 Construction of parcels

Separate parcels were constructed for both the long and short versions of EV and CSA by summing the scores on randomly selected items from within each scale. As recommended by Kishton and Widaman (1994), items from the EV and CSA subscales were first randomly assigned to parcels and then the reliability and dimensionality of each parcel was examined. The four positive VRS items were reverse scored to ensure that the scoring of the items within the parcels was consistent. Kishton and Widaman (1994) argued that all the parcels must be unidimensional and internally consistent with a coefficient alpha in excess of .60. The alpha coefficients and number of eigenvalues for each parcel are shown in Table 4.3. The internal consistency of all the parcels was satisfactory. Moreover, all but one of the parcels had only one eigenvalue above one, suggesting that they were unidimensional. Parcel #2 of the 55-item VRS had two eigenvalues above one, but eigenvalues have been shown to overestimate the number of factors present within a dataset (Cattell, 1978). A Scree test was also computed for parcel #2, which suggested the presence of only one factor.

Table 4.3 Reliability and Dimensionality of the Parcels used for CFA of the VRS

Parcel	Number of items	Item numbers	Coefficient alpha	Eigenvalues >1
		VRS/long		
#1 (EV)	6	3, 47, 12, 45, 23, 14	.84	1
#2 (EV)	6	48, 55, 40, 16, 1, 2	.75	2
#3 (EV)	6	21, 13, 42, 15, 11, 39	.87	1
#4 (EV)	7	29, 36, 31, 50, 33, 27, 9	.89	1
#5 (EV)	7	46, 22, 35, 4, 8, 44, 43	.85	1
#6 (EV)	7	7, 26, 24, 32, 18, 20, 41	.84	1
#7 (CSA)	5	34, 37, 54, 52, 38	.74	1
#8 (CSA)	5	10, 5, 49, 19, 53	.79	1
#9 (CSA)	6	25, 51, 17, 6, 30, 28	.71	1
		VRS/short		
#1 (EV)	4	14, 45, 44, 26	.87	1
#2 (EV)	4	13, 29, 16, 21	.88	1
#3 (EV)	3	3, 20, 36	.72	1
#4 (CSA)	4	17, 25, 52, 30	.61	1
#5 (CSA)	4	5, 34, 19, 51	.73	1
#6 (CSA)	3	10, 49, 28	.81	1

Note. VRS/long = 55-item Victim Reactions Scale; VRS/short = 22-item Victim Reactions Scale; EV = Emotional Vulnerability; CSA = Crime-Specific Anger.

4.2.5 Data preparation

Any cases with more than three missing values were excluded from the analyses; this resulted in the removal of ten cases from the sample (two from the paper & pencil questionnaire and eight from the Internet questionnaire). Cases with one to three

missing values were retained in the analyses but the missing values were alternately replaced with the middle range options of the scale, mildly disagree and mildly agree. The final sample comprised 296 participants.

Maximum Likelihood estimation assumes both univariate and multivariate normality (R. B. Kline, 1998), although it has been found to be fairly robust to nonnormality (e.g., Chou & Bentler, 1995). Univariate normality refers to the distribution of individual variables within the model (i.e., the distribution of each observed variable should be approximately normal). AMOS produces absolute values for kurtosis and skewness as well as their statistical significance in the form of a critical ratio. An inspection of the critical ratios indicated that a substantial proportion of the individual items and of the parcels demonstrated statistically significant levels of skewness and kurtosis. R. B. Kline (1998) has argued, however, that the large samples used in SEM may result in small departures from normality being statistically significant and suggests that the absolute values of skewness and kurtosis are inspected. Based on the results of relevant studies, R. B. Kline (1998) made some tentative suggestions that absolute values of skewness above three should be considered extreme and absolute values of kurtosis above 10 should be considered problematic and those above 20 excessive.

The absolute values of univariate skewness (SK) and kurtosis (KU) of the items and parcels were, therefore, examined. For the VRS/long items, SK ranged from 0.01 to 1.53 ($M = 0.60$, $SD = 0.30$) and KU ranged from 0.10 to 1.26 ($M = 0.92$, $SD = 0.38$). For the VRS/short items, SK ranged from 0.07 to 2.17 ($M = 0.63$, $SD = 0.24$) and KU ranged from 0.26 to 1.19 ($M = 0.87$, $SD = 0.27$). Most of the items demonstrated positive SK and negative KU, although 15 out of the 55 items demonstrated negative SK and 4 out of 55 items positive KU. For the VRS/long parcels, SK ranged from 0.08 to 0.62 with a mean SK of 0.38 ($SD = 0.20$), while KU ranged from 0.05 to 0.86 with a mean KU of 0.54 ($SD = 0.22$). For the VRS/short parcels, SK ranged from 0.04 to 0.75 with a mean SK of 0.44 ($SD = 0.26$) and KU ranged from 0.24 to 0.97 with a mean KU of 0.57 ($SD = 0.27$). Kurtosis was negative for all the parcels whereas skewness was positive for the EV parcels and negative for the CSA parcels. One exception to this pattern was parcel #6 (CSA) of the VRS/short, which demonstrated positive skewness. None of the absolute values of skewness and kurtosis were above the cutoff values suggested by R. B. Kline (1998) and for the parcels all absolute values of skewness and kurtosis were below one. In an attempt to decrease the nonnormality present in the

item-level data, a number of transformations were examined but these were not effective in reducing nonnormality, possibly due to the differential skewness present in the data.

Multivariate normality refers to the overall distribution of all the variables in a model and is also important for SEM procedures. Univariate normality is a necessary condition for multivatiate normality. Amos software produces Mardia's (1970) coefficient of multivariate kurtosis and an associated normalised estimate, which is expressed as a critical ratio. Large positive or negative normalised estimates of the Mardia's (1970) coefficient suggest that the data are multivariate nonnormal (Byrne, 2001). Mardia's coefficient and standardised estimate for all the hypothesised models are presented in Table 4.4 below. The standardised estimate of Mardia's coefficient suggests that the item-based data demonstrate high levels of multivariate kurtosis. By contrast, the standardised estimates of Mardia's coefficient for the parcel-based data are substantially lower and suggest multivariate kurtosis is moderate.

Table 4.4 Mardia's Coefficient of Multivariate Kurtosis for the Items and Parcels Included in the CFA of the long and short forms of the VRS

	VRS/long		VRS/short	
	Items	Parcels	Items	Parcels
Mardia's coefficient[a]	426.80	12.53	87.53	4.95
Critical Ratio[a]	46.37	7.66	23.17	4.34

Note. VRS/long = 55-item Victim Reactions Scale; VRS/short = 22-item Victim Reactions Scale.
[a]produced by AMOS (Version 5).

Multicollinearity can also cause problems for SEM techniques. Inspection of the dataset indicated that the item-level data did not suffer from bivariate multicollinearity as none of the item intercorrelations were above .85. The intercorrelations demonstrated amongst the parcels were higher but this was expected, as the parcels were aggregate scores of correlated items within subscales, which can result in inflated intercorrelations. Some of the EV parcels demonstrated correlations just above .85 but none of these exceeded .90, the cutoff recommended by Field (2000). Multivariate multicollinearity refers to the multiple correlations between a variable and the rest. R. B. Kline (1998) suggests using the variance inflation factor (VIF) and tolerance statistic

to uncover multivariate multicollinearity. It is recommended that the VIF should be below 10 for all the variables and tolerance should be above .10. The current data in the form of items and parcels were entered into a regression analysis to obtain these statistics separately for each subscale. All of the VIF values were below 10 and all the tolerance values were above .10.

4.3 RESULTS

4.3.1 Item-based confirmatory factor analysis

4.3.1.1 Victim Reactions Scale/long

This model contained 111 parameters (two latent variables and 55 observed variables). The ratio of 2.7 cases per parameter was below the recommended ratio (e.g., Bentler & Chou, 1987) and, as shown in the previous section, the data demonstrated excessive levels of multivariate kurtosis. The two-factor structure was compared to a one-factor structure containing the same observed variables loading on to one latent variable. Goodness-of-fit indices for the one- and two-factor structures of the VRS/long are presented in Table 4.5.

Apart from the SRMR and the RMSEA, the goodness-of-fit indices suggested a poor fit for both models. The chi-square statistic was large and statistically significant but this may have been due to the large sample size and the high levels of multivariate normality present in the data. Furthermore, the CFI, TLI, and GFI were well below the cutoff points for acceptable fit. On the other hand, the SRMR and RMSEA both suggested a reasonable fit for the two-factor model. A comparison of the absolute fit indices (e.g., the GFI) obtained for the one- and two-factor models indicated that the two-factor structure demonstrated a better fit than the one-factor structure. However, despite obtaining acceptable values of the SRMR and the RMSEA for the two-factor structure, the model was not accepted because all the remaining fit indices suggested a poor fit for the model.

Table 4.5 Goodness of Fit Indices for the One- and Two-factor Structure of the 55-item VRS (Derived from Item-based Analyses)

Fit indices	One factor	Two factor
χ^2	4919.24** (*df* 1430)	4110.95** (*df* 1429)
CFI	.69	.76
TLI	.68	.75
GFI	.52	.62
SRMR	.08	.07
RMSEA	.09 (.088 – .094) [a]	.08 (.077 – .083) [a]

Note. χ^2 =chi-square; CFI=Comparative Fit Index; TLI=Tucker-Lewis coefficient; GFI=Goodness of Fit Index; SRMR=Standardised Root Mean Squared Residual; RMSEA=Root Mean Squared Error of Approximation.

[a] 90% population confidence interval.

** $p < .01$.

4.3.1.2 Victim Reactions Scale/short

The two-factor model comprised two latent variables and 22 observed variables. The model, therefore, contained 45 parameters resulting in a ratio of 6.6 cases per parameter, which is just over the minimum recommended by Bentler and Chou (1987). Their recommendation, however, was based on the premise that the data satisfied basic SEM assumptions (e.g., multivariate normality) and the current dataset demonstrated high levels of multivariate kurtosis. A one-factor structure was also examined, which contained the same observed variables but these all loaded on to one latent variable. The results were similar to those obtained for the VRS/long although the SRMR and the RMSEA also suggested a poor fit for the VRS/short. Again, the two-factor structure was found to be a closer fit for the data than the one-factor model. However, as none of the fit indices suggested a good fit for the model, the two-factor model was rejected. Goodness-of-fit indices for the one- and two-factor structure of the VRS/short are presented in Table 4.6.

Table 4.6 Goodness of Fit Indices for the One- and Two-factor Structure of the 22-item VRS (Derived from Item-based Analyses)

Fit indices	One factor	Two factor
χ^2	1401.28** (*df* 209)	789.61** (*df* 208)
CFI	.70	.85
TLI	.67	.84
GFI	.60	.80
SRMR	.12	.08
RMSEA	.14 (.13 – .15)[a]	.10 (.09 – .11)[a]

Note. χ^2 = chi-square; CFI = Comparative Fit Index; TLI = Tucker-Lewis coefficient; GFI = Goodness of Fit Index; SRMR = Standardised Root Mean Squared Residual; RMSEA = Root Mean Squared Error of Approximation.

[a] 90% population confidence interval.

**$p < .01$.

4.3.1.3 Discussion of item-based analyses

The results of the item-based CFA suggested that the two-factor VRS structure did not provide an adequate fit for the data. If a model is found not to be a good fit for the data, it is possible to make modifications to the original model in order to improve fit. AMOS provides information on the kind of modifications that would improve the model substantially. These modifications may involve adding or removing relationships between items and factors and also correlating the error terms (i.e., unique variances) of the observed variables (i.e., the questionnaire items). This is problematic, however, because it is important that all modifications are theoretically meaningful (e.g., R. B. Kline 1998) and post hoc modifications result in CFA essentially becoming an exploratory exercise.

As discussed in the introduction to this chapter, it is difficult to confirm complex models such as the item-based VRS models because the large number of observed variables entered into the analyses can lead to spurious correlations between the error terms of items or a factor and an item that has not been specified to load on to it (Little et al., 2002). Furthermore, the sample size used for the item-based analyses was not adequate considering the complexity of the model and the data demonstrated severe

multivariate nonnormality. In an attempt to reduce the nonnormality present in the data and also to increase the case per parameter ratio parcel-based analyses were also carried out (West et al., 1995). These are reported in the next section of this chapter.

4.3.2 Parcel-based confirmatory factor analysis

The construction of the parcels has already been presented in Section 4.2.4. The results of parcel-based CFA of both the VRS/long and the VRS/short are presented below.

4.3.2.1 Victim Reactions Scale/long

The hypothesised model contained two latent variables and nine observed variables (parcels) and, therefore, a total of 19 parameters. The ratio of 15.6 cases per parameter satisfied requirements of SEM procedures (e.g., R. B. Kline, 1998) and multivariate kurtosis was not excessive. A one-factor structure of the VRS was also examined, which contained nine observed variables loading on to one latent variable. Goodness-of-fit indices for the two-factor VRS/long are presented in Table 4.7 below.

Table 4.7 Goodness of Fit Indices for the One- and Two-factor Structure of the 55-item VRS (Derived from Parcel-based Analyses)

Fit indices	One factor	Two factor
χ^2	495.73** (*df* 27)	115.31** (*df* 26)
CFI	.85	.97
TLI	.80	.96
GFI	.72	.92
SRMR	.10	.05
RMSEA	.24 (.22 – .26) [a]	.11 (.09 – .13) [a]

Note. χ^2 = chi-square; CFI = Comparative Fit Index; TLI = Tucker-Lewis coefficient; GFI = Goodness of Fit Index; SRMR = Standardised Root Mean Squared Residual; RMSEA = Root Mean Squared Error of Approximation.

[a] 90% population confidence interval.

** $p < .01$.

The chi-square was highly significant for both the one-factor and two-factor models, suggesting that both models were a poor fit for the data. The chi-square statistic, however, was substantially lower for the two-factor model. Furthermore, the chi-square can be inflated by relatively large sample sizes, the complexity of the model, and multivariate nonnormality. The additional fit indices reported in Table 4.7 suggested that the fit of the one-factor model was not acceptable. Conversely, the GFI, CFI, TLI and SRMR all indicated that the fit of the two-factor model was satisfactory. The RMSEA was just above the .10 cuttoff of reasonable fit but the confidence interval for the RMSEA was wide suggesting that the RMSEA was an imprecise measure of model fit in the current dataset (Byrne, 2001). The two-factor model was, therefore, accepted.

The indices of fit reported above are measures of the overall fit of the model so it is also important to examine information that relates to the fit of specific aspects of the model (R. B. Kline, 1998). Factor loadings are represented as regression coefficients. The standardised regression coefficients, which are essentially the correlations between the latent variables and the observed variables, were all statistically significant. The squared multiple correlations all exceeded .75, indicating that the proportion of item variance explained by each factor (i.e., the common variance) was high. The correlation between EV and CSA in the current sample was higher than that found in the exploratory factor analysis sample but it was not excessively high, thus supporting the discriminant validity of the two factors (R. B. Kline, 1998). The standardised regression coefficients (above the arrows) and the squared multiple correlations (above each observed variable) are represented in Figure 4.1 below. All the factor loadings were significant ($p < .01$).

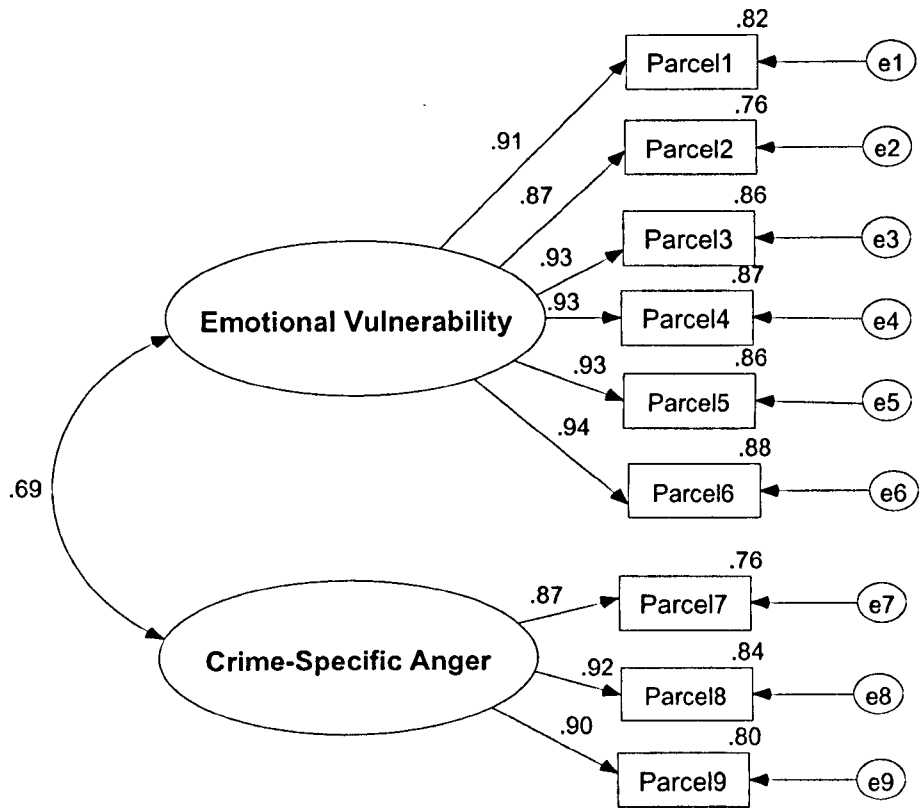

Figure 4.1 Parcel-based Confirmatory Model of the Two-factor Structure of the VRS/long

4.3.2.2 Victim Reactions Scale/short

The two-factor model of the VRS/short comprised two latent variables and six observed variables (parcels). There were 13 parameters and, therefore, a satisfactory ratio of 22.8 cases per parameter. The one-factor structure for the VRS/short comprised six observed variables loading on to one latent variable. Goodness-of-fit indices for both models are presented in Table 4.8.

Table 4.8 Goodness of Fit Indices for the One- and Two-factor Structure of the 22-item VRS (Derived from Parcel-based Analyses)

Fit indices	One factor	Two factor
χ^2	262.47** (*df* 9)	30.51** (*df* 8)
CFI	.82	.98
TLI	.69	.97
GFI	.76	.97
SRMR	.15	.03
RMSEA	.31 (.28 – .34)[a]	.10 (.06 – .14)[a]

Note. χ^2 = chi-square; CFI = Comparative Fit Index; TLI = Tucker-Lewis coefficient; GFI = Goodness of Fit Index; SRMR = Standardised Root Mean Squared Residual; RMSEA = Root Mean Squared Error of Approximation.

[a] 90% population confidence interval.

** $p < .01$.

The results for the VRS/short were similar to those obtained for the 55-item VRS. Again, the chi-square statistic was highly significant for both models but the remaining indices of fit reported in Table 4.8 suggested an acceptable fit for the two-factor VRS structure but not the one factor structure. The RMSEA suggested a mediocre fit but again the confidence interval for the RMSEA was wide indicating that the RMSEA value may be an imprecise measure of model fit in the current dataset (Byrne, 2001). The standardised regression coefficients were all statistically significant. The squared multiple correlations were above .50 for all the parcels. They were considerably higher for the EV parcels (.83 – .90) than the CSA parcels (.51 – .79). The correlation between EV and CSA was strong but low enough to suggest that the two factors are measuring different constructs. The standardised regression coefficients (above the arrows) and the squared multiple correlations (above each observed variable) are represented in Figure 4.2. All the factor loadings were significant ($p < .01$).

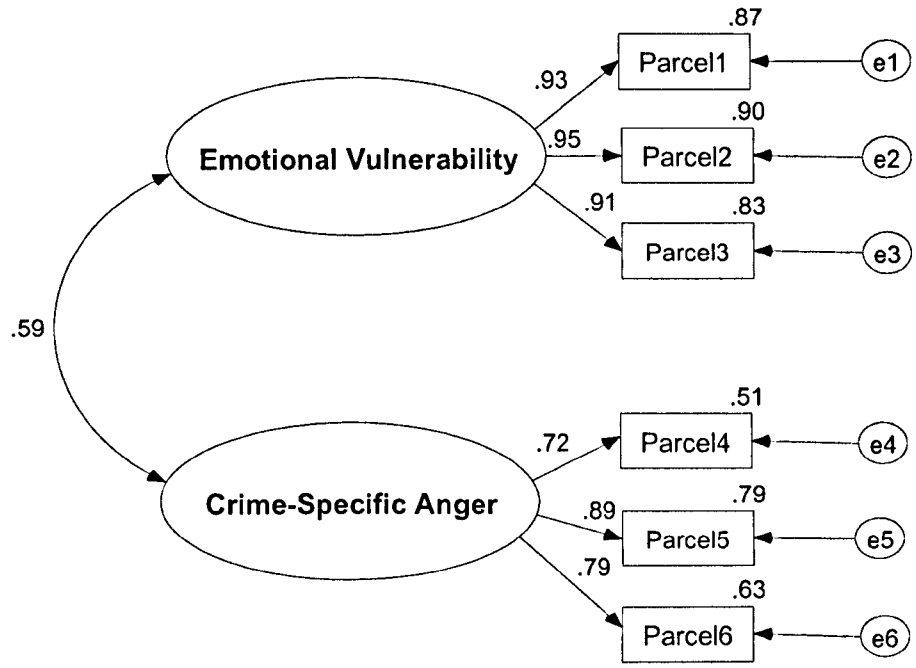

Figure 4.2 Parcel-based Confirmatory Model of the Two-factor Structure of the VRS/Short

4.3.2.3 Discussion of parcel-based analyses

The parcel-based analyses suggested that the two-factor structures of both versions of the VRS represented a satisfactory fit for the data and demonstrated a better fit than the unidimensional model. The models are, therefore, not rejected. This does not mean that the current models are the best possible fit for the data as alternative models could

result in a better fit. Moreover, it is important that the factor structure of a questionnaire is theoretically sound and practically useful.

As in the sample used for the EFA, there was a gender bias in the current sample with over 70% of the sample being female victims of crime. The next section presents separate CFA for female victims of crime. There were not enough male participants in the sample ($n = 75$) to enable analyses for male victims separately. SEM with sample sizes below 100 is not advised unless the model being tested is very simple: "With less than 100 cases, almost any type of SEM analysis may be untenable unless a very simple model is evaluated" (R. B. Kline, 1998; p. 12). As a result, it was not possible to examine possible gender differences in the factor structure of the VRS.

4.3.3 Parcel-based confirmatory factor analyses for female participants

The parcel-based analyses were repeated for female victims separately to examine whether there would be any differences in the fit of the model compared to the total sample. The results of the parcel-based analyses for the two-factor model of the VRS/long and the VRS/short are displayed in Table 4.9 below.

Table 4.9 Goodness of Fit Indices for the Parent and 22-item VRS (Derived from Parcel-based Analyses) for Female Victims of Crime (n = 218)

Fit indices	55-item VRS	22-item VRS
χ^2	71.35** (*df* 26)	16.33** (*df* 8)
CFI	.98	.99
TLI	.97	.99
GFI	.93	.98
SRMR	.04	.02
RMSEA	.09 (.07 – .12)[a]	.069 (.02 – .12)[a]

Note. χ^2 = chi-square; CFI = Comparative Fit Index; TLI = Tucker-Lewis coefficient; GFI = Goodness of Fit Index; SRMR = Standardised Root Mean Squared Residual; RMSEA = Root Mean Squared Error of Approximation.

[a] 90% population confidence interval.

** $p < .01$.

Compared to the analyses for the combined sample, the fit indices suggested an improvement in the fit of the model. The chi-square was statistically significant but this is common in large samples. The CFI, TLI, GFI, SRMR, and RMSEA suggested an acceptable fit. Indeed, the RMSEA for the 22-item VRS was under .08 suggesting a reasonable fit for the data. Again, the confidence interval was wide suggesting that for the current dataset the RMSEA is not a precise measure of model fit.

4.4 DISCUSSION

The results of the item- and parcel-based analyses were markedly different. The item-based analyses for both the long and short versions of the VRS suggested a poor fit for the model. By contrast, a wide range of fit indices derived from the parcel-based analyses indicated an acceptable fit for the model. It is not surprising that the item-based analyses failed to confirm the fit of the model as both versions of the VRS are relatively long, the sample size used was modest for SEM requirements, and the data were categorical and multivariate nonnormal. On the other hand, parcel-based analyses must be interpreted with caution, as they tend to obscure relationships at the item level, especially if the items are multidimensional. It should be noted, however, that the hypothesised factor structure had been tested before using exploratory factor analysis on a similar sample and that the parcels were all found to be unidimensional and internally consistent.

The Goodness of Fit Index, Tucker-Lewis coefficient, Comparative Fit Index, and the Standardised Root Mean Squared Residual all suggested a close fit for the parcel-based models. The chi-square suggested that the fit of the model was unsatisfactory but many authors have recommended against rejecting models with a statistically significant chi-square statistic, as the large samples commonly used in SEM tend to inflate the chi-square. The Root Mean Squared Error of Approximation (RMSEA) was acceptable for the VRS/short model but just above the recommended cutoff for the VRS/long. The confidence intervals for the RMSEA, however, were wide for the parcel-based analyses suggesting that its measurement of model fit was not precise. Furthermore, Hu and Bentler (1999) found that the RMSEA overly rejected true models when relatively small sample sizes were used. It is appreciated that the sample used in the current study was limited in size and also did not approximate a multivariate normal distribution. Due to the complexity of the hypothesised models and the number of free parameters a sample

size closer to 500 participants would have been preferable. It is inherently difficult, however, in applied research areas, especially when the topic is sensitive, to obtain large samples of participants. Moreover, the majority of the participants scored below the mean resulting in some degree of skewness and kurtosis in the data. This is not surprising, though, as the majority of victims of crime recover psychologically and only a minority continue to display high levels of distress a long time after the crime was experienced (see Chapter 1).

The separate analyses conducted for the female participants also resulted in a satisfactory fit for the model, with acceptable RMSEA values for both versions of the VRS but especially for the short version. It is important, however, that further work is carried out in relation to the factor structure of the VRS in male victims of crime. The current study supports the validity of the factor structure for female victims of crime but due to the limited number of male victims included in both the EFA and CFA samples it is not possible to generalise the factor structure to male victims of crime with confidence. Although every effort was made to recruit an adequate number of male participants, it was not possible to carry out separate confirmatory factor analyses for male victims of crime in the present study. It is, therefore, strongly recommended that the factor structure of the VRS is examined in future research in a large sample of male victims of crime.

The length of both the long and short versions of the VRS presented several problems for the CFA. Indeed, the results of the analyses (e.g., the modification indices produced by AMOS) suggested that correlating error terms or indeed reducing the number of observed variables in the models could obtain an improved fit. According to classical psychometric theory (e.g., P. Kline, 1994; Little et al., 2002), however, the higher the number of items in a scale, the more reliably the construct of interest is measured. P. Kline (1994) differentiates between a person's 'true score' of a construct and the score that a person obtains when completing a measure that is attempting to measure that construct. The 'true score' is the score that would be obtained if every item that potentially measures the construct of interest could be included in a questionnaire. In the real world, questionnaires contain only a sample of the possible items that could measure a construct and the true and obtained scores are, thus, different. This is due to systematic and random error in the measurement of hypothesised constructs.

Systematic error is not problematic, as it should affect all measurements of the construct equally, but random error causes problems because it affects measurement in an unpredictable way (P. Kline, 1994). Random error in the measurement of a construct using a questionnaire may arise due to a number of different reasons including inadequate sampling from the universe of items, unclear instructions, and the respondents' current mood. Furthermore, it has been shown that an insufficient number of items can contribute to random error. As Little et al. (2002) point out "a person's true score is more confidently presented to the extent that a larger number of measurements of the construct are used" (p.157). The longer a scale the more reliable it is and ten items is suggested as the absolute minimum number of items for a scale to be considered reliable (P. Kline, 1994). P. Kline (1994) further suggested that "a smaller number of highly homogeneous items would be likely to be far too specific to be a valid measure even if it were reliable" (p. 42). Considering that the parcel-based analyses suggested that the models of the 55-item and 22-item VRS represented a satisfactory fit for the data and in view of the limitations associated with item-level analyses, it was decided not to modify the models by removing items or correlating error terms. In conclusion, the parcel-based models for the 55- and 22-item VRS were accepted as an adequate fit for the data but it is strongly recommended that CFA is repeated for the models examined in this chapter using a larger sample size and also for male victims of crime separately. The next chapter will further investigate the construct validity of the VRS by examining its relationship with a range of self-report measures that have been previously used to assess the psychological well-being of victims of crime.

Chapter 5

Concurrent Validation of the Victim Reactions Scale

5.1 INTRODUCTION

The results of the confirmatory factor analysis reported in the previous chapter supported the two-factor structure of both the long (55-item) and short (22-item) forms of the VRS and both EV and CSA demonstrated excellent internal consistency and stability over a period that exceeded three months suggesting that the VRS is a reliable measure (see Chapter 3). Reliability is essential if a measure is to be valid; however, a reliable measure is not necessarily valid: "A test is said to be valid if it measures what it claims to measure" (P. Kline, 2000; p. 17). Various methods are suggested for exploring the validity of a scale but many of these depend on the availability of a suitable criterion test that can be used as a benchmark against which the new scale can be compared. If no such criterion test exists, which is often the case when a new measure is being developed, it is recommended that several studies are carried out in order to examine the construct validity of the scale (Cronbach & Meehl, 1955). If the scale measures what it is supposed to measure, the results of these studies should be in agreement with "the definition, i.e. the psychological nature, of the construct" (P. Kline, 2000; p. 26) that is hypothesised to be measured by the new scale. The remainder of the thesis will, therefore, present several studies that attempt to examine the construct validity of the VRS.

The present chapter will examine the relationship between the VRS subscales and existing measures that have been used in the literature to assess the psychological effects of crime on victims. When a benchmark criterion measure for the new scale does not exist, P. Kline (2000) suggests: "the best that can be done is to correlate the new test with whatever tests can be assembled, which imperfectly measure the variable, and to be content with moderate correlations, around .4 or .5" (p. 21). Moderate correlations are not enough evidence for the validity of a new measure but can be used as support for its construct validity alongside other evidence (P. Kline, 2000).

The literature reviewed in Chapter 1 suggested that PTSD, anxiety, and depression are psychological outcomes commonly associated with criminal victimisation (e.g., Norris

& Kaniasty, 1994; Kilpatrick et al., 1987). Furthermore, the majority of studies included in the systematic review reported in Chapter 2 included outcome measures to assess levels of depression, anxiety, and PTSD in victims of crime (e.g., Foa et al., 1995; Rothbaum, 1997). Anger has also been identified as a likely response to criminal victimisation (e.g., B. Williams, 1999) and the exploratory factor analysis in the previous chapter uncovered a stable factor relating mainly to feelings of anger towards the perpetrator and the criminal justice system. Furthermore, as noted in Chapter 1, stress theories (e.g., Lazarus & Folkman, 1984) emphasise the importance of an individual's coping mechanisms in response to stressful events. In addition, recent research has also examined the role of emotional response style in moderating the link between stress and psychological or physical outcomes (e.g., Roger & Jamieson, 1988). The measures used for the concurrent validation of the VRS, therefore, included self-report measures of PTSD, depression, anxiety, anger, coping styles, and emotional response styles. A brief discussion of each of the measures used in the concurrent validation of the VRS and the constructs they are hypothesised to measure follows.

5.1.1 Anxiety and mood disorders

PTSD is thought to describe an individual's response to a traumatic event and the diagnosis of PTSD requires the occurrence of such an event. The types of symptoms associated with PTSD were described in Chapter 1 (see Section 1.1.1). A diagnosis of PTSD is commonly made using structured interviews, such as the Diagnostic Interview Schedule (Robins et al., 1981). The diagnostic criteria for PTSD require that symptoms are present for at least one month. Several self-report measures of PTSD have now been developed, which enable an assessment of the presence of PTSD symptoms as well as an indication of symptom severity. PTSD was examined in the current study using the PTSD Symptom Scale – Self-report (PSS-SR; Foa et al., 1993), which is based on the *DSM-III-R* criteria for the diagnosis of PTSD and includes items that assess all three symptom clusters of PTSD: intrusion symptoms, avoidance symptoms, and arousal symptoms. The EV subscale also contains items that relate to intrusion (e.g., 'I keep reliving the incident in my head'), avoidance behaviours (e.g., 'I avoid going out alone in the dark'), and arousal (e.g., 'I feel irritable'). It is, therefore, predicted that severity of PTSD will be positively associated with scores on the EV subscale; the correlation is likely to be strong as the PSS-SR is the only criterion measure used in the current study that was completed with reference to the index crime.

As will be discussed in Section 5.1.2, levels of anger in the first week after the offence have been associated with PTSD severity one month later (e.g., Riggs, Dancu, Gershuny, Greenberg, & Foa, 1992). Assessment of CSA and PTSD in the current study was, however, carried out at varying times after the offence; for well over half the participants (66.1%), the index crime had happened more than a year ago. It is, therefore, not clear whether CSA will be positively associated with PTSD severity; hence no prediction is made.

As shown in Chapter 1, depression and anxiety are symptoms commonly associated with criminal victimisation. The diagnosis of depression and generalised anxiety disorder is not linked to the occurrence of a specific event and the diagnostic criteria are, therefore, not linked to the experience of a traumatic event. Nevertheless, measures of depression and anxiety have often been used to assess victims' psychological well-being (e.g., Foa et al., 1999; Resick et al., 2002) and a number of studies have found higher levels of depression and anxiety in victims relative to nonvictims (e.g., Norris & Kaniasty, 1994). The stress-diathesis theory of psychopathology, which was discussed in Chapter 1, proposes that the development of a disorder results from the interaction between a predisposition to disorder and the occurrence of a stressor. It is possible, thus, that the experience of a crime that is perceived to be stressful by the victim may lead to the development of disorder if a diathesis is present.

Depression was measured in the current study using the Beck Depression Inventory-Second Edition (BDI-II; Beck, Steer, & Brown, 1996). Some of the symptoms of depression measured by the BDI-II include sadness, pessimism, guilty feelings, self-dislike, crying, loss of interest, indecisiveness, worthlessness, and irritability. It is thought that depression will be positively associated with EV as many of the items included in this subscale relate to symptoms of depression (e.g., 'I cry about small things', 'This crime has made me pessimistic about life'). Respondents are, however, instructed to complete the VRS with reference to a crime that has happened to them and many of the items are crime-specific. Therefore, scores on the BDI-II, which is a general measure of depression, are not expected to correlate highly with scores on EV. None of the items that comprise the CSA subscale relate to symptoms of depression; it is, therefore, not expected that CSA will be significantly associated with depression scores.

General anxiety was measured in the current study using the State Trait Anxiety Inventory (STAI; Spielberger, 1983). The STAI is a self-report measure that is thought to assess two dimensions of anxiety, state anxiety and trait anxiety. The distinction between state and trait anxiety was introduced by Cattell and colleagues (e.g., Cattell & Scheier, 1961) and was further investigated by Spielberger (e.g., Spielberger, 1966). State anxiety is thought to be a temporary expression of an individual's personality in reaction to a stressful event that is characterised by "subjective feelings of tension, apprehension, nervousness, and worry, and by activation or arousal of the autonomic nervous system" (Spielberger, 1983; p. 4). Trait anxiety, on the other hand, is thought to be more enduring and describes "differences between people in the tendency to perceive stressful situations as dangerous or threatening and to respond to such situations with elevations in the intensity of their state anxiety reactions" (Spielberger, 1983; p. 5). Using an earlier version of the STAI (Spielberger et al., 1970), Kilpatrick et al. (1979) found that female victims of rape scored significantly higher on both state and trait anxiety than nonvictims six to ten days after the offence and also one month later. At the follow-up assessments conducted three and six months after the offence, levels of trait anxiety remained elevated for the victims of rape relative to the nonvictims.

The EV subscale of the VRS is thought to assess how emotionally vulnerable a victim is currently feeling and a number of the items relate to feelings of anxiety (e.g., 'I feel anxious'; 'I am nervous of being alone'; 'I am jumpy'). It is, thus, hypothesised that state anxiety will be positively correlated with scores on the EV subscale of the VRS. Moreover, Spielberger (1983) suggests that individuals who display high levels of state anxiety in response to stressful events are more likely to also demonstrate high levels of trait anxiety. It is, therefore, also hypothesised that EV will be positively correlated with trait anxiety. Due to the specificity of the EV subscale to the respondents' personal experience of crime, the relationship between EV and anxiety is not expected to be strong.

Although CSA describes mainly feelings of anger towards others, some of the STAI items are potentially relevant to feelings of anger, such as 'I feel calm', 'I am tense', and 'I am calm, cool, and collected'. Indeed, Spielberger (1996) reported positive correlations between state anxiety and state anger items and, also, between trait anxiety and trait anger items of the STAI and the State Trait Anger Expression Inventory, which

is described in the next section. He suggested that there is "an intrinsic relationship between anger and anxiety that may be difficult to eliminate from self-report measures of these constructs" (p. 10). It is, therefore, predicted that CSA will be positively associated with STAI Trait Anxiety and State Anxiety.

5.1.2 Anger

Another measure that was included in the concurrent validation of the VRS was the State Trait Anger Expression Inventory (STAXI; Spielberger, 1996), which is a measure of anger. The STAXI examines several aspects of the experience and expression of anger. Spielberger (1996) proposes two underlying dimensions of the experience of anger: state anger, which is thought to describe "an emotional state marked by subjective feelings that vary in intensity from mild annoyance or irritation to intense fury and rage" (p. 1) and trait anger, which is defined as "the disposition to perceive a wide range of situations as annoying or frustrating and the tendency to respond to such situations with more frequent elevations in state anger" (p. 1). It is thought that state anger is characterised by physiological arousal and tension in the muscles. The STAXI scale of Trait Anger is thought to measure two separate dimensions of trait anger: angry temperament, which describes feelings of anger without specific provocation, and angry reaction, which describes feelings of anger in reaction to perceived criticism or unfairness.

As mentioned above, Spielberger (1996) distinguishes between the experience (i.e., state and trait anger) and the expression of anger. The STAXI also measures the direction of anger expression, the degree of anger control, which is thought to moderate the expression of anger, and also provides a total score for anger expression which is an indication of how often anger is expressed. People who tend to suppress angry feelings (i.e., direct anger inwards) are classified as anger-in. On the other hand, people who tend to express anger outwards (i.e., direct it towards other people or objects) are classified as anger-out. A number of early studies into the distinction between people classified as anger-in or anger-out suggested that holding anger in as opposed to expressing it is associated with elevated blood pressure (e.g., Harburg, Blakelock, & Roeper, 1979). Using the anger expression scales of the STAXI, Johnson (1984) later also reported a positive relationship between Anger-In and blood pressure. A positive correlation between Anger-Out and blood pressure was found for male participants who

were deliberately provoked during an experimental task but not for participants who have not been provoked (Boyle & Siegman, 1992).

