



The
University
Of
Sheffield.

Appraisals and intention to regulate psychotic-like experiences

Colleen McElhatton

A thesis submitted in partial fulfilment of the requirements for the award of Doctor of Clinical Psychology at the University of Sheffield

The results, discussions and conclusions presented herein are identical to those in the non-redacted electronic version. This redacted electronic version of the thesis has been edited solely to ensure conformance with copyright legislation and all excisions are noted in the text.

The University of Sheffield
Faculty of Science
Clinical Psychology Unit, Department of Psychology

Submission Date: 31 May 2022

Declaration

This thesis is submitted in partial fulfilment of the Doctorate of Clinical Psychology award at the University of Sheffield. I, the author confirm that this thesis is my own work. It has not been submitted for any other degree or to any other institution.

Structure and word count

Part I: Systematic Literature

Word count: 8000 (excluding tables, figures, and references)

Word count: 15727 (including tables, figures, and references)

Part II: Empirical research project

Word count: 8000 (excluding tables, figures, and references)

Word count: 12364 (including tables, figures, and references)

Overall word count

Word count: 16000 (excluding tables, figures, and references)

Word count: 28001 (including tables, figures, and references)

Lay summary

Experiences are believed to exist on a continuum from mundane to anomalous. There is also evidence suggesting that psychosis symptoms exist on a continuum and psychotic-like experiences (PLEs) have been found to exist in the general population. Not much research has focused on the question of when does a person intend to “do something” to change the way they feel about an experience. Intending to change an experience or how someone feels about an experience may include seeking help but it may include a range of other behaviours. The cognitive model of psychosis suggests that how PLEs are appraised is important for mental health outcome and whether a person is diagnosed with a psychotic disorder or not. The aims of this thesis are: 1. To better understand current research on how appraisals of a range of PLEs impact mental health outcomes; and 2. To investigate the factors involved in *when* a person decides to “do something” to regulate psychotic-like experiences.

The first part of this thesis is comprised of a systematic literature review of appraisals of PLEs and their impact on mental health. The search strategy identified forty-two eligible studies. Most of the studies were cross-sectional in design. All studies measured the association between appraisal and mental health outcome. Twenty-four studies evaluated appraisal of voice, seven measured psychotic-like experiences generally, and eleven focused on delusions and hallucinations. Appraisals of PLEs were mostly comparable across experiences in how they impacted mental health outcomes. Appraised threat, intrusiveness, omnipotence, lack of support, conviction, and externality were associated with poorer mental health outcomes across several experiences. Appraising the experience as spiritual or normalising was also associated with better mental health outcomes across experiences. This review has found evidence for an association between appraisal type and mental health outcomes and this was mainly consistent across different types of experiences. Future research would benefit from longitudinal studies, investigating the use of different therapies, having more robust designs, and considering the

interplay between appraisals and how they impact mental health. The results support the use of cognitive behavioural approaches and to consider other factors which might contribute to poorer mental health outcomes.

The second part of this thesis reports the findings of a cross-sectional study looking at what factors are involved in intention to regulate PLEs. The theory of planned behaviour was used as a framework to help answer our research question. 198 volunteers from the general population participated. Participants were asked to report if they had ever had a range of experiences from the Community Assessment of Psychic Experiences (CAPE), including depressive experiences and positive and negative psychotic-like experiences. Attitudinal, normative, and control beliefs were associated with intention to regulate psychotic-like and depressive experiences, to varying degrees. Perceived behavioural control had the most consistent association with intentions to regulate. Descriptive norms were also found to be consistently associated with intentions to regulate. It would be helpful for future research to consider the role of cultural beliefs. The research also highlights the importance of perceived control and creating environments where people feel like change is possible if they want it.

Acknowledgements

I would like to thank my supervisors, Dr Vyv Huddy and Professor Thomas Webb. Thank you for your ideas, guidance, feedback, and for being so responsive and flexible. I would also like to thank all the participants for taking part and for all those who helped to advertise the project.

Thank you to my cohort, in particular Lucy for being my risk of bias second rater. To my mum and dad, I am very grateful for all your continuous love and support. Thank you to my sisters, Elaine and Eimear for sense checking my questionnaire and their general support and keeping me going with videos of my nieces and nephew. I also want to extend my thanks to my friends at home, I have really valued your support from afar. A final big thank you to my partner, Arthur, for his support, kindness, and encouragement and being there through the whole process.

Table of contents

Title page.....	i
Access to thesis form.....	ii
Declaration.....	iv
Structure and word counts.....	v
Lay summary.....	vi
Acknowledgements.....	vii
Table of contents.....	viii
Part I: Literature Review.....	1
Abstract.....	2
Introduction.....	4
Method.....	7
Results.....	13
Discussion.....	46
References.....	53
Appendices.....	70
<i>Appendix a: Protocol preregistration on Open Science Framework.....</i>	<i>70</i>
<i>Appendix b: Extra filters in search strategy.....</i>	<i>71</i>
<i>Appendix c: A table to show the risk of bias ratings.....</i>	<i>72</i>

Part II: Empirical research report.....	77
Abstract.....	78
Introduction.....	80
Method.....	87
Results.....	94
Discussion.....	103
References.....	111
Appendices.....	128
Appendix a: <i>Ethics approval letter</i>	128
Appendix b: <i>Participant information sheet</i>	129
Appendix c: <i>Consent form</i>	133
Appendix d: <i>Debrief form</i>	135
Appendix e: <i>The Community Assessment of Psychic Experiences (CAPE)</i>	137

Part I: Literature review

How does appraisal of psychotic-like experiences impact mental health outcomes? A systematic literature review

Abstract

Background: Cognitive models of psychosis indicate that the appraisal of psychotic-like experiences is an important predictor of mental health outcomes.

Objectives: The aim of this systematic literature review was to investigate the influence of appraisals across a broad range of psychotic experiences reflected by a continuum of psychosis and how they relate to mental health outcomes.

Methods: Forty-two eligible studies were identified using the search strategy. Most included studies were cross-sectional (n= 31). All studies measured the association between appraisal and at least one mental health outcome. Twenty-four studies evaluated appraisal of voice, seven measured psychotic-like experiences generally, and eleven focused on a range of delusions and hallucinations.

Results: Appraisals of PLEs were mostly comparable across experiences in how they impacted mental health outcomes. Appraising experiences as threatening, intrusive, omnipotent, not supportive, with greater conviction, and as external were associated with poorer mental health outcomes across experiences. Appraisals that were spiritual and normalising were associated with better mental health outcomes across experiences.

Conclusions: This review found evidence for an association between appraisal type and mental health outcome and this was mainly consistent across different types of experiences. Future research would benefit from longitudinal studies, a focus on the use of different therapies, having more robust designs, and considering the interplay between appraisals and how they impact mental health. The results support the use of cognitive behavioural approaches and to consider other factors which might contribute to poorer mental health outcomes.

Keywords: appraisal, psychosis continuum, psychotic-like experiences, mental health

Practitioner points:

- Normalising and spiritual appraisals of psychotic like experiences are associated with positive mental health outcomes
- The appraisal should be the focus of intervention and not eliminating the experiences themselves
- Cognitive therapy approaches and psychoeducation are supported as being helpful interventions in this review

1. Introduction

Psychotic-like experiences (PLEs) are highly prevalent in the general population for people with and without a diagnosis of a psychotic disorder (Kaymaz, Drukker, & Lieb, 2012; van Os et al., 2000). Approximately, 7% of the general population experience PLEs (Linscott & van Os, 2013) and it is estimated that 1.5% of the population have received a diagnosis of psychosis in their lifetime (van Os et al., 2001). In comparison, 7.8% of the British population will meet criteria for mixed anxiety and depression (NICE, 2011), 4-10% of people in England will experience depression in their lifetime (McManus et al., 2009), and 1 in 6 adults have been reported to have a common mental health disorder diagnosis (McManus et al, 2016).

PLEs can increase a person's chances of being diagnosed with a psychotic disorder. However, not everyone who has had a PLE or persistently has PLEs feels distressed, has a mental health diagnosis, seeks help, or even wants to change their experiences (van os et al., 2009). Indeed, some people report that PLEs can be a positive experience and support coping, understanding a problem, or create meaning in their lives (Sanjuan, et al., 2004). For example, a PLE which is related to spirituality or religion has been reported to be adaptive and perceived as valuable for some people and a way in which people make sense of the world (Brett et al., 2014; Kennedy & Kanthamani, 1995).

Cognitive models of psychosis suggest that how a person appraises a PLE – that is, how they interpret and attribute meaning to the experience – can influence mental health and need for care (Peters et al., 2017, Garety et al., 2007; Morrison, 2001). Appraisal has been suggested to play a central role in leading to psychotic symptoms, and that it is not the presence of PLEs in themselves, but how they are appraised that is important when considering distress and need for care (Kuipers et al., 2006). For example, studies have indicated that beliefs about how threatening the PLE is, whether it's experienced as an internal or external event, whether it's

normalised, or whether a spiritual or supernatural meaning has been attributed to the experience are all relevant for clinical status and outcome (Brett et al., 2007; Lovatt et al., 2010; Gaynor et al., 2013). PLEs that are associated with distress and poorer functioning may be linked towards a vulnerability for a psychosis diagnosis (Yung et al., 2009). Scherer (1999) argued that appraisals are highly subjective and will depend on the individual's goals, values, and their ability to cope. Therefore, the same experience of hearing a voice can cause a variety of emotions in different individuals. Additionally, Scherer (1999) found that culture can have an impact on appraisals and people from different cultures differ in their appraisals of the same experiences. Other factors such as life experiences and trauma will impact people's appraisals and how they generally experience and appraise the world (Foa et al., 1999; Bryant & Guthrie, 2005; Andrew et al., 2008). In short, the presence of a PLE does not necessarily indicate a mental health problem; instead, how it is interpreted is likely to be an important determinant of outcome.

For people with a need for care such as those who have a diagnosis of a psychotic disorder such as schizophrenia, beliefs about the meaning and consequences of their psychotic experiences have been suggested to be an important factor in explaining emotional distress (Birchwood, Iqbal, & Upthegrove, 2005). There is also evidence that people with a diagnosis of a psychotic disorder will engage in a process of sense making and trying to understand their experiences (Byrne & Morrison, 2010). This can lead to an appraisal that may be negative or more positive or neutral (Taylor, et al., 2015) and can have an impact on wellbeing and psychosocial functioning (Granek, et al., 2016; Wagner & King, 2005). Negative appraisals have been shown to be linked to a mental health diagnosis and Birchwood et al. (2005) suggest that if an experience is appraised as resulting in loss, humiliation, and feelings of entrapment then they are more likely to experience depression. Additionally, appraising experiences as threatening or uncertain is likely to be associated with anxiety (Birchwood et al., 2007; Gilbert,

2000; Grupe & Nitschke, 2013). The emotional response is important to understand as the level of distress can be associated with psychotic symptom formation and its maintenance (de Leede-Smith & Barkus, 2013; Daalman et al., 2011). It is likely that how a PLE is experienced will have an impact on mental health.

The idea that psychosis and psychotic experiences exist on a continuum with normal experience, has been an idea proposed for a long period of time (Beer et al, 1996). Although the idea has also been criticised. It has been argued that although a distribution of symptoms may exist, psychotic symptoms are qualitatively distinct from normal experience (Lawrie et al., 2010). The severity, level of conviction, level of preoccupation (Linscott & van Os, 2013), level of insight (Ahmed et al., 2012), and frequency has been suggested to be a way of differentiating between clinical and non-clinical populations who experience PLEs (van Os et al, 2009). Therefore, to learn more about type of appraisal and mental health outcome, it would be helpful to review samples from across the psychosis continuum, with a focus on appraisal of the experience and its impact on mental health outcome. Throughout this review all anomalous and psychotic experiences will be described as PLEs, in line with the idea of a psychosis continuum.

Several reviews have focused on voice appraisals or beliefs in voice hearing groups and their relationship with distress (Mawson, et al., 2010, Baumeister et al., 2017, Tsang et al, 2021). They have found evidence to support cognitive behaviour models that certain voice appraisals contribute to distress and impairment and are an important target for treatment. One review has focused on the evidence for hallucinations and delusions when they interpreted as intrusive (Morrison, 2001). It was found that it is the appraisal of the hallucination or delusion that mediates the relationship between the experience and its associated distress and consequential disability. The review also emphasises the importance of whether the experiences are believed to be culturally acceptable and how this can impact whether a person

will receive a diagnosis or not. Underwood et al. (2016) specifically reviewed threat appraisal of psychotic experiences to develop a theoretical integration. They found overlapping models of emotion processing in anxiety and schizophrenia, using experimental and neuroimaging research. Specifically, they found increased attentional and attributional biases towards threat in people with high anxiety and those with a diagnosis of schizophrenia. Hartley et al., (2013) reviewed anxiety and depression in psychosis. Results indicated that anxiety and depression are related to psychotic symptom severity, distress and anxiety and depression were also linked to sub-clinical experiences, the development of symptoms, prognosis, and relapse. Additionally, Johns et al (2014) reviewed research on voice hearing and the need for care and found that auditory hallucinations were an antecedent to clinical disorder when combined with emotional states, cognitive difficulties, poor coping, a family history of psychosis, and environmental exposures such as trauma and childhood adversity. However, their predictive value for specific psychiatric disorder remained unclear.

1.1 Aims

Research examining how people think and feel about a wider range of PLEs, beyond a focus on voice appraisals, and further, across the psychosis continuum, has yet to be systematically reviewed. Although Tsang's review investigated the appraisal of voices, it did not include other experiences and it focused on distress only and not other mental health outcomes. This literature review aims to build on previous reviews to investigate the influence of appraisals across a broader range of psychotic experiences reflected by a continuum of psychosis, as well as a broader range of mental health outcomes. A key objective of the review is to determine how these appraisals relate to mental health outcomes and whether a similar pattern is evident across experiences or whether there are differences between experiences. It is expected that negative appraisals of PLEs will be associated with poorer mental health outcomes and whether a diagnostic threshold is met. Neutral or positive appraisals will be

associated with better mental health outcomes and a lower likelihood of a diagnosis of psychosis or a need for care.

2. Method

2.1. Search Strategy

The review protocol was pre-registered with the Open Science Framework (OSF) on 14th March 2022 (appendix a). With consideration of the available evidence, a narrative synthesis was conducted to address the aims of the review. Effect sizes were extracted from papers when they could be, meaning that a meta-analysis could have been possible; however, it was felt that because of the broad and heterogenous nature of the findings, a narrative synthesis would be most suitable. Differences between individual studies have the potential to be lost when there is an attempt to aggregate all the data for a meta-analysis and can be subject to a mix up of “oranges and apples”. This could result in erroneous conclusions (Esteve et al., 2017).

A systematic literature search was conducted using the PsychInfo, Scopus, Medline, and Proquest dissertations and theses databases, to allow identification of eligible articles. The search period for published articles was from inception until 22nd March 2022. However, the search period for the “grey” literature in Proquest dissertation and theses was in the last 5 years. It was believed that articles before this were more likely to have been published. The search terms used are displayed in table 1. Some additional filters were added to Scopus and Proquest dissertations and theses and these can be seen in appendix b. Forward and backward searching were also conducted where the reference lists of relevant studies and where the studies have been references were checked for further papers.

Table 1

A table to show the search terms used in the systematic literature review

Filter	Specific search term
Appraisals	“apprais*” OR “inferenc*” OR “judge*” OR “attitude*” OR “interpret*” AND
Psychotic-like experience	“prodromal psychosis” OR “psychotic-like experience*” OR “psychotic like experience*” OR “PLE” OR “anomalous experience*” OR “subclinical psychosis” OR “sub-clinical psychosis” OR “unusual experience*” OR “psychosis continuum” OR “unusual subjective experience*” OR “exceptional experience*” OR “high risk of psychosis” OR “psychotic symptoms” OR “delusion pron*” OR “psychosis pron*” OR “hallucination pron*” OR “ultra high risk” OR “UHR” OR “voice hearer*” OR “voice-hearer*"

2.2. Screening

Table 2 shows the inclusion and exclusion criteria that was used for screening. Figure 1 shows the process followed for the literature search in a PRISMA diagram (Page et al, 2021). A final 42 studies were included in this systematic literature review. 30 were obtained through the search strategy and a further 12 studies were obtained by searching the included studies references lists and where they had been cited. The search terms therefore did not fully encompass all relevant studies.

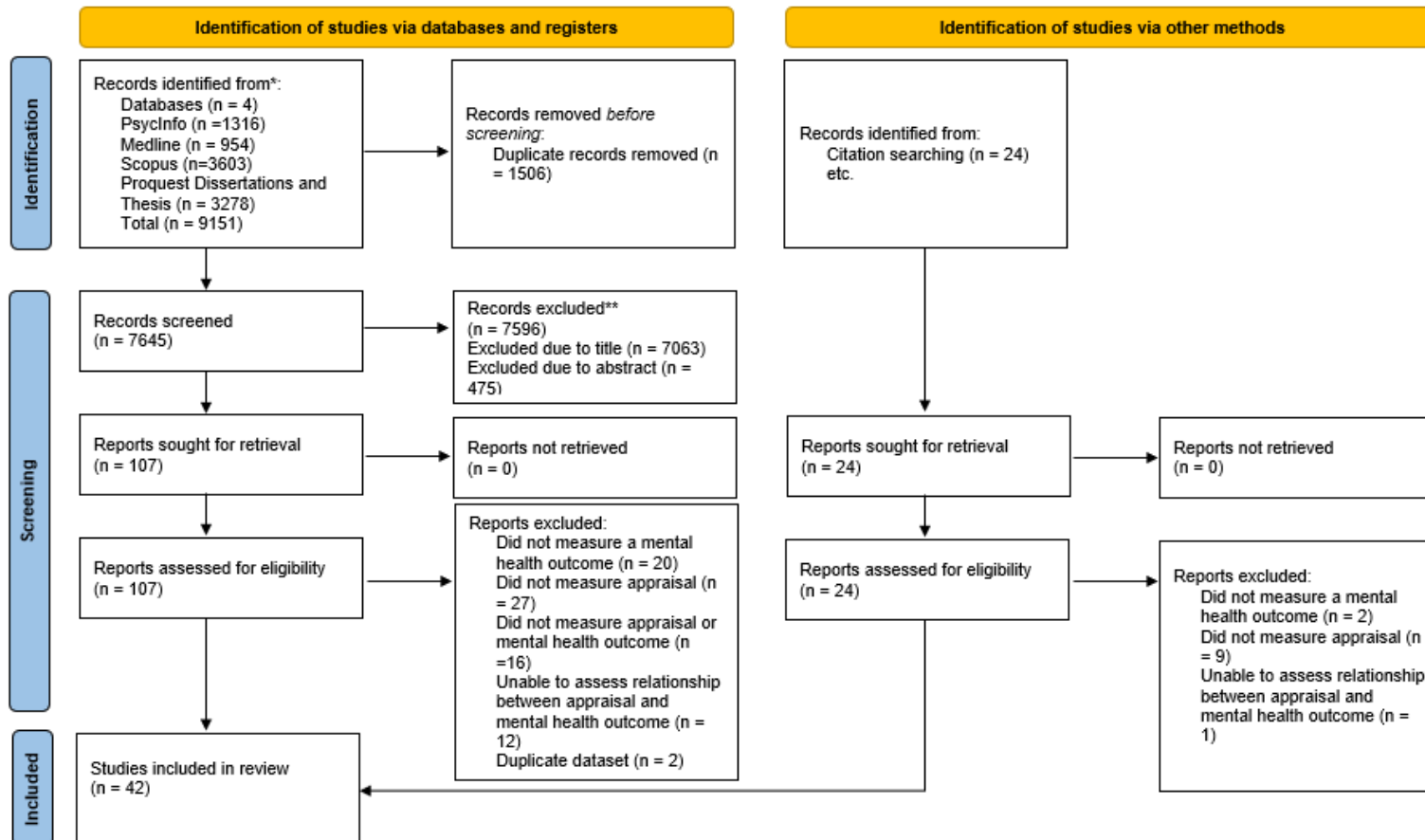
Table 2

A table to show the inclusion and exclusion criteria for the literature review

Inclusion criteria	Exclusion criteria
<ol style="list-style-type: none"> 1. The sample comprises of either/both children and adults 2. The studies employ a quantitative design. Studies with both correlational and experimental designs will be included 3. The studies measure or manipulate appraisals of PLEs 4. The studies measure at least one mental health outcome 5. It is possible to assess the relationship between appraisals and mental health outcome 	<ol style="list-style-type: none"> 1. Articles written in languages other than English

Figure 1

PRISMA diagram



2.3. Data extraction

Study characteristics and findings were extracted from the included articles. These included: author; year of publication; country of recruitment; number of participants; number of males/females/other; mean age of the sample; participant groups; type of experience; study design; appraisal type; and how it was measured; mental health outcome and how it was measured; and the study findings. Effect sizes were extracted from the studies where possible. Failing an effect size, significance levels or a narrative summary were extracted. Where Pearson r and Cohen's w were used as an effect size, the effect size was considered small if the value of r varies around 0.1, medium if r varies around 0.3, and large if r varies more than 0.5. When F-squared was reported, 0.02 indicated a small effect size, 0.15 indicated a medium effect size, and 0.35 was indicative of a large effect size. When Cohen's d was used as an effect size, 0.20 indicated a small effect size, 0.50 a medium effect size, and 0.8 a large effect size. Additionally, when Cohen's F was reported 0.10 indicated a small effect size, 0.25 a medium effect size, and 0.40 a large effect size (Cohen, 1992). Finally, effect sizes for odds ratios were reported as 0.68 for small, 3.47 for medium and 6.71 as large (Chen et al., 2010).

2.4. Quality assessment

The Quality Assessment Tool For Quantitative Studies (Effective Public Health Practice Project; EPHPP; Ciliska et al., 2009) was used to assess the methodological quality of the final articles (appendix c). The EPHPP has been found to have "fair" inter-rater reliability for individual domains and excellent agreement on the global score for paper quality. The EPHPP was also reported to be more reliable, with a lower risk of bias than another quality assessment tool for quantitative studies, the Cochrane Collaboration Risk of Bias Tool (CCRB; Armijo-Olivo, et al, 2012). The papers are rated as "strong", "moderate", or "weak"

in eight categories. The categories are: study design, analysis, withdrawals and dropouts, data collection practices, selection, intervention integrity, blinding and confounders. An overall rating is also established as “strong”, “moderate” or “weak”. Categories were not included if not related to the study design.