It is important to examine anger in relation to victims' response to crime as the exploratory factor analysis reported in Chapter 3 identified a stable cluster of items referring mainly to feelings of anger directed towards the offender and the criminal justice system. As mentioned in Chapter 3, the literature on victim reactions has suggested that anger is an important emotion in the aftermath of criminal victimisation (e.g., B. Williams, 1999). Furthermore, Vietnam veterans diagnosed with PTSD have been found to demonstrate significantly higher levels of anger than veterans without PTSD (Chemtob, Hamada, Roitblat, & Muraoka, 1994). PTSD veterans also displayed higher levels of anger than veterans diagnosed with psychiatric disorders other than PTSD. These differences in levels of anger between groups remained whilst controlling for levels of anxiety.

The relationship between anger and psychological outcomes in victims of crime, however, has not been thoroughly investigated. Riggs et al. (1992) examined the relationship between anger and PTSD in a sample of 116 female victims of crime (49 victims of rape and 67 victims of nonsexual assaults) and 50 nonvictims. It should be noted that the nonvictim group had not experienced a crime in the past year but may have been victims of crime before then. The experience and expression of anger was assessed using the State-Trait Anger Inventory (STAX; Spielberger, 1988a) and the Anger Expression Scale (AX; Spielberger, 1988b). In order to diagnose PTSD, victims were assessed twice using the Posttraumatic Symptom Scale (Rothbaum, Dancu, Riggs, & Foa, 1990), approximately one month after the offence and again a month later. The victims were then divided into two groups: PTSD and nonPTSD, which included only 86 out of the 116 victims in the original sample due to dropouts from the second assessment. Riggs et al. (1992) found that both PTSD and nonPTSD victims displayed higher levels of state anger than nonvictims at the first assessment. In addition to this, analyses revealed that victims with PTSD demonstrated higher levels of anger suppression (i.e., anger-in) than victims without PTSD and nonvictims at the first assessment. After controlling for guilt and perceived life threat during the assault in regression analyses, state anger one week after the offence remained a statistically significant predictor of PTSD severity one month later.

In a later study, Andrews, Brewin, Rose, and Kirk (2000) also examined anger in relation to PTSD. They measured two dimensions of anger in victims of violent crime: anger with self and anger with others. Victims were asked to rate how angry they currently felt with other people (e.g., the perpetrator) and with themselves using a five-point scale. Andrews et al. (2000) found that both dimensions of anger were significantly correlated with PTSD symptoms as measured by the PSS-SR (Foa et al., 1993) one month and six months after the crime. After controlling for age, gender, marital status, educational level, and severity of injury in a multiple regression analysis, anger with self was not a statistically significant predictor of PTSD. On the other hand, anger with others remained a significant independent predictor of PTSD one month after the crime but not at six months. No information was reported, however, on the validity and reliability of the method used by Andrews et al. (2000) to assess crime-specific anger in victims. Nevertheless, the results of this study suggest that anger, especially anger towards others, may be an important emotion in the aftermath of a criminal victimisation experience and that it could be related to symptoms of PTSD one month after the crime.

The CSA subscale of the VRS includes many items that relate to feelings of anger towards others, including the perpetrator and the criminal justice system. It is, therefore, predicted that the CSA subscale will correlate positively with state and trait anger. Furthermore, out of the two subscales of trait anger, CSA is thought to be more relevant to angry reaction than angry temperament because the items refer to feelings of anger specific to the experience of a crime. It is also likely that CSA will be positively associated with both the inward and outward expression of anger. The CSA subscale contains items that imply the desire to direct some of the anger physically towards the offender (e.g., 'I want to inflict harm on the person/people who did this to me') but it is also likely that feelings of anger are suppressed, for example, because the victim does not know the whereabouts of the offender or displaced towards other people in the victims' immediate environment (e.g., family, criminal justice practitioners).

The research described above suggested that the experience of anger shortly after a crime is relevant to PTSD but the relationship between long-term anger and PTSD has not been examined. As the time elapsed since the index crime and assessment in the current study was variable among participants and generally extended well beyond one month, no prediction is made regarding the relationship between EV and the experience

of anger (i.e., State Anger and Trait Anger). As mentioned previously, Anger-In has been associated with negative physiological outcomes (e.g., elevated blood pressure). It is possible that Anger-In is also associated with negative psychological outcomes and may, therefore, be positively correlated with EV. Anger-Out has only been associated with elevated blood pressure in male participants who were deliberately provoked during an experimental task (Boyle & Siegman, 1992). It is not known, however, whether participants in the current study still feel provoked by the crime that happened to them; hence the direction of the relationship between Anger-Out and EV is not predicted.

5.1.3 Coping

The Coping Styles Questionnaire (CSQ; Roger, Jarvis, & Najarian, 1993; Roger, 1999) was included in the concurrent validation of the VRS in order to examine the relationship between victims' reactions to crime and the way they cope with stressful events in general. A number of authors have suggested that coping is important in determining psychological and physiological outcomes after a stressful experience (e.g., Folkman et al., 1986). As mentioned in Chapter 1 of this thesis, three main dimensions of coping have been identified: emotion-focused coping, problem-focused coping, and avoidance coping (e.g., Lazarus & Folkman, 1984; Parker & Endler, 1996). Several assessment instruments have been constructed to assess coping mechanisms and these commonly assess these three main coping mechanisms.

Emotion coping as measured by the Multidimensional Coping Inventory (MCI) has been found to be moderately associated with depression and anxiety (Endler & Parker, 1990). Furthermore, avoidance coping is considered to be maladaptive in the aftermath of a criminal victimisation experience particularly since avoiding stimuli relating to the traumatic memory is considered to be a main symptom of PTSD. Shipherd and Beck (1999) explored the effect of suppressing trauma-related thoughts in a sample of 36 female victims of sexual assault. Although instructions not to think about the trauma resulted in an initial decrease in trauma-related thoughts relative to baseline levels, there was a subsequent increase in such thoughts for victims with PTSD. It has been suggested that the results of thought suppression studies indicate that avoidance of trauma-related thoughts may be related to an increase in intrusive thoughts (e.g., Resick, 2001). These findings should be interpreted with caution as they are based on

laboratory experiments and may not be an accurate representation of the effects of avoidant coping. An avoidant coping style has also been associated with poorer psychological recovery after a sexual victimisation experience. For example, Coffey, Leitenberg, Henning, Bennett, & Jankowski (1996) found that 'disengagement' (i.e., problem avoidance, wishful thinking, social withdrawal, and self-criticism) but not 'engagement' (i.e., problem solving, cognitive restructuring, social support, and expression of emotions) as measured by the Coping Strategies Inventory (CSI; Tobin, Holroyd, & Reynolds, 1984) was predictive of scores on the Global Severity Index of the Brief Symptom Inventory (Derogatis & Spencer, 1982) amongst women who had been victims of physical violence within a relationship.

Roger et al. (1993) argued that current assessment instruments, for example, the Ways of Coping Questionnaire (Folkman & Lazarus, 1985) and the MCI (Endler & Parker, 1990) suffered from psychometric shortcomings. Roger et al. (1993), therefore, developed a new scale to measure coping styles, the Coping Styles Questionnaire (CSQ). Factor analysis of a preliminary item pool derived from a scenario study resulted in the extraction of the three main dimensions of coping that had been previously identified and an additional dimension relating to detachment from the event and any emotions that may have arisen from it. Based on previous research on coping mechanisms and the observed inter-correlations between the four factors (Rational Coping was positively correlated with Detached Coping and Emotional Coping was positively correlated with Avoidance Coping), Roger et al. (1993) proposed that rational (i.e., problem-focused coping) and detached coping are adaptive coping mechanisms, whereas emotional and avoidance coping are maladaptive. Later factor analyses resulted in a merging of Emotional Coping and Detached Coping into a bi-polar index. High scores on this index are indicative of a detached coping style, whereas low scores indicate an emotional coping style (Roger, 1999). Further research by Roger and colleagues (Roger, 1996; Roger & Najarian, 1997) has indeed suggested that low scores on the bi-polar detachment/emotional coping style factor are associated with poorer health outcomes for students during the first few months at university. Furthermore, Valentiner, Foa, Riggs, & Gershuny (1996) identified a coping strategy similar to detached coping in a sample of female victims of sexual and nonsexual assault, which they termed 'positive distancing'. Positive distancing was associated with lower levels of PTSD severity at follow-up. It is, therefore, proposed that the EV subscale of the VRS will be positively correlated with avoidance coping and negatively correlated with

detached and rational coping. The relationship between anger and coping styles has not been examined in victims of crime. Therefore, no predictions are made regarding the relationship between CSA and CSQ coping styles.

5.1.4 Emotional response styles

More recently, emotional response styles have also been investigated in relation to psychological and physiological outcomes after a stressful experience (e.g., Nolen-Hoeksema, Parker, & Larson, 1994; Roger, 1999). Roger and colleagues (e.g., Roger & Nesshoever, 1987; Roger & Najarian, 1989) developed the Emotion Control Questionnaire (ECQ) in the context of stress research in order to explore the relationship between emotional style and physiological recovery from stress. The ECQ comprises four subscales but only the Rehearsal and Emotional Inhibition subscales were used in the current study. Rehearsal measures the tendency to ruminate over upsetting events, while Emotional Inhibition measures the tendency to inhibit rather than express one's emotions. High scores on both these subscales have been associated with physiological indices that indicate delayed recovery after a stressful experience (e.g., Kaiser, Hinton, Krohne, Stewart, & Burton, 1995; Roger & Jamieson, 1988). Roger et al. (1993) found that Rehearsal was positively correlated with maladaptive coping styles (emotional and avoidance coping) and negatively correlated with adaptive coping styles (rational and detached coping). Furthermore, Roger (1996) found that Rehearsal and Emotional Inhibition as measured by the ECQ were predictive of poorer perceived health status in a student sample during a potentially stressful period (i.e., the first three months at university). Using a different measure of rumination, Nolen-Hoeksema et al. (1994) demonstrated a relationship between the tendency to ruminate over upsetting events and depression in a sample of participants who had been recently bereaved.

The item generation study described in Chapter 3 uncovered items that reflect rumination of the crime and the inhibition or expression of emotion in the aftermath of the experience. Some of the items that were retained in both subscales of the VRS suggest that rumination of the event is an important feature of victims' reactions to crime (e.g., EV: 'I am still trying to understand what happened to me'; CSA: 'I am still annoyed simply because of the inconvenience caused it caused'). It is, therefore, predicted that Rehearsal will be positively correlated with both subscales of the VRS

because many of the items retained in both factors imply preoccupation with the crime. Emotional Inhibition is also featured in the EV subscale (e.g., 'I find it hard to explain what happened') whereas the CSA subscale includes two items that reflect the desire to talk about the event and express emotion (e.g., 'I want to let as many people as possible know what happened to me' and 'Telling other people about it helps me express my anger'). It is further predicted that Emotional Inhibition will be positively associated with EV but negatively associated with CSA.

In summary, the nature of the items that have been retained in the primary factor of the VRS, EV, suggest that high scores on this factor are indicative of poor recovery after a criminal victimisation experience. It is, therefore, predicted that EV will be positively associated with measures of PTSD, depression, and anxiety and also with maladaptive coping and emotional response styles (i.e., Avoidance Coping, Rehearsal, Emotional Inhibition, and Anger-In). Moreover, it is thought that EV will be negatively associated with adaptive coping styles (i.e., Rational Coping and Detached Coping). The CSA subscale is positively correlated with EV and, therefore, likely to be also indicative of a maladaptive response to victimisation. It is not clear, however, whether there will be a positive relationship between CSA and psychological outcomes such as PTSD and depression. It is predicted, however, that CSA will be positively associated with measures of anger, anxiety, and rumination. Finally, it is thought that CSA will be negatively related to Emotional Inhibition due to the presence of items relating to the expression of emotion.

5.2 METHOD

5.2.1 Participants

Due to the size of the combined battery of measures that were used for the concurrent validation of the VRS, participants were randomly assigned a smaller subset of measures drawn from the battery. All participants completed the VRS. The composition of the subsamples used for each of the concurrent validation measures is different and the participant details of each subsample are, therefore, described separately. It should be noted that the index crime refers to the crime that participants felt had affected them most. Information on the participants included in the subsamples for each of the concurrent validation measures is presented below:

(i) Subsample #1(PSS-SR; Foa et al., 1993): 130 victims of crime with a mean age of 27.80 years (*SD* = 13.19, range = 17 – 79) completed the PSS-SR. There were 28 male victims (mean age = 33.11 years, *SD* = 14.05, range = 18 – 65) and 100 female victims (mean age = 26.33 years, *SD* = 12.74, range = 17 – 79). Over 90% of the participants in this subsample were of white ethnicity (2.3% Asian, 0.8% Black, 0.8% Mixed, and 4.6% Chinese). Over half of the participants (63.1%) were students. The participants had experienced an average of 2.47 crimes (*SD* = 2.19, range = 1 – 11). The index crimes were mostly property crimes (58.9%; 27.1% violent; 14% sexual). The time elapsed since the index crime varied greatly between participants; for 33.9% the index crime had happened less than a year ago, for 40.3% between one and five years ago, and for 25.8% over five years ago.

(ii) Subsample #2 (BDI-II; Beck et al., 1996): 139 victims completed the BDI-II (mean age = 25.35 years, *SD* 11.52, range = 17 – 71). Of these, 29 were male (mean age = 31.90 years, *SD* = 13.99, range = 18 – 64) and 110 were female (mean age = 23.63 years, *SD* = 10.16, range = 17 – 71). Most of the participants in this subsample were of white ethnicity (89.9%; 1.4% Asian, 0.7 Black, 1.4% Mixed, 6.4% Chinese). A large proportion of the participants were students (75%). The average number of crimes experienced by the participants in this subsample was 2.19 (*SD* = 1.87, range = 1 – 10). The index crimes were

mostly property crimes (59%) with 28.1% classified as violent and 12.9% as sexual. The time elapsed since the index crime had happened varied as follows: 34.8% had occurred less than a year ago, 36.3% between one and five years ago, and 28.9% over five years ago.

(iii) Subsample #3 (STAI; Spielberger, 1983): A subsample of 126 victims of crime with a mean age of 23.54 years (*SD* = 8.96, range = 17 – 64) completed the STAI. This subsample comprised 24 male victims (mean age = 29.25 years, *SD* = 13.34, range 18 – 64) and 101 female victims (mean age = 22.19 years, *SD* = 7.05, range 17 – 61). Again, the majority of participants were of white ethnicity (89.6%; 1.6% Asian, 1.6% Mixed, and 7.2% Chinese). The majority of the participants were students (78.6%). The average number of crimes experienced by the participants was 2.19 (*SD* = 1.93, range = 1 – 10), with 60.3% of the index crimes classified as property crimes, 29.4% violent, and 10.3% sexual. The time elapsed since the index crimes varied as follows: 34.4% had happened less than a year ago, 39.3% between one and five years ago, and 26.3% more than five years ago.

(iv) Subsample #4 (STAXI; Spielberger, 1996): 121 victims of crime with a mean age of 27.50 years (*SD* 12.77, range = 17 – 71) completed the STAXI. There were 27 male victims (mean age = 34.04 years, *SD* =14.60, range = 18 – 64) and 93 female victims (mean age = 25.65 years, *SD* 11.67, range = 17 – 71). The majority of participants were White (89.3%; 2.5% Asian, 1.6% Black, 1.6% Mixed, 4.8% Chinese). Again, this subsample comprised mainly students (66.9%). The participants had experienced an average of 2.33 crimes during their lifetime (*SD* = 1.93, range = 1 – 10). The index crimes were mostly property crimes (59.7%; 24.2% violent, 13.7% sexual); 33.3% of the index crimes had happened less than a year ago, 39.3% between one and five years ago, and 27.4% more than five years ago.

(v) Subsample #5 (CSQ; Roger et al., 1993): 97 victims of crime with a mean age of 25.56 years (*SD* 11.60, range = 18 – 79) completed the CSQ. Twenty were male (mean age = 28.55 years, *SD* = 12.12, range = 18 – 65) and 76 were female (mean age = 24.70 years, SD = 11.47, range = 18 – 79). The majority of the participants were White (87.7%; 3.1% Asian, 1.0% Black, and 8.2% Chinese).

Most of the participants were students (70.1%). The average number of crimes experienced by the victims in this subsample was 2.55 (*SD* = 2.30, range = 1 – 11). More than half of the index crimes were classified as property crimes (59.4%), with the remaining 28.1% and 12.5% classified respectively as violent and sexual crimes. Again, the time elapsed since the index crime had occurred varied between participants; 30.8% had happened less than a year ago, 44.0% between one and five years ago, and 25.3% more than five years ago.

(vi) Subsample #6 (ECQ; Roger & Najarian, 1989): 49 victims of crime with a mean age of 25.82 years (*SD* = 11.49, range = 18 – 60) completed the Rehearsal and Emotional Inhibition subscales of the ECQ. This subsample comprised nine male victims (mean age = 27.33, *SD* = 12.53, range = 18 – 57) and 40 female victims (mean age = 25.48, *SD* = 11.39, range = 18 – 60). The majority of participants were White (87.8%; 2.4% Asian, 9.8% Chinese) and students (90.2%). The participants in this subsample had experienced an average of 2.05 crimes during their lifetime (SD = 1.20, range = 1 – 6). Just over half of the index crimes were classified as property crimes; the remaining index crimes were either classified as violent (34.7%) or sexual crimes (10.2%). The index crime had occurred less than a year ago for 26.4% of the participants, between one and five years ago for 42.9% of the participants, and over five years ago for 30.6% of the participants.

5.2.2 Measures

All the measures used in the concurrent validation of the VRS were self-report measures. The order of presentation of the different measures was counterbalanced across participants, although the PSS-SR always followed the VRS as both measures were completed with reference to the index crime. A brief description of each measure and its psychometric properties follows below:

i) **Posttraumatic Stress Disorder Symptom Scale – Self-Report** (PSS-SR; Foa et al., 1993). The measure was designed specifically for use with victims of trauma and consists of 17 items, which are based on the 17 *DSM-III-R* diagnostic criteria for PTSD. The PSS-SR measures the presence and severity of PTSD symptoms. The 17 PSS-SR items are divided into three subscales,

which address the intrusion (four items), avoidance (seven items) and arousal (six items) symptom clusters of PTSD. Respondents are asked to rate how many times each problem has preoccupied them in the last week using a four-point scale. A score is obtained for total PTSD severity and for each of the symptom clusters. Foa et al. (1993) calculated the internal consistency of this instrument on a sample of 44 female victims of rape or nonsexual assault. The assessment took place five to six weeks after the index offence. Cronbach's alphas were .91 for the total score, .78 for the intrusion subscale, .80 for the avoidance subscale and .82 for the arousal subscale. Furthermore, the test-retest reliability of the measure was calculated on a sample of 29 female victims of rape or nonsexual assault. The two assessments were taken one month apart; the first, nine to ten weeks and the second 12 to 14 weeks after the crime had taken place. The test-retest reliability was .74 for the total score and .66, .56, and .71 for the intrusion, avoidance and arousal subscales respectively. Foa et al. (1993) also reported substantial correlations between the PSS-SR and other self-report measures of psychological distress such as the Beck Depression Inventory (Beck et al., 1961) and the Impact of Event Scale (Horowitz et al., 1979). The internal consistency of the PSS-SR was also measured in the current sample using Cronbach's alpha and was found to be highly satisfactory (.94 for the total score, .85 for the intrusion subscale, .87 for the avoidance subscale, and .86 for the arousal subscale; $N = 130$). Scores on the PSS-SR range from 0 to 51 for PTSD severity, 0 to 12 for Intrusion, 0 to 21 for Avoidance, and 0 to 18 for Arousal.

ii) **Beck Depression Inventory, Second Edition** (BDI-II; Beck et al., 1996). The BDI-II is a revised version of the BDI (Beck et al., 1961) and consists of 21 items, which measure "the severity of depression in adults and adolescents aged 13 years and older" (Beck et al., 1996, p. 1). Each item consists of a group of four statements (apart from items 16 and 18, which comprise seven statements each) and respondents are asked to choose the statement from each group, which they think best describes how they have been feeling in the past two weeks. The BDI-II is not recommended for use as a clinical diagnostic instrument but, rather, "as an indicator of the presence of depressive symptoms consistent with the *DSM-IV*" (Beck et al., 1996, p. 6). Beck et al. (1996) examined the reliability of the BDI-II and demonstrated coefficient alphas of

.92 and .93 in a clinical (N = 500) and a student sample (N = 120) respectively. The test-retest reliability was measured over a one-week interval in a sample of 26 outpatients and was found to be .93. The original BDI (Beck et al., 1961) has been previously used to assess levels of depression in samples of victims of crime (e.g., Foa et al., 1995; Resick et al., 2002). The alpha coefficient for the current sample was also high (.90, N = 139). Scores on the BDI-II range from 0 to 63.

iii) **State-Trait Anxiety Inventory** (STAI; Spielberger, 1983). The STAI was originally developed for use with students but has since been used with a wide range of populations, including victims of crime (e.g., Foa et al., 1999; Rothbaum, 1997). The STAI comprises two subscales that are thought to measure state (State Anxiety) and trait anxiety (Trait Anxiety). The State Anxiety scale comprises 20 items that ask respondents about their feelings "right now, at this moment" (Spielberger, 1983, p. 6). Scores on State Anxiety have been found to be sensitive to changes in environmental stress. For example, scores decrease after relaxation training (Spielberger, 1983). The Trait Anxiety scale also consists of 20 items but these ask respondents about their general feelings. This scale "has been widely used in assessing clinical anxiety in medical, surgical, psychosomatic, and psychiatric patients" (Spielberger, 1983, p. 7). The test-retest reliability for Trait Anxiety was reported by Spielberger (1983) to range between .65 and .86 in college and high-school students. The maximum interval used in the college student sample was 104 days and in the high school student sample it was 60 days. The test-retest reliability of State Anxiety was substantially lower, ranging from .16 to .62 in the same samples. Spielberger (1983) argued that low test-retest reliability was to be expected, as the construct measured by State Anxiety is transient. Spielberger (1983) reported alpha coefficients ranging from .86 to .95 for State Anxiety and .89 to .91 for Trait Anxiety in large samples of working adults, college and high school students, and military recruits. Several studies that were included in the systematic review (see Chapter 2) used the STAI as one of their outcome measures. The alpha reliability coefficients were calculated for the current sample of victims of crime and these were found to be substantial (.94 for State Anxiety, N = 122; .93 for Trait Anxiety, N = 121). Scores on both subscales of the STAI range from 0 to 80.

iv) **State-Trait Anger Expression Inventory** (STAXI, Spielberger, 1996). The STAXI was developed to measure "the experience and expression of anger" (Spielberger, 1996, p. 1). It comprises 44 items, which make up the following six scales: State Anger (10 items that measure anger at the time of completing the questionnaire), Trait Anger (10 items that measure people's general tendency to feel angry), Anger-In (8 items that measure the tendency to suppress anger), Anger-Out (8 items that measure the tendency to express anger outwards), Anger Control (8 items that measure the tendency to control anger expression), and Anger Expression (a combined score of the 24 items of Anger-In, Anger-Out, and Anger Control, which measures the general expression of anger). Trait Anger is further divided into two subscales, which comprise four items each: Angry Temperament, which measures the tendency to get angry without being provoked, and Angry Reaction, which measures the tendency to get angry when provoked by other people, for example by receiving criticism. The internal consistency of the STAXI scales was measured on large samples ($N > 1000$) of adults, college students, and adolescents (Spielberger, 1996). Average alpha coefficients across the three different samples were: .90 for State Anger, .83 for Trait Anger (.87 for the Angry Temperament subscale, and .69 for the Angry Reaction subscale), .80 for Anger-In, .76 for Anger-Out, and .85 for Anger Control. As the Anger Expression scale is a combined score of three scales, an alpha coefficient was not calculated. Jacobs, Latham, and Brown (1988) measured the test-retest reliability of the STAXI scales that relate to anger expression over a 14-day inter-testing interval. The test-retest coefficients ranged from .64 to .81 and were found to be higher for female ($N =$ 217) than for male ($N = 178$) undergraduate students (Anger-Out: .66 for males and .81 for females; Anger-In: .64 for males and .78 for females; Anger Control: .70 for males and .73 for females; Anger Expression: .68 for males and .76 for females. Information on the test-retest reliability of the state and trait anger scales could not be located. Earlier versions of the STAXI, the State-Trait Anger Inventory (STAX; Spielberger, 1988a) and the Anger Expression Scale (AX; Spielberger, 1988b) have been used to assess anger in victims of crime (Riggs et al., 1992; Zoellner, Feeny, Fitzgibbons, & Foa, 1999). The STAXI scales demonstrated adequate internal consistency in the current sample (State Anger = .92, Trait Anger = .85, Anger-In = .74, Anger-Out = .79, Anger Control = .89; $N = 124$). Scores on the STAXI scales range from 0 to 40 for

State Anger and Trait Anger, from 0 to 16 for Angry Temperament and Angry Reaction, from 0 to 36 for Anger-In, Anger-Out, and Anger Control, and from 0 to 72 for Anger Expression.

v) **Coping Styles Questionnaire** (CSQ; Roger et al., 1993; Roger, 1999) Roger et al., (1993) developed the CSQ in an attempt to improve on previous coping scales. The original CSQ comprised four factors: Rational Coping, Detached Coping, Emotional Coping, and Avoidance Coping. The internal consistency of the four factors was satisfactory (Rational Coping = .85, Detached Coping = .90, Emotional Coping = .74, Avoidance Coping = .69). The test-retest reliability was also measured over a three-month inter-testing interval and was demonstrated to be adequate for all the factors (Rational Coping: .80, Detached Coping: .79, Emotional Coping: .77, Avoidance Coping: .70). The emotional and detached coping styles were later merged into one primary bi-polar factor keyed in the direction of detachment. A low score on this bipolar index suggests an emotional coping style and has been associated with poorer health outcomes during students' first six months at university (e.g., Roger & Najarian, 1997). The refined version of the CSQ, which was used in the current study, comprises three factors: a bipolar factor (Detached Coping) that measures detached and emotional coping (22 items) and two smaller factors: Rational Coping (9 items) and Avoidance Coping (10 items). Scores on the CSQ subscales range from 0 to 66 for Detached Coping, 0 to 27 for Rational Coping, and 0 to 30 for Avoidance Coping. Alpha coefficients for the current sample of victims of crime were satisfactory (Detached Coping: .86, Rational Coping: .83, Avoidance Coping: .70; $N = 97$).

vi) **Emotion Control Questionnaire** (ECQ, Roger & Najarian, 1989). The ECQ comprises four 14-item subscales: Rehearsal, Emotional Inhibition, Aggression Control, and Benign Control (an inversely scored measure of impulsivity). Only the Rehearsal and Emotional Inhibition subscales were used in this study. Rehearsal assesses the tendency to think over or ruminate about emotionally upsetting events. High scores on this subscale have been associated with a delay in recovery, as measured by heart rate, after a stressful task (Roger & Jamieson, 1988). Emotional Inhibition measures the tendency to hold back and not express emotion. Kaiser et al., (1995) found that people who tend to inhibit

emotion also demonstrate slow recovery from stress as measured by muscle tension. The reported internal consistency of the subscales was measured using Kuder-Richardson (KR-20) and was .86 for Rehearsal and .77 for Emotional Inhibition (Roger & Najarian, 1989). The test-retest reliability of the subscales was assessed over a period of seven weeks using a sample of 86 students and was found to be .80 for Rehearsal and .79 for Emotional Inhibition (Roger & Najarian, 1989). Alpha coefficients for the current sample of victims ($N = 49$) were also satisfactory (Rehearsal: .84; Emotional Inhibition: .80). Scores on both the ECQ subscales range from 0 to 14.

5.3 RESULTS

5.3.1 Descriptive statistics

Summary statistics for the measures used in the concurrent validation of the VRS are presented in Table 5.1 for the total sample and by gender. Scores on the criterion measures were examined for gender differences. Where the data were normally distributed an independent t test was carried out, whereas where the data departed significantly from a normal distribution (i.e., the Kolmogorov-Smirnov test was significant) the Mann-Whitney test was used. Statistically significant gender differences were found on the BDI-II score ($z = -2.41, p < .05$), STAI State Anxiety ($z = -2.29, p < .05$), STAI Trait Anxiety ($z = -2.08, p < .05$), STAXI Anger Control ($z = -3.24, p < .01$), STAXI Anger Expression ($z = -2.40, p < .05$), and CSQ Detached Coping ($t\,[44] = 3.16, p < .01$). Examination of the means revealed that male victims of crime scored higher than female victims on Anger Control and Detached Coping. On the other hand, female victims of crime scored higher than male victims on the BDI-II, State Anxiety, Trait Anxiety, and Anger Expression. There were no significant differences between male and female victims on the remaining measures.

Table 5.1 *Descriptive Statistics for the Criterion Measures Used for the Concurrent Validation of the VRS*

Measure	Sample size			*M*			*SD*			Range		
	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male
PSS-SR												
PTSD Severity	130	100	28	6.95	7.84	4.29	9.38	10.16	5.27	0 – 43	0 – 43	0 – 16
Intrusion	130	100	28	1.18	1.36	0.64	2.06	2.25	1.13	0 – 11	0 – 11	0 – 4
Avoidance	130	100	28	2.52	2.86	1.46	4.02	4.37	2.27	0 – 17	0 – 17	0 – 8
Arousal	130	100	28	3.25	3.62	2.18	3.98	4.23	2.75	0 – 18	0 – 18	0 – 10
BDI- II	139	110	29	8.94	9.71[a]	6.00[a]	8.04	8.26	6.46	0 – 37	0 – 37	0 – 23
STAI												
State Anxiety	126	101	24	37.53	38.82[a]	32.83[a]	11.91	12.14	9.31	20 – 77	20 – 77	21 – 59
Trait Anxiety	126	101	24	41.87	42.95[a]	38.08[a]	10.92	11.04	9.10	21 – 73	21 – 73	23 – 60
STAXI												
State Anger	121	93	27	12.17	11.78	13.56	4.57	3.11	7.72	10 – 40	10 – 26	10 – 40
Trait Anger	121	93	27	19.26	19.39	19.07	5.24	5.05	5.92	10 – 40	11 – 38	10 – 40

Measure	Sample size			*M*			*SD*			Range		
	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male
Angry Temperament	121	93	27	6.70	6.88	6.19	2.59	2.56	2.65	4 – 16	4 – 15	4 – 16
Angry Reaction	121	93	27	9.24	9.24	9.37	2.49	2.46	2.59	4 – 16	4 – 16	4 – 16
Anger- In	121	93	27	18.13	18.42	17.22	4.32	4.33	4.32	9 – 31	9 – 28	9 – 31
Anger- Out	121	93	27	15.24	15.20	15.52	4.06	3.95	4.47	8 – 32	8 – 29	8 – 32
Anger Control	121	93	27	22.75	21.84[b]	25.81[b]	5.53	5.31	5.35	9 – 32	9 – 32	15 – 35
Anger Expression	121	93	27	26.62	27.78[a]	22.93[a]	9.89	9.62	10.13	3 – 59	3 – 59	9 – 48
CSQ												
Detached	97	76	20	35.96	34.83[b]	40.30[b]	8.91	9.27	6.11	12 – 54	12 – 54	26 – 53
Rational	97	76	20	16.12	15.87	16.75	4.72	4.81	4.22	4 – 26	4 – 26	10 – 23
Avoidance	97	76	20	11.78	11.87	11.60	4.44	4.41	4.71	2 – 27	3 – 27	2 – 18
ECQ												
Rehearsal	49	40	9	7.86	8.20	6.33	3.67	3.72	3.16	0 – 14	0 – 14	1 – 10
Emotional Inhibition	49	40	9	5.96	5.85	6.44	3.34	3.25	3.88	0 – 14	0 – 12	2 – 14

Note. PSS-SR = Posttraumatic stress disorder Symptom Scale Self-Report; BDI-II = Beck Depression Inventory – Second Edition; STAI = State-Trait Anxiety Inventory; STAXI = State-Trait Anger Expression Inventory; CSQ = Coping Styles Questionnaire; ECQ = Emotion Control Questionnaire.

[a] Means within rows significantly different at .05 level; [b] Means within rows significantly different at .01 level.

5.3.2 Correlations between the Victim Reactions Scale and the criterion measures

The relationships between the VRS subscales and the criterion measures were examined using correlation analysis. One-tailed tests of statistical significance were used when the direction of the relationship between the VRS subscales and the criterion measures was predicted in advance (see Section 5.1). When the direction of the relationship was not predicted, two-tailed tests were used. Due to significant skewness in some of the variables both parametric and nonparametric correlations were computed. Skewness and kurtosis of the distributions for the STAI, CSQ, and ECQ subscales was either statistically nonsignificant or minor and there was no difference between parametric (i.e., Pearson's) and nonparametric (i.e., Spearman's Rho) correlation coefficients. Therefore, Pearson correlation coefficients are reported for these variables. The BDI-II score, all the PSS-SR subscales and some of the STAXI subscales demonstrated excessive levels of skewness and kurtosis and there were differences in the magnitude and significance levels between parametric and nonparametric correlation coefficients. Spearman's Rho was, therefore, used to examine the relationship between the VRS and the BDI-II, the PSS-SR subscales, and STAXI State Anger, Trait Anger, Angry Temperament, and Anger-Out. Moreover, all correlations between EV and the STAXI were examined using Spearman's Rho correlation coefficients because the EV distribution in that subsample was also highly skewed.

Due to the statistically significant differences noted between male and female participants on the EV subscale of the VRS (see Section 3.3.5 of Chapter 3) and also on some of the criterion measures (see Table 5.1), the relationship between the VRS subscales and the criterion measures were also examined separately by gender. The correlation coefficients are reported in tables for female and male participants separately and for the total sample. Fewer male than female victims of crime completed each of the concurrent measures; hence only tentative conclusions can be made for male victims of crime. Correlations were computed for both the long and short forms of the VRS with all the criterion measures but the correlation coefficients were very similar across the two forms of the VRS. As it is anticipated that the 22-item VRS will be more useful in operational environments, the correlations given in the text and the tables in this chapter refer to the subscales of the VRS/short. Correlations between the criterion measures and the 55-item VRS (VRS/long) are presented in separate tables in Appendices 5.1 to 5.6.

Spearman's Rho correlation coefficients between the VRS subscales and the PSS-SR are presented in Table 5.2 below.

Table 5.2 Intercorrelations between the PSS-SR and the VRS Subscales

Measure	1	2	3	4	5	6
			Female victims (n = 100)			
1. PSS-SR total	-	.79**	.92**	.94**	.75**	.17
2. PSS-SR intrusion		-	.73**	.63**	.63**	.20*
3. PSS-SR avoidance			-	.79**	.65**	.10
4. PSS-SR arousal				-	.75**	.22*
5. EV					-	.35**
6. CSA						-
			Male victims (n = 28)			
1. PSS-SR total	-	.71**	.91**	.94**	.69**	.28
2. PSS-SR intrusion		-	.63**	.51*	.49*	.11
3. PSS-SR avoidance			-	.83**	.74**	.08
4. PSS-SR arousal				-	.69**	.30
5. EV					-	.37*
6. CSA						-
			Total sample (N = 130)			
1. PSS-SR total	-	.77**	.91**	.94**	.74**	.17*
2. PSS-SR intrusion		-	.71**	.62**	.60**	.17**
3. PSS-SR avoidance			-	.80**	.67**	.10
4. PSS-SR arousal				-	.75**	.22*
5. EV					-	.35**
6. CSA						-

Note. PSS-SR = Posttraumatic stress disorder Symptom Scale – Self-Report; EV= Emotional Vulnerability; CSA= Crime-Specific Anger.

* $p < .05$. ** $p < .01$.

A strong positive correlation was found between the PSS-SR symptom severity score and EV for the total sample and for male and female victims separately. The three PTSD symptom clusters also correlated strongly and positively with EV. A significant positive correlation was also demonstrated between the PSS-SR symptom severity score and CSA but this correlation was modest and only reached statistical significance in the total sample. The correlations between CSA and the intrusion and arousal symptom clusters were modest but significant in the total sample and female victims but not male victims. The relationship between the avoidance symptom cluster and CSA was not significant. There were some marked gender differences in the magnitude of the correlations. The correlation between PSS-SR intrusion and EV was modest for the male victims in the current sample. Furthermore, the CSA correlations with PTSD severity and PTSD arousal were higher for male than female victims of crime, although they did not reach statistical significance in the male subsample, possibly due to the small sample size. A similar pattern of associations was noted between the PSS-SR and the subscales of the 55-item VRS (see Appendix 5.1).

Spearman's Rho correlation coefficients between the BDI-II and the VRS are shown in Table 5.3. Scores on the BDI-II correlated positively and significantly with the EV subscale of the VRS. The correlation between BDI-II and EV for the male subsample, however, was low and statistically nonsignificant. The correlation between BDI-II scores and the CSA subscale of the VRS was positive but statistically nonsignificant. Notably, the correlation between CSA and the BDI-II score was negligible for females but substantial and significant for male victims. A similar pattern of correlations was demonstrated between the BDI-II and the subscales of the 55-item VRS, although the correlation between BDI-II and CSA/long in the subsample of male participants did not reach statistical significance (see Appendix 5.2).

Table 5.3 Intercorrelations between the BDI-II and the VRS Subscales

Measure	BDI-II	EV	CSA
		Female victims (n = 110)	
BDI-II	-	.40**	.05
EV		-	.39**
CSA			-
		Male victims (n = 29)	
BDI-II	-	.10	.40*
EV		-	.39*
CSA			-
		Total sample (N = 139)	
BDI-II	-	.39**	.11
EV		-	.38**
CSA			-

Note. BDI-II = Beck Depression Inventory- Second Edition; EV= Emotional Vulnerability; CSA = Crime-Specific Anger.

*p < .05. **p < .01.