To assess for interrater reliability, a peer researcher conducted an independent quality assessment of 10% of the included papers, using the EPHPP. The independent rater was also blind to the to the first rater’s scoring. Interrater reliability was 80% and discrepancies were resolved via discussion.

3. Results

Table 4 displays the characteristics and findings of the forty-two included studies. The studies are presented in alphabetical order and the findings are presented in a narrative summary. A narrative synthesis of the study characteristics and main findings are summarised below.

3.1. Study Characteristics

All studies were published between 1990 and 2022, however, only five were published before 2000. This is likely due to the availability of tools which measure appraisals, such as the Beliefs about voices questionnaire (Chadwick & Birchwood, 1995) which was revised in 2000 (Chadwick, et al, 2000) and the Appraisal of Anomalous Experiences Interview (AANEX; Brett, 2007). These measures are discussed in more detail in table 3. Most studies recruited participants in the United Kingdom (n= 35). Four studies were conducted in Australia, two in The Netherlands, and one in the USA and Canada. Overall, the number of participants who took part in all the studies combined was 4105.

Table 3

Brief descriptions of the measures of appraisal

<i>Measure of appraisal</i>	<i>Brief description</i>	<i>Number of studies</i>
Appraisal of Anomalous Experiences Interview (AANEX)	A semi-structured interview with multiple dimensions that provides a detailed assessment of psychotic-like experiences, whether an individual requires clinical care, and their appraisal of their experiences (Brett et al., 2007).	6
Beliefs about voices questionnaire (BAVQ)	The BAVQ (Chadwick & Birchwood, 1995) is a self-report measures of a person's beliefs, emotions, and behaviour about auditory hallucinations.	3
Beliefs about voices questionnaire-Revised (BAVQ-R)	The BAVQ-R (Chadwick et al., 2000) is a revised version of the BAVQ.	12
The Structural Analysis of Social Behaviour (INTREX)	A checklist designed to measure a person's perceptions of themselves and others. This is based the structural analysis of social behaviour model (Benjamin, 2000). It can be used to rate how voices act towards them and how they respond.	1
<i>Voice Power Differential (VPD)</i>	A self-report measure of the power differential between the voice and the voice hearer (Birchwood, et al. 2004).	2
Voice and You (VAY)	A self-report measure to assesses the inter-relating between voice and voice hearer (Hayward et al, 2008).	1
<i>Beliefs about Paranoia Scale (BAPS)</i>	A self-report measure which assesses metacognitive beliefs about paranoia developed by Morrison et al. (2005).	2
<i>Experience Sampling Method (ESM)</i>	Also referred to as a daily diary method or ecological momentary assessment and was developed in 1983 by Larson and Csikszentmihalyi. It relies on participants reporting appraisals of their experiences on multiple occasions over time.	2
Interpretation of Voices Questionnaire (IVI)	A self-report measure where a person rates their metacognitive beliefs about the voices they hear (Morrison et al, 2002)	3

The Cognitive Assessment Schedule (CAS)	A self-report measure to assess content, beliefs, power of voice, and behavioural response (Chadwick & Birchwood, 1995)	2
---	---	---

There was a considerable amount of heterogeneity between the included studies in terms of PLEs, appraisals, the groups of participants, and the mental health outcome assessed. Most studies (24, 57%) looked at the appraisal of voices. Seven of the studies looked at a range of PLEs which included positive symptoms (e.g. visual hallucinations), negative symptoms (e.g. reduced speech), anomalies of perception (e.g. olfactory hallucinations), cognition (e.g. difficulty dividing attention) and affect (e.g. loss of emotions). Six of these used the AANEX to measure the anomalous experiences. Five studies looked at delusions, and hallucinations. Four of these studies used experimental tasks to replicate a delusion or hallucination. Four of the studies focused on delusions only. One study looked at a range of hallucinatory experiences, and one study looked at visual hallucinations.

Twenty-five studies specifically looked at groups of people who had a diagnosis of a psychotic disorder such as schizophrenia or schizoaffective disorder. Two studies recruited groups of people who had a diagnosis of borderline personality disorder. Another two studies specifically recruited people at risk of developing a psychotic disorder. Two looked only at the general population. The rest of the studies compared groups of people, such as clinical, non-clinical, at-risk groups, religious groups, and control groups. Most of the papers included were cross-sectional in their design (n=31, 74%), four were experimental, three were longitudinal, one was multi-level, and two used a time-series design. There were a variety of mental health outcomes and how they were measured in the study, which are described in table 4.

Table 4

A table to show measures of mental health outcomes

<i>Mental Health Outcome</i>	<i>Measure of Outcome</i>	<i>Number of studies</i>	
Need for care	Group membership: clinical vs non-clinical	12	
Depression	Becks Depression Inventory (BDI and BDI-II, BDI-PC)	9	
	Hospital Anxiety and Depression Scale (HADS)	2	
	The Calgary Depression Scale for Schizophrenia (CDSS)	2	
	Depression Anxiety and Stress Scale (DASS-21)	1	
	Self-report diary	1	
	Positive and Negative Symptoms Scale- Depression Subscale (PANSS-D)	1	
Anxiety	Beck Anxiety Inventory (BAI)	4	
	DASS-21	2	
	HADS	2	
	State Anxiety Inventory (SAI)	1	
	Self-report diary	1	
	Distress	Psychotic Symptoms Rating Scales (PSYRATS)	7
Hustig and Häfner		3	
Appraisals of Anomalous Experiences Interview (AANEX)		2	
Psychological Distress Inventory (PDI)		2	
The Community Assessment of Psychic Experiences (CAPE)		1	
Delusions-Symptoms-States-Inventory (DSSI)		1	
Experience Sampling Method (ESM) Questionnaire		1	
The Social Avoidance and Distress Scale (SADS)		1	
Semi-structured interviews		2	
Classification of Derogatory and Non-Derogatory Content (CAS)		1	
Brief Psychiatric Rating Scale (BPRS-18)		1	
The Profile of Mood States (POMS)		1	
Mental State		Psychiatric Assessment Schedule (PAS)	1
		General Health Questionnaire (GHQ)	1
		Brief Psychiatric Rating Scale (BPRS)	1
Suicidal Ideation	CDSS	1	

	BDI-PC	1
	Beck Scale for Suicidal Ideation (BSS)	1
Feelings/Affect	The Affective Experiences Questionnaire	1
	ESM Questionnaire	1
Anger	Novaco Anger Scale (NAS)	1
Social avoidance	SAD	1
Self-esteem	Rosenberg Self-Esteem Scale (RSE)	2
Hospitalisations	Number of hospitalisations due to PLE appraisal	1

3.2. Critical appraisal of paper quality

Using the EPHPP, five of the included studies were given a global rating of moderate and thirty-seven were rated as weak. None were rated as strong. In terms of selection bias, two of the papers were rated as strong, thirty-one as moderate, and two were rated as weak. Thirty-six of the studies were rated as weak in terms of their study design, due to being cross-sectional and six were rated as moderate. In terms of trying to eliminate confounders (for example, race, gender, age, and education), twenty-six of the studies were rated as weak, eleven were rated as moderate, and five were rated as strong. Blinding of raters was attempted in seven of the studies, indicating a moderate rating and thirty-five did not mention of use any form of blinding in their methodology. Most of the studies were rated as strong in their data collection methods by using measures that were valid and reliable. Three studies were rated as moderate and two as weak. These studies used measures such as self-report diaries. Most of the studies were not rated for withdrawals and dropouts as they were taking measures at one time point. For those whose methodology would allow for this to be measured, two were rated as moderate and another two were rated as strong. Finally, all the studies were found to have used appropriate analysis to answer their research questions.

3.3. Summary of main findings

Table 5

A table to show the characteristics and results of the included studies

Authors (Year)	Location	Sample Characteristics	Design	Appraisal type (assessment tool)	Mental health outcome (assessment tool)	Findings	Quality Rating
Andrew, Gray and Snowden (2008)	UK	N=43 M=19 F=24 Mean age= 45.13 Groups: Clinical voice hearers and non-clinical voice hearers. PLE: Voice hearing	Cross-sectional	Voice malevolence, benevolence, omnipotence (BAVQ-R)	Anxiety and (BAI), Depression (BDI-II)	Malevolence predicted distress ($\beta=1.30, p<0.05$)	Weak
Birchwood and Chadwick (1997)	UK	N=62. M=43 F=19 Mean age: 39 Group: Clinical voice hearers (Malevolent, benevolent, and omnipotent). PLE: voice hearing	Cross-sectional	Voice malevolence, benevolence, omnipotence and how benign (BAVQ and CAS)	Global mental state (PAS), affect/distress (Hustig and Häfner), Depression (BDI)	Appraisal x mood ($p<0.05$). Malevolence & power beliefs x depression ($p<0.01$). Power beliefs x mood ($F=6.02, p<0.02$) and vegetative symptoms ($F=5.4, p<0.02$) but not self-denigration	Weak

Birchwood, Gilbert, Gilbert, Trower, Meaden, Hay, Murray, and Miles (2004)	UK	N=125. M=85 F=40 Mean age= 33.7 Group: High voice power vs low voice power and high voice social rank vs low social rank in clinical voice hearers. PLE: voice hearing	Cross-sectional 1	Voice omnipotence and voice social rank (BAVQ and VPD)	Depression (BDI) and distress (Hustig and Häfner)	Power x distress ($d=0.474$, $p<0.01$). Power x depression ($d=0.521$, $p<0.001$). Voice social rank x distress ($d=0.797$, $p<0.01$). Voice social rank x depression ($d=0.664$, $p<0.001$).	Weak
Birchwood, Meaden, Trower, Gilbert, and Plaistow (2000)	UK	N=59 M=39 F=20 Mean age = 34 Groups: Clinical voice hearers (high and low subordination). PLE: voice hearing	Cross-sectional 1	Social rank (SCS)	Distress (Hustig and Häfner)	Perceived social rank and voice loudness x distress (eigenvalue =0.30, canonical correlation=0.48, $p<0.05$).	Weak
Brett, Heriot-Maitland, McGuire, and Peters (2013)	UK	N=91. Groups: diagnosed, at risk, undiagnosed. PLE: a range of PLEs (anomalies of perception, cognition, and affect)	Cross-sectional 1	Biological, drug-related, spiritual, other people, technological, psychological, no interpretation, supernatural, normalising, externalising, agency, perceived support, perceived controllability (rated	Distress (AANEX)	Appraisal x distress: Biological (OR=1.71, $p<0.01$), spiritual (OR=0.58, $p<0.001$), drug-related (OR=1.37, $p=0.31$), other people (OR=2.39, $p<0.001$), technological (OR=1.12, $p=0.72$), psychological (OR=0.92, $p=0.65$), no interpretation (OR=0.90, $p=0.39$), supernatural (OR=1.23, $p=0.14$), normalising (OR=0.37, $p<0.001$), externalising (OR=1.02, $p=0.82$), agency	Weak

				by interviewer, AANEX)		(OR=1.29, $p=0.01$), perceived support (OR=0.65, $p<0.001$), and perceived controllability (OR=0.70, $p<0.001$)	
Brett, Peters, Johns, Tabranham, Valmaggia, and McGuire (2007)	UK	N=91, M=54 F=37 Mean age=30.13 Group: diagnosed, at risk, and undiagnosed. PLE: a range of PLEs (anomalies of perception, cognition, and affect)	Cross-sectional 1	Perceived controllability, valence, dangerousness, externality, agency, biological, psychological, drug-related, spiritual, supernatural, normalising, other people, and no interpretation (AANEX)	Group membership	Undiagnosed vs diagnosed x perceived controllability (OR=0.42, $p=0.014$), undiagnosed vs at risk x perceived controllability (OR=0.43, $p=0.025$). Group x valence ($p<0.001$): Undiagnosed vs diagnosed x valence (OR=0.19), undiagnosed vs at risk (OR=0.37). Group x dangerousness ($p<0.001$): Undiagnosed vs diagnosed (OR=2.85, $p=0.01$). Group vs externality ($p=0.022$): undiagnosed vs diagnosed (OR=2.08, $p=0.01$). Group x agency ($p=0.027$) agency (OR=2.36, $p=0.01$). Group x biological ($p=0.092$): Undiagnosed vs diagnosed x biological (OR=2.39, $p=0.039$). Groups x other people ($p<0.001$): Undiagnosed vs diagnosed x other people (OR=9.01, $p<0.001$). Group x psychological ($p<0.001$): Undiagnosed vs diagnosed x psychological	Weak

						(OR=0.34, $p=0.008$). Group vs normalising ($p<0.001$): Undiagnosed vs diagnosed x normalising (OR=0.16, $p<0.001$), undiagnosed vs at risk x normalising (OR=0.27, $p=0.003$). Group x drug related ($p=0.35$), group x spiritual ($p=0.28$). Group x supernatural ($p=0.19$). Group x no interpretation ($p=0.237$)	
Campbell and Morrison (2007a)	UK	N=41. M=40 F=1 Mean age= 66.3 Group: British veterans. PLEs: delusions and paranoia.	Cross-sectional 1	Negative, positive, normalising, survival (BAPS) and conviction (PDI)	Distress (PDI)	Appraisal x distress: negative ($r=0.79$, $p<0.01$), survival ($r=0.64$, $p<0.01$), positive ($r=0.61$, $p<0.01$), normalising ($r=0.25$, n.s.), and conviction ($r=0.97$, $p<0.01$) Negative beliefs x distress ($\beta= 1.419$, partial $r = 0.532$, $t = 3.714$, $p<0.0001$)	Weak
Campbell and Morrison (2007b)	UK	N=544. M=175 F=369 Mean age= 21.4 Group: University Students. PLEs: a range of PLE (hallucinations, delusions, and thought interference)	Cross-sectional 1	Negative, positive, survival, normalising (BAPS), metaphysical, and loss of control (IVI)	Mental state (GHQ)	Appraisal x general distress (delusional distress): Beliefs about voices: metaphysical ($r=0.260$, $p<0.01$), controlling ($r=0.238$, $p<0.01$), and positive ($r=0.270$, $p<0.01$). Beliefs about paranoia: negative ($r=0.471$ ($r=0.512$), $p<0.01$), survival ($r=0.252$ ($r=0.292$), $p<0.01$), positive ($r=0.135$ ($r=0.187$), $p<0.01$), normalising	Weak

($r=0.175$ ($r=0.124$), $p<0.01$).
 Negative beliefs x distress ($\beta =$
 0.404 , Partial $r = .456$, $t = 11.816$, p
 $< .0005$)

Cavelti, Thompson, Hulbert, Betts, Jackson, Francey, and Chanen (2019)	Au stra lia	N=43 M=11 F=32 Mean age=19.07 Groups: Youths with a diagnosis of bipolar and schizophrenia (malevolent, benevolent, or omnipotent groups). PLE: auditory hallucinations	Cross- sectiona 1	Voice malevolence, benevolence, omnipotence (BAVQ- R), and social rank (VRS)	Depression, and anxiety (DASS-21)	Appraisal x depression: malevolence ($r=0.52$, $p<0.0001$), benevolence ($r=-$ 0.22 , $p=0.159$), omnipotence ($r=0.41$, $p=0.007$), social rank ($r=-0.49$, $p<0.001$) Appraisal x anxiety: malevolence ($r=0.35$, $p=0.021$), benevolence ($r=0.01$, $p=0.97$), omnipotence ($r=0.40$, $p=0.008$), social rank ($r=-$ 0.34 , $p=0.025$). Group interaction x depression ($F^2 = 0.59$, n.s.). Group interaction x anxiety ($F^2 = 0.18$, N.S.)	Weak
Chadwick, Lees, and Birchwood (2000)	UK	N=73 (58 completed HADS) M=41 F=32 Mean age= 40 Groups: Clinical voice-hearers. PLE: Voice hearing	Cross- sectiona 1	Voice malevolence, and omnipotence (BAVQ-R)	Depression and anxiety (HADS)	Appraisal x depression: Malevolence ($r=0.37$, $p<0.01$), and omnipotence ($r=0.44$, $p<0.01$). Appraisal x anxiety: Malevolence ($r=0.30$, $p<0.05$), and omnipotence ($r=0.33$, $p<0.05$)	Weak

Connell, Scott, McGrath, Waters, Larøi, Alati, Najman, and Betts (2019)	Australia	N=253 M=79 F=174 Age range=30-33 Groups: psychotic disorder, non-psychotic mental health disorder, and no disorder. PLE: hallucinatory experiences	Cross-sectional 1	Positive, negative, controllability, agency, other people, externality, and dangerousness (AANEX)	Group membership/need for care	Appraisal x group: Dangerousness ($w=226, p=0.01$), Controllability ($w=0.058, p=0.66$), externality ($w=0.097, p=0.66$), positive ($w=0.140, p=0.09$), other people ($w=0.373, p<0.01$), and negative valence ($w=0.249, p<0.01$)	Moderate
Connor and Birchwood (2013)	UK	N=74 M=44 F=30 Mean age= 43 Group: diagnosis of a psychotic disorder. PLE: voice hearing	Cross-sectional 1	Voice power, intrusiveness, voice criticism, and emotional support (VPD) and level of expressed emotion (LEE)	Depression and suicidal ideation (CDSS)	Appraisal x depression and suicidal ideation: + voice power ($r=0.56, p<0.01$), and expressed emotion ($r=0.44$) Appraisal x depression and suicidal ideation: intrusion ($r=0.47, p<0.001$), criticism ($r=0.49, p<0.001$), lack of emotional support ($r=0.30, p<0.05$)	Weak
Davies, Griffin, and Vice (2001)	UK	N=102 M=36 F=66 Mean age= 32.95 Groups: psychotic, evangelical, and control. PLE: voice hearing	Cross-sectional 1	Positive and negative (PVQ)	Feelings before, during, and after hearing a voice (The Affective Experiences Questionnaire) and group membership	Main effect of a group on feelings ($F(2,47) = 12.00, p<0.001$). Evangelical group more positive than controls ($t(47) = 2.59, p<0.02$) and psychotic group ($t(47) = 2.11, p<0.05$)	Weak

Dugré and West (2019)	US	N=180 M=95 F= 85 Mean age= 30.1 Groups: Clinical voice-hearers (Neutral, malevolent, and benevolent groups). PLE: voice hearing	Cross-sectional 1	Voice malevolence, and benevolence (BAVQ-R)	Emotional distress (BPRS-18) and anger (NAS)	Group x emotional distress ($w = 0.199, p < 0.001$). Malevolent group had higher emotional distress ($U = 398.5; p = 0.007$) and anger reactivity ($U = 435.5, p = 0.018$)	Weak
Ellett, Luzon, Birchwood, Abbas, Harris, and Chadwick (2017)	UK	N=151 M=89 F=62 Mean age= 37.23 Group: diagnosis of a psychotic disorder with and without command hallucinations. PLE: voice hearing	Cross-sectional 1	Voice malevolence, benevolence, omnipotence (BAVQ-R), perceived responsibility, and conviction (Conviction subscale of RIQ)	Anxiety, depression (HADS), distress (PSYRATS), and group membership	Responsibility x distress: command group: ($r=0.46, p=0.01$) non-command group: ($r=0.13, p=0.48$). Appraisal x group membership: Conviction ($d=1.5, p<0.001$), malevolence ($d=0.9, p<0.001$), benevolence ($d=0.1, p=0.548$), omnipotence ($d=1.2, p<0.001$), anxiety ($d=0.6, p=0.002$) and depression ($d=0.6, p=0.006$)	Weak
Fannon, Hayward, Thompson, Green, Surguladze, and Wykes (2009)	UK	N= 83 M=48 F=34 Mean age= 39.2 Group: diagnosis of a psychotic disorder. PLE: Voice hearing	Cross-Sectional 1	Voice malevolence, omnipotence, controllability, and dominance (BAVQ-R)	Depression (depression subscale of PANSS-D)	Appraisal x depression: omnipotence ($r=0.25, p<0.005$), malevolence ($r=0.24, p<0.005$), controllability ($r=0.29, p<0.01$), and dominance ($r<0.19, p<0.01$)	Weak

Fielding-Smith, Greenwood, Wichers, Peters, and Hayward (2022)	UK	N=30 M=11F=18 O=2 Mean age= Group: 41.9 outpatients who hear voices. PLE: Voice hearing	Time-series	Voice dominance, controllability, and intrusiveness (ESM questionnaire, rating of 1-7)	Distress (ESM questionnaire, rating of 1-7)	Voice appraisal x distress: dominance ($\beta=0.09, p<0.05$), uncontrollability ($\beta=0.17, p<0.01$), and intrusiveness ($\beta=0.31, p<0.001$)	Weak
Freeman, Garety, Bebbington, Slater, Kuipers, Fowler, Green, Jordan, Ray, and Dunn (2005)	UK	N=30 M= F= Mean age=22 Group: General population, appraisal manipulated by virtual reality. PLE: persecutory delusions	Experim ental	Persecutory (4-point Likert scale)	Depression and anxiety (DASS), social avoidance and distress (SAD)	Persecution x anxiety ($r=0.39, p=0.033$ and $r=0.54, p=0.002$), social avoidance and distress ($r=0.18, p=0.054$), depression ($r=0.36, p=0.353$), and stress ($r=0.36, p=0.050$)	Weak
Gauntlett-Gilbert and Kuipers (2005)	UK	N=20 M=10 F=10 Mean age= 41.5 Groups: people who have experienced visual hallucinations due to psychiatric illness. PLE: visual hallucinations	Cross-sectiona l	Controllability, negative outcome, positive outcome, persecution, and election (semi- structured interview and 5-point Likert scale)	Distress (semi- structured interview)	Distress x appraisal: Negative outcome ($r_s(20) = 0.57, p=0.009$), control ($r_s(20) = 0.11, p>0.5$), positive outcome ($r_s(20) = -0.75, p<0.001$), election ($U(20)=10, p=0.006$), and persecution ($U(20)=16.5, p=0.066$)	Weak