Pearson correlation coefficients between the VRS and the STAI subscales are shown in Table 5.4. EV correlated positively and significantly with State Anxiety and Trait Anxiety; the correlations were significant for both genders. It is worth noting that the correlation between EV and Trait Anxiety was considerably higher for male than for female victims. This was also true for the correlation between EV/long and Trait Anxiety in the subsample of male victims (see Appendix 5.3). The correlation between CSA and both State Anxiety and Trait Anxiety was positive and significant but low in magnitude. The correlations between CSA and State Anxiety were similar in magnitude across male and female victims but did not reach statistical significance in the subsample of male victims. The correlation between CSA and Trait Anxiety was statistically significant for both male and female victims (p < .05) but the strength of the association was higher for male (r = .42) than female victims (r = .17). A similar pattern of findings was noted between the STAI and the subscales of the 55-item VRS (see Appendix 5.3).

Table 5.4 Intercorrelations between the STAI and the VRS subscales

Measure	1	2	3	4
		Female victims (n = 101)		
1. State Anxiety	-	.62**	.47**	.21*
2. Trait Anxiety		-	.46**	.17*
3. EV			-	.46**
4. CSA				-
		Male victims (n = 24)		
1. State Anxiety	-	.80**	.48*	.29
2. Trait Anxiety		-	.63**	.42*
3. EV			-	.57**
4. CSA				-
		Total sample (N = 126)		
1. State Anxiety	-	.67**	.49**	.21**
2. Trait Anxiety		-	.50**	.21**
3. EV			-	.47**
4. CSA				-

Note. EV = Emotional Vulnerability; CSA = Crime-Specific Anger.

*p < .05. **p < .01.

Correlation coefficients between the VRS and the STAXI subscales are shown in Table 5.5. Pearson correlation coefficients were computed when both the variables being examined were normally distributed; if one variable was significantly skewed then Spearman's Rho correlation was used instead. For the EV subscale the correlation coefficients revealed significant positive associations with State Anger, Trait Anger, Angry Reaction, Anger-In, and the composite score of Anger Expression. There were, however, marked differences in the size of the correlations between female and male victims of crime. For female victims, EV was significantly correlated with State Anger, Trait Anger, and Anger-In but the correlation coefficients were modest. None of the remaining STAXI scales demonstrated significant correlations with EV in the subsample of female victims. Despite the small sample size, for male victims of crime EV was significantly related to Trait Anger, Angry Reaction, Anger-In, Anger-Out, and

Anger Expression and the correlation coefficients were substantial, reaching .64 ($p <$ .01) for Anger Expression. Notably, although the correlation between EV and Anger-Out did not reach statistical significance for the total sample and was negligible for the female subsample, it was substantial and statistically significant in the subsample of male victims.

For the CSA subscale, positive and significant correlations were demonstrated with State Anger, Trait Anger, Angry Reaction, Anger-In, Anger-Out, and Anger Expression. Again, some of the correlations were substantially higher for male victims, in particular between CSA and Trait Anger, Angry Reaction, Anger-In, Anger-Out, and Anger Expression. The remaining correlations were of similar magnitude for male and female victims of crime. It is worth noting that the Angry Temperament subscale of Trait Anger did not correlate with either of the VRS subscales, whereas Angry Reaction was significantly related to CSA for both female and male victims of crime. Finally, neither of the VRS subscales correlated significantly with Anger Control; the correlations were inverse and low in magnitude.

The correlations between the STAXI and the subscales of the 55-item VRS demonstrated a similar pattern (see Appendix 5.4).

Table 5.5 *Intercorrelations between the STAXI and the VRS subscales*

Measure	1	2	3	4	5	6	7	8	9	10
					Female victims (n = 93)					
1. State Anger	-	.35**	.33**	.22*	.25**	.20*	-.26**	.33**	.23*	.15
2. Trait Anger		-	.73**	.79**	.29**	.66**	-.51**	.67**	.24*	.29**
3. Angry Temperament			-	.26**	.16	.52**	-.43**	.50**	.13	.05
4. Angry Reaction				-	.29**	.44**	-.32**	.49**	.15	.40**
5. Anger-In					-	.08	.03	.47**	.27**	.24*
6. Anger-Out						-	-.68**	.80**	.05	.16
7. Anger Control							-	-.82**	.01	-.08
8. Anger Expression								-	.13	.26**
9. EV									-	.28**
10. CSA										-

Table 5.5 (continued)

Measure	1	2	3	4	5	6	7	8	9	10
					Male victims (n = 27)					
1. State Anger	-	.38*	.18	.44*	.38*	.30	.10	.27	0.31	.35
2. Trait Anger		-	.71**	.90**	.48**	.60**	-.19	.54**	.40*	.52**
3. Angry Temperament			-	.40*	.26	.49**	-.30	.51**	.14	.24
4. Angry Reaction				-	.64**	.56**	.06	.49**	.41*	.55**
5. Anger-In					-	.60**	-.08	.74**	.62**	.51**
6. Anger-Out						-	-.34*	.70**	.43*	.51**
7. Anger Control							-	-.64**	-.23	-.06
8. Anger Expression								-	.64**	.46**
9. EV									-	.52**
10. CSA										-

Table 5.5 (continued)

Measure	1	2	3	4	5	6	7	8	9	10
					Total sample ($N = 121$)					
1. State Anger	-	.36**	.30**	.28**	.29**	.23**	-.16*	.32**	.28**	.19*
2. Trait Anger		-	.74**	.81**	.34**	.65**	-.44**	.65**	.29**	.35**
3. Angry Temperament			-	.31**	.21*	.51**	-.43**	.54**	.17	.09
4. Angry Reaction				-	.37**	.48**	-.22**	.48**	.22*	.44**
5. Anger-In					-	.21*	-.03	.54**	.36**	.29**
6. Anger-Out						-	-.57**	.76**	.16	.25**
7. Anger Control							-	-.79**	-.10	-.06
8. Anger Expression								-	.28**	.29**
9. EV									-	.32**
10. CSA										-

Note. EV = Emotional Vulnerability; CSA = Crime-Specific Anger.

*$p < .05$. **$p < .01$.

Pearson correlations between the VRS subscales and the CSQ subscales are presented in Table 5.6 below.

Table 5.6 Pearson Correlations between the CSQ and the VRS Subscales

Measure	1	2	3	4	5
			Female victims (n = 76)		
1. Detached coping	-	.49**	-.32**	-.33**	-.35**
2. Rational coping		-	-.28**	-.11	-.10
3. Avoidance coping			-	.45**	.34**
4. EV				-	.47**
5. CSA					-
			Male victims (n = 20)		
1. Detached coping	-	.42**	-.36	-.45*	-.33
2. Rational coping		-	-.39*	-.37	-.17
3. Avoidance coping			-	.33	-.05
4. EV				-	.51*
5. CSA					-
			Total sample (N = 97)		
1. Detached coping	-	.47**	-.32**	-.36**	-.32**
2. Rational coping		-	-.30**	-.16	-.09
3. Avoidance coping			-	.42**	.24**
4. EV				-	.46**
5. CSA					-

Note. EV= Emotional Vulnerability; CSA = Crime-Specific Anger.

*p < .05. **p < .01.

EV showed a significant inverse association with Detached Coping; this correlation was slightly higher for male victims. The correlation between EV and Rational Coping was negative but statistically nonsignificant, although for the male participants the coefficient was more substantial. There was a positive association between Avoidance

Coping and EV, which was highly significant. The correlation was lower for male than female victims and did not reach statistical significance for male victims.

The correlation between CSA and Detached Coping was negative and substantial, although it failed to reach statistical significance in the subsample of male victims. The correlation between CSA and Rational Coping was also negative but statistically nonsignificant. The relationship between CSA and Avoidance Coping was positive and significant in the total sample and in the subsample of female victims. Notably, the correlation between CSA and Avoidance Coping for male victims was negligible. A similar pattern of correlations was noted between the CSQ and both subscales of the 55-item VRS (see Appendix 5.5).

Pearson correlation coefficients for the VRS subscales with ECQ Rehearsal and ECQ Emotional Inhibition are presented in Table 5.7. Due to the small number of participants who completed this measure, correlations are not reported by gender. The only significant correlation was found between EV and ECQ Rehearsal, but this was modest. The correlation between EV and ECQ Emotional Inhibition was positive but statistically nonsignificant. CSA did not display any significant correlations with the ECQ subscales; the correlation with ECQ Rehearsal was positive and the correlation with ECQ Emotional Inhibition was negligible. A similar pattern of associations was demonstrated between the ECQ and the 55-item VRS (see Appendix 5.6).

Table 5.7 Intercorrelations between the ECQ and the VRS Subscales

Measure	1	2	3	4
	Total sample ($N = 49$)			
1. Rehearsal	-	.16	.27*	.21
2. Emotional Inhibition		-	.14	-.05
3. EV			-	.62**
4. CSA				-

Note. EV= Emotional Vulnerability subscale; CSA= Crime-Specific Anger.

*$p < .05$. **$p < .01$.

5.3 DISCUSSION

5.3.1 Emotional Vulnerability

As expected, Emotional Vulnerability was significantly and positively correlated with PSS-SR PTSD total symptom severity and each of the three symptom clusters (Intrusion, Avoidance, and Arousal); BDI-II depression; STAI State Anxiety and Trait Anxiety; CSQ Avoidance Coping; and ECQ Rehearsal. Furthermore Emotional Vulnerability was significantly and inversely correlated with CSQ Detached Coping. Emotional Vulnerability also demonstrated positive and significant correlations with most of the STAXI subscales (i.e., State Anger, Trait Anger, Angry Temperament, Angry Reaction, Anger-In, Anger-Out, and Anger Expression). No relationship was found between Emotional Vulnerability and STAXI Anger Control, CSQ Rational Coping, and ECQ Emotional Inhibition.

The correlations between EV and the measures of depression and anger were statistically significant but modest. This is not surprising as the EV subscale of the VRS measures crime-related reactions rather than general feelings, thoughts, and behaviours. The relationship between Emotional Vulnerability and anxiety was found to be more substantive, demonstrating correlations in excess of .50 with both State Anxiety and Trait Anxiety. This is probably due to the EV items that describe feelings of nervousness, anxiety and fear in relation to a crime. The moderate correlation suggests that Emotional Vulnerability is not a measure of generalised anxiety but is more specifically a measure of a tendency to react emotionally to crime specific events. The correlation between Emotional Vulnerability and PTSD was high, reaching .74 for total symptom severity. This is not surprising because both the VRS and the PSS-SR specifically asked respondents to answer questions with reference to the index crime. The correlation between Emotional Vulnerability and PTSD was less than perfect, however, suggesting that the Emotional Vulnerability subscale measures a construct that is closely related to PTSD, as measured by the PSS-SR, but is not fully explained by PTSD symptoms.

Although the direction of correlations was generally identical for male and female participants, there were some substantial differences in the magnitude of some of the correlation coefficients. In particular, although Emotional Vulnerability was

moderately correlated with depression in female participants, the correlation was markedly lower and statistically nonsignificant for male participants. Furthermore, the correlations between Emotional Vulnerability and the anger scales were considerably stronger in male victims than female victims. These gender differences suggest that emotional vulnerability after a crime may be related more to the experience and expression of anger than symptoms of depression amongst male victims of crime and vice versa for female victims of crime. It is necessary, however, to collect more data from male victims of crime, as the subsamples of male participants were modest in size.

It was argued in Chapter 3 that the EV subscale of the VRS reflects the predominant response amongst victims of crime and that some of the items included in this subscale refer to symptoms of PTSD, depression and anxiety. This was further supported by the positive correlations that were demonstrated with scores on the BDI-II, STAI, and PSS-SR. Furthermore, high scores on EV were related to an avoidant coping style, which according to Roger et al. (1993) is a maladaptive coping style. The inverse correlation between EV and CSQ detached coping style suggests, on the other hand, that victims who obtain low scores on EV are more likely to emotionally detach themselves from a victimisation experience, a coping style which Roger et al. (1993) considered to be adaptive.

5.3.2 Crime-Specific Anger

As predicted, Crime-Specific Anger was shown to be significantly and positively associated with STAXI State Anger, Trait Anger, Angry Reaction, Anger-In, Anger-Out, and the composite score of Anger Expression. Furthermore, positive and significant relationships were observed with STAI State Anxiety and Trait Anxiety; PSS-SR total symptom severity and the Intrusion and Arousal symptom clusters; and CSQ Avoidance Coping. Notably, Crime-Specific Anger was significantly and positively correlated with BDI-II depression in the subsample of male victims but this correlation was negligible in the subsample of female victims. No relationship was demonstrated between CSA and PTSD Avoidance, STAXI Anger Control, CSQ Rational Coping, ECQ Rehearsal, and ECQ Emotional Inhibition. It is worth noting that the lack of statistically significant correlations between the ECQ subscales and Crime-Specific Anger may be due to the small number of participants who completed this measure. It may alternatively suggest that while victims of crime may ruminate

about the crime, that this is specific to the crime and does not reflect a tendency to ruminate more generally.

The significant correlations between Crime-Specific Anger and the STAXI subscales ranged from modest to moderate. The highest correlation was with the Angry Reaction subscale of Trait Anger ($r = .44, p < .01$) lending support to the suggestion made in Chapter 3 that the Crime-Specific Anger subscale of the VRS reflects anger that is directed towards something specific rather than general feelings of anger. This is further supported by the negligible correlation between Crime-Specific Anger and Angry Temperament. The relationships between Crime-Specific Anger and the remaining measures were generally low in magnitude for the total sample; none of the correlation coefficients were in excess of .30. The correlations with the measures of anxiety and PTSD were, nevertheless, significant and suggested that high scores on Crime-Specific Anger are related to high levels of PTSD and anxiety. The pattern of correlations between Crime-Specific Anger and the CSQ coping styles were identical to those displayed for EV. Crime-Specific Anger was negatively correlated with Detached Coping and positively correlated with Avoidant Coping.

Although the direction of the correlations was the same for male and female participants, there were some considerable differences in their magnitude. First, the correlation between Crime-Specific Anger and BDI-II depression was substantial and significant for male participants but negligible for female participants. The correlation between Crime-Specific Anger and Trait Anxiety was also more substantial for male than female participants. Moreover, the Crime-Specific Anger correlations with Trait Anger, Anger-In, Anger-Out, and Anger Expression were substantially higher in the subsample of male victims. Indeed, in the subsample of female victims the correlation between Anger-Out and Crime-Specific Anger was low and statistically nonsignificant. It is worth noting that in the subsample of female participants the only substantial relationship (i.e., above .30) noted between Crime-Specific Anger and anger was with Angry Reaction suggesting that Crime-Specific Anger in female victims does not relate strongly to measures of general anger. Finally, the correlation between Crime-Specific Anger and CSQ Avoidance Coping was sizeable for female victims but negligible for male victims. The gender differences suggest that anger after a crime relates more to measures of psychological distress, such as depression and anxiety, in male than female victims of crime. Crime-Specific Anger also appears to relate to the experience and

expression of anger more generally in male victims, whereas in female victims it relates most to feelings of anger in reaction to provocation and also to an avoidant coping style. Again, it is difficult to draw conclusions with confidence for male victims of crime due to the small sample size.

The second subscale of the VRS mainly reflects feelings of anger that are directed towards the offender and the criminal justice system. It was not clear from the outset what psychological outcomes would be associated with Crime-Specific Anger. The relationship between Crime-Specific Anger and the measures used for the concurrent validation, however, suggest that high scores on CSA are related to negative psychological outcomes after victimisation, such as PTSD, anxiety, and depression particularly amongst male victims. High scores on CSA were also associated with an avoidant coping style but only for female victims.

5.3.3 Conclusions

The purpose of this chapter was to examine the concurrent validity of the VRS. The studies presented in this chapter have, therefore, examined the relationship between the VRS subscales and several criterion measures that have been previously used to assess psychological responses in samples of victims of crime. Both the Emotional Vulnerability and Crime-Specific Anger subscales correlated in a meaningful way with a number of measures that have been used to assess the psychological well-being of victims of crime. Apart from the strong association between Emotional Vulnerability and PTSD, the correlations between the VRS subscales and the other criterion measures ranged from small to moderate. This is not surprising as the VRS aims to measure a range of psychological responses that are specifically related to a crime, a construct that is not fully reflected in already existing measures of psychopathology. Self-report measures of PTSD are the closest to this construct as they measure trauma-related psychological responses. These measures are based on the diagnostic criteria for PTSD, which is relevant to victims of a range of traumas and as such may not encompass responses that are specific to criminal victimisation. The VRS, on the other hand, comprises items that were generated from victims' own interpretations of their feelings, thoughts, and behaviours after a crime that had happened to them (see Section 3.2.1 of Chapter 3).

The observed correlations between the VRS subscales and the criterion measures uncovered some interesting gender differences. The literature so far has focused heavily on the psychological effects of crime on female victims and few studies have included male victims in their samples (see Chapters 1 & 2). The results of the current chapter suggest that the psychological experience of crime may be different for male and female victims of crime and this may have implications for the type of treatment that may be most effective for male victims of crime. In particular, CSA was more strongly related to negative psychological outcomes in male victims relative to female victims suggesting that anger may be an important emotion in the aftermath of crime specifically for male victims. The current sample of male victims was limited, however, in size and in the range of crimes experienced; there was a very low incidence of sexual crime among the male victims in the current sample whereas a moderate proportion of female victims reported that they had been victims of sexual crimes. It is important, therefore, that more extensive studies of the effects of crime on male victims are carried out to determine whether the gender differences found in this study are replicable. If the gender differences observed in the current study are found to be stable, potential implications for the type of interventions that are offered to male victims of crime (e.g., the inclusion of anger management programmes) should also be addressed.

The correlations obtained between the criterion measures and the long and short forms of the VRS subscales were identical in direction and very similar in magnitude. Furthermore, the results of the reliability studies (see Section 3.3.6 of Chapter 3) have also shown that the short versions of the VRS subscales are just as reliable as the longer versions. The 22-item VRS also accounted for a higher proportion of the item variance (see Section 4.1 of Chapter 4) and demonstrated a satisfactory model fit through confirmatory factor analysis, especially for the subsample of female victims of crime. As the shorter version of the VRS takes less time to complete, increasing the practical utility of the measure, the remainder of this thesis will focus on the 22-item version of the VRS.

In summary, the results of this chapter suggest that both subscales of the VRS are associated with negative outcomes after a criminal victimisation experience. The correlations with the general measures of depression, anxiety, and anger were moderate, suggesting that the VRS measures a construct that is more specific to crime-related psychological responses. This is further supported by the strong correlation with the

PSS-SR, the only criterion measure that was completed with reference to the index crime. Although the results of this chapter support the validity of the VRS, it is necessary to collect further evidence in order to establish whether the VRS is a valid and reliable measure, which can be recommended for use in applied settings. The next chapter will further examine the construct validity of the VRS by carrying out an experiment to examine the emotional Stroop interference effect in victims of crime.

Chapter 6

The relationship between the emotional Stroop interference effect and emotional distress in victims of crime

6.1 Introduction

The previous chapters have presented preliminary evidence to support the reliability and validity of the Victim Reactions Scale (VRS), a new 22-item scale for the assessment of the psychological effects of criminal victimisation. The relationship between the VRS subscales and established psychological measures was investigated in the previous chapter. Both EV and CSA demonstrated positive correlations with several measures of psychopathology suggesting that high scores on the VRS subscales are indicative of poor psychological well-being after a criminal victimisation experience. As expected, however, correlations between the VRS subscales and general psychopathology measures were moderate and as such are insufficient evidence for the construct validity of a new scale (P. Kline, 2000). EV did, however, demonstrate excellent concurrent validity with a self-report measure of PTSD, the PSS-SR, which was the only criterion measure included in the battery that was also completed with reference to the index crime. The strong relationship with the PSS-SR, therefore, suggests that the EV subscale measures a construct that is similar to PTSD and is specific to people's responses after a criminal victimisation experience.

As discussed in Chapter 1, PTSD is a psychological disorder that can develop after exposure to serious trauma. PTSD has been extensively studied in relation to victims' experience of serious crimes, such as rape and assault. Information-processing theories have been put forward in an attempt to explain PTSD symptoms in victims of crime (see Chapter 1 of this thesis). For example, Foa et al. (1989) postulated that PTSD symptoms arise from a fear network in memory that is associated with the trauma. It is proposed that the fear network can be easily triggered when a direct or indirect reminder of the trauma is presented to someone who is suffering from PTSD. When the fear network is triggered, information about the trauma may be brought to consciousness in the form of intrusive thoughts and flashbacks. Chemtob, Roiblat, Hamada, Carlson, and Twentyman (1988) have also proposed that the fear network may be weakly activated

on a constant basis in individuals with PTSD and may result in a tendency to attend more towards stimuli that are interpreted as dangerous. Several experimental studies have indeed demonstrated that individuals with a diagnosis of PTSD, including victims of crime, show an attentional bias towards stimuli that are related to their trauma (see J. M. G. Williams, Mathews, & MacLeod, 1996 for a review of the literature). The validation of the VRS subscales has so far focused on their relationship with other self-report measures (i.e., explicit measures of constructs), which may be affected by other factors (e.g., social desirability). The current chapter will, therefore, examine the VRS subscales in relation to a computer-based measure of attentional bias specifically tailored for use with victims of crime.

Two experimental paradigms have been mainly used to investigate attentional bias in individuals with emotional disorders (J. M. G. Williams et al., 1996). The first has aimed to show that bias towards emotionally relevant stimuli can result in improved performance on some tasks (e.g., Foa & McNally, 1986). The second experimental paradigm involves tasks in which an attentional bias can result in poorer performance. One such task is the emotional Stroop task, which will be used in the present study. The emotional Stroop task is a variation of the traditional Stroop task (Stroop, 1935), which involves the visual presentation of colour names (e.g., 'blue') written in a different colour (e.g., 'red'). Participants are then asked to name the colour of the words (e.g., 'red') while ignoring the verbal content (e.g., 'blue'). It was found that participants would take longer to name colours when they were presented with a word stating a conflicting colour (e.g., the word is 'blue' and the colour of the word is 'red') than when they were presented either with a word that was not antagonistic to the colour of the word or with a meaningless stimulus (Stroop, 1935). This finding has been replicated in numerous experiments using the Stroop task (MacLeod, 1991). These results suggest that participants attend to the meaning of words even when they are specifically instructed not to do so. By contrast, when participants are asked to read words and ignore their colour, the colour of the word does not affect the time taken to complete the task. Cohen, Dunbar, and McClelland (1990) have suggested that: "the Stroop effect illustrates a fundamental aspect of attention: People are able to ignore some features of the environment but not others" (p. 333). Cohen et al. (1990) have proposed that the traditional Stroop colour effect arises due to a conflict between colour-naming and word-reading pathways, with the word-reading pathway exerting a greater influence because reading words is generally practised more than naming the colour of words.

Much later researchers became interested in a variation of the original Stroop task, commonly referred to as the emotional Stroop task, and its potential use in the study of emotional disorders. As in the original Stroop task, participants are presented with a series of words and are asked to name the colour of each word while ignoring its meaning. The words used in these types of studies are emotional words relevant to the particular condition of the participants. The speed of colour naming emotional words is compared to control words of similar length and frequency (e.g., neutral words or general emotional words that are not relevant to the condition of the participant group). Comparisons are also made between participants with and without the particular condition under investigation (J. M. G. Williams et al., 1996). Studies using the emotional Stroop task have been carried out to investigate attentional bias in people who suffer from a variety of emotional disorders. In a review of emotional Stroop studies on depressive and anxiety disorders, J. M. G. Williams et al. (1996) cited studies on general anxiety disorder (e.g., Mathews & MacLeod, 1985), panic disorder (e.g., McNally, Riemann, Louro, Lucach, & Kim, 1992), simple and social phobias (e.g., Mattia, Heimberg, & Hope, 1993), obsessive-compulsive disorder (e.g., Lavy, Oppen, & Hout, 1993), PTSD (e.g., Foa, Feske, et al., 1991), and depression (e.g., Segal & Vella, 1990). An interference effect for words specific to the condition of the participants was found for all the different emotional disorders included in the review (i.e., participants took longer to name the colour of relevant threat words than control words), regardless of the mode of presentation of the words (cards vs. computer). This interference effect was not present in participants without the relevant emotional disorder. An emotional Stroop interference effect was also found in nonclinical populations (e.g., Gotlib & McCann, 1984; Klieger & Cordner, 1990). Furthermore, the biggest interference effect reported in the review by J. M. G. Williams et al. (1996) was for Vietnam veterans (e.g., McNally, Kaspi, Riemann, & Zeitlin, 1990) and victims of rape (e.g., Foa, Feske, et al., 1991) who had been diagnosed with PTSD.

A number of general models have been put forward to explain the emotional Stroop interference effect (e.g., Beck's schema theory and Bower's network theory; see Chapter 1 for brief description of these theories). J. M. G. Williams et al. (1997) argued that an explanatory model that is more specific to the emotional Stroop effect is needed. J. M. G. Williams et al. (1997) suggested that practice effects alone could not account for the emotional Stroop effect because interference has been found to diminish in patients who have received treatment for their emotional disorder and who may, thus, be

considered "more expert at processing information related to their psychopathology" (p. 116). In an extension of Cohen et al.'s (1990) model of the classic Stroop effect, J. M. G. Williams et al. (1997) suggested that words that have been associated with threat for an individual have a higher resting level of activation. The presentation of a relevant threat word is, therefore, thought to result in increased activity in pathways for associated threat words and, in turn, a delay to the colour-naming response.

Emotional Stroop studies in trauma populations started appearing in the literature in the 1990s. Several studies found an emotional Stroop interference effect in Vietnam veterans and civilian victims of trauma who had been diagnosed with PTSD (e.g., McNally et al., 1990; Vrana, Roodman, and Beckham, 1995; Thrasher, Dalgleish, & Yule, 1994). The emotional Stroop interference effect has also been examined in samples of victims of crime with PTSD. Foa, Feske, et al. (1991) carried out such a study with victims of rape. Participants were presented with four types of words: rape-related words, general threat words, neutral words, and nonwords. Foa, Feske, et al. (1991) found that victims of rape with PTSD ($n = 15$) were significantly slower to respond to rape-related words than victims of rape without PTSD ($n = 14$) or a control group of participants who had not been victims of rape ($n = 16$). No interference effect was found for victims of rape who were not diagnosed with PTSD suggesting that the presence of interference for rape-related threat words was not simply associated with being a victim of rape. Foa, Feske, et al. (1991) proposed that the presence of an emotional Stroop effect only in the PTSD victim group suggested that the interference was related to PTSD status rather than victimisation status. However, the victims in the PTSD group were also more anxious and depressed than the victims who had not been diagnosed with PTSD. It is possible that interference on the emotional Stroop task was also related to general anxiety or depression in this sample. The interference effect, however, was specific to threat words relevant to the victims' trauma (e.g., rape) as opposed to general threat words (e.g., cancer) suggesting that the interference was not simply related to general anxiety, although the authors also suggested that "it is possible that the heightened anxiety of PTSD victims interacted with the high threat value of rape-related words to produce the specific interference effect" (Foa, Feske, et al., 1991; p. 161). No information was provided on the relationship between anxiety and/or depression and the Stroop interference effect in that study.

In a similar study Cassiday, McNally and Zeitlin (1992) presented participants with high- and moderate-threat words related to rape as well as positive and neutral words. Rape victims with PTSD (n = 12) and rape victims without PTSD (n = 12) demonstrated increased interference when presented with high-threat words relative to moderate-threat, positive or neutral words. Victims with PTSD demonstrated increased interference for high- and moderate-threat words relative to victims without PTSD and a control group of participants who had not been raped (n = 12). Victims without PTSD also showed an increased interference effect for high-threat words relative to nonvictims. This finding is in contrast to Foa, Feske, et al.'s (1991) results and may be due to the increased similarity between the victims with and without PTSD tested by Cassiday et al. (1992). Both groups of victims demonstrated similar scores on the Fear of Negative Evaluation questionnaire (Watson & Friend, 1969) and similar levels of avoidance symptoms as measured by the Impact of Event Scale (IES; Horowitz et al., 1979). Moreover, both groups of victims were more depressed than the nonvictims. A correlation analysis of the victim data (i.e., victims with PTSD and victims without PTSD) indicated that intrusion symptoms as measured by the Impact of Event Scale (Horowitz et al., 1979) were significantly related to Stroop interference for high-threat words. This relationship, however, did not remain significant when controlling for depression and anxiety.

A more recent study by Paunovic, Lundh, and Ost (2002) examined the emotional Stroop interference effect in victims of a range of violent and sexual crimes who had been diagnosed with acute PTSD, including victims of physical assault, completed rape, armed robbery, attempted murder, attempted rape, witnessing of murder, and attempted manslaughter. Due to the wide range of crimes experienced by the PTSD group, the threat words were not as specific to each participant's individual experience of crime as in the studies by Foa, Feske, et al. (1991) and Cassiday et al. (1992) who only included victims of rape in their samples. Nevertheless, the PTSD group was found to show higher interference for threat words than a control group of healthy participants (n = 39). The control group included participants who did not satisfy criteria for current or lifetime psychiatric disorder but it was not reported whether they had ever been victims of crime. Interference on the emotional Stroop task in this study was not specific to threat words, however, as participants also demonstrated interference for positive words relative to neutral words. IES intrusion symptoms were significantly correlated with

Stroop interference; again, although measures of anxiety and depression were administered, their relationship to emotional Stroop interference was not examined.

Several studies have, therefore, shown that victims of crime who have been diagnosed with PTSD demonstrate an attentional bias towards crime-related threat words on the emotional Stroop task. Previous studies (e.g., Foa, Feske, et al., 1991) have suggested that the presence of an emotional Stroop interference effect in victims of crime is not exclusively related to their experience of a victimisation but rather to the presence of a PTSD diagnosis. Victims of crime without PTSD, however, have also been shown to demonstrate significant levels of interference relative to nonvictims (Cassiday et al., 1992), suggesting that emotional distress after a criminal victimisation more generally may be related to the emotional Stroop effect in victims of crime. The present study will, therefore, examine the Stroop interference effect in victims of general crime in relation to self-report measures of general anxiety, depression, and PTSD.

The present study will also examine the relationship between the VRS subscales and the degree of interference on the emotional Stroop task. It is proposed that crime-related threat words will have more associations for victims of crime who are still emotionally vulnerable in relation to the crime that happened to them. It is, thus, hypothesised that the higher their score on the Emotional Vulnerability subscale of the VRS, the longer it will take victims of crime to name the colour of crime-related threat words relative to neutral words. No predictions are made in relation to CSA, as no previous literature has examined anger in relation to the emotional Stroop interference effect in victims of crime. An experimental task was developed for the particular target sample in this study building upon the emotional Stroop tasks used in previous studies with victims of crime. In order to examine whether interference for crime-related words on the Stroop task used in the present study was specific to victims of crime, a sample of nonvictims was also tested.

6.2 METHOD

6.2.1 Participants

The sample comprised 67 participants: 42 victims of crime (i.e., participants who had experienced at least one criminal victimisation experience during their lifetime) and 25 nonvictims (i.e., participants who had never been a victim of crime). All of the participants were recruited from staff and students at the University of York. Participation was requested via an e-mail, which was sent to undergraduate students at the Department of Psychology and a dedicated participant pool, which includes students and staff outside the Department of Psychology who have stated they would be interested in participating in research. All of the participants received either credit towards their course or a nominal payment of four pounds.

The victim group comprised 33 female and 9 male participants and their mean age was 22.52 years (SD = 6.00, range = 18 – 47). The majority were of White ethnicity (85.7%), while the remaining participants in the victim group were either Chinese (11.9%) or Asian (2.4%). Thirty-seven of the participants (88.1%) were students and five (11.9%) were in employment. All of the participants were highly qualified: 88.1% had received or were in the process of studying for an undergraduate degree and 11.9% had obtained or were studying for a postgraduate degree. The participants had experienced an average of 2.02 crimes during their lifetime (SD = 1.20, range = 1 – 6). The index crimes reported by the victim group included theft, burglary, street robbery, assault, indecent assault, sexual assault, and domestic violence. The majority of index crimes were property crimes (64.3 %) and the remainder were classified as violent (23.8%) or sexual (11.9%) crimes. The time elapsed since the index crime varied: 28.6% of the crimes had happened less than a year ago, 42.9% between one and five years ago, and 28.6% more than five years ago. The majority of the participants did not know their offender (76.2%), were not injured during the crime (85.7%), and had reported the crime to the police (59.5%). Only a minority of the participants has been approached by an organisation that supports victims of crime (16.7%) and even fewer had received professional help (2.4%) or contacted a relevant organisation themselves (2.4%).

The nonvictim group comprised 21 female and 4 male participants with a mean age of 20.0 years (*SD* = 1.97, range = 18 – 28). Again, the majority of participants in this group were White (72%). The remaining participants in the nonvictim group were Asian (8%), Mixed (8%), Chinese (4%), or any other ethnicity (4%). Only one participant in this group was employed and the remainder were students. All the participants had either obtained or were currently studying for an undergraduate degree.

6.2.2 Materials

Two categories of words were used for the emotional Stroop task: crime-related threat words and neutral words. A list of 56 potential threat words was compiled by the author from words used in previous studies of the emotional Stroop test with victims of crime (Cassiday et al., 1992; Foa, Feske, et al., 1991; Paunovic et al., 2002)[13] and from victims' answers to open-ended questions about their thoughts, feelings, and behaviours after a crime (see Section 3.2.1 of Chapter 3). The 56 words were all included in a word rating exercise (see Appendix 6.1) that was administered to a sample of victims of crime in order to inform the selection of the threat words for the emotional Stroop task used in the present study. Participants were asked to rate the threat represented to them by each word on a scale of zero (*not threatening at all*) to five (*very threatening*). Seventeen victims of crime with a mean age of 41.41 years (*SD* = 15.95, range = 19 – 66) completed the word rating exercise. Six were male (mean age = 49.67 years, *SD* = 10.35, range = 37 – 66) and 11 were female (mean age = 36.91 years, *SD* = 17.03, range = 19 – 66). The majority of participants were White (88.2%). Most were employed (58.8%), 29.4% were students, and 11.8% were retired. The educational level of the sample was mixed, ranging from having no formal qualifications to having a postgraduate degree; the majority of participants had an undergraduate degree (7). The participants had experienced an average of 2.31 crimes during their lifetime (*SD* = 1.20, range = 1 – 5). Participants had experienced a range of crimes including burglary, theft, assault, sexual assault, rape, and murder of a loved one. None of the participants who completed the word rating exercise took part in the Stroop experiment. The 25 words

[13] Many of the words used by the previous victim studies were excluded because they were thought to be very specific to the fears of rape victims (e.g., the word 'penetrate') or in the case of the Paunovic et al. (2002) study, some of the words did not translate well from Swedish into English.

that received the highest average threat rating were selected for inclusion in the current experiment.

A list of neutral words that had already been used in previous emotional Stroop experiments (e.g., Foa, Feske, et al., 1991) was also compiled. Of these words, 25 words were selected so that they matched the threat words as closely as possible on a number of variables including: number of syllables, number of letters, written word frequency (Kucera & Francis, 1967), concreteness, imagability, and word category (noun, verb, or adjective). Information on the matching variables for each word used in the Stroop task was obtained from the MRC Psycholinguistic Database Version 2.0[14]. This database contains information on the lingusitic properties of a large sample of words and is often used as a guide for the selection of experimental stimuli. There were no significant differences ($p > .05$) between the two groups of words on any of the matching variables. The crime-related threat words and neutral matches are listed in Appendix 6.2.

Each word was presented four times in four different colours: red, blue, green, and black. The task, therefore, consisted of a total of 200 trials (100 presentations of the 25 threat words and 100 presentations of the 25 neutral words). Before each word presentation, a fixation cross was displayed in the center of the computer screen for 500 msecs. This was followed by the word in lower case letters, which remained on the screen until the participant pressed one of the keys on the response box. There was a 500 msec interstimulus interval (ISI) between the word presentations. The trials were fully randomized before presentation and all the participants were presented with the words in the same randomized order. All participants completed a practice session before the experiment proper, which consisted of 20 presentations of five words (i.e., 'one', 'two', 'three', 'four', and 'five'). Each of the practice words was presented four times in the four different colours.

The words were presented to participants using a Systemax laptop computer. The computer screen was 18.5 cm long and 11.5 cm wide. The computer was raised so that the screen was at the same height as the participants' eye level. Participants were seated approximately one meter away from the computer screen. The experiment was developed using Superlab (Cedrus, 2002), which records the response latencies in

[14] http://www.psy.uwa.edu.au/mrcdatabase/mrc2.html

milliseconds for each word trial. The words were presented centrally on the screen one at a time. The words were written in Arial font (approximately 0.8 cm high and 0.2 cm long). Participant input was given via an external response box that was attached to the laptop. Four coloured keys on the response box corresponded to the four colours of the words (red, black, blue, and green).

6.2.3 Questionnaire measures

Participants were asked to complete a battery of questionnaires[15], which also provided additional data for the concurrent validation of the VRS reported in Chapter 5 (see Section 5.2.2 of Chapter 5 for a detailed description of the measures). For the purposes of the present study, participants completed the Victim Reactions Scale (VRS), the Beck Depression Inventory – Second Edition (BDI-II; Beck et al., 1996), the State Trait Anxiety Inventory (STAI; Spielberger, 1983), and the Posttraumatic stress disorder Symptom Scale – Self-Report (PSS-SR; Foa et al., 1993). Participants were asked to complete the VRS and the PSS-SR with reference to the index crime. The nonvictims were, therefore, not administered the VRS or the PSS-SR.

In order to examine whether participants found the crime-related threat words used in the Stroop task threatening and the neutral words nonthreatening, participants were also administered a word rating exercise. The word rating exercise comprised the threat and neutral words used in the Stroop task in randomised order and asked participants to rate how threatening they found each word on a scale from zero (*not threatening at all*) to five (*very threatening*).

6.2.4 Procedure

After receiving approval from the Ethics Committee of the Department of Psychology at the University of York, a sample of victims and nonvictims was recruited to take part in the study. All participants were tested individually. They were first given a statement of informed consent, which detailed the three parts of the experiment and the general aim of the study (see Appendix 6.3). After giving informed consent, the participants were seated in front of the laptop computer and given instructions for the

[15] The battery also included three additional questionnaires, which were used exclusively for the concurrent validation of the VRS reported in Chapter 5.

emotional Stroop task in writing (see Appendix 6.4). After reading the instructions, the participants were given the opportunity to ask the experimenter for clarifications. The participants were then left alone in the experimental room to complete the task. The task began with a practice session of 20 words, which were presented four times each in the different colours. When the participants completed the practice session, a message was presented on the computer screen stating that they could proceed to the main experiment by pressing any key on the response box. If at that stage they wanted additional practice they were given the opportunity to ask the experimenter to run the practice session again. None of the participants requested additional practice. The task took approximately seven minutes to complete.