Gaynor, Ward, Garety, and Peters (2013)	UK	N=67 Male: 27 Female: 40 Mean age: 38.48 Groups: impairment and persistent. PLE: a range of PLEs (anomalies of perception, cognition, and affect)	Cross-sectiona 1	Threat (AANEX)	Group membership	Impairment group x threat appraisal (F(3, 66) = 15.96, $p < 0.001$)	Weak
Green, Garety, Freeman, Fowler, Bebbington, Dunn, and Kuipers (2006)	UK	N=70 M=50 F=20 Mean age= 41.5 Group: experiencing persecutory delusions after relapsing from positive symptoms of psychosis. PLE: persecutory delusions	Cross-sectiona 1	Powerfulness and self-diminishing (Phenomenology of Persecutory Delusions Coding Frame)	Depression (BDI-II), anxiety (BAI), self-esteem (Rosenberg self-esteem scale), and intensity of distress (PSYRATS)	+power x depression ($p = -.30$, $p = 0.01$) and self-esteem ($p = -0.29$, $p < 0.05$). Self-diminishing x self-esteem ($p = 0.33$, $p = 0.01$), depression ($p = 0.31$, $p = 0.01$), delusional distress ($p = 0.30$, $p = 0.01$)	Weak
Hayward, Jones, Strawson, Quadt, Larsson, Silva, Davies, Fielding-	UK	N=48 M=9 F= 39 Mean age=34 Group: diagnosis of BPD with voice-hearing. PLE: voice hearing	Cross-sectiona 1	Persecutory beliefs and voice benevolence, (BAVQ-R)	Distress (PSYRATS)	Distress x appraisal: persecutory beliefs ($r = 0.670$, $p < 0.01$), benevolence ($r = -0.154$, n.s.)	Weak

Smith,
Hazell,
Critchley,
and
Garfinkel
(2021)

Honig, Romme, Ensink, Escher, Pennings, and Devries (1998)	The Net herl and s	N=48 M=12 F=36 Mean age=44.3 Groups: Diagnosis schizophrenia/dissoci- ative disorder and non-clinical voice hearers. PLE: voice hearing	Cross- sectiona l	Positive, negative, and control (semi- structured interview)	Group membership	Non-patient x positive ($p < 0.01$). Patient x negative ($p < 0.001$). Patient vs nonpatient x control ($p < 0.001$)	Weak
Hustig and Hafner (1990)	Au stra lia	N=12 M=1 F=11 Mean age= 32.6 Group: Diagnosis of schizophrenia. PLE: auditory hallucinations	Time series	Intrusiveness (self- report diary)	Anxiety and depression (self- report diary)	Intrusiveness x anxiety ($r=0.12$, n.s.), intrusiveness x depression ($r=0.13$, n.s.)	Weak
Hutton, Di Rienzo, Turkington, Spencer,	UK	N=68 M=37 F=31 Mean age= 31 Group: diagnosis of a psychotic disorder. PLE: a range of PLEs (negative and	Longitu dinal	Negative (PBEQ)	Suicidal ideation (BDI-PC)	Negative x suicidal ideation ($r=0.51$, $p < 0.01$ at 0 months and $r=0.47$, $p < 0.01$ at 9-18 months)	Moder- ate

and Taylor (2018)		positive psychotic experiences)					
Lovatt, Mason, Brett, and Peters (2010)	UK	N=54 M=27 F=27 Mean age= 39.05 Groups: clinical (diagnosis of psychotic disorder) and nonclinical. PLE: a range of PLEs (anomalies of perception, cognition, and affect)	Cross-sectional 1	Other people, spiritual, normalising/psychological, medical, valence (fewer “positive”), dangerous, externality, agency (“personalising), positive, negative, neutral, unengaged, anxious, and excited (AANEX)	Group membership	Clinical group vs nonclinical group x appraisal: Other people (OR=21.25, $p<0.001$), normalising/psychological (OR=0.073, $p<0.001$), dangerousness (OR=7.00, $p=0.002$), valence (OR=0.08, $p<0.001$), externalising (OR=6.40, $p=0.003$), and agency (OR=5.34, $p=0.012$), Group not associated with medical or spiritual appraisal	Weak
Lucas and Wade (2001)	Australia	N=30 M=15 F=15 Mean age= 35.4 Groups: Diagnosis of schizophrenia or schizoaffective disorder. PLE: voice hearing.	Longitudinal	Voice malevolence, benevolence, omnipotence (BAVQR)	Mental state (BPRS) and depression (BDI)	Depression x perceived power ($r = 0.45$, $p<0.05$). Depression x malevolence ($t(28) = -2.4$, $p = 0.02$) + psychiatric symptomology x malevolence ($r = 0.58$, $p<0.01$) + psychiatric symptomology x benevolence ($r=-0.41$, $p<0.05$)	Weak
Morris, Garety, and Peters (2014)	UK	N=50 M=33 F=17 Mean age= 31.8 Group: diagnosis of a psychotic disorder. PLE: voice hearing	Cross-sectional 1	Voice malevolence, benevolence, and omnipotence (BAVQR)	Anxiety (BAI), depression (BDI-II), and distress (PSYRATS)	Appraisal x anxiety: Malevolence ($r=-0.1$, n.s.), benevolence ($r=0.5$, n.s.), omnipotence ($r=0.11$, n.s). Appraisal x depression: Malevolence ($r=0.31$, $p<0.05$), benevolence ($r=-0.8$, n.s), omnipotence ($r=0.35$,	Weak

$p < 0.05$). Appraisal x distress:
 Malevolence ($r = 0.41$, $p < 0.01$),
 benevolence ($r = -0.35$, $p < 0.05$),
 omnipotence ($r = -0.1$, n.s.)

Appraisals contribution to
 depression: Omnipotence ($\beta = 0.03$,
 n.s.), malevolence ($\beta = 0.23$, n.s)

Morrison, Nothard, Bowe, and Wells (2004)	UK	N= 80 M=38 F=42 Mean age=37.95 Groups: voice- hearers and non- patient controls. PLE: voice hearing	Cross- sectiona 1	Metaphysical, loss of control, and positive (IVI)	Group membership	Group x appraisal: Positive ($d = 0.262$, n.s.), loss of control ($d =$ 1.755 , $p < 0.001$), and metaphysical ($d = 2.016$, $p < 0.001$)	Weak
Peters, Day, McKenna, and Orbach (1999)	UK	N=142 M=70 F=72 Mean age= 31.03 Groups: New religious movements, Christian, non- religious, and psychosis. PLE: delusions	Cross- sectiona 1	Spiritual or non- spiritual (group membership)	Distress (PDI and DSSI) and need for care	Group membership x distress (F(3, 138) = 15.3, $p < 0.001$). Spiritual x distress (t(57) = -3.5, $p = 0.001$)	Weak

Peters, Lataster, Greenwood, Kuipers, Scott, Williams, Garety, and Myin-Germeys (2011)	UK	N=12 M=5 F=7 Mean age= 36.40 Group: diagnosis of a psychotic disorder. PLE: delusions and hallucinations	Multi-level	Hallucinations and delusions interference, controllability, power, and intensity (ESM booklet)	Distress (PSYRATS) and affect (ESM booklet)	Distress x hallucination interference (B=0.89, $p<0.001$), hallucination control (B=1.22, $p<0.001$), and hallucination power (B=0.83, $p<0.001$). Distress x delusion interference (B=0.72, $p<0.001$). Delusion intensity x negative affect (B=0.68, $p<0.001$) and x positive affect (B=-0.38, $p<0.001$). Voice intensity x negative affect (B=0.30, $p<0.001$) and x positive affect (B=-0.19, $p<0.001$). Power predicted negative affect (standardized B=0.22, $p<0.001$)	Weak
Peters, Ward, Jackson, Woodruff, Morgan, Mcguire, and Garety (2017)	UK	N= 259 M=106 F=153 Mean age= 44.67 Groups: Clinical, nonclinical, and control. PLE: a range of PLEs (anomalies of perception, cognition, and affect). Experimentally induced thought interference and	Experim ental, between subjects	Biological, drug related, spiritual, other people, psychological, no interpretation, normalising, supernatural, valence, threat, externality, abnormality, controllability, and agency (AANEX). Threatening, non-threatening, salience, threat, and personal relevance (0-10 rating)	Need for care	Appraisal x group: Biological (OR=4.21, $p=0.016$), drug related (OR=10.45, $p=0.216$), spiritual (OR=0.51, $p=0.380$), other people (OR=10.13, $p<0.008$), psychological (OR=1.28, $p=0.997$), no interpretation (OR=0.33, $p=0.426$), normalising (OR=0.09, $p<0.008$), supernatural (OR=0.37, $p=0.039$), negative valence (OR=0.05, $p<0.005$), threat (OR=0.07, $p<0.005$), externality (OR=0.60, $p=0.442$), abnormality (OR=0.11,	Weak

auditory
hallucinations.

$p < 0.005$), and controllability
($OR = 2.92, p = 0.005$)

Significant group difference for
threatening appraisals on all tasks.
Clinical group scoring higher than
the non-clinical ($r = 0.51 - 0.54$) and
the control group ($r = 0.41 - 0.46$)

Peters, Williams, Cooke, and Kuipers (2012)	UK	N=46 Male: 26 Female: 20 Mean age: 36.5 Group: diagnosis of a psychotic disorder. PLE: voice hearing.	Cross- sectional 1	Voice malevolence, benevolence, and omnipotence (voice power and intent; BAVQ-R)	Voice associated distress (Personal Questionnaires), depression (BDI-II), anxiety (BAI), suicidal ideation (BSS), self-esteem, (RSE)	Appraisal x voice associated distress: Omnipotent ($r = 0.62, p < 0.01$), malevolent ($r = 0.52, p < 0.01$), and benevolent ($r = -0.22, n.s.$). Appraisal x depression: Omnipotent ($r = 0.61,$ $p < 0.01$), malevolent ($r = 0.53,$ $p < 0.01$), and benevolent ($r = -0.14,$ $n.s.$). Appraisal x anxiety: Omnipotent ($r = 0.57, p < 0.01$), malevolent ($r = 0.49, p < 0.01$), and benevolent ($r = -0.08, n.s.$). Appraisal x suicidal ideation: Omnipotent ($r = 0.45, p < 0.01$) malevolent ($r = 0.43$ $p < 0.01$), and benevolent ($r = -0.08,$ $n.s.$). Appraisal x self-esteem: Omnipotent ($r = 0.42, p < 0.01$), malevolent ($r = 0.43, n.s.$), and benevolent ($r = -0.21, n.s.$). Omnipotence significantly associated with depression ($b = 0.61, \text{adjusted } R^2$ $= 0.36, p < 0.001, 37\%$) anxiety	Moderate
---	----	--	--------------------------	--	---	---	----------

($b=0.57$, adjusted $R^2=0.31$, $p<0.0001$, 33%), self-esteem ($b=0.42$, adjusted $R^2=0.16$, $p<0.01$, 18%), suicidal ideation ($\beta=0.16$, $OR=1.18$, $p<0.05$), and voice associated distress ($\beta=0.16$, $OR=1.44$, $p<0.001$)

Slotema, Dirk Blom, Deen, Niemantsverdriet, van der Gaag, Hoek, and Sommer (2017)	The Netherlands	N=65 Mean age=38.35 Groups: BPD patients and auditory verbal hallucinations patients. PLE: voice hearing.	Longitudinal	Voice malevolence, benevolence, and omnipotence (BAVQR)	Hospitalisation 2 years post baseline	Omnipotence and number of hospitalisations ($r=0.586$, $p<0.001$)	Weak
Soppitt and Birchwood (1997)	UK	N=21 M=16 F=5 Mean age=43 Group: diagnosis of chronic schizophrenia. PLE: voice hearing.	Cross-sectional	Voice power (CAS), malevolence, benevolence, and intrusiveness (BAVQ)	Depression (BDI) and affect/distress (CAS)	Appraisal x distress: Malevolent ($r=0.4346$, $p<0.05$), intrusiveness ($r=0.0738$, n.s.), benevolence ($r=-0.1526$, n.s.). Intrusiveness x depression ($r=0.5898$, $p<0.01$)	Weak
Sorrell, Hayward, and Meddings (2009)	UK	N=50 M=25 F=25 Mean age=43.9 Group: diagnosis of a psychotic disorder. PLE: voice hearing	Cross-sectional	Voice malevolence, benevolence (BAVQR), and power (dominance and intrusiveness) (VAY)	Distress (PSYRATS), and group membership	Group x malevolence ($r=0.72$, $p<0.01$). Group x benevolence ($r=0.44$, $p<0.01$). Group x omnipotence ($r=0.44$, $p<0.01$). Distress x dominance ($r=0.399$,	Weak

						$p < 0.01$). Distress x intrusiveness ($r = 0.321, p < 0.05$)	
Taylor, Parker, Mansell, and Morrison (2013)	UK	N=26 M=18 F=8 Mean age= 21.9 Groups: 2 x at risk of psychosis (negative information or no information). PLE: range of PLEs (positive and negative) and experimentally induced thought interference.	Experimental, between subjects	Non-psychotic or psychotic	Distress (CAPE and SUDS), and anxiety (SAI)	Group x anxiety ($F(1, 25) = .628, p > .05$). Non-psychotic appraisal x distress ($r = -.57, p < .01$). No significant correlations between distress or anxiety and other appraisals. Psychotic appraisals group x distress ($U = 16.5, p < 0.01$) and anxiety ($U = 35.5, p < 0.05$)	Moderate
Taylor, Pyle, Schwannauer, Hutton, and Morrison (2015)	UK	At risk: N=362 M=219 F=143 Mean age= 22.96 Bipolar: N=202, M= F= Mean age= Groups: diagnosis bipolar disorder and at risk of psychosis. PLE: range of PLEs.	Cross-sectional, 1 (study 1 and 2)	External shame, internal shame /defectiveness, negative expectations/appraisals (PBEQ and PBIIQ)	Depression (BDI-PC)	At Risk: Depression x appraisal: external shame ($r = 0.49, p < 0.01$), internal shame/defectiveness ($r = 0.35, p < 0.01$), and negative ($r = 0.50, p < 0.01$) Each appraisal made significant contributions to the prediction of depression ($F(3, 285) = 54.43, p < .01$) Bipolar: Depression x appraisal: external shame ($r = 0.36, p < 0.01$), internal shame/defectiveness ($r = 0.52,$	Weak

$p < 0.01$), and negative ($r = -0.62$, $p < 0.01$)

Internal shame/defectiveness and negative appraisals made significant prediction of depression, but not external shame ($F(3, 186) = 50.77$, $p < .01$)

Thomas, McLeod, and Brewin (2009)	UK	N=64 M=22 F=42 Mean age= 34.9 Group: diagnosis of a psychotic disorder. PLE: voice hearing.	Cross-sectional 1	Voice hostility and control (long form of the INTREX)	Distress (POMS), and depression (CDSS)	Distress x voice hostility ($r = 0.65$, $p < 0.001$) and control ($r = 0.37$, $p < 0.001$). Voice hostility significant predictor of distress ($\beta = 0.591$, $p = 0.001$). Voice control did not independently predict distress ($\beta = -0.011$, $p = 0.95$). Depression x voice hostility ($t = 2.263$, $df = 33$, $p = 0.03$) and control ($t = 3.201$, $p = 0.003$). Depression x control (OR=1.034, $p = 0.03$) and hostility (OR=1.006, $p = 0.99$)	Weak
Underwood, Kumari, and Peters (2016)	UK	N=71 M=44 F=27 Mean age= 42.22 Groups: symptomatic psychosis, remitted psychosis, non-clinical with	Experimental, between subjects	Threatening, non-threatening, and striking, (scale of 0-10)	Group membership: clinical vs nonclinical	Thought interference task: Appraisal x group: Threatening ($d = 0.49$, $p = 0.002$), and striking ($d = 0.55$, $p = 0.004$)	Weak

psychotic experiences, and controls without psychotic experiences: PLE: experimentally induced thought interference and auditory hallucination.

Thought interference (mindreading) task: Threatening x group: Threatening ($d=0.63$, $p<0.001$)

Auditory hallucinations task: Appraisal x group: Threatening ($d=0.59$, $p<0.001$), and non-threatening ($d=0.26$, $p=0.198$)

Varese, Morrison, Beck, Heffernan, Law, and Bentall (2016)	UK	N=101 M=70 F=31 Mean age=36.2 Group: diagnosis of a psychotic disorder. PLE: voice hearing.	Cross-sectional	Metaphysical, controllability, and positive beliefs (IVI)	Distress (PSYRATS)	Distress x appraisal: Metaphysical ($r=0.34$, $p<0.001$), controllability ($r=0.30$, $p<0.01$), and positive ($r=-0.13$, n.s.)	Weak
Ward, Gaynor, Hunter, Woodruff, Garety, and Peters (2014)	UK	N=62 M=26 F=36 Mean age= 37.45 Groups: Clinical and non-clinical. PLE: a range of PLEs (anomalies of perception, cognition, and affect). Experimentally	Experimental, between subjects	Striking, threatening, adaptive, and maladaptive (AANEX)	Group membership	Group (card task – thought interference and VASP task – auditory hallucinations) x appraisal: striking ($U=228$, $p=0.01$ and $U=183.5$, $p=0.7$), distressing ($U=224$, $p<0.001$ and $U=171$, $p=0.5$), threatening ($U=302$, $p<0.05$ and $U=182.5$, $p=0.6$), adaptive ($U=302.5$, $p=0.2$ and $U=181$, $p=0.68$), and	Moderate

induced thought
interference and
auditory
hallucinations

maladaptive ($U=245, p=0.02$ and
 $U=96.5, p=0.002$)

Note: N= number, M=Male, F=Female, PLE = Psychotic-like experience, n.s.=not significant, BAVQ-R= Beliefs About Voices Questionnaire-Revised, BDI-II= Beck's Depression Inventory-Second Edition, BAI =Becks Anxiety Inventory, BAVQ=Beliefs about Voices Questionnaire, CAS= Classification of Derogatory and Non-Derogatory Content and The Cognitive Assessment Scale, PAS=Psychiatric Assessment Schedule, VPD=Voice Power Differential, BDI=Beck's Depression Inventory, SCS=social comparison scale, AANEX=Appraisals of Anomalous Experiences Interview, BAPS=Beliefs About Paranoia Scale, PDI=Peters Delusion Inventory, IVI=Interpretations of Voices Inventory, GHQ=General Health Questionnaire, VRS=Voice Rank Scale, DASS-21=Depression, Anxiety, and Stress Scale – 21 Items, HADS= Hospital Anxiety and Depression Scale, LEE=Level of Expressed Emotion, CDSS=Calgary Depression Scale for Schizophrenia, PVQ=Perception of Voices Questionnaire, BPRS-18=The Brief Psychiatric Rating Scale- 18 items, NAS=Novaco Anger Scale, RIQ=The Responsibility Interpretations Questionnaire, PSYRATS=The Psychotic Symptoms Rating Scale, PANSS-D=Positive and Negative Symptoms Scale-Depression, ESM=Experience Sampling Method, SAD=The Social Avoidance and Distress Scale, BPD=Bipolar Disorder, PBEQ=The Personal Beliefs About Experiences Questionnaire, BDI-PC=Beck's Depression Inventory-Primary Care, DSSI=The Delusions Symptoms-State Inventory, RSE=The Rosenberg Self-Esteem Scale, VAY=Voice and You, CAPE=The Community Assessment of Psychic Experiences, SUDS=The Subjective Units of Distress Scale, SAI=State Anxiety Inventory, PBIIQ=Personal Beliefs About Illness Questionnaire, INTREX=The Structural Analysis of Social Behaviour

3.3.1 Voice Malevolence/hostility

Fourteen of the included studies assessed participants for appraising voices as malevolent. The BAVQ or the BAVQ-R was used to assess voice malevolence in twelve of the studies and one study used the INTREX long form.

Malevolence of the voice was significantly associated with distress in seven studies with small (n=1), medium (n=2) and large (n=2) effect sizes, where effect sizes could be calculated. Voice malevolence was also significantly associated with depression in ten studies, with small (n=1), medium (n=3), and large (n=5) effect sizes. However, two studies did not indicate that voice malevolence was significantly predictive of depression. In five of the studies a significant association with anxiety was found, with medium (n=4) and large (n=1) effect sizes. However, one study found that malevolence was not correlated with anxiety, with a small effect size. Suicidal ideation was significantly and positively correlated with voice malevolence in two studies, with a medium and large effect size. However, voice malevolence was not significantly correlated with self-esteem in one study, with a medium effect size. Finally, malevolent appraisals of voices were significantly and positively correlated with psychiatric symptomology and being in a clinical group compared to a non-clinical group, in two studies, with large effect sizes.

3.3.2 Voice benevolence

Ten studies investigated the association between mental health outcome and appraisal of voices as benevolent. To assess the appraisal, all studies used the BAVQ-R or the BAVQ.

The non-clinical groups were significantly more likely than the clinical group to make benevolent appraisals of their voices in three studies with small (n=1) and medium (n=1) effect

sizes. However, voice benevolence was not significantly associated with being in a clinical or non-clinical group, with a small effect size in another study. In three studies voice benevolence was not significantly correlated with depression, where two studies had small effect sizes and one had a large effect size. In terms of anxiety, three studies indicated that voice benevolence was not significantly correlated with anxiety, with small (n=2) and large (n=1) effect sizes. Additionally, voice benevolence appraisals were not significantly correlated with suicidal ideation and self-esteem in one of the studies, with small effect sizes. In five studies benevolent appraisals were significantly associated with lower distress, with small effect sizes (n=3).

3.3.3. *Omnipotence/power*

Thirteen studies investigated the role of perceived voice omnipotence or power on mental health outcomes. Twelve of the studies used the BAVQ-R or BAVQ to assess voice omnipotence. Two studies assessed voice power via the VPD, one study used the VAY, one study utilised the Phenomenology of persecutory delusion coding framework, and another study used an ESM questionnaire. Eleven studies focused on voice power and two evaluated delusion power.

Two studies indicated significant associations between greater voice omnipotence and having a psychosis diagnosis or an increased number of hospitalisations, with a medium and large effect size. In ten studies voice power was significantly associated with depression, with medium (n=5) and large (n=5) effect sizes. However, one study indicated that voice omnipotence did not significantly predict depression. Voice omnipotence was also significantly correlated with higher anxiety in four studies, with medium (n=2) and large (n=2) effect sizes. However, one study did not find a significant correlation between voice omnipotence and anxiety, with a small effect size. Omnipotence was also shown to be significantly associated with distress in three studies, with a large (n=1) and small (n=2) effect

size. Greater voice power was significantly associated with suicidal ideation in three studies, with large (n=2) and small (n=1) effect sizes. Finally, greater voice power was significantly associated with lower self-esteem in three studies, with medium (n=2) and large effect sizes (n=1).