After completing the emotional Stroop task the participants were taken to a different room to complete the battery of questionnaires and the word rating exercise. The battery of questionnaires was fully counterbalanced across participants. This part of the study took participants approximately 30 to 40 minutes to complete. When participants had completed all three parts of the experiment (Stroop task, measures, and word rating exercise), they were given credit or payment and were offered the opportunity to ask questions about the study. A follow-up e-mail was sent to all participants, which included preliminary results of the study and the telephone number of a national support telephone line operated by Victim Support.

6.3 RESULTS

6.3.1 Threat ratings

Descriptive statistics for participants' ratings of the threat and neutral words are displayed in Table 6.1. A Wilcoxon test[16] of the mean ratings revealed that the threat words were perceived as significantly more threatening than the neutral words by both the victim ($z = -5.63, p < .01$) and nonvictim groups ($z = -4.37, p < .01$). There were no significant differences between the two groups in their average ratings for the threat ($z = -0.22, p > .05$) or neutral words ($z = -0.72, p > .05$).

[16] A nonparametric test was used because the threat ratings demonstrated excessive skewness.

Table 6.1 Descriptive Statistics for Average Threat Ratings of the Emotional Stroop Task Words Given by Victims and Nonvictims

	Victims (n = 42)			Nonvictims (n = 25)		
	M	*SD*	Range	*M*	*SD*	Range
Threat words	2.92	1.02	0.04 – 4.58	2.85	1.28	0.08 – 4.50
Neutral words	0.25	0.39	0.00 – 1.96	0.14	0.21	0.00 – 1.00

6.3.2 Error rates

SuperLab provides information on the number of errors made by each participant. Trials where errors were made were excluded from all subsequent analyses. Up to 8.5% of individual participants' responses had to be excluded. Mogg, Kentish, and Bradley (1993) have drawn attention to the fact that using manual rather than vocal responses in a Stroop task increases the error rate. Mogg et al. (1993) excluded participants from further analyses when they had made errors on more than 10% of the trials. As all of the participants' error rates in the current study were below 10%, all participants were included in subsequent analyses.

Descriptive statistics for the errors made by the participants are presented in Table 6.2. Error rates were similar for threat and neutral words in both the victim (z = -0.89, p > .05) and nonvictim groups (t [41] = -0.80, p > .05). There were no significant differences in error rates between the victim and nonvictim groups (threat words: z = -1.50, p > .05; neutral words: z = -1.52, p > .05; all trials: z = -1.63, p > .05)[17].

Table 6.2 Descriptive Statistics for Errors Made by Victims and Nonvictims.

	Victims (n = 42)			Nonvictims (n = 25)		
	M	*SD*	Range	*M*	*SD*	Range
Threat trials	2.36	2.59	0 – 11	2.84	1.95	0 – 6
Neutral trials	2.67	2.41	0 – 7	3.64	2.55	0 – 10
All trials	5.02	4.32	0 – 17	6.48	3.91	0 – 14

[17] Nonparametric tests were carried out where the data demonstrated excessive skeweness.

6.3.3 Main analyses

The mean time taken to colour-name the two different types of words (threat vs. neutral words) across presentations was calculated for each participant. The average time taken by victims and nonvictims to name the colour of threat and neutral words is displayed in Figure 6.1. Independent *t* tests[18] demonstrated that the victim group took significantly longer to name the colour of both threat and neutral words than the nonvictim group (threat words: $t\,[62.55] = -2.31$, $p < .05$; neutral words: $t\,[61.07] = -2.61$, $p < .05$).

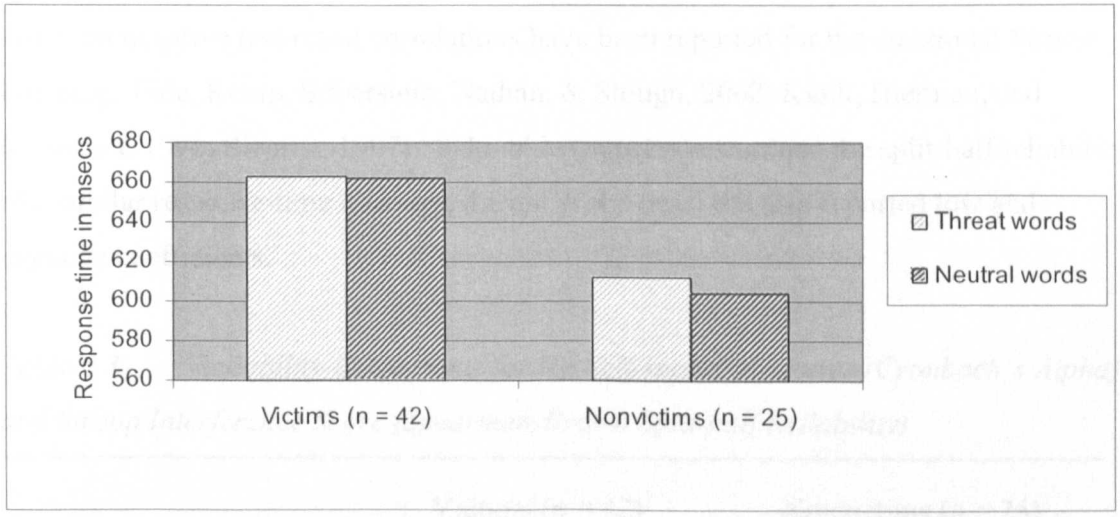

Figure 6.1 Average Time Taken by Victims and Nonvictims to Name the Colour of Threat and Neutral Words in the Emotional Stroop Task

The Stroop interference score for each participant was calculated by subtracting the mean response time for neutral words from the mean response time for threat words. Alpha coefficients were satisfactory for all the self-report measures[19] in both the victim and nonvictim groups (see Table 6.3). The reliability of the Stroop interference score was also examined by computing its split-half reliability. The 25 threat words used in the emotional Stroop task were ordered on the basis of their average threat value[20] and the task was then split in half by taking even and odd numbers of the 25 word pairs. This method was used so that words of similar threat value would be evenly dispersed across the two halves of the task. A Stroop interference score was then calculated for each half of the task for all participants and the split-half reliability was computed using

[18] Due to significant levels of skewness, the response times were transformed using a logarithmic transformation and due to a significant Levene's test the *t* statistics for 'equal variances not assumed' are reported.

[19] BDI-II scores were only available for 24 nonvictims due to missing data.

[20] Using a priori ratings given by victims of crime who didn't take part in the experiment; see section 6.2.2 for a description of the sample.

the Spearman-Brown formula. The split-half reliability was markedly different for the two groups. The split-half reliability of the task for the victim group was low by the standards set for questionnaires (e.g., P. Kline, 2000) but it was positive and moderate in magnitude. By contrast, the split-half reliability of the task for the nonvictim group was negative. Negative reliability coefficients violate reliability model assumptions. The Pearson correlation of the interference scores for the two halves of the task was also negative for the nonvictim group, suggesting that the higher the interference score on one half of the task, the lower it would be on the other half. Studies of the emotional Stroop effect do not commonly report the reliability of the emotional Stroop task. Low and even negative test-retest correlations have been reported for the emotional Stroop task (e.g., Eide, Kemp, Silberstein, Nathan, & Stough, 2002; Kindt, Bierman, and Brosschot, 1996; Siegrist, 1997). Schmukle (in press) examined the split-half reliability of a similar response-time measure, the dot probe task, and also reported low and negative coefficients.

Table 6.3 Reliability Coefficients for the Self-report Measures (Cronbach's Alpha) and Stroop Interference Score (Spearman-Brown Split-half Reliability)

	Victims (n = 42)	Nonvictims (n = 25)
EV	.94	n/a
CSA	.82	n/a
PTSD severity	.91	n/a
BDI-II	.93	.88
STAI State Anxiety	.95	.93
STAI Trait Anxiety	.88	.83
Stroop score	.37	-.35[a]

Note. EV = Emotional Vulnerability; CSA = Crime-Specific Anger; PTSD severity = Posttraumatic stress disorder Symptom Scale – Self Report (PSS-SR) total severity score; BDI-II = Beck Depression Inventory – Second Edition; STAI = State-Trait Anxiety Inventory; Stroop score = Interference score on the emotional Stroop task; n/a = not applicable.

[a] the negative correlation between the two halves of the test violates reliability model assumptions.

Independent *t* tests demonstrated that there were no significant differences between victims and nonvictims on any of the self-report measures (BDI: t [63.57][21] = -1.00, p > .05; STAI S-Anxiety: t [65] = -0.63, p > .05; STAI T-Anxiety: t [65] = -1.48, p > .05) or the Stroop interference score (t [65] = 1.40, p > .05). Descriptive statistics for the questionnaire measures and the Stroop interference score are presented in Table 6.4 below.

Table 6.4 Descriptive Statistics for the Self-report Measures and the Stroop Interference Score

	Victims (n = 42)			Nonvictims (n = 25)		
	M	*SD*	Range	*M*	*SD*	Range
EV	14.50	12.22	0 – 39		n/a	
CSA	24.19	9.33	3 – 42		n/a	
PTSD	5.67	7.34	0 – 36		n/a	
BDI-II	10.62	9.96	0 – 34	8.75	5.16	0 – 16
S-Anxiety	38.74	12.84	20 – 77	36.84	10.27	26 – 60
T-Anxiety	45.36	9.12	27 – 69	42.16	7.46	32 – 62
Stroop score	0.69	24.26	-72.12 – 78.97	8.08	13.56	-15.71 – 43.75

Note. EV = Emotional Vulnerability; CSA = Crime-Specific Anger; PTSD = Posttraumatic stress disorder Symptom Scale – Self-Report (PSS-SR) total severity score; BDI-II = Beck Depression Inventory – Second Edition; S-Anxiety = State-Trait Anxiety Inventory state anxiety; T-Anxiety = State-Trait Anxiety Inventory trait anxiety; Stroop score = Interference score on the emotional Stroop task, n/a = not applicable.

The relationship between the Stroop interference score and the questionnaire measures was examined in the total sample using Pearson correlations (see Table 6.5). The distributions of the self-report data and the Stroop interference scores were first examined and the distribution of PTSD severity was found to be positively and significantly skewed. PTSD severity was, therefore, transformed using a logarithmic transformation[22]. In the total sample of participants, the Stroop interference score was

[21] The *t* statistic for 'equal variances not assumed' is reported because Levene's test was statistically significant.

[22] A constant (i.e., 1) was added to each PTSD severity score before it was transformed due to the presence of zero scores (Tabachnick & Fidell, 2001).

significantly and positively correlated with BDI-II depression, STAI State Anxiety, and STAI Trait Anxiety, but these correlations were small in magnitude.

Table 6.5 Pearson Correlation Coefficients between the Questionnaire Measures and the Emotional Stroop Interference Score for the Total Sample (N = 67)

Variables	1	2	3	4
1. Stroop score	-	.28*	.24*	.29*
2. BDI- II		-	.59**	.69**
3. STAI State Anxiety			-	.63**
4. STAI Trait Anxiety				-

Note. Stroop score = Interference score on emotional Stroop task; BDI-II = Beck Depression Inventory – Second Edition; STAI = State-Trait Anxiety Inventory.

* $p < .05$. ** $p < .01$.

Correlations were also computed separately for the victim and nonvictim groups (see Table 6.6). The correlation coefficients between the Stroop interference score and the self-report measures were markedly different for the two groups of participants. Whereas the relationships between the Stroop interference score and the self-report measures were positive and substantial for the victim group, they were statistically nonsignificant and negative for the nonvictim group.

Table 6.6 Pearson Correlation Coefficients between the Self-report Measures and the Emotional Stroop Interference Score for Victims and Nonvictims

Variables	1	2	3	4
1. Stroop score	-	.40**	.41**	.48**
2. BDI- II	-.22	-	.61**	.74**
3. STAI State Anxiety	-.32	.53**	-	0.56**
4. STAI Trait Anxiety	-.20	.45**	.82**	-

Note. Correlation coefficients for victims are reported above the diagonal and correlation coefficients for nonvictims are reported below the diagonal. Stroop score = Interference score on emotional Stroop task; BDI-II = Beck Depression Inventory – Second Edition; STAI = State-Trait anxiety Inventory.

** $p < .01$.

The pattern of correlations between the Stroop interference score and the self-report measures for the two groups suggested the possible presence of a moderator effect (Baron & Kenny, 1986). Baron and Kenny (1986) defined a 'moderator' as a "variable that affects the direction and/or strength of the relation between ... [a] predictor variable and a ...criterion variable" (p. 1174). It is proposed that victimisation status may moderate the relationship between interference on the emotional Stroop task and self-report measures of anxiety and depression. First, simple regressions were carried out for the victim and nonvictim groups separately to examine the effect of each of the self-report measures (i.e., Trait Anxiety, State Anxiety, and BDI-II depression) on the Stroop interference score. The regression models for the victim group were all significant, whereas for the nonvictim group they were all statistically nonsignificant. Furthermore, using the formula given by Cohen and Cohen (1983; p. 56), the unstandardised regression coefficients for victims and nonvictims were found to be significantly different (STAI trait anxiety: t [63] = 14.90, p = < .01; STAI state anxiety: t [63] = 9.57, p = < .01; BDI-II depression: t [62] = 3.39, p = < .01).

Multiple hierarchical regressions were also carried out to further investigate the presence of a moderator effect. Trait Anxiety and victimisation status (represented as a dummy variable scored 0.5 for victim and -0.5 for nonvictim) were entered as predictors in the first step. In the second step, the cross product of both predictors was also entered into the regression analysis (Trait Anxiety was scored as a deviation score to avoid multicollinearity problems with the dummy variable victimisation status). In the first step, Trait Anxiety was the only significant predictor of the Stroop interference score. Overall the model was significant and explained 14% of the variance in Stroop interference scores. There was a significant increment in explained variance from Step 1 to Step 2. The only significant predictor of the Stroop interference score in Step 2 was the interaction term of Trait Anxiety and victimisation status, which explained 22% of the variance. The same analyses were repeated with STAI State Anxiety and BDI-II depression as one of the predictors (replacing STAI Trait Anxiety in the model described above). The results of these analyses demonstrated a similar pattern to that described above, suggesting that victimisation status moderated the relationship between the Stroop interference score and the self-report measures of anxiety and depression in the present study. The results of the regression analysis are presented in Table 6.7.

Table 6.7 Summary of Hierarchical Multiple Regression Analysis with STAI Trait Anxiety and Victimisation Status as Predictors of the Emotional Stroop Interference Score (N = 67)

Variable	B	*SE* B	B
Step 1			
STAI Trait Anxiety	0.81	0.29	.33 **
Victimisation status	-9.99	5.12	-.23
Step 2			
STAI Trait Anxiety	0.46	0.31	.19
Victimisation status	-8.20	4.94	-.19
Interaction term [a]	14.07	5.31	.33 *

Note: $R^2 = .14$ for Step 1 ($p < .05$); $\Delta R^2 = .09$ for Step 2 ($p < .05$). STAI = State-Trait Anxiety Inventory.

[a] Cross product of STAI Trait Anxiety and Victimisation status

*$p < .05$. **$p < .01$

As the nonvictim group did not complete the crime-specific measures (i.e., the VRS and the PSS-SR), the correlation matrices in Tables 6.5 and 6.6 only included the relationships between interference on the emotional Stroop task and general measures of depression and anxiety. Table 6.8 displays the intercorrelations between all the measures completed by the victim group, including the VRS and PSS-SR. The relationship between EV and the Stroop interference score was found to be substantial and highly significant. Furthermore, the correlation between the Stroop interference score and PTSD severity was also significant but smaller in magnitude. The correlation between CSA and the Stroop interference score was negative and statistically nonsignificant.

Due to the gender differences in the relationships between the VRS subscales and the criterion measures that were noted in the previous chapter, the correlations between the Stroop interference score and the VRS subscales were re-examined by gender. The relationship between the Stroop interference score and EV remained strong in the subsample of female victims ($r = .46, p < .01$) but in the subsample of male victims the correlation was smaller in magnitude and nonsignificant ($r = .28, p > .05$). On the other hand, the association between CSA and the Stroop interference score, although

statistically nonsignificant, was stronger in the subsample of male victims (r = -.30, p > .05) and negligible in the subsample of female victims (r = -.01, p > .05).

Table 6.8 Pearson Correlation Coefficients between the Self-report Measures and the Emotional Stroop Interference Score for Victims (n = 42)

Variables	1	2	3	4	5	6	7
1. Stroop score	-	.43**	-.17	.26*	.40**	.41**	.48**
2. EV		-	.24	.83**	.51**	.46**	.59**
3. CSA			-	.18	-.09	.14	.13
4. PTSD				-	.66**	.49**	.62**
5. BDI- II					-	.61**	.74**
6. STAI State Anxiety						-	.56**
7. STAI Trait Anxiety							-

Note. Stroop score = Interference score on emotional Stroop task; EV = Emotional Vulnerability; CSA = Crime-Specific Anger; PTSD = Posttraumatic stress disorder Symptom Scale – Self -Report (PSS-SR) total severity score; BDI-II = Beck Depression Inventory – Second Edition; STAI = State-Trait anxiety Inventory.

* p < .05. ** p < .01.

6.4 DISCUSSION

The victim group took longer overall than the nonvictim group to name the colour of both threat and neutral words. Paunovic et al. (2002) also found a significant difference in response times to trauma, positive, and neutral words between victims with a PTSD diagnosis and nonvictims. Paunovic et al. (2002) suggested that the slower response times demonstrated by victims with PTSD may be accounted for by the concentration impairments that have been associated with PTSD. Participants in the present study, however, were allocated to the victim and nonvictim groups based on their experience of criminal victimisation rather than on PTSD diagnostic criteria. Indeed, 97.6% of the victims who participated in this study scored less than 20 on the total PTSD severity scale of the PSS-SR, a cutoff which has been used by Foa et al. (1999) and Resick et al. (2002) to define good-end-state functioning for victims of crime who have received treatment. It is possible that participants in the victim group demonstrated increased

arousal during the task due to their awareness that the study concerned their experience of victimisation. Increased arousal has been shown to impair performance on a number of tasks (M. W. Eysenck & Keane, 1995). Alternatively, victims and nonvictims in the current study may have processed the task differently. Although there was no significant difference between groups in the threat ratings of the crime-related threat words, it is likely that victims associated the threat words with their personal experience of victimisation, whereas nonvictims would have had no personal frame of reference to associate the words with. Therefore, there would be no reason for the interference score demonstrated by nonvictims to be consistent across the different word pairs, as demonstrated by the negative split-half reliability obtained for the nonvictim group.

The victim group as a whole did not demonstrate increased Stroop interference relative to the nonvictim group suggesting that degree of interference on the present emotional Stroop task was not exclusively related to having been a victim of crime. Consistent with the hypothesis that the emotional Stroop interference effect is related to degree of emotional distress in victims of crime, the Stroop interference score was significantly and positively related to levels of depression and anxiety; this relationship, however, held only for the victim group. By contrast, there was a negative and statistically nonsignificant relationship between the Stroop interference score and measures of depression and anxiety in the nonvictim group. The lack of a positive correlation between anxiety and Stroop interference in the nonvictim group suggests that anxiety per se was not associated with interference on the crime-related emotional Stroop task but a combination of heightened anxiety and having experienced a criminal victimisation. Indeed, the results of hierarchical multiple regressions indicated that the relationship between anxiety and interference on the present Stroop task was moderated by victimisation status.

The second aim of the present study was to provide further support for the construct validity of the Emotional Vulnerability subscale of the VRS. As predicted emotional vulnerability in victims of crime, as measured by the VRS, was significantly and positively associated with interference on the emotional Stroop task. Crime-Specific Anger, on the other hand, was not related to Stroop interference, suggesting that feelings of anger and frustration relating to a victimisation experience were not associated with an attentional bias towards crime-related words in the current experiment. The correlation with PTSD severity was significant but modest in

magnitude. It was not possible to diagnose PTSD in the current sample as only a self-report measure of PTSD was administered and the participants were only interviewed once, thus making it impossible to ascertain the duration of PTSD symptoms. Scores on the PSS-SR suggested, however, that the majority of participants did not suffer from PTSD. Only one participant scored above the cutoff for moderate to severe symptoms and 26.2% of the victim sample received a zero score on the PSS-SR. It is possible that the restricted range of scores on the PSS-SR in the current sample reduced the strength of the correlation between PTSD and the emotional Stroop interference score (Howell, 1997).

The correlations between the VRS subscales and the Stroop interference score were also examined separately for female and male participants. The correlation between EV and the Stroop interference score in female victims was very similar to that obtained for the total sample. The negative correlation between CSA and the Stroop interference score was negligible in the subsample of female victims. In the subsample of male victims, the relationship between EV and the Stroop interference score was found to be smaller in magnitude, whereas the negative relationship between CSA and the Stroop interference score, although statistically nonsignificant, was substantial. This suggests that male victims who score high on the CSA scale would be less likely to demonstrate an interference effect on the emotional Stroop task. There were only nine male victims in the sample, however, so it is not possible to draw any conclusions with confidence based on the current sample about the relationship between interference on the emotional Stroop task and levels of EV and CSA in male victims of crime. Future research should examine the relationship between CSA and the emotional Stroop interference effect in a larger sample of male victims of crime.

The present study differed substantially from previous victim studies on the emotional Stroop interference effect. Most of the crimes reported by the participants in the victim group were property crimes, which are generally thought to be less serious than violent or sexual crimes (e.g., Davis et al., 1996). By contrast, previous victim studies on the emotional Stroop effect included only victims of serious crime (i.e., violent or sexual crime). As the victim group in the current study comprised victims of a range of crimes, the crime-related threat words did not necessarily relate to their specific fears and anxieties about the crime that had happened to them; this was also the case in the Paunovic et al. (2002) study as the sample included victims of both violent and sexual

crime. Furthermore, most of the participants were not victims of recent crime with the time elapsed since the index crime ranging from a few months to 15 years. The time elapsed since the index crime, however, was not related to the Stroop interference effect in the current study ($r = -.05, p > .05$). Moreover, the relationship between the Stroop interference effect and the measures of anxiety, depression, emotional vulnerability, and PTSD did not change when this variable was partialled out. It is worth noting that the time elapsed since the index crime also varied greatly in the study by Cassiday et al. (1992).

Only eight of the threat words used in the current experiment (i.e., rape, assault, attack, aggression, attack, terror, violent, brutal, threaten) had been used in previous studies with victims of crime (Cassiday et al., 1992; Foa, Feske, et al., 1991; Paunovic et al., 2002). Due the different composition of the current victim sample compared with samples reported in the literature, a new set of threat words were used in the current study that were expected to be relevant to victims of crime in general. All the participants rated the words after completing the emotional Stroop task. These ratings indicated that participants found the crime-related threat words significantly more threatening than their neutral matches. It should be noted that allocation of participants to the victim and nonvictim groups was based on information provided by the participants themselves. It is possible, therefore, that participants in the nonvictim group chose not to report victimisation experiences. Finally, it is worth noting that it is possible that the repeated presentation of each threat word four times over the course of the task may have reduced the degree of emotional Stroop interference. McKenna and Sharma (1995) have presented evidence for habituation of the emotional Stroop interference effect after repetition of the same stimuli. Due to the method of randomisation used in the current study it was not possible to examine possible habituation effects but future research could examine, for example, whether interference is higher at the initial presentations of a threat word relative to the third or fourth presentations of the same threat word.

In conclusion, the results of the present study indicated that interference on a crime-related emotional Stroop task was related to individual differences in general anxiety and depression in victims of crime. This was not found to be the case for nonvictims. This finding suggests that victims may have processed the crime-related threat words differently relative to nonvictims in the present emotional Stroop task. More

specifically, the evidence suggests that the participants in the current study who had been victims of crime associated the crime-related words with emotional distress, whereas the participants who had no prior experience of victimisation did not associate the crime-related words with emotional distress. Furthermore, victims' scores on Emotional Vulnerability were positively correlated with interference on the emotional Stroop task, providing further evidence for the construct validity of the Emotional Vulnerability subscale of the VRS. This correlation was similar in magnitude to the correlations demonstrated with general measures of anxiety and depression for victims of crime. It is necessary to be cautious when drawing conclusions from the results of the current study, as the reliability of the emotional Stroop task was low relative to acceptable levels for self-report measures. Furthermore, it is difficult to generalise the findings of the present study with confidence to victims of crime in general as the current sample was small in size and heavily biased towards female participants and students. It is, therefore, recommended that this study is replicated with a larger sample that includes a higher proportion of male victims of crime.

Chapter 7

An examination of demographic and victimisation variables in relation to emotional vulnerability in victims of crime

7.1 INTRODUCTION

A range of variables are thought to affect people's recovery from the psychological effects of victimisation, including demographic characteristics, previctimisation adjustment, features of the crime incident, and victims' perceptions of the crime (see Section 1.4 of Chapter 1). In Chapter 5, the VRS subscales, in particular Emotional Vulnerability, were shown to correlate with measures that are commonly used to assess psychological distress in victims of crime (i.e., measures of PTSD, depression and anxiety). Therefore, the present chapter will explore the relationship between scores on the VRS subscales and several variables that previous studies have suggested are associated with victims' levels of psychological distress following a criminal victimisation experience. Data on variables relating to features of the index crime (i.e., type of crime, time elapsed since the index crime, and acquaintanceship with the offender), victims' demographic characteristics (i.e., gender, age, education, and ethnicity) and victimisation history (i.e., number of crimes experienced) were collected via the questionnaires administered for the exploratory and confirmatory analyses. Next follows a brief discussion of studies, which have examined these variables in relation to psychological distress in victims of crime.

7.1.1 Features of the index crime

The index crimes reported by participants in the current study were classified as property, violent, or sexual crimes. Research on victims of crime has generally found that victims of violent crime demonstrate increased levels of distress relative to victims of property crimes (e.g., Norris & Kaniasty, 1994; see Chapter 1). Furthermore, victims of rape tend to demonstrate the highest levels of PTSD incidence among victims of trauma in large prevalence studies (e.g., Breslau, Davis, Andreski, & Peterson, 1991; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Kilpatrick et al. (1989) also

found that victims with PTSD were more likely to have been a victim of rape than victims without PTSD.

The time elapsed since the index crime varied considerably among participants in the current study, ranging from one month to 51 years. Studies of victims of crime often assess specific cohorts of victims and time elapsed since the crime does not vary much between participants. For example, Davis et al. (1996) interviewed victims one month after the crime had occurred. Kilpatrick et al. (1989), however, examined the relationship between time elapsed since the crime and PTSD and found that the number of years elapsed since the offence was a significant predictor of PTSD status. More specifically, victims with PTSD were more likely to have suffered a more recent crime than victims without PTSD.

The effect of the relationship between victim and offender on victims' psychological distress has mainly been examined in victims of rape (Resick, 2001). The findings across studies, however, have not been consistent. For example, Ellis, Atkeson, and Calhoun (1981) found that victims of stranger rape displayed higher levels of psychological distress than victims who had known their offender but the sample size was small ($N = 27$) and the victims were assessed a number of years after the crime had occurred. Resick (1988) found that female victims of robbery who were acquainted with their offender demonstrated lower levels of self-esteem up to 18 months after the crime. This finding, however, did not apply to male victims of robbery or victims of rape in this sample. Frank, Turner, and Stewart (1980) also found that acquaintanceship with the offender was not a significant predictor of levels of depression, fear, and anxiety in victims of rape one month after the offence.

7.1.2 Victimisation history

The only aspect of victimisation history examined in the current study will be the number of crimes experienced by participants. Burgess and Holmstrom (1978) interviewed victims of rape ($N = 81$) four to six years after the incident and found that victims with prior victimisation experiences were less likely to say that they felt recovered than victims with no victimisation experiences prior to the rape. Resick (1988) examined prior victimisation as a continuous variable and found that the extent of prior victimisation experiences was associated with higher levels of symptoms one

year after a rape. On the other hand, Frank et al. (1980) found that victims of more than one rape incidents did not differ from victims of single incidents on levels of depression, anxiety, and fear but the sample was small ($N = 50$).

7.1.3 Demographic characteristics

The literature on victims of crime has generally reported that female victims of crime demonstrate higher levels of psychological distress than male victims of crime (e.g., Weaver & Clum, 1995; Davis et al., 1996; see Chapter 1). Furthermore, large studies of trauma populations have also found that women demonstrate a higher prevalence of PTSD than men (e.g., Breslau et al., 1991; Kessler et al., 1995). These studies included victims of violent and sexual crime (e.g., rape and assault) but also victims of a range of other traumas (e.g., accidents, combat, natural disasters). Kessler et al. (1995) also found that gender differences in rates of PTSD remained even when controlling for gender differences in the types of trauma experienced by the participants in their sample.

Davis et al. (1996) found that a lower level of education was associated with increased distress four months after the crime in victims of robbery, burglary, and assault. Moreover, Acierno, Resnick, Kilpatrick, Saunders, and Best (1999) found that low education was a significant predictor of PTSD in a sample of victims of assault ($N = 463$) but not victims of rape ($N = 607$). Other studies, however, found no relationship between education and psychological symptoms (e.g., Weaver & Clum, 1995; Kilpatrick et al., 1989). A study of victims of general trauma found that participants with low levels of education exhibited a higher likelihood of having experienced a traumatic event but education was not found to be a significant predictor of PTSD after exposure to trauma (Breslau et al., 1991).

A couple of studies have suggested that younger victims of crime demonstrate higher levels of psychological distress than older victims (Kilpatrick et al., 1989; Davis et al., 1996; see Section 1.4 of Chapter 1 for a more detailed description of these studies). Norris (1992) also found that victims of crime aged 60 and over were less likely to be diagnosed with PTSD than younger victims. Weaver and Clum (1995) and Acierno et al. (1999) reported that age was not a significant predictor of psychological distress in

victims of violent crime, whereas Burgess and Holmstrom (1974) observed that older victims of rape demonstrated higher levels of psychological symptoms than younger victims of rape.

Several studies have demonstrated that ethnicity is not a significant predictor of psychological distress among victims of crime (e.g., Weaver & Clum, 1995; Acierno et al., 1999). Furthermore, in a large population survey Norris (1992) did not find a significant difference in the percentage of Black and White victims of crime who had been diagnosed with PTSD.

It should be noted that the sample sizes used in some of the studies discussed above were relatively small considering the amount of predictor variables that were examined (e.g., Frank et al., 1980). The studies that employed large samples included victims of a range of traumas (e.g., Breslau et al., 1991), not just victims of crime; consequently, it is difficult to draw conclusions about victims of crime in particular. Moreover, some of the findings of the studies discussed above were only applicable to victims of specific crimes (e.g., victims of rape or robbery).

To summarise, demographic and victimisation variables will be examined in relation to Emotional Vulnerability and Crime-Specific Anger in a large sample of victims of a wide range of crimes. The relationship between the VRS subscales and demographic and victimisation variables will first be examined using correlations. Based on the literature and the results of the correlation analysis, potential predictor variables will be entered into multiple regression analyses to examine the relative effect of the demographic and victimisation variables in relation to the VRS subscales. As the total sample contains a high proportion of female victims of crime, the sample will be divided by gender and the analyses repeated in order to check whether the models identified in the total sample of victims can be generalised to both female and male victims of crime.

7.2 METHOD

7.2.1 Participants

The samples used for the exploratory factor analysis (see Chapter 3) and confirmatory factor analysis (see Chapter 4) of the VRS were combined for the analyses carried out in the present chapter. Participants with missing values on either of the variables that were examined in the current analyses were excluded from the sample. The final sample, therefore, comprised 475 victims of crime with a mean age of 30.81 years (*SD* = 14.25, range = 16 – 86). There were 344 female victims (mean age = 29.81 years, *SD* = 13.80, range = 16 – 86) and 131 male victims (mean age = 33.44, *SD* = 15.10, range = 16 – 78) in the sample. The majority of the participants (88%) were of white ethnicity; 3.1% were Asian, 3.1% Black, 1.9% Mixed, 1.9% Chinese, and 1.9% any other ethnic group. Most of the participants had obtained A Levels or above (84.8%) and were either students (45.5%) or in employment (43.2%).

The participants had experienced an average of 2.75 crimes during their lifetime (*SD* = 2.83, range = 1 – 20). The majority of index crimes (54.7%) were classified as property crimes; 29.9% were classified as violent and 15.5% as sexual. An average of 6.52 years had elapsed since the index crime had occurred (*SD* = 8.24, range = 1 month to 51 years). Over half the participants (71.4%) had reported the crime to the police and about a quarter of the participants (25.3%) stated that they knew the person who committed the index crime against them. About a quarter of the participants (25.5%) had been approached by an organisation that supports victims of crime. Only a minority of participants had received professional help (14.5%) and even fewer (8.6%) had contacted an organisation that supports victims of crime themselves.

There were no significant differences between the scores obtained on either of the VRS subscales between participants drawn from the exploratory factor analysis sample (n = 233) and participants drawn from the confirmatory factor analysis sample (n = 242; EV: t [473] = -1.53, $p > .05$; CSA: t [473] = -1.03, $p > .05$).

7.2.3 Procedure

All the variables examined in the current chapter were collected concurrently. Only variables that were collected in both the exploratory and confirmatory samples were examined in the current chapter. Additional information on the method of data collection can be found in Chapters 3 and 4.

7.3 RESULTS

7.3.1 Descriptive statistics

Participants' scores on the VRS subscales are presented in Table 7.1. The alpha coefficients were all satisfactory (see Table 7.1). Female victims scored significantly higher on the EV scale than male victims (t [306.92][23] = -5.57, $p < .01$). There were no signficant differences between female and male victims on the CSA scale (t [473] = 1.23, $p > .05$).

Table 7.1 Descriptive Statistics for the VRS Scales (N = 475)

	N	*M*	*SD*	Range	Alpha coefficient
Emotional Vulnerability (EV)					
Female victims	344	18.62	14.27	0 – 55	0.94
Male victims	131	11.82	10.86	0 – 42	0.92
Total sample	475	16.75	13.75	0 – 55	0.94
Crime-Specific Anger (CSA)					
Female victims	344	28.42	11.43	0 – 55	0.87
Male victims	131	29.83	10.60	4 – 53	0.85
Total sample	475	28.81	11.21	0 – 55	0.86

[23] Levene's test was significant ($p < .01$) indicating that the variances between groups were significantly different; therefore, the test statistics for 'equal variances not assumed' are reported.

Descriptive statistics for the demographic and victimisation variables that will be examined in relation to Emotional Vulnerability and Crime-Specific Anger are presented in Table 7.2. Victimisation variables examined in the present study included type of crime (coded as 'property' and 'violent or sexual' crime), years elapsed since the index crime, whether the victim was acquainted with the offender (coded as 'did not know offender' and 'knew offender'), and number of victimisation experiences. Demographic characteristics examined included gender, age, education (coded as 'A Levels or above' and 'GCSEs or below'), and ethnicity (coded as 'White' and 'Any other ethnic group').

Table 7.2 Descriptive Statistics of the Demographic and Victimisation Variables for the Combined Sample (N = 475)

Demographic and victimisation variables	*M*	*SD*	Range
Type of crime (1 = violent/sexual, 0 = property)	.45	0.50	0 – 1
Acquaintanceship with offender (1 = knew offender, 0 = did not know offender)	.25	0.44	0 – 1
Time elapsed since index crime (in years)	6.52	8.24	0.08 – 51
Victimisation history (no. of crimes experienced)	2.75	2.83	1 – 20
Gender (1 = female, 0 = male)	.72	0.45	0 – 1
Education (1 = GCSEs or below, 0 = A levels or above)	.15	0.36	0 – 1
Age (in years)	30.81	14.25	16 – 86
Ethnicity (1 = Any other ethnic group, 0 = White)	.12	0.33	0 – 1

Note. For dummy variables the mean represents the percentage of participants who are in the group coded 1.

7.3.2 Correlations

A correlation matrix was computed to explore the relationships between EV, CSA, demographic and victimisation variables. The relationships between continuous

variables were examined using Pearson correlation coefficients. The relationships between categorical and continuous variables were examined using point-biserial correlations and the correlations between two categorical variables using phi correlations (Howell, 1997). The correlation coefficients and their significance levels are displayed in Table 7.3. EV was significantly correlated with type of crime, acquaintanceship with the offender, gender, education and number of victimisation experiences. Several of these correlations were substantial so the relationships between EV and demographic and victimisation variables were examined further in the next section using regression analysis. CSA was significantly correlated with age and education but the correlation coefficients were modest in magnitude. Due to the lack of substantial associations between CSA and the demographic and victimisation variables examined in the current study, it was decided not to carry out regression analyses with CSA as the outcome measure.

Table 7.3 *Intercorrelations between Potential Predictor Variables and the VRS subscales (N = 475)*

	1	2	3	4	5	6	7	8	9	10
1. EV	-	.44**	.49**	.05	.44**	.15**	.22**	.16**	.04	.07
2. CSA		-	.04	-.08	.09	.06	-.06	.17**	.10*	.04
3. Type of crime			-	.19**	.43**	.09	.09*	.01	-.02	.04
4. Time elapsed since index crime				-	0.19**	.11*	-.01	.02	.40**	-.03
5. Acquaintanceship with offender					-	.18**	.12**	.09*	-.01	.13**
6. Victimisation history						-	-.04	-.03	.13**	.06
7. Gender							-	-.04	-.11**	.03
8. Education								-	.17**	.01
9. Age									-	-.09
10. Ethnicity										-

Note. EV = Emotional Vulnerability, CSA = Crime-Specific Anger.

*$p < .05$. **$p < .01$.

7.3.3 Regression analyses

The relationship between EV and the demographic and victimisation variables was examined further using hierarchical regression analysis, whereby the decision to enter predictor variables into the analysis is based on past research and theoretical grounds (Field, 2000). Variables that are expected, on the basis of past research, to be predictive of the outcome measure are entered first into the regression analysis. These can be entered in order of importance (i.e., the variable that is expected to explain a larger amount of variance is entered first). New variables for which there is limited past research but which are thought to be predictive of the outcome measure on theoretical grounds are entered in the final steps of the analysis.

Ideally, the predictor variables should be highly correlated with the outcome variable but the correlations amongst predictor variables should be weak (Tabachnick & Fidell, 2001). The correlations between EV and time elapsed since the index offence, age, and ethnicity were statistically nonsignificant and small in magnitude. The literature does not suggest that these variables are important predictors of psychological distress in victims of crime; therefore, they were not entered into the regression analysis. EV was significantly correlated with type of crime, acquaintanceship with the offender, gender, education, and victimisation history. Previous studies have consistently shown that victims of violent or sexual crimes and female victims tend to demonstrate increased psychological distress. Type of crime and gender were, therefore, entered in the first step of the regression analysis. The literature on the relationship between psychological distress and acquaintanceship with the offender, education, and victimisation history is not as consistent. These variables were, thus, entered in the second step of the regression analysis. Victimisation history and EV were significantly skewed and the analyses were, therefore, repeated using logarithmic transformations of these variables. The results were similar to those obtained with the raw scores and are, thus, not reported.

Five predictor variables were, therefore, entered into the regression analysis. The sample size of 475 cases satisfied the minimum criterion of 15 cases per predictor suggested by Field (2000). All of the correlations between the predictor variables were well below .90. Furthermore, the variance inflation factors were below 10 and the tolerance statistics above .2, suggesting that the present data did not suffer from

multicollinearity (Field, 2000). The Durbin-Watson test statistic for the current model was 2.17, an indication that the assumption of independence of errors was satisfied (Field, 2000). Four outliers were identified (i.e., cases with standardised residuals above an absolute value of three). Although, this only represents 1% of the sample, which is to be expected, these cases were examined further using guidelines reported by Field (2000). A range of statistics (e.g., Cook's distance, leverage value, and Mahalanobis distance) suggested that none of the cases were having an undue influence on the regression model. Furthermore, a graph of the standardised residuals plotted against the standardised predicted values indicated that the assumptions of homoscedasticity and random errors were satisfied. Finally, a histogram of the standardised residuals and a normal probability plot of the data demonstrated that the residuals were normally distributed (Field, 2000).

The results of the regression analysis are presented in Table 7.4. Both the variables that were entered into the first step of the regression analysis were found to be significant predictors of EV. The results suggested that victims of violent or sexual crime and female victims of crime were more likely to demonstrate high scores on EV. These two variables explained 28% of the variance in EV scores. The variables entered in the second step of the analysis were also significant predictors of EV and explained an additional 8% of the variance. Being acquainted with the offender and low education were related to high scores in EV. Furthermore, the more crimes experienced by a victim during their lifetime, the higher their score on EV.

The final model was significant ($p < .01$) and accounted for 36% of the variance in EV scores. All the variables entered in the model were found to be significant predictors of EV. The confidence intervals for the unstandardised beta values were fairly tight for all the predictor variables and did not cross zero. Type of crime and acquaintanceship with the offender were the best predictors in the final model, with standardised beta values of .37 and .24 respectively. Victimisation history was the weakest predictor in the model with a standardised beta value of .09. The difference between the R^2 and the adjusted R^2 provided by SPSS (version 12.0) was marginal, suggesting that the final model would be likely to account for about the same amount of variance in EV in the population of victims of crime (Field, 2000). Field (2000) also suggests calculating the adjusted R^2 using Stein's formula (p. 130) in order to examine how well the final model would

generalise to a different sample. Stein's R^2 suggested that the final model would account for about 2% less variance in EV scores in a different sample.

Table 7.4 Summary of Hierarchical Regression Analysis for Variables Predicting Emotional Vulnerability (N = 475)

Predictor variables	B	*SE* B	β
Step 1			
Type of crime	13.16	1.09	.48**
Gender	5.43	1.21	.18**
Step 2			
Type of crime	10.12	1.13	.37**
Gender	5.16	1.15	.17**
Acquaintanceship with offender	7.48	1.32	.24**
Education	5.41	1.43	.14**
Victimisation history	0.42	0.18	.09*

Note. $R^2 = .28$ for Step 1 ($p < .01$); $\Delta R^2 = .08$ for Step 2 ($p < .01$).
*$p < .05$. **$p < .01$.

The composition of the total sample was biased towards female victims (72%) making it difficult to generalise the final model with confidence to male victims of crime. The next section will, therefore, report on separate regression analyses for the female and male victims of crime in the sample.

7.3.4 Analyses by gender

The sample was divided by gender and participant characteristics for the two subsamples were examined. Comparisons revealed that the subsamples of female (n = 344) and male (n = 131) victims differed on a number of variables. Male victims (M = 33.44 years, SD = 15.20) were significantly older than female victims (M = 29.81 years, SD = 13.80; t [473] = 2.64, $p < .01$). More female than male victims reported that they had known their offender (28.5% vs. 16.8%; $\chi^2[1, N = 475] = 6.87, p < .01$) and that they had contacted an organisation that provides support or information to victims of

crime (16.0% vs. 2.3%; $\chi^2[1, N = 475] = 9.29, p < .01$). Furthermore, a greater proportion of female victims (53.2%) were students, whereas a greater proportion of male victims (60.8%) were in employment ($\chi^2[1, N = 475] = 21.87, p < .01$). Finally, there was a significant association between type of crime and gender ($\chi^2[2, N = 475] = 24.39, p < .01$), possibly accounted for by the greater proportion of sexual index crimes reported by female as opposed to male participants (20.6% vs. 2.3%). Participant characteristics are presented separately for female and male participants in Appendix 7.1.

First, correlations between EV and all the potential predictor variables were examined separately by gender (see Tables 7.5 and 7.8) in order to check that no additional variables should be entered into the separate regression analyses carried out by gender. The regression analyses were then repeated for each subsample separately.

7.3.4.1 Female victims

The pattern of correlations for female victims was almost identical to the results obtained for the total sample shown earlier in Table 7.3. EV was significantly correlated with type of crime, acquaintanceship with the offender, victimisation history, and education. The correlations with time elapsed since the index offence, age, and ethnicity were statistically nonsignificant and small in magnitude. As in the total sample, CSA demonstrated a modest but significant correlation with education but the correlation with age was not statistically significant. There was a significant association in the subsample of female victims between CSA and acquaintanceship with the offender but the correlation was small in magnitude. Correlations between the demographics, victimisation variables, and the VRS subscales for female victims are displayed in Table 7.5.

Table 7.5 *Intercorrelations between Predictor Variables and the VRS subscales for Female Victims (n = 344)*

	1	2	3	4	5	6	7	8	9
1. EV	-	.48**	.51**	.07	.44**	.22**	.21**	.10	.05
2. CSA		-	.04	-.07	.12*	.05	.16**	.08	.02
3. Type of crime			-	.26**	.47**	.19**	.04	.05	.06
4. Time elapsed since index crime				-	.19**	.14**	.05	.42**	-.04
5. Acquaintanceship with offender					-	.23**	.09	.01	.17**
6. Victimisation history						-	-.07	.17**	.09
7. Education							-	.12*	-.03
8. Age								-	-.07
9. Ethnicity									-

Note. EV = Emotional Vulnerability, CSA = Crime-Specific Anger.

* $p < .05$. ** $p < .01$.

The correlations did not suggest that any further predictor should be entered into the regression analysis. As the current sample comprised only female victims, gender was not entered as a predictor variable in the regression analysis. All the variables that were retained in the final model for the total sample (see Table 7.4), apart from gender, were, therefore, entered into the regression analysis. As in the regression analysis reported for the total sample the variables were entered in two steps. Type of crime was entered in the first step. Acquaintanceship with the offender, education, and victimisation history were entered in the second step. Summary statistics for the predictor variables are displayed in Table 7.6 below. Victimisation history and EV were significantly skewed and the analyses were, therefore, repeated using logarithmic transformations of these variables. The results were similar to those obtained for the raw scores and are, therefore, not reported.

Table 7.6 Summary Statistics for the Predictor Variables in the Subsample of Female Victims (n = 344)

Predictor Variables	*M*	*SD*	Range
Type of crime (1= violent/sexual, 0 = property)	.49	0.50	0 – 1
Acquaintanceship with offender (1 = knew offender, 0 = did not know offender)	.28	0.45	0 – 1
Victimisation history (no. of crimes experienced)	2.68	2.55	1 – 20
Education (1 = GCSEs or below, 0 = A levels or above)	.14	0.35	0 – 1

Note. For dummy variables the mean represents the percentage of participants who are in the group coded 1.

The assumptions relating to regression analysis were found to be satisfied in the subsample of female participants. The results of the hierarchical regression analysis for female victims are presented in Table 7.7. Type of crime was found to be a significant predictor of EV, explaining 26% of the total variance. The variables entered in the second step were also found to be significant predictors of EV (i.e., acquaintanceship with the offender, education, and victimisation history) and collectively explained a further 9% of the variance in EV scores. The final model accounted for 35% of the variance. All of the variables entered into the regression analysis were found to be

significant predictors of EV. The confidence intervals for the unstandardised beta values were fairly tight for all the predictor variables and did not cross zero. The standardised beta values again suggested type of crime and acquaintanceship with the offender were the most important predictors of EV in the final model. Victimisation history and educational level were the weakest predictors.

The difference between the R^2 and the adjusted R^2 provided by SPSS was marginal, suggesting that the final model would be likely to account for about 1% less variance in EV scores in the population of victims of crime (Field, 2000). The adjusted R^2 using Stein's formula suggested that the final model would account for about 2% less variance in EV scores in a different sample.

Table 7.7 Summary of Hierarchical Regression Analysis for Variables Predicting Emotional Vulnerability in Female Victims (n =344)

Predictor variables	B	SE B	β
Step 1			
Type of crime	14.55	1.33	.51**
Step 2			
Type of crime	10.90	1.42	.38**
Acquaintanceship with offender	6.82	1.60	.22**
Education	7.25	1.80	.18**
Victimisation history	0.59	0.25	.11*

Note. $R^2 = .26$ ($p < .01$) for Step 1; $\Delta R^2 = .09$ for Step 2 ($p < .01$).
* $p < .05$. ** $p < .01$.

7.3.4.2 Male victims

As in the total sample, the correlations between EV and time elapsed since the offence, age, and ethnicity were statistically nonsignificant and small in magnitude. Furthermore, EV was significantly correlated with type of crime and acquaintanceship with the offender but the correlations with victimisation history and education were low in magnitude and did not reach statistical significance. The only significant association demonstrated for CSA in the subsample of male victims was with education. The

correlation was modest in magnitude. Correlations between the demographics, victimisation variables, and the VRS subscales scales for male victims are displayed in Table 7.8.

Table 7.8 *Intercorrelations between Predictor Variables and the VRS subscales for Male Victims (n = 131)*

	1	2	3	4	5	6	7	8	9
1. EV	-	.42**	.42**	.01	.41**	.05	.07	-.03	.12
2. CSA		-	.06	-.08	.03	.08	.17*	.11	.11
3. Type of crime			-	-.04	.28**	-.10	-.03	-.15	-.02
4. Time elapsed since index crime				-	.19*	.03	-.06	.37**	-.01
5. Acquaintanceship with offender					-	.10	.12	-.01	-.02
6. Victimisation history						-	.03	.05	.01
7. Education							-	.27**	.10
8. Age								-	-.15
9. Ethnicity									-

Note. EV = Emotional Vulnerability, CSA = Crime-Specific Anger.

*$p < .05$. **$p < .01$.

The results of the correlation analysis did not indicate that any further predictor variables should be entered into the regression analysis. The lack of association between EV and education as well as EV and victimisation history suggested that these variables were not likely to be identified as significant predictors of EV in the subsample of male victims. All the variables that were retained in the final model for the total sample reported earlier (see Table 7.4), apart from gender, were, however, entered into the regression analysis in order to examine whether it would generalise to male victims of crime. Summary statistics for the predictor variables are displayed in Table 7.9 below. Due to significant levels of skewness, the continuous variables (i.e., victimisation history and EV) were transformed and the analyses repeated. The results of these analyses are not reported, as there were no substantial differences between the results obtained when using the transformed variables as opposed to the raw data.

Table 7.9 Descriptive Statistics for the Predictor Variables in the Subsample of Male Victims (n = 131)

Predictor Variables	*M*	*SD*	Range
Type of crime (1= violent/sexual, 0 = property)	.38	0.49	0 – 1
Acquaintanceship with offender (1= knew offender, 0 = did not know offender)	.17	0.38	0 – 1
Victimisation history (no. of crimes experienced)	2.92	3.46	1 – 20
Education (1 = GCSEs or below, 0 = A levels or above)	.18	0.38	0 – 1

Note. For dummy variables the mean represents the percentage of participants who are in the group coded 1.

The assumptions relating to regression analysis were found to be satisfied in the subsample of male participants. The results of the hierarchical regression analysis for male victims are presented in Table 7.10. Type of crime was entered in the first step and was found to be a significant predictor of EV, explaining 18% of the total variance. Acquaintanceship with the offender was the only variable entered in the second step to reach statistical significance and explained a further 8% of the variance. The regression analysis was repeated after excluding the predictors that failed to reach statistical significance (i.e., education and victimisation history). The results are presented at the

bottom of Table 7.10. The final model accounted for 27 % of the variance. Both the variables that were retained in the final model were found to be highly significant predictors of EV. The confidence intervals for the unstandardised beta values were fairly tight for both predictor variables and did not cross zero. Both type of crime and acquaintanceship with the offender were found to be important predictors of EV.

The difference between the R^2 and the adjusted R^2 provided by SPSS was marginal, suggesting that the final model would be likely to account for about the same amount of variance in EV in the population of victims of crime (Field, 2000). The adjusted R^2 using Stein's formula estimated that the final model would account for about 4% less variance in EV scores in a different sample.

Table 7.10 Summary of Hierarchical Regression Analysis for Variables Predicting Emotional Vulnerability in Male Victims (n =131)

Predictor variables	B	*SE* B	β
Step 1			
Type of crime	9.31	1.78	.42**
Step 2			
Type of crime	7.60	1.78	.34**
Acquaintanceship with offender	8.73	2.33	.30**
Education	1.40	2.18	.05
Victimisation history	0.17	0.24	.06
Final model			
Type of crime	7.36	1.75	.33**
Acquaintanceship with offender	9.14	2.28	.32**

Note. $R^2 = .18$ for Step 1 ($p < .01$); $\Delta R^2 = .10$ for Step 2 ($p < .01$). $R^2 = .27$ for final model ($p < .01$).
** $p < .01$.

7.4 DISCUSSION

Several demographic and victimisation variables were examined in relation to the VRS subscales in a large sample of victims of crime. Correlation analysis suggested that higher levels of Emotional Vulnerability are associated with experiencing a violent or sexual crime, being acquainted with the offender, suffering multiple victimisation experiences, being female, and being less educated. This pattern held in the subsample of female victims but in the subsample of male victims Emotional Vulnerability was not associated with victimisation history or education. Crime-Specific Anger did not demonstrate many significant correlations with the demographic and victimisation variables examined in the current study. Higher scores on Crime-Specific Anger were associated with being less educated and older. When investigated separately by gender, only the association between Crime-Specific Anger and education remained statistically significant. The correlation between Crime-Specific Anger and age was found to be statistically nonsignificant in both subsamples of female and male victims. Female victims who were acquainted with their offender were also found to be more likely to demonstrate higher levels of Crime-Specific Anger. The correlation between CSA and education appeared to be the most robust suggesting that victims who are less educated are more likely to display high levels of anger in relation to a victimisation experience.

The relationships between Emotional Vulnerability and the demographic and victimisation variables were further explored using regression analysis. A total of five predictor variables were entered into a regression analysis for the total sample of victims ($N = 475$) with EV as the outcome variable. All the variables were found to be significant predictors of EV and accounted for 35.5% of the variance in EV scores. Type of crime and acquaintanceship with the offender were found to be important predictors of EV. Being a victim of a violent or sexual crime and being acquainted with the offender were associated with high levels of EV. Gender, education, and victimisation history were weaker but significant predictors of EV. Being female, having a lower level of education, and a higher number of victimisation experiences were associated with high scores on EV. In summary, the results of the regression analysis for the total sample suggested that being a victim of a violent or sexual crime, being female, knowing the offender, having a low level of education, and having experienced multiple crimes are variables that are associated with high levels of

emotional vulnerability in victims of crime. Type of crime and acquaintanceship with the offender were the strongest predictors of EV.

The model obtained for the female subsample of victims was generally the same as the model obtained for the total sample. The variables identified as significant predictors of EV in the total sample also reached statistical significance in the subsample of female victims. Moreover, the final model for female victims also accounted for just over half the variance in EV scores. This is not surprising as the majority of participants in the total sample were female. The final model obtained for male victims, however, was not a replication of the model identified for the total sample. The final model for male victims only retained two significant predictors of EV but still accounted for a substantial amount of variance in EV scores. As in the total sample, being a victim of violent or sexual crime and being acquainted with the offender were variables found to be predictive of EV in male victims of crime. The regression analyses indicated that educational level and victimisation history were not significant predictors of EV in the subsample of male victims suggesting the presence of gender differences in the type of variables that are predicitive of emotional vulnerability in victims of crime. The differences observed in the final models between the subsamples of female and male victims cannot, however, be attributed with confidence to gender because the two subsamples also differed on a number of other variables (e.g., type of index crime, occupation, and age, see Section 7.3.4). The two subsamples did not differ significantly on educational level and victimisation history.

The relationships between EV and the predictor variables were generally consistent with the literature discussed in the introduction to this chapter. Victims of violent or sexual crimes have been commonly found to demonstrate higher levels of psychological distress than victims of property crimes (e.g., Norris & Kaniasty, 1994; Kessler et al., 1995). Another consistent finding is that female victims of trauma display increased levels of PTSD and other psychological symptoms than male victims (e.g., Davis et al., 1997; Kessler et al., 1995). There is less evidence available regarding the relationship between acquaintanceship with the offender and psychological distress. The studies that have examined this variable in relation to psychological symptoms in victims of crime have employed small samples and their findings have been inconsistent (e.g., Frank et al., 1980; Ellis et al., 1981). In the current sample, acquaintanceship with the offender was found to be an important predictor of EV in both male and female victims

of crime. The extent of the relationship between the victim and the offender was not examined in the current study, however, and crimes committed by family members or romantic partners often occur over an extended period of time rather than being isolated incidents. It is possible, therefore, that the relationship between acquaintanceship with the offender and EV may be moderated by the nature of the crime suffered. It is beyond the scope of the current study to examine the extent of the relationship between the victim and the offender in relation to EV but future research could investigate this further.

The research findings regarding the relationship between educational level and psychological distress in victims of crime have also not been reliable (e.g., Acierno et al., 1999; Weaver & Clum, 1995). Furthermore, the relationship between psychological distress and the number of crimes experienced by victims to date has not been investigated extensively, although Resick (1988) did find a positive relationship between extent of prior victimisation and psychological symptoms in victims of rape. In the current study, educational level and number of victimisation experiences were found to be significant but weak predictors of EV in female but not male victims of crime. Both these variables, therefore, explained a small but statistically significant amount of variance in EV scores in the subsample of female victims. Future research could examine whether the lack of predictive ability of these variables in the subsample of male victims is due to a genuine gender difference in the type of variables that are predictive of EV or whether it is a result of the other significant differences identified between the two subsamples (see Section 7.3.4).

In summary, the results of the regression analyses carried out in the present chapter suggest that the EV scale behaves in a similar way to measures that have been previously used to assess psychological distress in victims of crime, lending further support for the construct validity of the EV scale. The amount of variance in EV accounted for by the predictor variables was substantial, especially for female victims of crime, and compares favourably with the amount of variance in psychological distress accounted for by other models reported in the literature on victims of crime. For example, Davis et al. (1996) examined a total of 12 variables in relation to a composite score of victim distress based on general measures of psychopathology. Four variables (gender, age, positive self-perception, and viewing the world as meaningful) were found to be predictive of distress one month after the crime, accounting for 29% of the

variance. Education, injury, life endangerment, and viewing the world as meaningful were found to be predictive of distress at four months postcrime and explained 37% of the variance. Moreover, Kilpatrick et al. (1989) retained five predictor variables in their model, which was found to explain 29% of the variance in PTSD status.

Although the models identified in the current study explained a substantial amount of the variance in EV scores, a large amount of variance remained unexplained, suggesting that important predictors of EV were not entered into the analysis. In order to keep the length of the questionnaire at an acceptable level, it was not possible in the current study to collect data on a number of potentially important variables. For example, a number of studies have found that victims' prior psychological adjustment and victims' perceptions about the crime are important predictors of psychological distress (e.g., Calhoun & Atkeson, 1982; Davis et al., 1996; see Section 1.4 of Chapter 1). Future research could examine variables such as victims' perceptions of the crime, previctimisation adjustment, and additional crime features (e.g., use of a weapon, injury) in relation to EV. Finally, it is important to note that as the predictor and outcome variables examined in the present study were collected concurrently and were not manipulated, it is not possible to infer a causal relationship between EV and the variables identified as significant predictors of EV.

Chapter 8

Conclusions and Implications

In recent years, criminal justice agencies in the UK (e.g., the Police, Crown Prosecution Service, Courts, and Probation) have been given more responsibilities towards victims of crime. Although most victims of crime are likely to demonstrate increased well-being over time, a minority of victims may display adverse psychological symptoms in the longer-term (Resick, 2001). Criminal justice practitioners often come into contact with victims of crime but have no systematic way of identifying who would benefit from further psychological assessment and, if appropriate, intensive psychological support. For example, the National Probation Service is now required to get in touch with victims if their offender is sentenced to 12 months or more in prison mainly to provide victims with information about their offenders' sentencing and subsequent release arrangements. Victims are also given the opportunity to express any concerns they may have about their offender's potential release arrangements, which are then communicated to appropriate agencies. This work is undertaken by specialist staff (i.e., victim liaison officers), who receive training in working with victims of crime. Although not trained to provide emotional support themselves, victim liaison officers may assist victims in obtaining support by referring them to appropriate support services.

The aim of the thesis was to address an operational need within the London Probation Service for a consistent evidence-based approach to the assessment of emotional vulnerability in victims of crime. The focus of the present thesis was to develop a valid and reliable assessment tool to help victim liaison officers identify victims of crime who are emotionally vulnerable in relation to a victimisation experience and may therefore benefit from specialist psychological support. The assessment tool was required to be quick and easy to administer by nonclinicans with relatively little training. Rather than taking a theoretical approach, the construction and validation of the scale was data-driven based on psychometric principles and factor-analytic techniques. For example, in order to ensure that the scale would be relevant to victims of crime, the item pool for the new assessment instrument was generated from victims' own interpretations of their feelings, thoughts, and behaviours in response to a criminal victimisation experience.

It was considered important to investigate first whether the effectiveness of the interventions that are offered to victims of crime has been rigorously evaluated. A systematic review was, therefore, carried out to address the specific question of what interventions have been shown to be effective in reducing psychological symptoms in victims of crime. The results of the systematic review suggested that intensive cognitive-behavioural treatment programmes, which were specifically designed for use with victims of crime, were effective in reducing symptoms of PTSD, depression, anxiety, and fear. These interventions, however, have so far been mainly tested on limited samples of victims of crime (e.g., female victims of sexual and violent crimes). Future research is necessary to investigate whether these treatment programmes are just as effective in reducing psychological symptoms in male victims and in victims of other types of crimes (e.g., property crimes). Short-term interventions were not found to be effective in significantly reducing psychological symptoms in victims relative to control participants who received no intervention or a placebo intervention. Notably, the type of support most commonly offered to victims of crime in the UK is short-term and unstructured and there appears to be a lack of specialist services for victims of crime who demonstrate high levels of adverse psychological symptoms.

The systematic review identified certain features of victim interventions that may be related to their effectiveness in reducing levels of psychological distress in victims of crime. As discussed in Chapter 2, some of the features of effective victim interventions parallel the components of effective treatment programmes for reducing re-offending, commonly referred to as the 'What Works' programmes (see for example, Hollin, 1999). The victim interventions that were found to be effective in the present systematic review were structured, intensive, and based on a sound theoretical framework. Furthermore, the effective victim interventions were delivered to victims suffering from high levels of psychological distress by professional clinicians according to a structured protocol. It is possible to examine the relative importance of these factors in determining the effectiveness of an intervention in reducing psychological symptoms in victims of crime using the techniques of meta-analysis. Differences in the magnitude of effect sizes across studies could be examined in relation to the differences identified between studies during the data extraction process (e.g., the intensity of the intervention or the quality of the methodology). The current systematic review included only ten studies of intensive interventions and this type of analysis may be problematic when there are only a small number of effect sizes included in the meta-analysis and

these are in turn based on small sample sizes (Lipsey & Wilson, 2001). It was beyond the scope of the current thesis to investigate this further as the main focus of the research was to develop an assessment tool for the London Probation Service but future research will be looking into the possibility of conducting a meta-analysis of the intensive intervention studies identified during the systematic review.

The systematic review reported in Chapter 2 uncovered the use of a wide range of outcome measures to assess the psychological well-being of victims of crime. Some of the authors (e.g., Rosenbaum, 1987) developed measures specifically for the purposes of their study but these were not thoroughly validated. The majority of studies used general measures of psychopathology (e.g., the Beck Depression Inventory; Beck et al., 1961), which were not designed specifically for use with victims of crime and, therefore, do not measure psychological responses specific to a criminal victimization experience. Self-report measures of PTSD were used in several of the studies to assess the presence and severity of PTSD symptoms in victims of violent and sexual crime. PTSD self-report measures are based on the *DSM* criteria for a PTSD diagnosis, a disorder that is specific to people who have been exposed to a traumatic event. PTSD has been identified as an extreme reaction to criminal victimization and has been studied mostly in samples of victims of violent and sexual crime. As PTSD measures are designed to be relevant to victims of general trauma, not just victims of crime, they may not encompass responses that are specific to criminal victimization. For example, differences in levels of psychological distress have been noted in the literature between victims of crime and victims of accidents (e.g., Shepherd, Qureshi, Preston, & Levers, 1990; Tarrier et al., 1999). Shepherd et al. (1990) found that, although in the short-term victims of crime and victims of accidents displayed similar levels of psychological symptoms, victims of crime demonstrated significantly higher levels of adverse psychological symptoms three months after the incident. Furthermore, victims of crime were found not to respond as well as victims of accidents to a treatment intervention by Tarrier et al. (1999). Shepherd et al. (1990) suggested that the increased levels of psychological symptoms demonstrated in their study by victims of crime relative to victims of accidents three months after the incident "may reflect a long term loss of self confidence and suggest that vulnerability in an assault was more difficult to deal with than vulnerability in an accident" (p. 850).

There is a wealth of literature on the psychological correlates of criminal victimization but the assessment of victims of crime has been mainly carried out using existing measures of psychopathology, which were not designed specifically for use with victims of crime. None of these measures were psychometrically developed on samples of victims of crime. It is also important that a new measure is relevant to victims of any crime, as research has shown that victims of a range of sexual, violent, and property crimes demonstrate increased levels of psychological distress relative to nonvictims (e.g., Kilpatrick et al., 1979; Norris & Kaniasty, 1994). The present thesis focused, therefore, on the development of a victim-specific psychometric scale to assess psychological distress in victims of general crime. Although the samples used for the present studies were opportunity samples, every effort was made to include victims of a range of crimes. Indeed, the participants in the studies reported in the present thesis had been victims of a wide range of property, violent, and sexual crimes including theft, vandalism, assault, kidnapping, indecent assault, sexual assault, rape, and murder of a family member.

Potential items for the scale were generated from victims' responses to an open-ended questionnaire about a crime that had happened to them (see Chapter 3). A scenario study generated further items from victims' responses to a series of vignettes describing different crimes, a method of item generation employed by Roger and his colleagues (e.g., Clarbour & Roger, 2004; Forbes & Roger, 1999). This method of item generation ensured that victims would be able to relate to the items that were eventually included in the scale. The process of selecting items for inclusion in the preliminary scale was based on preset criteria and two researchers carried out the decision-making process. The initial item pool was reduced by removing duplicates and gender or crime-specific items. This resulted in a set of items that would be applicable to any victim of crime. Ethical approval was obtained from the Ethics Committee at the University of York for all the different stages of the current research study. It was also considered important that victim workers were comfortable with the format and content of all the questionnaires that were administered to victims particularly since the assessment tool was being developed for use in an operational environment. On the advice of victim workers within the criminal justice system and the voluntary sector several items were removed from the initial item pool. The initial item pool was therefore reduced to 142 items and the preliminary scale was administered to victims of crime aged 16 and

above. The preliminary scale asked victims for their current reactions in relation to a crime that had happened to them.

The sample used for the exploratory factor analyses contained 247 victims of a wide range of crimes and was not exclusively drawn from a student population. As an opportunity sample that comprised volunteer participants, however, the sample may not have been entirely representative of the population of victims of crime. For example, there was a clear gender imbalance, with far more female victims included in the sample. Although this is common in research on victims of crime (e.g., Weaver & Clum, 1995), it is not reflected in surveys of victimization rates. For example, the most recent British Crime Survey found that men, especially between the ages of 16 and 24, were more likely to have been victims of violent crime than women (Upson, Povey, & Gray, 2004). There were also a disproportionate number of victims of property crime as opposed to violent or sexual crimes included in the sample, but the British Crime Survey suggests that this is consistent with the actual rate of crime in the UK (Finney & Toofail, 2004).

Factor analytic techniques were employed in order to uncover the main dimensions of victim response contained within the preliminary item pool (see Chapter 3). A number of solutions suggested by the Scree test were examined but these were rejected either because there were too many double loading items or because one or more of the factors loaded less than ten items (P. Kline, 2000). A unidimensional structure was also examined but this was rejected in favour of a two-factor structure, which uncovered two correlated but conceptually distinct dimensions of victim reaction: A primary factor that reflected feelings of anxiety, nervousness, and emotional upset and a secondary factor pertaining to feelings of anger and revenge towards the offender as well as frustration with the criminal justice system. There were no double loading items and both of the factors retained over ten items, the minimum suggested by P. Kline (2000). This resulted in a 55-item scale, which was named the Victim Reactions Scale (VRS).

The first factor explained a much larger proportion of the variance than the second factor, suggesting that it reflects the predominant emotional response to criminal victimisation. The items that loaded on to the first factor reflected feelings of vulnerability, such as loss of confidence, worry, and nervousness. This factor was, thus, labelled Emotional Vulnerability. The items retained in this factor describe a range of

responses that have been identified in victims of crime by previous research (e.g., Norris & Kaniasty, 1994), including symptoms of PTSD (e.g., 'I keep reliving the incident in my head'), depression (e.g., 'I cry about small things'), and anxiety (e.g., 'I am jumpy'). The second factor explained a small amount of additional variance but represented a distinct dimension of victim response. The second factor retained items mainly relating to feelings of anger and frustration in relation to the crime but also incorporated an element of malevolent anger (e.g., 'I want to inflict harm on the person/people who did this to me'). This factor was labelled Crime-Specific Anger. Anger in victims has not been examined extensively in the literature but several studies have identified anger as an important emotion in the aftermath of a criminal victimization experience (e.g., Riggs et al., 1992). Andrews et al. (2000), in particular, found that 'anger towards others' was associated with PTSD severity one month after the crime.

The two dimensions of victim reaction identified through exploratory factor analysis appear to relate directly to dimensions of negative affect that have been described by a number of authors. For example, based on the 'fight-or-flight' response to danger, Berkowitz's (1983) neoassociation cognitive model postulates that unpleasant events cause negative affect, which is thought to result in two major emotions: fear and/or anger. Berkowitz (1983) proposed that feelings of fear are accompanied by avoidance behaviours, whereas feelings of anger may result in aggressive behaviour. Gray (1994) also proposed two dimensions of negative affect: the Behavioural Inhibition System, which is associated with feelings of fear and anxiety, and the fight or flight system, which is associated with feelings of anger or panic. Furthermore, using factor-analytic techniques, McFatter (1998) uncovered two aspects of negative emotional intensity: one dimension relating to emotions such as worry and guilt (non-anger emotional intensity) and one dimension relating to anger and frustration (anger negative intensity). McFatter (1998) found that female participants displayed higher levels of both dimensions of negative emotional intensity than male participants but this gender difference was more substantial for non-anger negative intensity. Female victims in the current study also obtained significantly higher scores on Emotional Vulnerability than male victims (see Chapters 3, 4, and 7). This finding is consistent with the literature on victims of crime, which has reported that female victims generally demonstrate increased levels of psychological distress than male victims (e.g., Weaver & Clum, 1995; Davis et al., 1996). In victims of general trauma, including criminal victimization, Kessler et al. (1995) found this gender difference held even when controlling for the type of trauma

suffered. Scores on Crime-Specific Anger, however, did not differ significantly by gender suggesting that male and female victims demonstrate similar levels of anger that is specifically related to a criminal victimization experience.

As one of the main aims of the new scale was for it to be used in an operational environment a shorter version of the scale was also constructed. The length of the scale was reduced by retaining only items that loaded above .40 on one factor and near zero (i.e., below .10) on the other factor, a method of achieving simple structure as defined by Thurstone (1947). This process resulted in 21 items being retained in Factor 1 (Emotional Vulnerability) and 11 items in Factor 2 (Crime-Specific Anger). To maximize comparability across the two factors and reduce the number of items further, only the 11 highest loading items were retained in Factor 1, resulting in a 22-item scale. The remainder of the thesis presented a series of studies to explore the construct validity of the VRS subscales.

The internal consistency of both factors was examined in the same sample used for the exploratory factor analysis using Cronbach's alpha. The alpha coefficients for both the longer and shorter forms of Emotional Vulnerability and Crime-Specific Anger were above the minimum recommended by P. Kline (2000). Furthermore, the temporal stability of scores obtained on the scales was examined in a subsample of 97 victims of crime, who completed the scale again at least three months after the first administration. The test-retest reliability coefficients were satisfactory for both subscales of the VRS. The reliability of the subscales was also examined by gender and found to be satisfactory for both female and male victims of crime.

The factor structure of the VRS was also examined in a new sample of victims of crime using structural equation modelling techniques. Participants were recruited in the same way as for the exploratory factor analysis but an Internet questionnaire was also developed to generate further responses from a wider range of victims, especially male victims of crime. Indeed, relative to the paper and pencil questionnaire sample, the Internet sample comprised an increased number of men, nonstudents, and victims of sexual crimes. However, there were still more female than male victims in the Internet sample. Despite the differences noted between the paper and pencil and the Internet samples, no significant differences were found between the two subsamples in levels of Emotional Vulnerability and Crime-Specific Anger. Internal consistency coefficients of

the VRS subscales were also very similar across the two subsamples. The responses from both methods of questionnaire administration were therefore combined, generating a new sample of 296 participants. Their responses were subjected to confirmatory factor analysis in order to explore the stability of the two-factor structure of the VRS in a new sample of victims of crime. Both the longer and shorter versions of the VRS were examined. The sample that was generated for the confirmatory factor analysis did not satisfy the minimum recommended participant to parameter ratio. It is, however, difficult to obtain large samples of victims of crime. Over 1,000 questionnaires were distributed to victim workers and victims of crime over the course of the current research and only about 400 completed paper and pencil questionnaires were returned. Similarly, Rose et al. (1999) contacted over 2,000 victims of crime to participate in a UK-based study of a short intervention and only 11% responded; 157 participants were eventually included in the Rose et al. (1999) study.

Item-based analyses suggested that the fit of the two-factor model was not satisfactory but confirmatory factor analysis of lengthy questionnaires presents many difficulties (see Chapter 4). For example, the presence of multivariate nonnormality, which was evident in the current dataset, may have reduced the fit of the model. This is more likely if the sample size is not adequate, as was the case in the present study. Some authors (e.g., Kishton & Widaman, 1994; Floyd & Widaman, 1995) have, therefore, recommended combining several items from within factors into parcels and conducting confirmatory factor analysis using parcels instead of items. This method was employed in the current study and resulted in a satisfactory participant to parameter ratio and reduced levels of multivariate nonnormality in the data. Separate parcels were constructed for each of the factors by randomly allocating items from within factors to parcels. All the parcels were found to be internally consistent. Using parcels rather than individual items can result in a loss of information at the item level and this is especially problematic if the hypothesised factors are not unidimensional (Bandalos, 2002). The current factor structure, however, had already been examined using exploratory factor analysis and all the parcels were found to be unidimensional, suggesting that they were not obscuring possible dimensions within the factors. The results of the parcel-based analysis suggested that overall the two-factor structure of both the longer and shorter forms of the VRS demonstrated a satisfactory fit in the new dataset and was superior to a unidimensional structure. Due to the insufficient number of male participants, it was not possible to test for the factorial invariance of the VRS

across gender. Parcel-based analyses were, however, conducted for female victims separately and the results suggested a satisfactory fit for the model with all of the fit indices demonstrating some improvement over the results obtained for the combined sample, especially for the shorter version of the VRS.

Both the longer and shorter versions of Emotional Vulnerability and Crime-Specific Anger were found to be internally consistent and stable over time but a reliable scale is not necessarily valid. It was therefore considered important to examine the construct validity of the Emotional Vulnerability and Crime-Specific Anger scales by administering the VRS to victims of crime and comparing their responses against appropriate criterion variables (Cronbach & Meehl, 1955). The first step in the validation process involved administering the VRS alongside measures that had been previously used to assess psychological distress in victims of crime. At this stage of the research the validity of the shorter scale was not known. Therefore, it was decided to examine the concurrent validity of both the 55-item and the 22-item forms of the VRS. The correlation coefficients were almost identical across the longer and shorter versions of the subscales and as the shorter VRS is expected to be more useful in operational environments, the remainder of the thesis focused on the 22-item VRS.

The majority of the criterion measures used for the concurrent validation of the VRS were not victim-specific (i.e., did not ask for reactions relating to a crime) so they were not expected to correlate highly with the VRS subscales. The exception was a self-report measure of PTSD, which asked trauma-specific questions and had been developed on a sample of victims of violent and sexual crime. Emotional Vulnerability demonstrated substantial positive correlations with measures of PTSD, anxiety, and depression. The relationship between Emotional Vulnerability and PTSD was especially strong, reaching .74 in the total sample. The strength of this correlation could be partly explained by the items retained on the Emotional Vulnerability scale, which relate to symptoms of PTSD. Moreover, participants in the current study were instructed to complete the VRS and the PTSD measure with reference to the same criminal victimization experience. Clearly, the two constructs are strongly related but the less than perfect correlation suggests that the Emotional Vulnerability scale may tap into additional responses to criminal victimisation that are not explained by PTSD.