Two studies looked at the power of delusions and in one study greater power was significantly and positively correlated with depression (medium effect size), distress (large effect size), and significantly predictive of negative affect (medium effect size).

3.3.4. Perceived controllability

Thirteen studies measured the appraisal of control. Control was measured by the AANEX in four the studies, the IVI in three, an ESM questionnaire in two, the PSYRATS in one, the BAVQ-R in one study, a 5-point Likert scale in one study, a semi-structured interview, and the INTREX long form in another study. Six studies specially looked at voices, three at delusions, two at a range of PLEs, one at hallucinations, and one at visual hallucinations.

Six of the studies found that appraising a PLE as controlling was significantly associated with higher distress, with small (n=3), medium (n=2), and large (n=1) effect sizes. One study did not find a significant association between distress and control appraisals of visual hallucinations, with a small effect size. For voice hearers, lack of control appraisals was also not seen to predict distress, with a small effect size in one study.

Five of the studies looked at group membership as a mental health outcome. Four of them found that appraising the PLE as more controlling was significantly associated with being in a clinical group compared to a non-clinical group. One study had a large effect size, and another had a small effect size. One study did not find a significant difference between the groups in their control appraisals of hallucinations, with a small effect size. Three studies found

that higher PLE appraised control was significantly associated with depression, with a small, medium, and large effect size.

3.3.5. Threat/Danger/Persecution

Ten studies measured threatening, dangerous or persecutory appraisals. Six of the studies measured the appraisals using the AANEX, three used Likert scales, and one used the BAVQ-R. Eight of the studies looked at membership of a clinical group vs a non-clinical group as a mental health outcome. Five of the studies evaluated auditory hallucinations, two evaluated PLEs more generally, and one evaluated delusional experiences.

In all eight studies, having threatening appraisals was significantly associated with being in the clinical group. Four with a small effect size (PLE, hallucinations, voices, and delusions), two with a large effect size (PLEs), one with a medium effect size (voices), and one indicated medium to large effect sizes. In another study using experimental tasks to replicate delusions in the general population, those who made more persecutory appraisals scored significantly higher on anxiety measures, with medium to large effect sizes. They also scored higher on social avoidance and distress scores, with small effect sizes, and higher on depression and stress scores, with medium effect sizes. One study found that visual hallucinations being appraised as persecutory showed a trend towards distress, but this was not significant. A further study found that in a group of voice hearers with a BPD diagnosis, threatening appraisals were significantly and positively correlated with distress, with a large effect size.

3.3.6. Supernatural/Metaphysical

Six of the included studies measured supernatural or metaphysical appraisals of PLEs, i.e. attributing the cause of the PLE to be a supernatural or metaphysical (e.g. caused by a higher being or something immaterial). Three used the AANEX to assess for the supernatural

appraisals and three used the IVI to assess the metaphysical appraisals. Two evaluated PLEs, two looked at voices, and two looked at delusions and hallucinations.

For two studies supernatural and metaphysical appraisals were associated with greater distress, with a small (delusions and hallucinations), and a medium (voices) effect size. However, one study did not find a significant relationship between a supernatural appraisal of PLEs and distress, with a small effect size.

For one study there was no significant difference between the clinical and non-clinical group in their supernatural appraisals of PLEs. Another study indicated that metaphysical appraisals of voices were significantly associated with being in the clinical group, with a large effect size. Finally, a third study found that supernatural appraisals of delusions and hallucinations were significantly predictive of being in the non-clinical group, with a small effect size.

3.3.7. Intrusiveness

Six studies assessed the appraisal of intrusiveness. Four looked at voice hearing and two looked at delusions. This was assessed by using two ESM questionnaires, the VPD, a report diary, CAS, and the VAY. Five evaluated voices and one evaluated delusions and hallucinations.

Greater perceived voice intrusiveness was significantly associated with poorer mental health outcome: depression (large effect size in two studies); and suicidal ideation (large effect size in two studies). Hallucinations and delusions that were also appraised as intrusive were significantly associated with a higher distress score in four of the studies, with a small (n=1), medium (n=2), and large (n=1) effect size. Two studies found that intrusiveness of voices was not significantly correlated with anxiety, depression, or distress, with small effect sizes.

3.3.8. Normalising

Six studies assessed normalising appraisals of anomalous experiences. Normalising appraisals refer to finding meaning in experiences as “normal” parts of being human. These were measured with the AANEX in four studies and by the BAPS in two studies. Three evaluated PLEs generally and three evaluated delusions.

Two studies found that appraising a PLE and delusions as normalising was significantly associated with less distress, with small effect sizes. Another study showed no significant association between normalising appraisals for delusions and distress, also with a small effect size. Three of the studies found normalising appraisals to be significantly associated with non-clinical group membership or predictive of group membership, for PLEs in two studies and delusions in one study, with small effect sizes.

3.3.9. Other people

Five studies investigated the effect of “other people” appraisals of anomalous experiences on mental health outcome. This was when the anomalous experience was appraised as being due to “other people”. All five studies assessed this appraisal using the AANEX. Three looked at PLEs, one looked at hallucinations and delusions, and one looked at a variety of hallucinatory experiences.

Other people appraisals of PLEs were significantly associated with higher distress in one study. A clinical group was significantly more likely than a non-clinical group to make other people appraisals in four studies, with a three large (PLEs and hallucinations and delusions) and one medium effect size (hallucinations).

3.3.10. Externalising

Appraising the PLE as something external was measured by five studies, all using the AANEX. In one study externalising appraisals were not significantly related to distress, with a small effect size. Three studies evaluated PLEs, one evaluated hallucinations, and one evaluated delusions and hallucinations.

For two studies, people who made externalising appraisals of PLEs were significantly more likely to belong to a clinical group than a non-clinical group, with a small and a medium effect size. However, two further studies did not find any significant differences between the clinical and non-clinical groups in terms of externalising appraisals of PLEs and hallucinations. Both had small effect sizes.

3.3.11. Spiritual

Spiritual appraisals were assessed by five of the studies, where the PLEs were attributed to a spiritual or religious cause. Four of those studies looked at PLEs broadly, one evaluated delusions, and one evaluated voices. Three studies assessed the appraisal using the AANEX and for three studies the appraisal was indicated by belonging to a religious group and experiencing PLEs.

Making a spiritual appraisal was found by two studies to be significantly associated with less distress, with a small effect size for PLEs and a large effect size for delusions. Another study indicated that distress was not significantly different between the group that made spiritual appraisals of PLEs and the one that did not. A further study found that appraising a PLE as spiritual was significantly more predictive of being in a non-clinical group. One study's findings indicated that an evangelical group who made spiritual appraisals of their voices had significantly more positive feelings towards their voices than controls or a psychotic group, with large effect sizes.

3.3.12. Additional Appraisals

Biological appraisals where an experience is attributed to being caused by something biological or medical was assessed in four studies, using the AANEX. Three studies looked at PLEs broadly and one evaluated delusional experiences. Biological appraisals were significantly associated with less distress and no diagnosis (small to medium effect sizes).

Appraising a PLE as being caused by some other agency other than yourself was assessed by three studies using the AANEX. Agency appraisals were significantly associated with greater distress, and being in a non-clinical group, with small to medium effect sizes. Two studies found that lack of perceived support (assessed by the AANEX and VPD) from the PLE or voice was significantly related to greater distress (small effect size), depression, and suicidal ideation (medium effect sizes). Two studies looked at survival and conviction appraisals and both measured this appraisal using the BAPS. Appraising PLEs and voices as a survival strategy and with a greater level of conviction was found to be significantly and positively correlated with distress in both studies, with a large and medium effect sizes. Appraised external shame and perceived defectiveness (measured the PBEQ and the PBIIQ) in relation to a PLE was significantly associated with depression in an at-risk and bipolar group (with medium to large effect sizes). In one study appraising the PLE as abnormal, as measured by the AANEX was significantly associated with being in a clinical group, with a small effect size.

Three of the studies evaluated appraised social rank of voices in voices hearers, using the VPD, SCS, and the VRS. A voice appraised as having a higher social rank than themselves was significantly associated with greater distress (medium effect size), depression (medium – large effect sizes), and greater anxiety (small-medium effect sizes).

No significant results were found for the anomalous experience being appraised as drug related (assessed by three studies, with a small and large effect size), or caused by technology (one study), or having no interpretations (assessed by three studies, with small effect sizes). All studies assessed these appraisals using the AANEX. One study found that appraising a PLE as being adaptive did not indicate any significant results, however, appraising an experience as maladaptive was significantly associated with need for care.

For general PLEs psychological appraisal as measured by the AANEX in four studies indicated that this appraisal was significantly associated with being in a non-clinical group, with a small effect size. Although one study did not find this effect, also with a small effect size. Psychological appraisal was also found to be significantly associated with distress in one study with a small effect size.

Voice level of expressed emotion was evaluated by one study and greater voice expressed emotion was found to be significantly associated with greater depression and suicidal ideation, with medium effect sizes. Perceiving self as responsible for hearing commanding voices (measured by the BAVQ-R) was also significantly associated with distress, with a large effect size. Three studies measured voice criticism using the ESM questionnaire, and the BAVQ-R. Greater appraised voice criticism was significantly associated with greater depression, suicidal ideation, lower self-esteem, and greater distress, with medium to large effect sizes. Two studies measured voice dominance using the VPD and the phenomenology of delusion framework. Greater voice dominance was significantly associated with greater depression and distress with small to medium effect sizes.

One study evaluated the appraisal of visual hallucinations. The study measured appraised negative and positive outcome using a Likert scale and found appraisal of negative outcome significantly associated with greater distress and appraisal of positive outcome as

significantly associated with lower distress, with large effect sizes. Appraising a visual hallucination occurring because of being “chosen” or “special” (measured by a 5-point Likert scale) were significantly associated with a positive affective response.

Experimental induced thought interference (delusion) and auditory hallucinations were appraised as being significantly more salient in clinical groups, compared to non-clinical groups in three studies, with medium effect sizes. However, this was not the case for one auditory hallucination induced task. Salience was measured by the AANEX in three studies and a Likert scale in one. In one study, where delusions and hallucinations were induced by a task, psychotic appraisals, i.e., appraising the experience as being due to psychosis was significantly associated with higher anxiety, with large effect sizes. A final study evaluated delusion intensity (measured using an ESM questionnaire) and found greater delusion appraisal of intensity was significantly associated with negative affect (with a medium effect size) and lower intensity was significantly associated with positive affect (with a small effect size).

3.4. Overall summary

Appraisals of voices associated with poorer mental health outcomes included, appraising the voice as malevolent, omnipotent, threatening, metaphysical, intrusive, of higher social rank, not supportive, with a higher level of expressed emotion, greater conviction, more critical, and more dominant. Voice benevolence and the voice being appraised as having a spiritual origin was associated with more positive mental health outcomes.

In terms of delusions, appraisal of the delusions being powerful, threatening, metaphysical, intrusive, caused by other people, external, salient, and due to psychosis were related to poorer mental health outcomes. Appraisal of the delusions as supernatural, normalising, and spiritual were related to better mental health outcomes.