Emotional Vulnerability was also associated with generalized feelings of anxiety, which are characterized by increased arousal (state anxiety), and a tendency to appraise situations as stressful and respond with elevations in state anxiety (trait anxiety; Spielberger, 1983). The correlations were moderate providing evidence for the specificity of the Emotional Vulnerability subscale to feelings of worry and nervousness relating to a criminal victimization experience. Emotional Vulnerability was also related to a measure of depression but the correlation was modest suggesting that victims who are emotionally vulnerable are not necessarily depressed in a general sense but more specifically in relation to a victimisation experience.

The correlations between Emotional Vulnerability and the STAXI anger scales (Spielberger, 1996) were significant but only the correlation with the Anger-In scale, which is thought to measure the tendency to suppress anger, exceeded .30. The pattern of correlations in the total sample suggested that victims of crime who suppress feelings of anger are likely to be emotionally vulnerable in relation to a victimization experience, whereas victims who express feelings of anger are less likely to be emotionally vulnerable. Inspection of the correlations separately by gender revealed, however, that this pattern only held for female victims of crime. In male victims of crime, both the suppression and expression of anger was related to Emotional Vulnerability. This suggests that the expression of anger may be more adaptive for female than male victims of crime. A possible explanation is that female victims of crime may express feelings of anger more effectively, whereas male victims may express their anger in inappropriate ways that do not result in a reduction of arousal relating to the crime. Research by Forbes and Roger (1999) has shown that women make more active use of social support than men, which may explain the tendency demonstrated in the present study for female victims to express anger in more adaptive ways. This could be explored in further research.

The only substantial correlations (i.e., above .30) noted for Crime-Specific Anger in the total sample were with Trait Anger and, in particular, the Angry Reaction subscale of Trait Anger. As noted in Chapter 5, the STAXI Trait Anger scale (Spielberger, 1996) comprises two subscales, Angry Temperament, which is thought to measure the tendency to feel angry without provocation and Angry Reaction, which is thought to measure the tendency to feel angry when provoked by others. Consistent with the hypothesis that Crime-Specific Anger measures feelings of anger that are specific to a

criminal victimization experience, the relationship between Angry Temperament and Crime-Specific Anger was negligible, whereas the correlation between Angry Reaction and Crime-Specific Anger was substantial.

Crime-Specific Anger was modestly related to PTSD and anxiety. Although the correlations were small in magnitude, Crime-Specific Anger was significantly related to PTSD intrusion symptoms in female victims of crime and PTSD arousal symptoms in both female and male victims of crime. There was no relationship, however, between Crime-Specific Anger and avoidance symptoms in both male and female victims, suggesting that feelings of anger about a victimisation experience are not associated with the kind of avoidance behaviours that emotionally vulnerable victims of crime commonly engage in. Orth, Montada and Maercker (in press) found similar relationships between PTSD symptoms and feelings of revenge reported in a sample of 174 victims of violent crime. Wanting revenge was modestly associated with PTSD intrusion and arousal symptoms but there was no relationship with PTSD avoidance symptoms. The similarity in findings obtained for Crime-Specific Anger and Orth et al's (in press) measure of feelings of revenge in relation to PTSD is not surprising as the Crime-Specific Anger scale also contains items relating to wanting revenge (e.g., 'I want to inflict harm on the person/people who did this to me').

The VRS subscales were also examined in relation to coping styles. Victims who demonstrated a tendency towards avoidant coping were likely to score high on both Emotional Vulnerability and Crime-Specific Anger. On the other hand, victims who demonstrated a tendency to cope with stressful situations in a detached manner (i.e., by not becoming too emotionally involved) were less likely to be emotionally vulnerable or angry in relation to a victimisation experience. Avoidant coping is considered to be a maladaptive coping style (e.g., Coffey et al., 1996) whereas detached coping is considered to be an adaptive coping style (e.g., Roger et al., 1993; Valentiner et al., 1996). Victims of crime may, therefore, benefit from treatment interventions that involve confronting the victimisation experience in a detached manner. Future research could examine whether this type of intervention is associated with a reduction in levels of Emotional Vulnerability and Crime-Specific Anger.

The differential relationships between the VRS subscales and the criterion measures confirmed that the Emotional Vulnerability and Crime-Specific Anger scales measure

conceptually distinct constructs. Furthermore, an examination of the correlations separately by gender uncovered some notable gender differences in the relationships between the VRS subscales and the criterion measures. For example, Emotional Vulnerability demonstrated a substantial association with depression in female victims but was not related to depression in male victims. On the other hand, Crime-Specific Anger was related to depression in male but not female victims of crime. Furthermore, both Emotional Vulnerability and Crime-Specific Anger in male victims of crime was more strongly related to anger than in female victims. The only substantial relationship between Crime-Specific Anger and anger in the subsample of female victims was with Angry Reaction, suggesting that Crime-Specific Anger in female victims does not relate to a more generalised construct of anger but is specifically confined to feelings of anger associated with being a victim of crime. These gender differences suggest that Emotional Vulnerability in female victims of crime is more likely to relate to feelings of depression whereas in male victims to feelings of anger. Furthermore, the substantial correlation between Crime-Specific Anger and measures of general psychological distress in male victims suggests that psychological distress in male victims of crime may be related more to feelings of anger and frustration relating to the experience of a crime rather than feelings of anxiety and depression. Although it is difficult to draw conclusions with confidence for male victims of crime due to the small sample sizes obtained for the concurrent validation, these results point towards the potential utility of the Crime-Specific Anger scale in identifying male victims of crime who might benefit from psychological treatment that includes an anger management component.

The criterion measures used to examine the concurrent validity of the VRS in Chapter 5 were all self-report measures and, therefore, used the same method of assessment as the VRS. It is recommended, however, that the concurrent validity of a new measure be examined using different methods of assessment of the same construct (Foster & Cone, 1995). This is because the score obtained on a given scale is not only affected by the construct it is thought to measure but also by the method of measurement (e.g., whether the measure is self-report or an interview; Campbell & Fiske, 1959). Due to resource constraints it was not possible to administer interviews to victims of crime but future research could investigate, for example, whether victims of crime who obtain high scores on the Emotional Vulnerability scale are more likely to be diagnosed with PTSD using a clinical interview. The present thesis did, however, report on an experimental study, which explored whether scores on the VRS subscales were related to an

attentional bias towards crime-related threat words. Previous research using the emotional Stroop task has shown that victims of violent or sexual crime who are diagnosed with PTSD take longer to name the colour of crime-related threat words relative to neutral words than victims who do not suffer from PTSD and nonvictims (Cassiday et al., 1992; Foa, Feske, et al., 1991; Paunovic et al., 2002). Cassiday et al. (1992) also found a significant difference in degree of Stroop interference between victims who did not meet the criteria for a PTSD diagnosis and nonvictims. Due to its strong correlation to PTSD, it was hypothesised that scores on the Emotional Vulnerability scale would be related to degree of interference on the emotional Stroop task.

An emotional Stroop task that would be relevant to victims of general crime was developed and administered to a sample of victims and nonvictims. An interference score was calculated for each participant based on the time taken to name the colour of crime-related threat words relative to neutral words. A positive interference score indicated that the participant had taken longer to name the colour of threat words as opposed to neutral words and vice versa for a negative interference score. The analyses reported in Chapter 6 revealed that the interference scores for the victim and nonvictim groups did not differ significantly suggesting that interference on the emotional Stroop task was not related to victimisation status per se. Self-report levels of depression and anxiety were modestly related to the Stroop interference score in the total sample (N = 67). Although victims and nonvictims did not differ significantly on the measures of depression and anxiety, the correlations between the Stroop interference score and these measures were markedly different for the two groups. The possible presence of a moderator effect was, therefore, tested using regression analysis. The analyses demonstrated that victimisation status moderated the relationship between the emotional Stroop interference effect and the self-report measures of depression and anxiety in the current sample. This suggests that the emotional Stroop interference effect in the current study was related to individual differences in anxiety and depression in victims of crime but not in nonvictims. This finding provides some support that the current emotional Stroop task was specific to victims' concerns, as heightened anxiety was related to an increased interference effect only amongst participants who had reported a victimization experience. Although there were no differences in the threat ratings given to the crime-related words by victims and nonvictims, it appears that the current emotional Stroop task was processed differently by victims and nonvictims. This is

further supported by the markedly different split-half reliability coefficients obtained for victims and nonvictims.

Studies that have used the emotional Stroop task do not commonly report on the reliability of the Stroop interference score but studies that have examined the reliability of the emotional Stroop task and similar response-time tasks have reported low reliabilities (e.g., Kindt et al., 1996; Schmukle, in press). Similarly, the split-half reliability of the Stroop interference score for the victim group was positive and modest in magnitude. The coefficient was markedly lower than that considered acceptable for self-report measures. If a measure is not very reliable, its validity is reduced which in turn limits the strength of potential correlations with criterion measures (P. Kline, 2000). The emotional Stroop task was used in the current study because previous studies had applied this experimental paradigm to victims of crime (e.g., Foa, Feske, et al., 1991) but the low reliability of the interference score suggests that it is not a satisfactory criterion variable. Bosson, Swann, and Pennebaker (2000) examined the reliability of several implicit measures of self-esteem and found that the Implicit Association Task was far more reliable than the emotional Stroop task as an implicit measure of self-esteem. Furthermore, Egloff and Schmukle (2002) adapted the Implicit Association Task to measure anxiety and reported satisfactory internal consistency and increased test-retest reliability relative to other implicit tasks. Future research should, therefore, look into adapting the Implicit Association Task for use with victims of crime.

Notably, the split-half reliability of the Stroop interference score for the nonvictim group was negative suggesting that the degree of interference demonstrated by nonvictims across the two halves of the task was not consistent at all. A possible explanation is that the theme that tied together the threat words (i.e., victimisation) was not relevant to the nonvictim group. It is suggested that interference on this emotional Stroop task was more consistent for victims of crime than nonvictims because the words related to a specific experience. On the other hand, interference across the word pairs varied for nonvictims as the words were not tied together by one type of experience and different words may have triggered different associations.

Victims took longer overall than nonvictims to name the colour of both threat and neutral words. Slower reaction times have been previously reported in samples of

victims diagnosed with PTSD relative to nonvictims (e.g., Paunovic et al., 2002). It has been suggested that the slower reaction times may be related to concentration problems that are associated with PTSD (Paunovic et al., 2002). The majority of victims in the current study did not present severe symptoms of PTSD with all but one of the participants scoring below 20 on the PSS-SR, a cutoff score that is thought to represent good-end-state functioning in victims with an initial diagnosis of PTSD who have received treatment (e.g., Foa et al., 1999). It is possible, however, that knowing that the present experiment would relate to crime may have increased levels of arousal in victims of crime but not nonvictims as they had no prior experience of victimization. High levels of arousal have been shown to impair performance in numerous tasks (M. W. Eysenck & Keane, 1995). This is consistent with the Yerkes-Dodson law (Yerkes & Dodson, 1908), which states that performance is optimal when arousal is at an intermediate level with any significant deviation from this level (i.e., an increase or decrease in arousal) leading to a deterioration in performance. Future studies could investigate whether victims demonstrate a larger increase in heart rate or blood pressure than nonvictims during a crime-related emotional Stroop task.

The nonvictim group did not complete the VRS, as it is a victim-specific measure. The relationship between the emotional Stroop interference effect and scores on the VRS subscales were, therefore, examined only in the victim group. An inspection of the correlation coefficients revealed that, as predicted, Emotional Vulnerability was positively and significantly related to the degree of interference on the emotional Stroop task. The correlation was moderate in magnitude but may have been even higher if the emotional Stroop task had been more reliable. The emotional Stroop effect has been demonstrated in samples of participants suffering from a range of emotional disorders (e.g., depression) for words relevant to their disorder. According to the theories put forward to explain the Stroop task (J. M. G. Williams et al., 1997), it is proposed that the Stroop interference effect arises in emotionally vulnerable, anxious or depressed victims of crime because words relating to their victimization experience will have a higher resting level of activation and, therefore, will be easily triggered by the presentation of relevant threat words. This may relate to the concept of a fear network put forward by information-processing theories to explain the psychological correlates of victimization (e.g., Foa et al., 1989). The results of the current study suggest that the higher victims' scores are on the Emotional Vulnerability scale, the more active their

crime-related fear network is. This lends further support for the construct validity of the Emotional Vulnerability scale.

Crime-Specific Anger was not related to the Stroop interference effect in the present study, suggesting that Crime-Specific Anger in victims of crime does not relate to a slowing down of the colour-naming response for threat words relative to neutral words. The results of the present study suggest that feelings of anger relating to the crime did not trigger the activation of words associated with the crime-related threat words. One possible explanation could be that victims of crime who are still angry about the crime but not fearful may no longer have an easily activated fear network in memory about the victimization experience and thus words relating to their experience will not be triggered by the threat words. This is further supported by the low correlation obtained between Crime-Specific Anger and PTSD severity reported in Chapter 5 of this thesis.

Alternatively, the lack of association between Crime-Specific Anger and the Stroop interference effect in the current study could be explained by the principles governing the 'fight-or-flight' response. For example, Berkowitz (1983) has proposed that unlike fear, which has been associated with fleeing from the threat (e.g., avoidant behaviours), anger is associated with approaching the threat (e.g., aggressive behaviour). In Chapter 5, Emotional Vulnerability was found to be associated with PTSD avoidance symptoms whereas Crime-Specific Anger was not. Building on Berkowitz's (1983) theory, it could be suggested that the 'flight' response, which is associated with feelings of fear (Emotional Vulnerability), may result in a slowing down of the colour-naming response as processing resources are displaced from the task in an attempt to avoid having to deal with the threatening situation, whereas the 'fight' response, which is associated with feelings of anger (Crime-Specific Anger), may result in processing resources being directed towards dealing with the threatening situation (e.g., in the context of the emotional Stroop task, naming the colour of the threat word so that it disappears from the computer screen).

This may even result in a quickening of the colour-naming response towards threat words in participants who demonstrate high levels of Crime-Specific Anger. Indeed, in the current study the correlation between Crime-Specific Anger and the Stroop interference score, although statistically nonsignificant and modest in magnitude, was negative. When the correlation coefficients were examined separately by gender,

however, it was found that in the subsample of female victims the association between Crime-Specific Anger and the Stroop interference score was negligible, whereas in the subsample of male victims the negative correlation, although statistically nonsignificant (possibly due to the small sample size, $n = 9$), was moderate in magnitude ($r = -.30$). It is difficult to draw conclusions with confidence due to the small sizes of the subsamples but the data suggest a tendency for male victims who score high on Crime-Specific Anger to demonstrate lower levels of interference for crime-related threat words on the emotional Stroop task. This relationship did not hold for female victims of crime suggesting that female victims who obtain high scores on the Crime-Specific Anger scale may not necessarily display approach behaviours (e.g., aggressive behaviour). Indeed, Clarbour and Roger (2004) found in an adolescent sample that girls demonstrate significantly lower levels of malevolent aggression than boys. Due to resource constraints only a limited student sample was available to take part in the emotional Stroop study reported in the current thesis. It is difficult, therefore, to draw any conclusions with confidence particularly for male victims. Future research could examine the relationship between the emotional Stroop interference effect and the VRS subscales further in a large sample of victims of crime, preferably from the wider community.

The final study presented in the current thesis (see Chapter 7) reported on the relationship between the VRS subscales and a series of demographic and victimization variables in the combined sample of victims used for the exploratory and confirmatory factor analyses ($N = 475$). A wide range of variables that may account for differences in levels of psychological distress across victims of crime have been examined in the literature. Emotional Vulnerability demonstrated significant correlations with type of crime, acquaintanceship with the offender, number of previous victimization experiences, gender, and education. A hierarchical regression analysis with EV as the outcome variable revealed that these variables were all significant predictors of EV, accounting for 36% of the variance in EV scores. Type of crime was the most important predictor in the final model followed by acquaintanceship with the offender. Gender and education were shown to be moderate predictors of EV and the number of previous victimization experiences was the weakest predictor of EV. The final model suggested that female victims of violent or sexual crime, who were acquainted with their offender before the crime, had a low level of education and had experienced a high number of victimization experiences were more likely to obtain high scores on the

Emotional Vulnerability scale. A number of studies have reported similar findings in victim samples using other measures of psychological distress (e.g., Davis et al., 1996; Norris & Kaniasty, 1994; Resick, 1988)

Due to the disproportionate number of female victims in the total sample, the analyses were repeated separately by gender. The final regression model for female victims was almost identical to that obtained for the total sample. The model obtained for the male victims of crime, however, demonstrated some differences. The final model obtained for male victims accounted for a smaller amount of variance in Emotional Vulnerability scores relative to the final model for female victims. Only type of crime and acquaintanceship with the offender were found to be significant predictors of Emotional Vulnerability in male victims of crime. Male victims of crime who had reported a violent or sexual index crime and who knew their offender were more likely to demonstrate high levels of Emotional Vulnerability. Educational level and number of victimization experiences did not relate significantly to scores on the EV scale. These are variables that have been previously found to relate to psychological distress in victims of crime (e.g., Davis et al., 1996; Resick, 1988) but research on victims has generally focused on female victims of crime (e.g., Weaver & Clum, 1995). It is possible, therefore, that the psychological correlates of victimization are associated with different variables in male and female victims of crime.

These analyses suggested that Emotional Vulnerability was related to demographic and victimization variables in similar ways as other measures of psychological distress that have been used with victims of crime, providing further support for the construct validity of the Emotional Vulnerability scale. It is notable that acquaintanceship with the offender was a relatively important explanatory variable of Emotional Vulnerability in both male and female victims of crime. The association between psychological distress and victims' relationship with their offender has not been studied extensively and the findings so far have been equivocal. Future research could examine whether the type of relationship with the offender has an effect on Emotional Vulnerability and also whether the crimes committed by people the victims know are more likely to be repetitive (e.g., domestic violence). Furthermore, future research could also explore whether victims' trust in other people (see Chapter 1 for a brief discussion of the theory proposed by Janoff-Bulman, 1989) is shattered more readily when a crime is committed against them by someone they knew and trusted.

An examination of the correlation coefficients in the combined sample ($N = 475$) demonstrated that Crime-Specific Anger was not strongly related to any of the demographic or victimization variables examined in the current study (see Chapter 7). This is not surprising, as the demographic and victimisation variables examined in the current study have been found to relate to the type of measures of psychological distress that were not associated with Crime-Specific Anger in Chapter 5. Significant correlations were only noted with education and age but these were modest in magnitude. The correlation with education also remained significant in the subsamples of female and male victims and suggested that victims who are less educated tend to display higher levels of Crime-Specific Anger. One could speculate that victims who are less educated may not have as much access to information and support services after a victimisation experience relative to victims who are more educated and for this reason may feel more let down by the criminal justice system.

Overall, the findings of the study reported in Chapter 7 suggested that differences in levels of Crime-Specific Anger among victims of crime may relate to other variables that were not examined in the present thesis. For example, victims' experiences within the criminal justice system may be relevant to levels of anger in victims of crime. The questionnaire administered for the confirmatory factor analysis included questions relating to respondents' experience within the criminal justice system. However, these variables (i.e., whether the case went to court and satisfaction with the outcome of the case in court) were not included in the analyses reported in Chapter 7 because too few victims in the confirmatory sample ($n = 29$) responded that their case had gone to court and data on these variables were not available for the exploratory factor analysis sample. Future research could examine Crime-Specific Anger in relation to satisfaction with the criminal justice system in samples of victims of crime who have had a lot of contact with the criminal justice system through the courts or the Probation Service.

Victims' experiences of crime vary enormously and the results of the analyses presented in Chapter 7 demonstrated that the type of crime is certainly a factor that affects psychological adjustment after a victimisation experience but factors relating to the individual (e.g., demographic characteristics and victimisation history) are also important. It appears therefore that psychological adjustment after a criminal victimisation experience is influenced by the interaction between the event (e.g., the type of crime, the degree of injury sustained by the victim) and the individual (e.g.,

previous psychological adjustment, coping style, and subjective perceptions of the event). Attempting to assess the effects of crime without reference to the crime itself may not provide researchers with a full picture of psychological adjustment after a victimisation experience. It may be preferable therefore not to focus on general mental health and instead examine people's specific reactions to a victimisation experience using an assessment tool such as the Victim Reactions Scale.

The research discussed in Section 1.3 of this thesis found that victims of a range of crimes demonstrate increased levels of psychological distress compared to control groups of nonvictims suggesting that the experience of a crime may result in mental health problems. It was also emphasised, however, how difficult it is to disentangle the effects of crime from previous psychological adjustment and the effects of other life events. This is especially problematic as there has been a tendency in the literature on victims of crime to use general measures of psychopathology to assess the effects of victimisation (see Chapter 1). Furthermore, Norris and Kaniasty (1994) found that levels of psychological symptoms in a victim sample were lower than norms established for psychiatric populations but using existing measures of psychopathology to assess victims' adjustment may imply a degree of psychopathology to negative reactions after a victimisation experience.

The approach taken by the current research was to examine victims' psychological adjustment after a criminal victimisation experience by measuring their specific feelings, thoughts, and behaviours in relation to the crime. It is proposed that some victims may demonstrate maladaptive responses after a criminal victimisation experience. The current research suggested that a predominant emotional response among victims of crime consists of feelings of worry and nervousness about the crime (Emotional Vulnerability) and a secondary but common response consists of feelings of enduring anger towards the offender and the criminal justice system (Crime-Specific Anger). Both these dimensions describe responses in relation to a crime rather than general feelings of worry or anger. The modest to moderate correlations that were observed between the VRS subscales and measures of depression, anxiety, and anger (see Chapter 5) suggest that general mental health may explain some of the variance in levels of Emotional Vulnerability and Crime-Specific Anger among victims of crime but a substantial amount of variance is left unexplained.

A small percentage of victims of crime may satisfy criteria for the diagnosis of psychological disorders in the long-term and among victims of sexual offences rates of PTSD have been found to be quite high (e.g., Kilpatrick & Resnick, 1993). Victims of crime may develop symptoms of general psychological disorders but if these are linked to a specific event it may be more effective to treat them in relation to that event. Many of the intensive victim interventions described in Chapter 2 employed techniques to address the memory of the traumatic event and maladaptive thought patterns in relation to the victimisation experience and were successful in reducing symptoms of PTSD, depression, and anxiety (e.g., Resick et al., 2002). It would be interesting to utilise a victim-specific measure, such as the Victim Reactions Scale, to assess victims' responsiveness to treatment and further examine whether treatment programmes which reduce crime-specific maladaptive responses are indeed more effective in reducing general levels of psychological distress.

The construction of the VRS was operationally driven due to an identified need within the London Probation Service for a structured method of assessing victims' psychological needs and informing referrals to appropriate support agencies. The time that had elapsed since the index crime was not associated with scores on either of the VRS subscales (see Chapter 7), suggesting that high levels of Emotional Vulnerability and Crime-Specific Anger are not necessarily more common in recent victims of crime but are just as likely to be evident years after the crime. High levels of emotional distress in recent victims may not be as problematic because adverse psychological symptoms tend to decrease with time in most victims (Resick, 2001). If victims are still displaying high levels of emotional distress years after the crime, spontaneous recovery is less likely. Probation victim liaison officers come into contact with victims often several years after the crime took place so it is particularly important that levels of emotional distress specific to crime are assessed using reliable measures and that treatment interventions are made available to victims who remain emotionally vulnerable. It is proposed that the Emotional Vulnerability scale, in particular, could be used in the criminal justice system and the voluntary sector to identify victims of crime who may be in need of more specialist psychological support. As the VRS asks for victims' specific reactions to a victimisation experience, it is proposed that respondents' may feel less stigmatised than when completing more general measures of psychopathology, which they may feel reflect on their general character. The current thesis has demonstrated that the Emotional Vulnerability scale is a valid measure of

victim-specific responses to crime that is both internally consistent and stable over time. High scores on the Emotional Vulnerability scale were associated with high levels of depression, anxiety, and PTSD and with an attentional bias towards crime-related threat words. It is, therefore, suggested that the EV scale may be a useful measure of people's psychological well-being in relation to victimization experiences and an indicator of whether more in-depth psychological assessment and provision of specialist support services is warranted.

The Emotional Vulnerability scale has not yet been standardised on an appropriate sample (i.e., a random or stratified sample; P. Kline, 2000). Until the Emotional Vulnerability scale is fully standardised data from a large opportunity sample ($N = 475$) may be used as guidance. On the basis of this sample, a score on the Emotional Vulnerability scale of 33 or above for female victims and 23 or above for male victims (i.e., one standard deviation above the mean) would identify victims in the top 20% of the distribution of scores. Separate cutoff scores are provided for female and male victims due to the significant gender differences noted in Emotional Vulnerability scores. It is worth noting that of the victims who scored at least one standard deviation above the mean, about half reported that they had not had any contact with an organisation offering support or information to victims of crime. Furthermore, only about half reported that they had received professional support in relation to the crime that had happened to them. This suggests that, although victim services are becoming more sophisticated and are supporting a larger number of victims of crime, it is possible that they are not reaching all victims of crime who demonstrate high levels of emotional vulnerability. A number of authors have noted the importance of identifying victims of crime who might benefit from intensive psychological support (e.g., Winkel, Wohlfarth, & Blaauw, 2004; Shepherd & Bisson, 2004). Shepherd and Bisson (2004) also stressed the importance of integrating the services provided by the voluntary sector (e.g., Victim Support) with specialist mental health services for victims of crime that demonstrate psychological problems.

Future research would need to pilot the use of the measure in an operational environment, such as the Victim Liaison Service of the National Probation Service. Victims of crime who are seen by victim liaison officers could be administered the Emotional Vulnerability scale and then referred for further psychological assessment using clinical interviews. The scale's sensitivity (i.e., its ability to correctly identify

victims of crime who are diagnosed with a disorder) and specificity (i.e., its ability to correctly identify victims of crime who are not diagnosed with a disorder) could, therefore, be examined. Participants could also be assessed a few months later in order to examine the predictive validity of the Emotional Vulnerability scale for example, to confirm whether high levels of Emotional Vulnerability do relate to the subsequent diagnosis of psychological disorders. If the Emotional Vulnerability scale is to be used in practice a mechanism will need to be put into place so that victims who demonstrate high levels of Emotional Vulnerability are referred promptly for further assessment and treatment. Currently the types of treatment interventions found to be effective in reducing adverse psychological symptoms in victims of crime (see Chapter 2) are not widely available in the UK. There is a lack of government investment into specialist victim interventions and victims who are in need of more specialist support than that offered by the voluntary sector usually have to rely on an already overstretched National Health Service. This can be problematic as counsellors within the National Health Service may not have adequate training in victim-specific issues and the waiting lists are often long (Victim Support, 2002).

If funding were available, dedicated treatment centers could be set up for victims of crime across the country, which will only offer interventions that have been shown to be effective in reducing adverse psychological symptoms in victims of crime. Before gold standard victim interventions are established in the UK, victims who are found to demonstrate high levels of Emotional Vulnerability by criminal justice practitioners could be referred to randomised controlled trials of interventions that are based on the principles of effective victim interventions identified in Chapter 2. Victims who complete the intervention would be expected to demonstrate lower levels of Emotional Vulnerability and other psychological symptoms (e.g., depression) relative to victims referred to the control group. The control group would need to receive a placebo intervention (e.g., contact with the voluntary sector) as it will be difficult to convince criminal justice practitioners to refer victims of crime who are identified as emotionally vulnerable to a control group that does not offer any intervention.

The exploratory factor analysis of the initial item pool also uncovered an additional factor of victim reaction relating to anger, which may be important in its own right especially in male victims of crime. The Crime-Specific Anger scale demonstrated excellent reliability and demonstrated predictable relationships with the STAXI anger

scales, correlating most strongly with a measure of angry reaction. Anger in victims of crime has not been studied extensively and the Crime-Specific Anger scale may be a useful measure of anger that is specifically related to the experience of criminal victimization. Furthermore, the concurrent validation exercise presented in Chapter 5 suggested that Crime-Specific Anger might be more relevant than Emotional Vulnerability as a measure of psychological distress in male victims of crime. Due to the relatively small sample size of male victims, Crime-Specific Anger should be examined in relation to the criterion measures in larger samples of male victims of crime in order to test whether the patterns of correlations displayed in the current dataset can be replicated.

Male victims of crime have generally been found in the literature to demonstrate lower levels of psychological distress than female victims of crime. Indeed, male victims of crime in the current study obtained significantly lower scores on the Emotional Vulnerability scale than female victims. The measures commonly used to assess psychological distress in victims of crime may be affected more by social desirability (Crowne & Marlow, 1964) in male victims of crime, as due to gender stereotypes men may feel that they should not admit to feeling upset, anxious, or fearful after a crime. It is proposed that Crime-Specific Anger is less likely to be affected by social desirability in male victims of crime, which may explain the lack of difference in scores obtained by male and female victims of crime in the current dataset. It was not possible to include a self-report measure of social desirability in the current research as the number of measures that were administered to victims of crime had to be kept at an acceptable level but future research could explore this further.

Furthermore, early work on victims of crime focused on female victims of crime (e.g., Kilpatrick et al., 1979) and the responses of male victims of crime have not been studied as extensively. Future research should investigate whether there are qualitative differences in the psychological responses demonstrated by men and women after a criminal victimisation experience. The number of male victims of crime included in the studies reported in the present thesis was modest so further research is needed before any conclusions can be drawn with confidence about the potential utility of the Crime-Specific Anger scale in identifying male victims of crime who may benefit from emotional support. If Crime-Specific Anger is found to be a more relevant measure of psychological distress in male victims than Emotional Vulnerability, future research

should investigate whether victim interventions that include an anger management component may be more beneficial for male victims of crime. Notably, the majority of interventions found to be effective in reducing psychological symptoms in victims of crime (see Chapter 2) had included only female victims of crime in their samples, reducing the applicability of their results to male victims of crime.

The present thesis has presented extensive validation studies of a new psychometric scale, which is thought to measure Emotional Vulnerability and Crime-Specific Anger in victims of crime. Both subscales demonstrated excellent reliability and were found to relate meaningfully to measures of similar constructs. The results of the validation studies presented in this thesis suggested that the Emotional Vulnerability scale, in particular, may be useful in identifying victims of crime who would benefit from a more in-depth psychological assessment and specialist treatment interventions. As the samples used for the validation studies comprised a disproportionate number of female victims, the findings of the current research will need to be replicated in larger samples of male victims of crime.

REFERENCES

Acierno, R., Resnick, H., Kilpatrick, D. G., Saunders, B., & Best, C. L. (1999). Risk factors for rape, physical assault, and posttraumatic stress disorder in women: Examination of differential multivariate relationships. *Journal of Anxiety Disorder, 13,* 541-563.

American Psychiatric Association (1994). *Diagnostic and statistical manual for mental disorders* (4th ed.). Washington, DC: American Psychiatric Association.

American Psychological Association (1984). *Task force on the victims of crime and violence* (Final Report). Washington, DC: American Psychological Association.

Anderson, B., & Frank, E. (1991). The efficacy of psychological interventions with recent rape victims. In Burgess, A. W. (Ed.), *Rape and sexual assault III: A research handbook* (pp. 75-103). London: Garland.

Andre, C., Lelord, F., Legeron, P., Reignier, A, & Delattre, A. (1997). Étude contrôlée sur l'efficacité à 6 mois d'une prise en charge précoce de 132 conducteurs d'autobus victimes d'agression [A control study on the effectiveness of cognitive behavior treatment provided to 132 bus drivers who had been victims of violence]. *L'Encephale, XXIII,* 65-71.

Andrews, B., Brewin, C. R., Rose, S., & Kirk, M. (2000). Predicting PTSD symptoms in victims of violent crime: The role of shame, anger, and childhood abuse. *Journal of Abnormal Psychology, 109,* 69-73.

Arbuckle, J. L. (2003). *AMOS 5.0* [Computer Software]. Chicago, IL: SPSS.

Ashton, W. A., & Fuehrer, A. (1993). Effects of gender and gender role identification of participant and type of social support resource on support seeking. *Sex Roles, 28,* 461-476.

Atkeson, B. M., Calhoun, K. S., Resick, P. A., & Ellis, E. M. (1982). Victims of rape: Repeated assessment of depressive symptoms. *Journal of Consulting and Clinical Psychology, 50,* 96-102.

Atkinson, R. L., Atkinson, R. C., Smith, E. E., Bem, D. J., & Nolen-Hoeksema, S. (1996). *Hilgard's introduction to psychology* (12th ed.). Philadelphia, PA: Harcourt Brace.

Bandalos, D. (2002). The effects of item parceling on goodness-of-fit and parameter estimate bias in structural equation modeling. *Structural Equation Modeling, 9,* 78-102.

Bard, M., & Sangrey, D. (1979). *The crime victim's book.* New York: Basic Books.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51,* 1173-1182.

Beck, A. T. (1976). *Cognitive therapy and the emotional disorders.* New York: International Universities Press.

Beck, A. T., Epstein, N., Harrison, R. and Emery, G. (1983). *Development of the Sociotropy-Autonomy Scale: A measure of personality factors in psychopathology.* Unpublished manuscript, University of Pennsylvania.

Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression.* New York: Guildford Press.

Beck, A. T., & Steer, R. A. (1990). *Manual for the Beck Anxiety Inventory.* San Antonio, TX: Psychological Corporation.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Beck Depression Inventory - Second Edition [BDI - II] Manual.* San Antonio, TX: Harcourt Brace.

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4,* 561-571.

Bentler, P. M. (1989). *EQS structural equations program manual.* Los Angeles: BMDP Statistical Software.

Bentler, P. M. (1995). *EQS structural equations program manual.* Encino, CA: Multivariate Software.

Bentler, P. M., & Chou, C. (1987). Practical issues in structural modeling. *Sociological Methods and Research, 16,* 78-117.

Berkowitz, L. (1983). Aversively stimulated aggression: Some parallels and differences in research with animals and humans. *American Psychologist, 38,* 1135-1144.

Bernstein, E. M., & Putnam, F. W. (1986). Development, reliability, and validity of a dissociation scale. *Journal of Nervous and Mental Disease, 174,* 727-735.

Blake, D. D., Weathers, F.W., Nagy, L. M., Kaloupek, D. G., Klauminzer, G., Charney, D. S., et al. (1990). A clinician rating scale for assessing current and lifetime PTSD: The CAPS-1. *The Behavior Therapist, 18,* 187-188.

Bollen, K. A., & Barb, K. H. (1981). Pearson's R and coarsely categorized measures. *American Sociological Review, 46,* 232-239.

Bosson, J. K., Swann Jnr, W. B., & Pennebaker, J. W. (2000). Stalking the perfect measure of implicit self-esteem: The blind men and the elephant revisited? *Journal of Personality and Social Psychology, 79,* 631-643.

Bower, G. H. (1981). Mood and memory. *American Psychologist, 36,* 129-148.

Boyle, S., & Siegman, A. W. (1992). *Dimensions of anger expression and CVR in angered men.* Unpublished manuscript, University of Maryland, Baltimore County.

Breslau, N., Davis, G. C., Andreski, P., & Peterson, E. (1991). Traumatic events and posttraumatic stress disorder in an urban population of young adults. *Archives of General Psychiatry, 48,* 216-222.

Brewin, C. R., Dalgleish, T., & Joseph, J. (1996). A dual representation theory of posttraumatic stress disorder. *Psychological Review, 103,* 670-686.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Newbury Park, CA: Sage.

Burgess, A. W., & Holmstrom, L. L. (1974). Rape trauma syndrome. *American Journal of Psychiatry, 131,* 981-986.

Burgess, A. W., & Holmstrom, L. L. (1978). Recovery from rape and prior life stress. *Research in Nursing and Health, 1,* 165-174.

Burnam, M. A., Steon, J. A., Golding, J. M., Siegel, J. M., Sorenson, S. B., Forsythe, A. B., et al. (1988). Sexual assault and mental disorders in a community population. *Journal of Consulting and Clinical Psychology, 56,* 843-850.

Byrne, B. M. (2001). *Structural equation modeling with AMOS. Basic concepts, applications, and programming.* London: Erlbaum.

Calhoun, K. S., & Atkeson, B. M. (1982). *Rape-induced depression: Normative data* (Grant no. MH29750). Bethesda, MD: National Institute of Mental Health.

Campbell, D. T., & Fiske, D. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56,* 81-105.

Cassiday, K. L., McNally, R. J., & Zeitlin, S. B. (1992). Cognitive processing of trauma cues in rape victims with post-traumatic stress disorder. *Cognitive Therapy and Research, 16,* 283-295.

Cattell, R. B. (1966). The Scree test for the number of factors. *Multivariate Behavioural Research, 1,* 141-161.

Cattell, R. B. (1978). *The scientific use of factor analysis.* New York: Plenum Press.

Cattell, R. B., Eber, H. W., & Tatsuoka, M. M. (1970). *The 16-Factor personality questionnaire.* Champaign, IL: IPAT.

Cattell, R. B., & Scheier, I. H. (1961). *The meaning and measurement of neuroticism and anxiety.* New York: Ronald Press.

Cedrus (2002). *SuperLab Pro: Experimental laboratory software (Version 2.0)* [Computer Software]. San Pedro, CA: Cedrus.

Chemtob, C. M., Hamada, R. S., Roitblat, H. L., & Muraoka, M. Y. (1994). Anger, impulsivity, and anger control in combat-related posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology, 62,* 827-832.

Chemtob, C., Roitblat, H. L., Hamada, R. S., Carlson, J. G., & Twentyman, C. T. (1988). A cognitive action theory of post-traumatic stress disorder. *Journal of Anxiety Disorders, 2,* 253-275.

Chou, C., & Bentler, P. M. (1995). Estimates and tests in structural equation modeling. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 37-55). London: Sage.

Clarbour, J. (2001). *Adolescent emotional behaviour: A psychometric and experimental study.* Unpublished doctoral dissertation, University of York, UK.

Clarbour, J., & Roger, D. (2004). The construction and validation of a new scale for measuring emotional response style in adolescents. *Journal of Child Psychology and Psychiatry, 45,* 496-509.

Clarke, M. & Oxman, A. D. (2001, October). Assessment of study quality. Section 6. *Cochrane reviewers handbook 4.1.4.* In The Cochrane Library, Issue 4. Oxford: Update Software.

Coffey, P., Leitenberg, H., Henning, K., Bennett, R. T., & Jankowski, M. K. (1996). Dating violence: The association between methods of coping and women's psychological adjustment. *Violence and Victims, 11,* 227-238.

Cohen, J. D., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Cohen, J. D., Dunbar, K., & McClelland, J. L. (1990). On the control of automatic process: A parallel distributed processing account of the Stroop effect. *Psychological Review, 97,* 332-361.

Contributors to the Cochrane Collaboration and the Campbell Collaboration. (2000, August). *Evidence from systematic reviews of research relevant to implementing the 'wider public health' agenda.* Centre for Reviews and Dissemination. Retrieved July 14, 2003, from http:11www.york.ac.uk/inst/crd/wph.htm.

Cook, D. J., Mylrow, C. D., & Haynes, R. B. (1997). Systematic reviews: Synthesis of best evidence for clinical decisions. *Annals of Internal Medicine, 126,* 376-380.

Cook, R. F., Smith, B. E., & Harrell, A. V. (1987, January). *Helping crime victims: Levels of trauma and effectiveness of services.* Washington, DC: U.S. Department of Justice.

Cronbach, L. J. & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52,* 281-302.

Crowne, D. P., & Marlowe, D. (1964). *The approval motive.* New York: Wiley.

Davis, R. C. (1987). Studying the effects of services for victims in crisis. *Crime and Delinquency, 33,* 520-531.

Davis, R. C., & Henley, M. (1990). Victim service programs. In A. J. Lurigio, W. G. Skogan, & R. C. Davis (Eds.), *Victims of crime: Problems, policies, and programs* (pp. 157-171). USA: Sage.

Davis, R. C., Taylor, B., & Lurigio, A. J. (1996). Adjusting to criminal victimization: The correlates of postcrime distress. *Violence and Victims, 11,* 21-38.

Davison, G. C., & Neale, J. M. (1998). *Abnormal psychology* (7th ed.). New York: John Wiley & Sons, Inc..

Deeks, J., Khan, K. S., Song, F., Popay, J., Nixon, J., & Kleijnen, J. (2001). Data Synthesis. In K. S. Khan, G. ter Riet, J. Glanville, A. J. Sowden, & J. Kleijnen. *Undertaking systematic reviews of research on effectiveness. CRDs guidance for those carrying out or commissioning reviews* (CRD report number 4, 2nd ed., phase 5). UK: York Publishing Services Ltd.

Derogatis, L. R. (1975). *The Affect Balance Scale.* Baltimore: Clinical Psychometric Research.

Derogatis, L. (1977). *SCL-90-R: Administration, scoring, and procedures manual.* Baltimore: Clinical Psychometrics Research.

Derogatis, L. R., & Spencer, P. M. (1982). *The brief symptom inventory: Administration, scoring and procedures manual-I.* Baltimore: Clinical Psychometric Research.

Echeburua, E., & Corral, P. (1987). *Escala de Adaptacion [Scale of Adaptation].* Unpublished manuscript.

Echeburua, E., Corral, P., Sarasua, B., Zubizarreta, I., & Sauca, D. (1994). Escala de gravedad de sintomas del trastorno de estres postraumatico [Scale of severity of posttraumatic stress disorder symptoms]. In E. Echeburua (Ed.), *Personalidades violentas [Violent personalities].* Madrid, Spain: Piramide.

Echeburua, E., Corral, P. D., Zubizarreta, I., & Sarasua, B. (1997). Psychological treatment of chronic posttrautmatic stress disorder in victims of sexual aggression. *Behavior Modification, 21,* 433-456.

Egloff, B., & Schmukle, S. C. (2002). Predictive validity of an implicit association test for assessing anxiety. *Journal of Personality and Social Psychology, 83,* 1441-1455.

Eide, P., Kemp, A., Silberstein, R. B., Nathan, P. J., & Stough, C. (2002). Test-retest reliability of the emotional Stroop task: Examining the paradox of measurement change. *The Journal of Psychology, 136,* 514-520.

Ellis, E. M., Atkeson, B. M., & Calhoun, K. S. (1981). An assessment of long-term reaction to rape. *Journal of Abnormal Psychology, 90,* 263-266.

Endler, N. S., & Parker, J. D. A. (1990). Multidimensional assessment of coping: A critical evaluation. *Journal of Personality and Social Psychology, 58,* 844-854.

Eysenck, H. J. & Eysenck, S. B. G. (1964). *Manual of the Eysenck Personality Inventory.* London: University of London Press.

Eysenck, M. W. & Keane, M. T. (1995). *Cognitive psychology: A student's handbook.* East Sussex, UK: Psychology Press.

Falsetti, S. A., & Resnick, H. S. (1995). Helping the victims of violent crime. In J. R. Freedy & S. E. Hobfoll (Eds.), *Traumatic stress: From theory to practice* (pp. 263-285). New York: Plenum Press.

Falsetti, S. A., & Resnick, H. S. (2000). Treatment of PTSD using cognitive and cognitive behavioral therapies. *Journal of Cognitive Psychotherapy: An International Quarterly, 14,* 261-285.

Farrell, G., & Webster, B. (2000, November). Interventions for domestic violence. Retrieved July 14, 2003, from http://www.campbellcollaboration.org/library.html.

Feder, L., MacKenzie, D. L., & Wilson, D. (2000, November). Interventions for domestic violence. Retrieved July 14, 2003, from http://www.campbellcollaboration.org/library.html.

Field, A. (2000). *Discovering statistics using SPSS for Windows.* London: Sage.

Finney, A., & Toofail, J. (2004, July). Levels and trends. In Dodd, T., Nicholas, S., Povey, D., & Walker, A. (Eds.), *Crime in England and Wales 2003/2004.* London: Home Office, Research, Development, & Statistics Directorate.

Fishbein, M. & Ajzen, I. (1975). *Belief, attitude, intention, and behaviour: An introduction to theory and research.* Reading, MA: Adisson-Wesley.

Fitts, W. H. (1965). *Manual: Tennessee self-concept scale.* Nashville, TN: Counselor Recordings and Tests.

Floyd, F. J., & Widaman, K. F. (1995). Factor analysis in the development and refinement of clinical assessment instruments. *Psychological Assessment, 7,* 286-299.

Foa, E. B., Cashman, L., Jaycox, L., & Perry, K. (1997). The validation of a self-report measure of posttraumatic stress disorder: The posttraumatic diagnostic scale. *Psychological Assessment, 9,* 445-451.

Foa, E. B., Dancu, C. V., Hembree, E. A., Jaycox, L. H, Meadows, E. A., & Street, G. P. (1999). A comparison of exposure therapy, stress inoculation training, and their combination for reducing posttraumatic stress disorder in female assault victims. *Journal of Consulting and Clinical Psychology, 67,* 194-200.

Foa, E. B., Feske, U., Murdock, T. B., Kozak, M. J., & McCarthy, P. R. (1991). Processing of threat-related information in rape victims. *Journal of Abnormal Psychology, 2,* 156-162.

Foa, E. B., Hearst-Ikeda, D., & Perry, K. J. (1995). Evaluation of a brief cognitive-behavioral program for the prevention of chronic PTSD in recent assault victims. *Journal of Consulting and Clinical Psychology, 63,* 948-955.

Foa, E. B., & McNally, R. J. (1986). Sensitivity to feared stimuli in obsessive-compulsives: A dichotic listening analysis. *Cognitive Therapy and Research, 10,* 477-486.

Foa, E. B., & Meadows, E. A. (1997). Psychosocial treatments for posttraumatic stress disorder: A Critical Review. *Annual Review of Psychology, 48,* 499-480.

Foa, E. B., Riggs, D. S., Dancu, C. V., & Rothbaum, B. O. (1993). Reliability and validity of a brief instrument for assessing posttraumatic stress disorder. *Journal of Traumatic Stress, 6,* 459-473.

Foa, E. B., Rothbaum, B. O., Riggs, D. S., & Murdock, T. B. (1991). Treatment of posttraumatic stress disorder in rape victims: A comparison between cognitive-behavioral procedures and counseling. *Journal of Consulting and Clinical Psychology, 59,* 715-723.

Foa, E. B., Steketee, G., & Rothbaum, B. O. (1989). Behavioral/cognitive conceptualizations of post-traumatic stress disorder. *Behavior Therapy, 20,* 155-176.

Folkman, S. & Lazarus, R. S. (1985). If it changes it must be process: A study of emotion and coping during three stages of college examination. *Journal of Personality and Social Psychology, 48,* 150-170.

Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology, 50,* 992-1003.

Forbes, A., & Roger, D. (1999). Stress, social support and fear of disclosure. *British Journal of Health Psychology, 4,* 165-179.

Foster, S. L., & Cone, J. D. (1995). Validity issues in clinical assessment. *Psychological Assessment, 7,* 248-260.

Frank, E., Turner, S., & Stewart, B. (1980). Initial response to rape: The impact of factors within the rape situation. *Journal of Behavioural Assessment, 62,* 39-53.

Friedman, K., Biscoff, H., Davis, R., & Person, A. (1982). *Victims and helpers: Reactions to crime.* (Summary of Grant Report, Grant No. 79-NIAX0059). Washington, DC: National Institute of Justice.

Gay, M. L., Hollandsworth, J. C., & Galassi, J. P. (1975). An assertiveness inventory for adults. *Journal of Counseling Psychology, 22,* 340-344.

Gilligan, S. G., & Bower, G. H. (1984). Cognitive consequences of emotional arousal. In C. Izard, J. Kagen, & R. Zajonc (Eds.), *Emotions, cognition, and behaviour.* New York: Cambridge University Press.

Gray, J. A. (1994). Three fundamental emotion systems. In P. Ekman, & R. J. Davidson (Eds.), *The nature of emotion: Fundamental questions* (pp. 243-247). New York: Oxford University Press.

Goldberg, D. (1978). *Manual of the General Health Questionnaire.* London: NFER.

Goldberg, D., & Williams, P. (1988). *A user's guide to the general health questionnaire.* Oxford: NFER-NELSON.

Gotlib, I. H., & McCann, C. D. (1984). Construct accessibility and depression: An examination of cognitive and affective factors. *Journal of Personality and Social Psychology, 47,* 427-439.

Greenhalgh, T. (2001). *How to read a paper: The basics of evidence based medicine* (2nd ed.). London: BMJ Books.

Harburg, E., Blakelock, E. H., & Roeper, P. J. (1979). Resentful and reflective coping with arbitrary authority and blood pressure: Detroit. *Psychosomatic Medicine, 51,* 189-202.

Hewson, C. (2003, June). Conducting research on the internet. *The Psychologist, 16,* 290-293.

Hewson, C., Yule, P., Laurent, D., & Vogel, C. (2003). *Internet research methods: A practical guide for the social and behavioural sciences.* London: Sage.

Hobfoll, S. E (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist, 44,* 513-524.

Hobfoll, S. E. (1991). Traumatic stress: A theory based on rapid loss of resources. *Anxiety Research, 4,* 187-197.

Hollin, C. R. (1999). Treatment programs for offenders: Meta-analysis, "What Works," and beyond. *International Journal of Law and Psychiatry, 22,* 361-372.

Horowitz, M., Wilner, N., & Alvarez, W. (1979). Impact of event scale: A measure of subjective stress. *Psychosomatic Medicine, 41,* 208-218.

Howell, D. C. (1997). *Statistical methods for psychology* (4th ed.). Belmont, CA: Duxbury Press.

Hoyle, R. H., & Panter, A. T. (1995). Writing about structural equation models. In R. H. Hoyle (Ed.), *Structural equation modeling. Concepts, issues, and applications* (pp. 158-176). London: Sage.

Hu, L., & Bentler, P. M. (1995). Evaluating model fit. In R. H. Hoyle (Ed.), *Structural equation modeling. Concepts, issues, and applications* (pp. 76-99). London: Sage.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6,* 1-55.

Hu, L., Bentler, P. M., & Kano, Y. (1992). Can test statistics in covariance structure analysis be trusted? *Psychological Bulletin, 112,* 351-362.

Jacobs, G. A., Latham, L. E., & Brown, M. S. (1988). Test-retest reliability of the state-trait personality inventory and the anger expression scale. *Anxiety Research, 1,* 263-265.

Janoff-Bulman, R. (1989). Assumptive worlds and the stress of traumatic events: Applications of the schema construct. *Social Cognition, 7,* 113-136.

Janoff-Bulman, R., & Frieze, I. (1983). A theoretical perspective for understanding reactions to victimization. *Journal of Social Issues, 39,* 1-18.

Jemmott, J. B., Borysenko, M., McClelland, D. C., Chapman, R., Meyer, D., & Benson, H. (1985). Academic stress, power motivation, and decrease in salivary secretory immunoglubulin: A secretion rate. *Lancet, 1,* 1400-1402.

Jemmott, J. B., & Locke, S. E. (1984). Psychosocial factors, ummunologic mediation, and human susceptibility to infectious diseases: How much do we know? *Psychological Bulletin, 95,* 78-108.

Jennrich, C. I. and Sampson, P. F. (1966). Rotation for simple loadings. *Psychometrika, 31,* 313-323.

Johnson, E. H. (1984). *Anger and anxiety as determinants of elevated blood pressure in adolescents: The Tampa study.* Unpublished doctoral dissertation, University of South Florida, Tampa.

Joinson, A. N. (1999). Social desirability, anonymity and internet-based questionnaires. *Behaviour Research Methods, Instruments and Computers, 31,* 433-438.

Joreskog, K. G., & Sorbom, D. (1981). *LISREL V: Analysis of linear structural relationships by the method of maximum likelihood.* Chicago, IL: National Educational Resources.

Kaiser, J., Hinton, J. W., Krohne, H. W., Stewart, R., & Burton, R. (1995). Coping dispositions and physiological recovery from a speech preparation stressor. *Personality and Individual Differences, 19,* 1-11.

Kessler, R. C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the national comorbidity survey. *Archives of General Psychiatry, 52,* 1048-1060.

Khan, K. S., ter Riet, G., Popay, J., Nixon, J., & Kleijnen, J. (2001, March). Study quality assessment. In K. S. Khan, G. ter Riet, J. Glanville, A. J. Sowden, & J. Kleijnen. *Undertaking systematic reviews of research on effectiveness. CRDs guidance for those carrying out or commissioning reviews* (CRD report number 4, 2nd ed.). UK: University of York, NHS Centre for Reviews and Dissemination.

Kilpatrick, D. G. (1988). Rape aftermath symptom test. In M. Hersen & A. S. Bellack (Eds.), *Dictionary of behavioral assessment techniques* (pp. 366-367). Oxford, UK: Pergamon Press.

Kilpatrick, D. G., Best, C. L., Veronen, L. J., Amick, A. E., Villeponteaux, L. A., & Ruff, G. A. (1985). Mental health correlates of criminal victimization: A random community survey. *Journal of Consulting and Clinical Psychology, 53,* 866-873.

Kilpatrick, D. G., Resnick, H. S. (1993). PTSD associated with exposure to criminal victimization in clinical and community populations. In J. R. T. Davidson and E.B. Foa, (Eds.), *Posttraumatic stress disorder: DSM-IV and beyond* (pp. 113-143). Washington, DC: American Psychiatric Press.

Kilpatrick, D. G., Saunders, B. E., Amick-McMullan, A., Best, C. L., Veronen, L. J., & Resnick, H. S. (1989). Victim and crime factors associated with the development of crime-related post-traumatic stress disorder. *Behavior Therapy, 20,* 199-214.

Kilpatrick, D. G., Saunders, B. E., Veronen, L. J., Best, C. L, & Von, J. M. (1987). Criminal victimization: Lifetime prevalence, reporting to police, and psychological impact. *Crime & Delinquency, 33,* 479-489.

Kilpatrick, D. G., Veronen, L. J., & Resick, P. A. (1979). The aftermath of rape: Recent empirical findings. *American Journal of Orthopsychiatry, 49,* 658-669.

Kilpatrick, D. G., Veronen, L. J., & Resick, P. A. (1982). Psychological sequelae to rape: Assessment and treatment strategies. In D. M. Dolays, R. L. Meredith, & A. R. Ciminero (Eds.), *Behavioral medicine: Assessment and treatment strategies* (pp. 473-497). New York: Plenum Press.

Kimmel, D. C., & Weiner, I. B. (1995). *Adolescence: A developmental transition* (2nd ed.). Chichester: John Wiley.

Kindt, M., Bierman, D., Brosschot, J. F. (1996). Stroop versus Stroop: Comparison of a card format and a single-trial format of the standard color-word Stroop task and the emotional Stroop task. *Personality and Individual Differences, 21,* 653-661.

Kishton, J. M., & Widaman, K. F. (1994). Unidimensional versus domain representative parceling of questionnaire items: An empirical example. *Educational and Psychological Measurement, 54,* 757-765.

Klieger, D. M., & Cordner, M. D. (1990). The Stroop task as a measure of construct accessibility in depression. *Personality and Individual Differences, 11,* 19-27.

Kline, P. (1991). *Intelligence: The Psychometric View.* London: Routledge.

Kline, P. (1994). *An easy guide to factor analysis.* New York: Routledge.

Kline, P. (2000). *Handbook of psychological testing* (2nd ed.). New York: Routledge.

Kline, R. B. (1998). *Principles and practice of structural equation modeling.* New York: The Guilford Press.

Krantz, J. H., Ballard, J., & Scher, J. (1997). Comparing the results of laboratory and world wide web samples of the determinants of female attractiveness. *Behaviour Research Methods, Instruments, and Computers, 29,* 264-269.

Kubany, E. S., Haynes, S. N., Abueg, F. R., Manke, F. P., Brennan, J. M., & Stahura, C. (1996). Development and validation of the Trauma-Related Guilt Inventory (TRGI). *Psychological Assessment, 8,* 428-444.

Kucera, H., & Francis, W. N. (1967). *Computational analysis of present-day American English.* Providence, RI: Brown University Press.

Lavy, E. H., Oppen, P. van, & Hout, M. van den. (1994). Selective processing of emotional information in obsessive-compulsive disorder. *Behaviour Research and Therapy, 32,* 243-246.

Lazarus, R.S., & Folkman, S. (1984). *Stress, appraisal and coping.* New York: Springer.

Lipsey, M. W. (1992). Juvenile delinquency treatment: A meta-analytic inquiry into the variability of effects. In T. D. Cook, H. Cooper, D. S. Cordray, H. Hartman, L. V.

Hedges, R. J. Light, T. A. Louis, & F. Mosteller (Eds.), *Meta-analysis for explanation: A casebook* (pp. 83-127). New York: Russell Sage Foundation.

Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis.* Thousand Oaks, CA: Sage.

Little, T. D., Cunningham, W. A., Shahar, G., & Widaman, K. F. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling, 9,* 151-173.

Loehlin, J. C. (1998). *Latent variable models: An introduction to factor, path, and structural analysis* (3rd ed.). London: Erlbaum.

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods, 1,* 130-149.

MacDonald, G., Ramchandani, P., & Higgins, J. (n.d.). Cognitive-behavioural interventions for sexually abused children. Retrieved July 14, 2003, from http:www/campbellcollaboration.org/library.html.

MacLeod, C. M. (1991). Half a century of research on the Stroop effect: An integrative review. *Psychological Bulletin, 109,* 163-203.

Maguire, M. (1991). The needs and rights of victims of crime. *Crime and Justice. An Annual Review of Research, 14,* 363-433.

Maguire, M. & Corbett, C. (1987). *The effect of crime and the work of Victims Support Schemes.* UK: Gower.

Marandos, R. (2003, February). *Assessing the effectiveness of interventions designed to support victims of crime.* Paper presented at the 3rd annual Campbell Collaboration colloquium, Stockholm, Sweden.

Marandos, R., & Clarbour, J. (2004). Construction of a psychometric scale to assess psychological responses to criminal victimisation [Abstract]. *Proceedings of the British Psychological Society, UK, 12,* 177.

Mardia, K. V. (1970). Measures of multivariate skewness and kurtosis with applications. *Biometrika, 57,* 519-530.

Mathews, A., & MacLeod, C. (1985). Selective processing of threat cues in anxiety states. *Behaviour Research and Therapy, 23,* 563-569.

Mattia, J. I., Heimberg, R. G., & Hope, D. A. (1993). The revised Stroop color-naming task in social phobics. *Behaviour Research and Therapy, 31,* 305-313.

McFatter, R. M. (1998). Emotional intensity: Some components and their relations to extraversion and neuroticism. *Personality and Individual Differences, 24,* 747-758.

McKenna, F. P., & Sharma, D. (1995). Intrusive cognitions: An investigation of the emotional Stroop task. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 21,* 1595-1607.

McNair, D., Lorr, M., & Droppleman, L. (1971). *Manual, profile of mood states.* San Diego, CA: Educational and Industrial Testing Service.

McNally, R. J., Kaspi, S. P., Riemann, B. C., & Zeitlin, S. B. (1990). Selective processing of threat cues in posttraumatic stress disorder. *Journal of Abnormal Psychology, 99,* 398-402.

McNally, R. J., Riemann, B. C., Louro, C. E., Lukach, B. M., & Kim, E. (1992). Cognitive processing of emotional information in panic disorder. *Behaviour Research Theory, 30,* 143-149.

Meichenbaum, D. (1974). *Cognitive behavior modification.* Morristown, NJ: General Learning Press.

Mezey, G., Evans, C., & Hobdell, K. (2002). Families of homicide victims: Psychiatric responses and help-seeking. *Psychology and Psychotherapy: Therapy, Research and Practice, 75,* 65-75.

Mitchell, M., & Jolley, J. (2001). *Research design explained* (4th ed.). USA: Harcourt.

Mogg, K., Kentish, J., Bradley, B. P. (1993). Effects of anxiety and awareness on colour-identification latencies for emotional words. *Behavioural Research and Therapy, 31,* 559-567.

Monroe, S. M., & Simons, A. D. (1991). Diatheses-stress theories in the context of life stress research: Implications for the depressive disorders. *Psychological Bulletin, 110,* 406-425.

Mowrer, O. H., (1947). On the dual nature of learning: A reinterpretation of "conditioning" and "problem solving". *Harvard Educational Review, 17,* 102-148.

Neisser, U. (1976). *Cognition and reality.* San Francisco, CA: Freeman.

Newburn, T. (1993). *The long-term needs of victims: A review of the literature.* London: Home Office.

Nolen-Hoeksema, S., Parker, L. E., & Larson, J. (1994). Ruminative coping with depressed mood following loss. *Journal of Personality and Social Psychology, 67,* 92-104.

Norris, F. H. (1992). Epidemiology of trauma: Frequency and impact of different potentially traumatic events on different demographic groups. *Journal of Consulting and Clinical Psychology, 60,* 409-418.

Norris, F. H., & Kaniasty, K. (1991). The psychological experience of crime: A test of the mediating role of beliefs in explaining the distress of victims. *Journal of Social and Clinical Psychology, 10,* 239-261.

Norris, F. H., & Kaniasty, K. (1994). Psychological distress following criminal victimization in the general population: Cross-sectional, longitudinal, and prospective analyses. *Journal of Consulting and Clinical Psychology, 62,* 111-123.

Norris, F. H., Kaniasty, K., & Thompson, M. P. (1997). The psychological consequences of crime: Findings from a longitudinal population-based study. In R. C. Davis, A. J. Lurigio, & W. G. Skogan. *Victims of crime* (2nd ed., pp. 146-166). London: Sage.

Nunnally, J. O. (1978). *Psychometric theory.* New York: McGraw-Hill.

Obanion, D., & Veronen, L. J. (1978). *Fear thermometer.* Unpublished manuscript, North Texas State University.

Orth, U., Montada, L., & Maercker, A. (in press). Feelings of revenge, retaliation motive, and posttraumatic stress reactions in crime victims. *Journal of Interpersonal Violence.*

Parker, J. D. A., & Endler, N. S. (1996). Coping and defense: A historical overview. In M. Zeidner, & N. S. Endler (Eds.), *Handbook of coping: Theory, research, applications.* New York: John Wiley.

Paunovic, N., Lundh, L.-G., & Ost, L.-G. (2002). Attentional and memory bias for emotional information in crime victims with acute posttraumatic stress disorder (PTSD). *Journal of Anxiety Disorders, 16,* 675-692.

Resick, P. A. (1988). *Reactions of female and male victims of rape and robbery: A final report.* (Grant No. 85-IJ-CX-0042). Washington D.C.: National Institute of Justice.

Resick, P. A. (2001). *Stress and trauma.* Philadelphia, PA: Taylor & Francis.

Resick, P. A., Jordan, C. G., Girelli, S. A., Hutter, C. K., & Marhoeffer-Dvorak, S. (1988). A comparative outcome study of behavioral group therapy for sexual assault victims. *Behavior Therapy, 19,* 385-401.

Resick, P. A., Nishith, P., Weaver, T. L., Astin, M. C., & Feuer, C. A. (2002). A comparison of cognitive-processing therapy with prolonged exposure and a waiting condition for the treatment of chronic posttraumatic stress disorder in female rape victims. *Journal of Consulting and Clinical Psychology, 70,* 867-879.

Resick, P. A., & Schnicke, M. K. (1992). Cognitive processing therapy for sexual assault victims. *Journal of Consulting and Clinical Psychology, 60,* 748-756.

Resnick, H., Acierno, R., Holmes, M., Kilpatrick, D. G., & Jager, N. (1999). Prevention of post-rape psychopathology: preliminary findings of a controlled acute rape treatment study. *Journal of Anxiety Disorders, 13,* 359-370.

Riggs, D. S., Dancu, C. V., Gershuny, B. S., Greenberg, D., & Foa, E. B. (1992). Anger and post-traumatic stress disorder in female crime victims. *Journal of traumatic Stress, 5,* 613-625.

Robins, L. N., Helzer, J. E., Croughan, J. L., & Ratcliff, K. S. (1981). National institute of mental health diagnostic interview schedule: Its history, characteristics and validity. *Archives of General Psychiatry, 38,* 381-389.

Roger, D. (1996, July). *The role of cognitive rumination, coping styles and self-esteen in moderating adaptational responses to stress.* Paper presented at the 8th European conference on Personality, University of Ghent, Belgium.

Roger, D. (1999). The role of cognitive rumination, coping styles and self-esteem in moderating adaptational responses to stress. In I. Mervielde, I. J. Deary, F. De Fruyt, and F. Ostendorf. *Personality Psychology in Europe: Vol. 7* (pp. 351-364). Netherlands: Tilburg University Press.

Roger, D., & Jamieson, J. (1988). Individual differences in delayed heart-rate recovery following stress: The role of extraversion, neuroticism, and emotional control. *Personality and Individual Differences, 9,* 721-726.

Roger, D., Jarvis, G., & Najarian, B. (1993). Detachment and coping: The construction and validation of a new scale for measuring coping strategies. *Personality and Individual Differences, 15,* 619-626.

Roger, D., & Najarian, B. (1989). The construction and validation of a new scale for measuring emotion control. *Personality and Individual Differences, 10,* 845-853.

Roger, D., & Najarian, B. (1997, September). *The role of rumination, inhibition and emotional coping in moderating the link between stress and illness.* Paper presented at the 11th conference of the European Health Psychology Society, University of Bordeaux, France.

Roger, D., & Nesshoever, W. (1987). The construction and preliminary validation of a scale for measuring emotional control. *Personality and Individual Differences, 8,* 527-534.

Rose, S. (2002). Theoretical approaches to psychological trauma: Implications for research and practice. *Counselling and Psychotherapy Research, 2,* 61-72.

Rose, S., Brewin, C. R., Andrews, B., & Kirk, M. (1999). A randomized controlled trial of individual psychological debriefing for victims of violent crime. *Psychological Medicine, 29,* 793-799.

Rosenbaum, D. P. (1987). Coping with victimization: The effects of police intervention on victims' psychological readjustment. *Crime & Delinquency, 33,* 502-519.

Rothbaum, B. O. (1997). A controlled study of eye movement desensitization and reprocessing in the treatment of posttraumatic stress disordered sexual assault victims. *Bulletin of the Menninger Clinic, 61,* 317-334.

Rothbaum, B. O., Dancu, C., Riggs, D. S., & Foa, E. (1990, September). *The PTSD sympton scale.* Paper presented at the European Association of Behaviour Therapy Annual Conference, Paris, France.

Saunders, B. E., Arata, C. M., & Kilpatrick, D. G. (1990). Development of a crime-related post-traumatic stress disorder scale for women within the sympton checklist-90-revised. *Journal of Traumatic Stress, 3,* 439-448.

Schmukle, S. C. (in press). Unreliability of the dot probe task. *European Journal of Personality.*

Segal, Z. V., & Vella, D. D. (1990). Self-schema in major depression: Replication and extension of a priming methodology. *Cognitive Therapy and Research, 14,* 161-176.

Shapland, J. (1986). Victim assistance and the criminal justice system: The victim's perspective. In E. A. Fattah (Ed.). *From crime policy to victim policy: Reorienting the justice system* (pp. 218-233). London: Macmillan Press.

Shepherd, J. P., & Bisson, J. I. (2004). Towards integrated health care: A model for assault victims. *British Journal of Psychiatry, 184,* 3-4.

Shepherd, J. P., Qureshi, R., Preston, M. S., & Levers, B. G. H. (1990). Psychological distress after assaults and accidents. *British Medical Journal, 301,* 849-589.

Sherman, L. W., Gottfredson, D., MacKenzie, D., Eck, P., Reuter, P., & Bushway, S. (1997). *Preventing crime: What works, what doesn't, what's promising: A report to the United States Congress.* Washington, DC: National Institute of Justice.

Sherman, L. W., & Strang, H. (2000, May). *Restorative Justice.* Retrieved July 14, 2003, from http://www.campbellcollaboration.org/library.html.

Shipherd, J. C., & Beck, J. G. (1999). The effects of suppressing trauma-related thoughts on women with rape-related posttraumatic stress disorder. *Behaviour Research and Therapy, 37,* 99-112.

Sieber, J. E., & Saks, M. J. (1989). A consensus of subject pool characteristics and policies. *American Psychologist, 44,* 1053-1061.

Siegrist, M. (1997). Test-retest reliability of different versions of the Stroop test. *The Journal of Psychology, 13,* 299-306.

Skogan, W. G. (1987). The impact of victimization on fear. *Crime & Delinquency, 33,* 135-154.

Skogan, W., Davis, R., & Lurigio, A. (1990). *Victims' needs and victim services: Final Report to the National Institute of Justice.* Washington, D.C.: National Institute of Justice.

Skogan, W. G., & Wycoff, M. A. (1987). Some unexpected effects of a police service for victims. *Crime and Delinquency, 33,* 490-501.

Smith, B. E., Cook, R. F., & Harrell, A. V. (1985). *Evaluation of victim services.* Washington, DC: Institute for Social Analysis.

Smith, M. A., & Leigh, B. (1997). Virtual subjects: Using the Internet as an alternative source of subjects and research environment. *Behaviour, Research Methods, Instruments, and Computers, 29,* 496-505.

Solomon, S. D., & Canino, G. J. (1990). Appropriateness of DSM-III-R criteria for posttraumatic stress disorder. *Comprehensive Psychiatry, 31,* 227-237.

Solomon, S. D., & Maser, J. D. (1990). Defining terms and instruments for assessing traumatic stress. *Journal of Applied Social Psychology, 20,* 1623-1631.

Spielberger, C. D. (1966). Theory and research on anxiety. In C. D. Spielberger (Ed.), *Anxiety and behavior* (pp. 3-20). New York: Academic Press.

Spielberger, C. D. (1983). *Manual for the State-Trait Anxiety Inventory (Form Y; Self-Evaluation Questionnaire).* Palo Alto, CA: Consulting Psychological Press.

Spielberger, C. D. (1988a). Manual for the state-trait anger expression inventory. In M. Hersen, & A.S. Bellack (Eds.), *Dictionary of behavioural assessment techniques* (pp. 446-448). New York: Pergamon Press.

Spielberger, C. D. (1988b). Anger Expression Scale. In M. Hersen, & A. S. Bellack (Eds.), *Dictionary of behavioural assessment techniques* (pp. 27-29). New York: Pergamon Press.

Spielberger, C. D. (1996). *State-Trait Anger Expression Inventory. STAXI professional manual.* Tampa, FL: Psychological Assessment Resources.

Spielberger, C., Gorsuch, R., & Lushene, R. (1970). *The State-Trait Anxiety Inventory.* Palo Alto, CA: Consulting Psychologists Press.

Steiger, J. H. & Lind, J. C. (1980, May). *Statistically based tests for the number of common factors.* Paper presented at the annual meeting of the Psychometric Society, Iowa City, IA.

Streiner, D. L., & Norman, G. P. (1995). *Health Measurement Scales: A practical guide to their development and use* (2nd ed.). London: Oxford University Press.

Stroop, J. R. (1935). Studies of interference in serial verbal reactions. *Journal of Experimental Psychology, 18,* 643-662.

Tabachnick, B. G., & Fidell, L. (2001). *Using multivariate statistics* (4th ed.). London: Allyn & Bacon.

Tarrier, N., Sommerfield, C., Pilgrim, H., & Humphreys, L. (1999). Cognitive therapy or imaginal exposure in the treatment of post-traumatic stress disorder. *British Journal of Psychiatry, 175,* 571-575.

Thrasher, S. M., Dalgleish, T., & Yule, W. (1994). Information processing in post-traumatic stress disorder. *Behaviour Research and Therapy, 32,* 247-254.

Thurstone, L. L. (1947). *Multiple factor analysis. A development and expansion of vectors of the mind.* Chicago: University of Chicago.

Tobin, D. L., Holroyd, K. A., & Reynolds, R. V. (1984). *User's manual for the coping strategies inventory.* Athens, OH: Ohio University.

Troia, G. A. (1999). Phonological awareness intervention research: A critical review of the experimental methodology. *Reading Research Quarterly, 34,* 28-52.

Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika, 38,* 1-10.

Upson, A., Povey, D., & Gray, A. (2004, July). Violent crime. In Dodd, T., Nicholas, S., Povey, D., & Walker, A. (Eds.), *Crime in England and Wales 2003/2004.* London: Home Office, Research, Development, & Statistics Directorate.

Valentiner, D. P., Foa, E. B., Riggs, D. S., & Gershuny, B. S. (1996). Coping strategies and posttraumatic stress disorder in female victims of sexual and nonsexual assault. *Journal of Abnormal Psychology, 3,* 455-458.

Verhagen, A. P., de Vet, H. C. W., de Bie, R. A., Kessels, A. G. H., Boers, M. Bouter, L. M., et al. (1998). The delphi list: A criteria list for quality assessment of randomized clinical trials for conducting systematic reviews developed by delphi consensus. *Journal Clin Epidemio, 51,* 1235-1241.

Veronen, L. J., & Kilpatrick, D. G. (1980). Self-reported fears of rape victims: A preliminary investigation. *Behaviour Modification, 4,* 383-396.

Victim Support (2002, February). *Criminal Neglect: No justice beyond criminal justice.* London: Victim Support.

Victim Support Lambeth (2003, November). *Annual Review 2002-2003.* London: Victim Support Lambeth.

Vrana, S. R., Roodman, A., & Beckham, J. C. (1995). Selective processing of trauma-relevant words in posttraumatic stress disorder. *Journal of Anxiety Disorders, 9,* 515-530.

Watson, D., & Friend, R. (1969). Measurement of social-evaluative anxiety. *Journal of Consulting and Clinical Psychology, 33,* 448-457.

Weaver, T. L., & Clum, G. A. (1995). Psychological distress associated with interpersonal violence: A meta-analysis. *Clinical Psychology Review, 15,* 115-140.

Weissman, M. M., & Paykel, E. S. (1974). *The depressed woman: A study of social relations.* Chicago: University of Chicago Press.

West, S. G., Finch, J. F., & Curran, P. J. (1995). Structural equation models with nonnormal variables. In R. H. Hoyle (Ed.), *Structural Equation Modeling. Concepts, issues, and applications* (pp. 56-75). London: Sage.

Williams, B. (1999). *Working with victims of crime: policies, politics, and practice.* London: Kingsley.

Williams, J. M. G., Mathews, A., & MacLeod, C. (1996). The emotional Stroop task and psychopathology. *Psychological Bulletin, 120,* 3-24.

Williams, J. M. G., Watts, F. N., MacLeod, C., & Mathews, A. (1997). *Cognitive psychology and emotional disorders* (2nd ed.). New York: John Wiley & Sons.

Winkel, F. W. (1989). Responses to criminal victimization: Evaluating the impact of a police assistance program and some social psychological characteristics. *Police Studies, 12,* 59-72.

Winkel, F. W. (1991). Police communication programmes aimed at burglary victims: A review of studies and an experimental evaluation. *Journal of Community & Applied Social Psychology, 1,* 275-289.

Winkel, F. W., & Vrij, A. (1993). Facilitating problem- and emotion-focused coping in victims of burglary: Evaluating a police crisis intervention program. *Journal of Community Psychology, 21,* 97-112.

Winkel, F. W., Wohlfarth, T., & Blaauw, E. (2004). Police referral to victim support: The predictive and diagnostic value of the RISK (10) Screening Instrument. *Crisis, 25,* 118-127.

Wirtz, P. W., & Harrell, A. V. (1987). Assaultive versus nonassaultive victimization: A profile analysis of psychological response. *Journal of Interpersonal Violence, 2,* 264-277.

Wolpe, J. (1958). *Psychotherapy by reciprocal inhibition.* CA: Stanford University Press.

Wolpe, J. (1973). *The practice of behavior therapy* (2nd ed.). Elmsford, NY: Pergamon Press.

Yerkes, R. M. & Dodson, J. D. (1908). The relation of strength of stimulus to rapidity of habit formation. *Journal of Comparative and Neurological Psychology, 18,* 454-482.

Zedner, L. (2002). Victims. In M. Maguire, R. Morgan & R. Reiner (Eds.), *The Oxford Handbook of Criminology* (3rd ed., pp. 419-459). Oxford: Clarendon Press.

Zigmond, A. S., & Snaith, R. P. (1983). The hospital anxiety and depression scale. *Acta Psychiatric Scandinavica, 67,* 361-370.

Zoellner, L. A., Feeny, N. C., Fitzgibbons, L. A., & Foa, E. B. (1999). Response of African American and Caucasian women to cognitive behavioral therapy for PTSD. *Behavior Therapy, 30,* 581-595.

Appendices

Appendix 2.1 Data extraction sheet

Reviewers:

Study details:

Authors:

Source and year of publication:

Country and language of publication:

Intervention characteristics:

Type of intervention(s):

Focus of intervention(s):

Number of conditions (including control group):

Type of control group(s):

Crimes targeted and percentage of each type included in study:

Study setting (e.g., court, mental health service, academic institution):

Brief description of conditions:

Theoretical framework/model:

Timing with respect to occurrence of victimisation (e.g., 3 months post-rape):

Total duration/total number of sessions (e.g., 9 months):

Intensity (no. of sessions per week, duration of single session):

Who delivered the interventions?

Was special training provided?

Sample characteristics (total and by condition):

Sample size (e.g., Total = 95, Intervention Group = 50, Control Group = 45):

Gender (%):

Age (mean, SD, range):

Ethnicity (%):

Level of education:

Previous victimisation:

Inclusion criteria (e.g., diagnosis of PTSD):

Exclusion criteria (e.g., presence of psychotic disorder):

Are the intervention and control groups comparable on:

Demographic variables: YES / NO /PARTLY/ INFORMATION NOT GIVEN

Pre-treatment symptoms: YES/ NO/PARTLY/ INFORMATION NOT GIVEN

If partly state the significant differences found and whether these were controlled in subsequent analyses:

Study characteristics:

Study design – please circle one of the following options:

a) RCT

b) Quasi-experimental study with matched controls

c) Quasi-experimental study with unmatched controls

d) Other (please state)

When were participants assessed for the purposes of the study?

Dropouts from each condition:

Follow-up attrition rates for each condition:

Outcome measures (list instruments used to assess the efficacy of the intervention):

Results:

Statistical techniques used:

What variables were controlled in the analyses (if any)?

What moderating variables were investigated (if any)?

Between-group significant differences ($p < .05$):

Comments (e.g., important limitations that are not made obvious by the data extraction process):

Appendix 2.2 Quality assessment checklist

The aim of this checklist is to assess the internal and construct validity of the studies included in the present systematic review. Please mark each criterion as:

a) Adequate
b) Partly Adequate
c) Inadequate
d) Not clear

1. **Equivalence of intervention and control groups:**

   Adequate = No significant differences between the intervention and control groups on demographic characteristics and pretreatment levels of the outcome measures OR any differences controlled statistically.

   Partly Adequate = Minor differences between the intervention and control groups on demographic characteristics and pretreatment levels of the outcome measures

   Inadequate = Major differences between the intervention and control groups on demographic characteristics and pretreatment levels on the outcome measures OR potential differences between the intervention and control groups not assessed.

2. **Control for effects of attrition:**

   Adequate = Possible effects of attrition from the sample controlled statistically OR no attrition from the sample.

   Partly Adequate = Attrition from the sample addressed (e.g., differential attrition from the intervention and control groups, differences between participants who completed treatment and participants who dropped out) but no statistical controls employed OR attrition from the sample was minimal.

   Inadequate = Attrition from the sample not addressed.

3. **Control for possible intervention deliverer-by-condition confounding:**

   Adequate = All the participants received the intervention/placebo from the same person OR multiple intervention providers were counterbalanced across the conditions.

Partly Adequate = Possible intervention deliverer effects were examined statistically.

Inadequate = No procedure was used to examine the possibility of intervention deliverer-by-condition confounding.

Note. If the control group didn't receive any treatment then counterbalancing is not applicable.

4. **Evidence of adherence to intervention/placebo protocol:**

   Adequate = Treatment adherence ratings were completed by *independent* assessors (rating a random sample of sessions is considered adequate).

   Partly adequate = Some procedure was used to ensure the treatment conditions were being implemented faithfully but this relied on self-report recall by the participant or was carried out by the treatment providers themselves.

   Inadequate = No such procedure was used.

5. **Validity and reliability of outcome measures:**

   Adequate = Information on the reliability and validity of all the outcome measures was provided.

   Partly Adequate = Information on the reliability and validity of most of the outcome measures was provided.

   Inadequate = No information on the reliability and validity of the outcome measures was provided.

6. **Blinding of outcome assessors:**

   Adequate = Outcome assessors were not aware of the group allocation of the participant they were assessing.

   Inadequate = Outcome assessors were aware of the participants' group allocation OR the use of 'blinding' was not reported.

ADDITIONAL COMMENTS:

EXTERNAL VALIDITY

How were the participants recruited?

Were the eligibility criteria for inclusion in the study made clear?

Appendix 3.1 Open-ended questions included in the item generation study

1. Please describe the crime you feel has affected you most. What happened? Who was involved?
2. When did this crime happen? (If you are not sure of the date, please give as close an indication as you can, e.g. your age at the time)
3. a) Did you report this crime to the police? Please circle: YES / NO
   b) If not, why didn't you?
4. What was your relationship with the offender(s) at the time the crime happened (e.g., stranger/ acquaintance/ work colleague/ friend/ relative/ don't know who the offender was)?
5. How did this experience make you feel?
6. What went through your mind after this experience?
7. How did you respond to this experience?
8. a) Did you receive any support after the crime? Please circle: YES / NO
   b) If yes, from who? Did you feel this support was useful?
9. What are your feelings now about this experience?
10. Has this experience changed the way you behave in everyday life? If yes, how?
11. Has this experience made you think any differently? If yes, in what way?
12. How do you feel you are coping with this experience now?
13. Is there anything else you would like to tell us about your experience?

Appendix 3.2 Scenarios

a) Scenarios for female participants aged 16 to 20

1. Nisa is woken up in the middle of the night by a loud noise. She calls her mum but doesn't get an answer. She persuades herself that it must have been the cat and eventually goes back to sleep. The next day she is woken up by her mum who tells her that their house has been burgled.

2. Lucy is walking home from the shops. She is chatting on the phone to a friend when a girl pushes past her grabs her mobile phone and runs off.

3. A girl Sonia knows starts shouting abuse at her, calling her names about her skin colour. The girl pulls Sonia's hair and slaps her in the face. Later that day Sonia sees the girl with her friends who all stare at her and laugh.

4. Maria hears her father return after a night out at the pub and soon the arguing with her mum starts. She goes downstairs to try and stop them. She sees her dad hit her mum and rushes towards him. Her dad slaps Maria hard on the face and shouts at her to stop interfering. The neighbours hear the shouting and call the police. Maria is taken to hospital. This is the third time Maria's dad has hurt her.

5. Katie has arranged to go out with an old friend. After a trip to the cinema he walks her home. She invites him in for a coffee but he soon becomes aggressive and despite Katie's protests sexually assaults her. Katie's boyfriend blames her for what happened.

6. Rachel is on her way to a friend's house at the other end of town. She doesn't know the area too well and following the directions she was given she ends up walking down a dark road. A man suddenly grabs her from behind and shows her a knife. Rachel struggles to free herself but the man threatens to kill her if she doesn't stop moving. The man drags Rachel towards a park and rapes her. When Rachel is found a few hours later she is covered in bruises.

b) Scenarios for male participants aged 16 to 20

1. Ahmed is woken up in the middle of the night by a loud noise. He calls his mum but doesn't get an answer. He persuades himself that it must have been the cat and eventually goes back to sleep. The next day he is woken up by his mum who tells him that their house has been burgled.

2. Nick is walking home from the shops. He is chatting on the phone to a friend when a boy pushes past him, grabs his mobile phone and runs off.

3. A boy Rob knows starts shouting abuse at him, calling him names about his skin colour. The boy pushes Rob to the floor and kicks him in the leg. Later that day Rob sees the boy with his friends who all stare at him and laugh.

4. Martin hears his mum return after a night out at the pub and soon the arguing with his dad starts. He goes downstairs to try and stop them. He sees his mum hit his dad and rushes towards her. His mum slaps Martin hard on the face and shouts at him to stop interfering. The neighbours hear the shouting and call the police. Martin is taken to hospital. This is the third time Martin's mum has hurt him.

5. Peter has arranged to go out with an old friend. After a trip to the cinema he walks her home. She invites him in for a coffee but she soon becomes aggressive and despite Peter's protests sexually assaults him. Peter's girlfriend blames him for what happened.

6. John is on his way to a friend's house at the other end of town. He doesn't know the area too well and following the directions he was given he ends up walking down a dark road. A man suddenly grabs him from behind and shows him a knife. John struggles to free himself but the man threatens to kill him if he doesn't stop moving. The man drags John towards a park and rapes him. When John is found a few hours later he is covered in bruises.

c) Scenarios for female participants aged 21 and over

1. Nisa is woken up in the middle of the night by a loud noise. She doesn't really want to get out of bed so she listens out for any more noises but doesn't hear anything. She persuades herself that it must have been the cat and eventually goes back to sleep. The next day she is woken up by her husband who tells her that their house has been burgled.

2. Anita is walking home from work. She is chatting on the phone to a friend when a woman pushes past her, grabs her mobile phone and runs off.

3. Lucy is leaving the pub. Her friend Sarah realises that she has left her coat inside and goes back to get it. Lucy waits outside. A group of girls start shouting abuse at Lucy, calling her names about her skin colour. The girls start pushing her around and laughing. They then smack her on the back of the head with a glass beer bottle and run away.

4. Lisa has been married to Bill for 3 years. One night after a trip to the pub with his friends, Bill comes home and starts yelling at Lisa. She tries to leave but Bill grabs her

and repeatedly punches and kicks her. A neighbour hears the screaming and calls the police. Lisa is taken to hospital. This is the third time Bill has seriously hurt Lisa.

5. A colleague walks Rachel home after an office party. She invites him in for a coffee but he soon becomes aggressive and despite Rachel's protests sexually assaults her. Rachel's boyfriend blames her for what happened.

6. Maria is on her way to a meeting at the other end of town. She doesn't know the area too well and following the directions she was given she ends up walking down a dark road. A man suddenly grabs her from behind and shows her a knife. Maria struggles to free herself but the man threatens to kill her if she doesn't stop moving. The man drags Maria towards a park and rapes her. When Maria is found a few hours later she is covered in bruises and her face is badly disfigured.

d) Scenarios for male participants aged 21 and over

1. Ahmed is woken up in the middle of the night by a loud noise. He doesn't really want to get out of bed so he listens out for any more noises but doesn't hear anything. He persuades himself that it must have been the cat and eventually goes back to sleep. The next day he is woken up by his wife who tells him that their house has been burgled.

2. Nick is walking home from work. He is chatting on the phone to a friend when a man pushes past him, grabs his mobile phone and runs off.

3. Rob is leaving the pub. His friend Naomi realises she has left her coat inside and goes back to get it. Rob waits outside. A group of boys start shouting abuse at Rob, calling him names about his skin colour. The boys start pushing him around and laughing. They then smash a beer bottle on the back of his head and run away.

4. Bill has been married to Lisa for 3 years. One night after a brief trip to the pub with her friends, Lisa comes home and starts yelling at Bill. He tries to calm her down but she turns towards him and repeatedly punches and kicks him. A neighbour hears the yelling and calls the police. Bill is taken to hospital. This is the third time Lisa has seriously hurt Bill.

5. Mark is walking home after an office party with his friend Diane as they live on the same street. He invites her in for a coffee but she soon becomes aggressive and despite Mark's protests sexually assaults him. Mark's girlfriend blames him for what happened.

6. John is on his way to a meeting at the other end of town. He doesn't know the area too well and following the directions he was given he ends up walking down a dark road. A man suddenly grabs him from behind and shows him a knife. John struggles to free himself but the man threatens to kill him if he doesn't stop moving. The man drags John towards a park and rapes him. When John is found a few hours later he is covered in bruises and his face is badly disfigured.

Appendix 3.3 Preliminary scale

Item No.	Statement
1.	I think my self-esteem has been damaged.
2.	I feel that I need support because of what happened to me.
3.	Crime is something I have come to expect.
4.	I still worry about what happened.
5.	I am nervous of being alone.
6.	It was just one of those things.
7.	I can't understand why anyone would want to do this to me.
8.	I feel humiliated.
9.	I am scared of people in general.
10.	I still don't know what to do about it.
11.	I have distanced myself from my family and friends.
12.	I keep thinking about why this should have happened to me.
13.	I want to let as many people as possible know about what happened to me.
14	I want revenge.
15.	I feel nervous for my safety.
16.	I would be happy if the offender(s) went to prison.

Item No.	Statement
17.	I didn't tell anyone for ages.
18.	I blame myself for not doing more to prevent what happened to me.
19.	I feel vulnerable.
20.	My feelings about the crime have spiralled out of control.
21.	This crime has made me pessimistic about life.
22.	I feel unsafe in my neighbourhood because of this crime.
23.	I am angry at the criminal justice system.
24.	I feel it will take years to regain my confidence.
25.	I am getting on with my life.
26.	I still think about how I could have prevented the crime.
27.	I feel worthless.
28.	I am still angry that my privacy was invaded.
29.	It affects my day-to-day life.
30.	I feel that I deserved what happened to me.
31.	Telling other people about it helps me express my anger.
32.	I feel that I am becoming paranoid.
33.	I reacted in a positive way.
34.	I feel used.
35.	I have become aggressive.
36.	I can't believe this happened to me.
37.	I have become withdrawn.
38.	My eating habits have changed since the crime.
39.	I have put it behind me.
40.	I worry about what people might think of me.
41.	I tend to stay at home more because of what happened to me.
42.	Thinking about the offender(s) makes me feel sick.
43.	I feel sorry for myself.

Item No.	Statement
44.	I have responded to the experience in a calm way.
45.	I feel responsible for what happened.
46.	I have been taking recreational drugs because of what happened to me.
47.	I feel defenceless.
48.	I worry that it might happen again.
49.	I am coping well.
50.	I have been keeping myself busy because of the crime.
51.	I have come to terms with what happened.
52.	I cry about small things.
53.	I think there is something wrong with me.
54.	I have become moody since the crime.
55.	I avoid people in general.
56.	I want to inflict harm on the person/people who did this to me.
57.	I find it hard to explain what happened.
58.	I am jumpy.
59.	I feel it was unfair.
60.	I feel helpless.
61.	I feel depressed.
62.	I feel this experience has taken over my life.
63.	I find it painful to think about the crime.
64.	I feel violated.
65.	I still think about what could have happened.
66.	I feel guilty.
67.	I am fearful in large crowds.
68.	I feel stupid.
69.	I have been drinking more alcohol because of what happened to me.
70.	I feel lucky because it could have been worse.

Item No.	Statement
71.	I am still trying to understand what happened to me.
72.	I feel that I have been left with no sense of privacy.
73.	I resent the offender(s) for what they've done.
74.	I keep trying to punish myself for what happened.
75.	I worry that the offender(s) might do it to me again.
76.	When I'm feeling anxious, I talk to someone about it.
77.	I take extra security measures.
78.	I cry about it.
79.	I want justice.
80.	I push people away because they would never understand how I feel.
81.	I have limited my social life.
82.	I am able to sleep.
83.	I worry about bumping into the offender(s).
84.	I fear going to sleep at night.
85.	I am at ease around people.
86.	I try to trivialise the experience to make it easier to deal with.
87.	I am frightened.
88.	I feel numb.
89.	I view it as an experience from which I have learnt a lot.
90.	I am angry that someone would want to do this to me.
91.	I feel irritable.
92.	I have moved house because of what happened.
93.	I keep wishing this had never happened to me.
94.	I avoid going out alone in the dark.
95.	I keep reliving the incident in my head.
96.	I still feel there was nothing I could have done to stop it from happening.
97.	I worry that the person who did this to me might do it to someone else.

Item No.	Statement
98.	I am fine now.
99.	I feel anxious.
100.	I feel safe in my home.
101.	I still feel upset.
102.	I feel alone.
103.	I am angry at myself for letting it happen.
104.	I feel hate.
105.	I am suspicious of people in general.
106.	I feel emotionally drained.
107.	I want to move away.
108.	I feel that I am keeping everything inside.
109.	I blame others for the set of circumstances that led to the crime happening.
110.	I feel panic.
111.	I am generally happy.
112.	I am concerned that the offender(s) might be laughing about me with their friends.
113.	I keep looking over my shoulder.
114.	I have lost my confidence.
115.	I spend more time alone.
116.	I am angry at the person/people who did this to me.
117.	I have been taking medication prescribed by a doctor because of what happened to me.
118.	I have faith in the general public.
119.	I am still annoyed simply because of the inconvenience it caused.
120.	I feel ashamed.
121.	I would be more likely to commit a crime myself since the incident.
122.	I still think about what happened.
123.	I am trusting.

Item No.	Statement
124.	I pretended it didn't happen.
125.	I still get angry when I think about it.
126.	I feel self-conscious.
127.	I am bitter.
128.	I feel I would know how to act if a similar crime happened to me.
129.	It could have happened to anyone.
130.	I am more cautious around people I don't know.
131.	I feel the criminal justice system is unfair to the victim.
132.	The people I've told have helped me through it.
133.	I have nightmares about what happened.
134.	I think about it when hearing/reading about other people's experiences of crime.
135.	I can't talk about my experience.
136.	I have stopped doing things I used to enjoy because of this crime.
137.	I have forgiven the offender(s).
138.	I am now stronger emotionally than when it happened.
139.	I will not stay on my own overnight.
140.	I feel physically sick when I think about it.
141.	I wish I could go back in time and do things differently.
142.	I think positively.

Appendix 3.4 Statement of informed consent

The University of York and London Probation Area are currently supporting a research study that aims to help improve services for victims of crime. In particular, we are trying to find out what people's thoughts, feelings and behaviours are in relation to being a victim of crime so that in future more appropriate support may be provided. We would be grateful if you would help us tailor support more closely to victims' needs by completing the attached questionnaire.

All your answers will be kept completely confidential and will only be used for research purposes. Please note that there are no right or wrong answers. If at any point you feel uncomfortable for any reason, please feel free to stop completing this questionnaire.

You do not have to give us your name or contact details. If you would like us to contact you with the results of the research or if you are interested in finding out about further studies we will be carrying out in the future you can leave your details with us in the space provided on the following page. Your identity will be removed from this questionnaire and no personal contact details will be stored on any database.

Part A of this questionnaire aims to find out if groups of people are affected differently by the types of crimes that have happened to them. This will involve answering some questions about your age, gender, etc. This type of information is referred to as demographic information.

Part B consists of a set of statements relating to how victims of crime might be feeling, thinking and behaving in relation to their experience of crime. The statements have been drawn from different people's responses to their own experiences of crime. We ask you to indicate the extent to which you agree or disagree with each statement. If you have been a victim of crime more than once we ask you to answer the questions with reference to the crime you feel has affected you more.

If you feel at all distressed while filling in this questionnaire and would like to talk to someone about your experience(s) of crime, you can call the Victim Supportline on 0845 3030900.

If you would like to take part in this study please sign the consent form below:

I confirm that I have been informed about the aims and procedures involved in this study. I am free to withdraw from completing the questionnaire at any stage. My answers to the questions will be kept confidential.

Appendix 3.5 Questions relating to the index crime from Section A of the preliminary questionnaire

1. a) Did you know the offender(s), i.e. the person/people who committed this crime? YES / NO

   b) If yes, what was your relationship with the offender(s) at the time the crime happened? (please state)
2. Did you report this crime to the police? YES / NO
3. a) Were you approached by any organisation that provides support or information to victims of crime, e.g. Victim Support, the Probation Service, etc? YES / NO

   b) If yes, by which organisation(s)? (please state)
4. a) Have you received professional help because of this crime, e.g. from your GP? YES / NO

   b) If yes, by who? (please state)
5. a) Did you contact an organisation that provides support or information to victims of crime, e.g. Victim Support? YES / NO

   b) If yes, which organisation(s)? (please state)

Appendix 3.6 Terminal oblique rotation of preliminary items

Item	Factor	
	1	2
114. I have lost my confidence.	.872	
99. I feel anxious.	.842	
61. I feel depressed.	.836	
2. I feel that I need support because of what happened to me.	.803	
126. I feel self-conscious.	.771	
29. It affects my day-to-day life.	.769	
63. I find it painful to think about the crime.	.768	
1. I think my self-esteem has been damaged.	.766	

Item	Factor
95. I keep reliving the incident in my head.	.747
101. I still feel upset.	.733
58. I am jumpy.	.716
91. I feel irritable.	.713
52. I cry about small things.	.694
71. I am still trying to understand what happened to me.	.688
113. I keep looking over my shoulder.	.684
8. I feel humiliated.	.671
19. I feel vulnerable.	.662
12. I keep thinking about why this should have happened to me.	.661
5. I am nervous of being alone.	.654
83. I worry about bumping into the offender(s).	.653
4. I still worry about what happened.	.628
67. I am fearful in large crowds.	.625
21. This crime has made me pessimistic about life.	.620
60. I feel helpless.	.611
72. I feel that I have been left with no sense of privacy.	.592
57. I find it hard to explain what happened.	.590
34. I feel used.	.578
94. I avoid going out alone in the dark.	.547
10. I still don't know what to do about it.	.521
130. I am more cautious around people I don't know.	.509
65. I still think about what could have happened.	.508
42. Thinking about the offender(s) makes me feel sick.	.493
44. I have responded to the experience in a calm way.	-.489
112. I am concerned that the offender(s) might be laughing about me	.465

Item	Factor
with their friends.	
93. I keep wishing this had never happened to me.	.460
68. I feel stupid.	.454
33. I reacted in a positive way.	-.448
36. I can't believe this happened to me.	.436
123. I am trusting.	-.428
50. I have been keeping myself busy because of the crime.	.416
141. I wish I could go back in time and do things differently.	
6. It was just one of those things.	
22. I feel unsafe in my neighbourhood because of this crime.	
75. I worry the offender(s) might do it to me again.	
26. I still think about how I could have prevented this crime.	
103. I am angry ay myself for letting it happen.	
118. I have faith in the general public.	
86. I try to trivialise the experience to make it easier to deal with.	
18. I blame myself for not doing more to prevent what happened to me.	
82. I am able to sleep.	
128. I feel I would know how to act if a similar crime happened to me.	
45. I feel responsible for what happened.	
96. I still feel there was nothing I could have done to stop it from happening.	
138. I am stronger emotionally than when it happened.	
79. I want justice.	.778
116. I am angry at the person/people who did this to me.	.766
14. I want revenge.	.706
73. I resent the offender(s) for what they've done.	.698

Item	Factor
56. I want to inflict harm on the person/people who did this to me.	.657
125. I still get angry when I think about it.	.631
16. I would be happy if the offender(s) went to prison.	.618
137. I have forgiven the offender(s).	-.610
28. I am still angry that my privacy was invaded.	.538
23. I am angry at the criminal justice system.	.532
31. Telling other people about it helps me express my anger.	.504
104. I feel hate.	.464
119. I am still annoyed simply because of the inconvenience I caused.	.455
59. I feel it was unfair.	.443
127. I am bitter.	.414
13. I want to let as many people as possible know what happened to me.	.413
97. I worry that the person who did this to me might do it to someone else.	.412
131. I feel the criminal justice system is unfair to the victim.	
77. I take extra security measures.	
3. Crime is something that I have come to expect.	
132. The people I've told have helped me through it.	
76. When I'm feeling anxious, I talk to someone about it.	
109. I blame others for the set of circumstances that led to the crime happening.	
89. I view it as an experience from which I have learnt a lot.	
70. I feel lucky because it could have been worse.	

Note. Extraction Method: Principal Axis Factoring; Rotation Method: Oblimin with Kaiser Normalization; Rotation converged in 6 iterations; Factor 1 = Emotional Vulnerability; Factor 2 = Crime-Specific Anger.

Appendix 3.7 Victim Reactions Scale (55-item version)

Item No	Statement
1	I feel that I have been left with no sense of privacy.
2	I keep looking over my shoulder.
3	I have lost my confidence.
4	I worry about bumping into the offender(s).
5	I am angry at the person/people who did this to me.
6	I feel it was unfair.
7	I feel humiliated.
8	I avoid going out alone in the dark.
9	I have responded to the experience in a calm way.
10	I want justice.
11	I feel used.
12	I am concerned that the offender(s) might be laughing about me with their friends.
13	I keep reliving the incident in my head.
14	It affects my day-to-day life.
15	I am nervous of being alone.
16	I am jumpy.
17	I am still annoyed simply because of the inconvenience it caused.
18	I am trusting.
19	I am angry at the criminal justice system.
20	I feel irritable.
21	I feel depressed.
22	I feel vulnerable.
23	I feel stupid.
24	I still think about what *could* have happened.
25	Telling other people about it helps me express my anger.

Item No	Statement
26	I feel anxious.
27	I am more cautious around people I don't know.
28	I want to inflict harm on the person/people who did this to me.
29	I feel that I need support because of what happened to me.
30	I have forgiven the offender(s).
31	I am still trying to understand what happened to me.
32	I have been keeping myself busy because of the crime.
33	This crime has made me pessimistic about life.
34	I resent the offender(s) for what they've done.
35	I can't believe this happened to me.
36	I find it painful to think about the crime.
37	I am still angry that my privacy was invaded.
38	I worry that the person who did this to me might do it to someone else.
39	Thinking about the offender(s) makes me feel sick.
40	I find it hard to explain what happened.
41	I still feel upset.
42	I keep thinking about why this should have happened to *me*.
43	I feel helpless.
44	I cry about small things.
45	I think my self-esteem has been damaged.
46	I still don't know what to do about it.
47	I am fearful in large crowds.
48	I feel self-conscious.
49	I want revenge.
50	I still worry about what happened.
51	I would be happy if the offender(s) went to prison.
52	I want to let as many people as possible know about what happened to me.

Item No	Statement
53	I still get angry when I think about it.
54	I feel hate.
55	I reacted in a positive way.

Appendix 4.1 Participant characteristics of the paper and pencil and Internet samples

Variable	Paper & Pencil Sample (n = 147)	Internet Sample (n = 149)
Gender (% female)	78.2%	69.1%
Mean age (*SD*)	28.67 (14.15)	33.28 (11.23)
Ethnicity (% White)	89.6%	85.3%
Nationality (% British)	83.6%	36.7%
Occupation		
Students	57.2%	26.6%
Employed	33.8%	66.9%
Education (% degree level)	56.8%	57.4%
Mean no. of crimes (SD; range)	2.31 (1.84; 1-10)	3.45 (4.22; 1-20)
Type of index crime		
Property	53.1%	43.0%
Violent	36.6%	33.6%
Sexual	9.7%	23.5%
Time elapsed since crime		
< 1 year	34.3%	17.1%
1 – 5 years	37.9%	37.7%
> 5 years	27.9%	45.3%
% knew offender	28.1%	39.6%
% injured during crime	17.4%	35.6%
% reported crime to police	77.1%	67.8%
% cases went to court	12.5%	15.4%
% approached by victim support organisation	28.3%	16.1%
% made contact with victim support organisation	12.5%	9.4%
% received professional help	9.0%	26.2%

Appendix 5.1 Intercorrelations between the PSS-SR and the VRS/long subscales

Measure	1	2	3	4	5	6
			Female victims (n = 100)			
1. PSS-SR total	-	.79**	.92**	.94**	.71**	.24*
2. PSS-SR intrusion		-	.73**	.63**	.64**	.27*
3. PSS-SR avoidance			-	.79**	.65**	.16
4. PSS-SR arousal				-	.69**	.29**
5. EV/long					-	.48**
6. CSA/long						-
			Male victims (n = 28)			
1. PSS-SR total	-	.71**	.91**	.94**	.72**	.37
2. PSS-SR intrusion		-	.63**	.51*	.51*	.15
3. PSS-SR avoidance			-	.83**	.73**	.21
4. PSS-SR arousal				-	.72**	.37
5. EV/long					-	.61**
6. CSA/long						-
			Total sample (N = 130)			
1. PSS-SR total	-	.77**	.91**	.94**	.72**	.24**
2. PSS-SR intrusion		-	.71**	.62**	.62**	.23**
3. PSS-SR avoidance			-	.80**	.67**	.16
4. PSS-SR arousal				-	.70**	.29**
5. EV/long					-	.49**
6. CSA/long						-

Note. PSS-SR = Posttraumatic stress disorder Symptom Scale – Self-Report; EV/long= Emotional Vulnerability subscale of the 55-item Victim Reactions Scale; CSA/long = Crime-Specific Anger subscale of the 55-item Victim Reactions Scale.

* $p < .05$. ** $p < .01$.

Appendix 5.2 Intercorrelations between the BDI-II and the VRS/long subscales

Measure	BDI-II	EV	CSA
	Female victims (n = 110)		
BDI-II	-	.34**	.07
EV/long		-	.50**
CSA/long			-
	Male victims (n = 29)		
BDI-II	-	.19	.30
EV/long		-	.55**
CSA/long			-
	Total sample (N = 139)		
BDI-II	-	.36**	.13
EV/long		-	.50**
CSA/long			-

Note. BDI-II = Beck Depression Inventory- Second Edition; EV/long= Emotional Vulnerability subscale of the 55-item Victim Reactions Scale; CSA/long = Crime-Specific Anger subscale of the Victim Reactions Scale.

*p < .05. **p < .01.

Appendix 5.3 Intercorrelations between the STAI and the VRS/long subscales

Measure	1	2	3	4
		Female victims (n = 101)		
1. State Anxiety	-	.62**	.49**	.25**
2. Trait Anxiety		-	.47**	.19*
3. EV/long			-	.55**
4. CSA/long				-
		Male victims (n = 24)		
1. State Anxiety	-	.80**	.52**	.33
2. Trait Anxiety		-	.70**	.46*
3. EV/long			-	.64**
4. CSA/long				-
		Total sample (N = 126)		
1. State Anxiety	-	.67**	.51**	.26**
2. Trait Anxiety		-	.51**	.25**
3. EV/long			-	.57**
4. CSA/long				-

Note. EV/long = Emotional Vulnerability subscale of the 55-item Victim Reactions Scale; CSA/long = Crime-Specific Anger subscale of the 55-item Victim Reactions Scale.

*$p < .05$. **$p < .01$.

Appendix 5.4 Intercorrelations between the STAXI and the VRS/long subscales

Measure	1	2	3	4	5	6	7	8	9	10
					Female victims ($n = 93$)					
1. State Anger	-	.35**	.33**	.22*	.25**	.20*	-.26**	.33**	.26*	.18*
2. Trait Anger		-	.73**	.79**	.29**	.66**	-.51**	.67**	.26*	.33**
3. Angry Temperament			-	.26**	.16	.52**	-.43**	.50**	.14	.10
4. Angry Reaction				-	.29**	.44**	-.32**	.49**	.19	.40**
5. Anger-In					-	.08	.03	.47**	.27**	.22*
6. Anger-Out						-	-.68**	.80**	.04	.19*
7. Anger Control							-	-.82**	-.04	-.08
8. Anger Expression								-	.18	.27**
9. EV/long									-	.52**
10. CSA/long										-

Measure	1	2	3	4	5	6	7	8	9	10
					Male victims (n = 27)					
1. State Anger	-	.38*	.18	.44*	.38*	.30	.10	.27	0.33	.39*
2. Trait Anger		-	.71**	.90**	.48**	.60**	-.19	.54**	.42*	.56**
3. Angry Temperament			-	.40*	.26	.49**	-.30	.51**	.15	.25
4. Angry Reaction				-	.64**	.56**	.06	.49**	.42*	.60**
5. Anger-In					-	.60**	-.08	.74**	.63**	.51**
6. Anger-Out						-	-.34*	.70**	.49**	.56**
7. Anger Control							-	-.64**	-.22	-.03
8. Anger Expression								-	.64**	.45**
9. EV/long									-	.65**
10. CSA/long										-

Measure	1	2	3	4	5	6	7	8	9	10
					Total sample ($N = 121$)					
1. State Anger	-	.36**	.30**	.28**	.29**	.23**	-.16*	.32**	.30**	.21**
2. Trait Anger		-	.74**	.81**	.34**	.65**	-.44**	.65**	.32**	.38**
3. Angry Temperament			-	.31**	.21*	.51**	-.43**	.54**	.18*	.13
4. Angry Reaction				-	.37**	.48**	-.22**	.48**	.24**	.44**
5. Anger-In					-	.21*	-.03	.54**	.36**	.29**
6. Anger-Out						-	-.57**	.76**	.16	.27**
7. Anger Control							-	-.79**	-.12	-.07
8. Anger Expression								-	.31**	.30**
9. EV/long									-	.55**
10. CSA/long										-

Note. EV/long = Emotional Vulnerability subscale of the 55-item Victim Reactions Scale; CSA/long = Crime-Specific Anger subscale of the 55-item Victim Reactions Scale.

*$p < .05$. **$p < .01$.

Appendix 5.5 Intercorrelations between the CSQ and the VRS/long subscales

Measure	1	2	3	4	5
		Female victims (n = 76)			
1. Detached coping	-	.49**	-.32**	-.31**	-.35**
2. Rational coping		-	-.28**	-.16	-.11
3. Avoidance coping			-	.49**	.36**
4. EV/long				-	.57**
5. CSA/long					-
		Male victims (n = 20)			
1. Detached coping	-	.42**	-.36	-.43	-.35
2. Rational coping		-	-.39*	-.27	-.14
3. Avoidance coping			-	.34	-.00
4. EV/long				-	.62**
5. CSA/long					-
		Total sample (N = 97)			
1. Detached coping	-	.47**	-.32**	-.35**	-.33**
2. Rational coping		-	-.30**	-.19	-.09
3. Avoidance coping			-	.45**	.26**
4. EV/long				-	.56**
5. CSA/long					-

Note. EV/long = Emotional Vulnerability subscale of the 55-item Victim Reactions Scale; CSA/long = Crime-Specific Anger subscale of the 55-item Victim Reactions Scale.

*$p < .05$. **$p < .01$.

Appendix 5.6 Intercorrelations between the ECQ and the VRS/long subscales

Measure	1	2	3	4
	Total sample ($N = 49$)			
1. Rehearsal	-	.16	.24*	.21
2. Emotional Inhibition		-	.14	-.07
3. EV/long			-	.66**
4. CSA/long				-

Note. EV/long= Emotional Vulnerability subscale of the 55-item Victim Reactions Scale; CSA/long = Crime-Specific Anger subscale of the 55-item Victim Reactions Scale.

*$p < .05$. **$p < .01$.

Appendix 6.1 Words included in the word-rating exercise administered to victims of crime (N=17) in order to select threat words for the emotional Stroop task

1. Suspicious	15. Kill	29. Jumpy	43. Murder
2. Stab	16. Brutal	30. Nightmare	44. Unsafe
3. Injustice	17. Revenge	31. Struggle	45. Punish
4. Panic	18. Vandalism	32. Criminal	46. Crime
5. Violation	19. Attack	33. Harm	47. Robbery
6. Guilty	20. Scared	34. Lock	48. Trauma
7. Weapon	21. Aggression	35. Convict	49. Illegal
8. Prison	22. Helpless	36. Hurt	50. Abuse
9. Fear	23. Rape	37. Blame	51. Threaten
10. Violence	24. Defenceless	38. Stranger	52. Police
11. Assault	25. Witness	39. Anger	53. Scream
12. Victim	26. Terror	40. Theft	54. Burglary
13. Danger	27. Violent	41. Suspect	55. Threat
14. Court	28. Knife	42. Aggressive	56. Punishment

Appendix 6.2 Threat Words and Matched Neutral Words Included in the Emotional Stroop Task

Word Pair	Threat Word	Matched Neutral Word
#1	Rape	Link
#2	Murder	Circle
#3	Stab	Joke
#4	Kill	Wash
#5	Assault	Feather
#6	Attack	Signal
#7	Brutal	Clever
#8	Abuse	Lever
#9	Violence	Molecule*
#10	Terror	Patrol
#11	Aggression	Provincial
#12	Violent	Typical
#13	Panic	Input
#14	Violation	Definition
#15	Fear	Note
#16	Weapon	Chapel
#17	Knife	Watch
#18	Threaten	Rattle
#19	Burglary	Molecule*
#20	Defenceless	Changeable
#21	Danger	Balance
#22	Trauma	Larder
#23	Threat	League
#24	Revenge	Divide
#25	Injustice	Detergent

Note. * The word molecule was a good match for two threat words (violence and burglary) and was inadvertently used as a neutral match for both these words.

Appendix 6.3 Statement of informed consent given to participants who took part in the emotional Stroop study

The University of York and London Probation are currently supporting a research study that aims to help improve services for victims of crime. We are in the process of validating a new tool that assesses the psychological effects of crime on victims. This study involves three parts. You will be given detailed instructions before completing each part but a brief description follows below:

The first part of this study will involve completing a short task on the computer. During this task different coloured words will appear on the screen. You might find some of these words emotionally arousing. You will then have to press a key on the keyboard to indicate the colour of the word while ignoring the meaning of the word. After you have completed the task you will be asked to complete a battery of multiple-choice questionnaires that will ask you a range of questions from how you feel right now to how you might respond to a specific situation. Finally, you will be asked to complete a word rating exercise.

All the information you provide will remain completely confidential and your identity will not be stored on any database. Please feel free to withdraw from this study at any stage. It should take no longer than 45 minutes to complete all three parts of this study. On completion of your participation in this study you will be offered the opportunity to find out more about the study and ask any questions.

If you would like to take part in this study please sign the consent form below:

I confirm that I have been informed about the aims and procedures involved in this study. I am free to withdraw from the experiment at any stage. All the data I provide will be kept confidential.

Appendix 6.4 Written instructions given to participants completing the emotional Stroop task

First you will see a fixation cross on the computer screen and shortly afterwards a word will appear on the screen. The word will be red, blue, green, or black. There are four coloured keys on the response box that correspond to the four colours of the words. You will need to press the appropriate key on the response box to indicate the colour of the word correctly as quickly as possible while being accurate. You should try to ignore the meaning of the word. The word will then disappear and a new fixation cross will appear followed by another word. The different colours will be presented randomly. Please try to focus on the central fixation point throughout this experiment.

Appendix 7.1 Participant characteristics for the combined sample ($N = 475$) by gender

Variable	Female victims ($n = 344$)	Male victims ($n = 131$)
Age (*M*, *SD*, range)	29.81, 13.80, 16 – 86	33.44, 15.10, 16 – 78
Ethnicity (White)	87.5%	89.3%
Occupation		
Students	53.2%	30.0%
Employed	37.8%	60.8%
Education ('A' Levels or above)	85.8%	82.4%
No. of victimisation experiences (*M*, *SD*, range)	2.68, 2.55, 1 – 20	2.92, 3.46, 1 – 20
Type of index crime		
Property	51.5%	61.8%
Violent	27.9%	35.9%
Sexual	20.6%	2.3%
Time elapsed since crime (*M*, *SD*, range)	6.49 years, 8.59, 1 month to 51 years	6.60 years, 7.26, 1 month to 35 years
% knew offender	28.5%	16.8%
% reported crime to police	70.5%	75.4%
% approached by victim support organisation	26.3%	23.7%
% received professional help	11.1%	10.7%
% contacted victim support organisation	16.0%	2.3%