Appraisals of hallucinations more generally indicated that poorer mental health outcomes were associated with hallucinations perceived as metaphysical, intrusive, caused by other people, and due to psychosis. Better mental health outcomes were related to supernatural appraisals. No significant results were found for appraisals of hallucinations as being controlling or external.

For visual hallucinations, appraising them as threatening and believing there will be a negative outcome were associated with poorer mental health outcome. However, appraised control was not significantly associated with distress. Perceived positive outcomes of visual hallucinations were associated with better mental health outcomes.

Finally, for general PLEs, lack of control, threat, caused by other people, external, maladaptive, caused by some other agency, lack of support and greater conviction were related to poorer mental health outcomes. Appraisal of PLEs as normalising, spiritual, and biological were associated with better outcomes. Additionally, psychological appraisals of PLEs were found to be associated with more distress in a clinical group but less distress in a non-clinical group.

4. Discussion

This literature review aimed to investigate the influence of appraisals across the broad range of psychotic experiences reflected by a continuum of psychosis. A key objective of the review was to determine how these appraisals related to mental health outcomes and whether a similar pattern is evident across experiences. It was expected that negative appraisals of PLEs would be associated with poorer mental health outcomes and more neutral or positive appraisals would be associated with better mental health outcomes.

Poorer mental health outcomes were found in relation to the following appraisals: threatening which was consistent across voices, delusions, and visual hallucinations; intrusive which were consistent across voices, delusions, and hallucinations; omnipotence which was evaluated for voices and delusions; lack of support and greater conviction of the experience which was consistent for voices and PLEs; and other people or caused by another agency was consistent across delusions, hallucinations, and PLEs. These results are in line with previous reviews evaluating the impact of voice appraisal on distress (Mawson, et al., 2010, Baumeister et al., 2017; and Tsang, et al, 2021). Normalising appraisals were consistently associated with better mental health outcomes for delusions and PLEs. This is also in keeping with previous literature (e.g. Peters et al., 2017).

Spiritual appraisals have been seen to be protective factors in previous literature (Brett et al., 2014) and have been found to be life-enhancing for some people (Geekie, 2007). This was consistent in this review and supported in appraisals of delusions and PLEs. However, supernatural or metaphysical beliefs indicated more complex findings. Metaphysical or supernatural appraisals were consistent in their poorer mental health outcomes across voices, delusions and hallucinations. However, supernatural appraisals were indicated to have better mental health outcomes in the experience of hallucinations. Perhaps this could be due to

differing definitions of metaphysical and supernatural appraisals or the outcome measure used in assessing these appraisals. Supernatural appraisals were measured by the AANEX and metaphysical appraisals were measured by the IVI which specially evaluated the experience of hearing voices. Additionally, a supernatural appraisal in itself does not indicate whether the appraisal is positive or negative, for example, being controlled by a metaphysical being may be distressing but hearing from a benevolent supernatural being is likely to have a different impact (Dein & Cook, 2015).

Lack of control was found to be significantly associated with poorer mental health outcome for PLEs. However, no significant results were found for hallucination generally and specifically in visual hallucinations. This was not in keeping with a previous review on voices (Tsang et al., 2021) and our predictions. Additionally, in one study for voices, lack of control did not significantly predict distress. Perhaps other factors for hallucinations in clinical populations are more relevant for distress, for example, Bak et al., (2002) found that early experience of trauma may impact individual's responses to experiences

Interestingly, making a psychological appraising, i.e., believing there is a psychological cause of the PLE was associated with both poorer and better mental health outcomes in different studies. Those who belonged to a non-clinical group were less distressed with psychological appraisals than those in the clinical group. Perhaps some people may find comfort in a psychological appraisal where other people may interpret their experiences as a fear of "going mad" (Kuipers & Bebbington, 2006). This also may depend on cultural and individual differences and attitudes towards mental health (Gopalkrishnan, 2018).

For visual hallucinations perceived outcome was an important appraisal in relation to mental health. However, only one study (Gauntlett-Gilbert et al, 2005) specifically evaluated visual hallucinations. The lack of studies might be reflective of them being less common than

auditory hallucinations (Dudley et al., 2018). However, again this is supportive of cognitive models of psychosis (Peters et al., 2017, Garety et al., 2007; Morrison, 2001), where the meaning attributed to the experience and not the experience itself which is most important in relation to wellbeing and cognitive behavioural therapy has been found to be effective for people experiencing visual hallucinations (Thomson et al., 2017).

It was indicated that the appraisals the clinical groups were likely to have were related to a greater level of distress when compared with other groups. Negative appraisals of PLEs in the general population was also associated with a greater distress. However, negative appraisals were less common in non-clinical populations. Most appraisals in the non-clinical group were positive, neutral or at most, mildly negative. This is in keeping with Brett et al (2013) who found that the appraisal themselves were the predictor of distress and not membership of a clinical/non-clinical group. Power et al (2015) also suggested that distress should not be considered a criterion to transition to psychosis and that other aspects of the PLE may be associated with the distress, such as danger, power, control, powerlessness, and agency.

Positive appraisals of paranoia and hallucinations were also associated with distress in two of the included papers. This was not in line with predictions. Although, the association with distress was weaker than it was for negative beliefs. Campbell and Morrison (2007) have suggested that believing that such experiences made their life more exciting and helped with their survival could mean that they were more likely to hold delusional ideas. This is also in line with Morrison (2001) who suggested a role for positive meta-cognitive beliefs in psychotic beliefs. Although this is not directly linked to distress, a meta-analysis by Howes et al. (2021) suggests that having delusional beliefs for a longer period without treatment will have an impact on mental health outcomes.

4.1. Clinical implications

The findings were consistent with cognitive models of psychosis and support the use of cognitive behavioural interventions targeting the PLE appraisal. Such interventions have been found to be helpful in improving mental health outcomes (Dannahy, et al., 2011; van der Gaag et al., 2012; Thomson et al., 2017). The aims of cognitive interventions should be to alleviate the distress associated with the appraisal and not in trying to eliminate the experiences (Hayward et al., 2020; Hazell et al., 2016). This review indicates that developing normalising appraisals is beneficial for mental health outcomes. Normalising experiences in the context of the individual's life experiences should be an important focus of treatment and is often a focus in cognitive behavioural therapy (Dudley & Turkington, 2013).

It has been found in this review that “psychological” appraisals can be helpful or unhelpful for people and biological or medical appraisals were also found to be protective for people experiencing PLEs. Therefore, there is likely a role for psychoeducation, which has been found to be beneficial for people diagnosed with schizophrenia in helping to develop understanding and individual's involvement in their recovery (Masheshwari et al., 2020).

Additionally, relational approaches have been found to be beneficial to voice hearers (Hayward & May, 2007) where individuals and the therapist engage with the voice. Particularly as social rank was found to be an important influence on mental health outcome and parallels how a person also related to others socially (Birchwood et al., 2004). Perhaps this approach could also support people experiencing delusions or other PLEs as a relationship with the experience may be an important factor for appraisal.

Tsang et al. (2021) suggested that other approaches such as compassion focused therapy (Gilbert, 2005) where developing a greater “compassionate” mind and ability to self-soothe was found to have positive impact on threat appraisals in voice hearers (Mayhew & Gilbert, 2008). Such approaches with other experiences could potentially have benefit if focusing on

the appraisal and not the experience. Another third wave cognitive approach which may improve mental health outcomes as suggested by Tsang et al., (2021) for people experiencing PLEs could be Acceptance and Commitment Therapy (ACT; Bach & Hayes, 2002) as it considers the appraisal of control. However, whichever therapy is chosen if the person wishes to seek help, the clinician should consider the person's individual, social, and cultural context and the meaning and appraisal of their experiences.

4.2.Strengths and limitations

A strength of this review was that it is the first review to look at a wider range of PLEs and how they are appraised, as well as a wide range of mental health outcomes. However, there were several limitations with this review. Firstly, most of the included studies used cross-sectional designs. Therefore, inferences about the direction of influence between appraisal and mental health outcome were unable to be made. In addition, although there is evidence to indicate that appraisals of PLEs remain stable over time, without intervention, we do not know if changes in appraisal over time has an impact on mental health (Csipke & Kinderman, 2006; Hartigan et al., 2014).

Weak scores on the risk of bias tool, due to many of the studies methodologies was another limitation of this review. For example, many of the studies lacked blinding of assessors, did not use a power analysis, or did not justify their sample sizes. Many of the studies also did not control for demographic factors and recruited from a limited geographic area. Therefore, many extraneous variables may have impacted the results. The heterogeneity of how results were reported made it challenging to synthesise the statistics in a more clear and focused way, such as using meta-analysis. The cross-sectional nature of the studies mean conclusions about cause and effect are limited. As only five of the included studies were rated as moderate in quality, it is hard to draw conclusions about differences in effect sizes and in results between

the moderate and weak studies. The low quality of many of the included papers means the results should be interpreted with caution.

Additionally, the search strategy may not have been inclusive enough in the language and terms used. There has much debate and different terms used for PLE and this is covered in a review by Lee et al., (2016). This may have led to missing some relevant research studies. However, a forward and backward search may have overcome this problem, as more studies were then included in the review. Furthermore, a second person to review the inclusion and exclusion criteria against several the included and excluded studies was not used. This would have increased the reliability of the included papers.

4.3. Future Research

It may be beneficial for further research to focus on a greater variety of PLEs other than auditory hallucinations. Further studies on therapies such as relational approaches, third wave behavioural therapies such as compassionate mind approaches and ACT with people who have a wide range of PLEs would also be helpful to aid our understanding of what improves mental health outcomes. More longitudinal studies to see how appraisals may change over time and the impact of this on mental health outcome would also be beneficial.

Furthermore, the interplay between appraisals and mental health outcome could be further explored. It is possible that certain appraisals, alongside self-schemas, or metacognitions may interact in ways that impact mental health outcome. This could be explored further through mediation and moderation analyses. For example, negative appraisals about a voice have previously been linked with a negative sense of self (Thomas, et al, 2015). It is also likely that people experience several PLEs at the same time and may have different relationships and appraisals of them, however, it may be difficult to untangle the cause of

distress or positive mental health outcomes. Such predictions would be in keeping with the cognitive model of psychosis but have been mainly unexplored in the literature.

4.4. Conclusions

This review has found evidence for an association appraisal type and mental health outcome and this was mainly consistent across different types of experiences. Future research would benefit from being longitudinal, exploring different therapies, having more robust experimental designs, and considering the interplay between appraisals and how they impact mental health. The results are supportive the use of cognitive behavioural approaches and to consider other factors which might contribute to poorer mental health outcomes.

References

- Ahmed, A. O., Buckley, P. F., & Mabe, P. A. (2012). Latent structure of psychotic experiences in the general population. *Acta Psychiatrica Scandinavica*, *125*(1), 54–65. <https://doi.org/10.1111/j.1600-0447.2011.01800.x>
- *Andrew, E. M., Gray, N. S., & Snowden, R. J. (2008). The relationship between trauma and beliefs about hearing voices: a study of psychiatric and non-psychiatric voice hearers. *Psychological medicine*, *38*(10), 1409–1417. <https://doi.org/10.1017/S003329170700253X>
- Bach, P., & Hayes, S. C. (2002). The use of acceptance and commitment therapy to prevent the rehospitalization of psychotic patients: a randomized controlled trial. *Journal of consulting and clinical psychology*, *70*(5), 1129. <https://doi.org/10.1037/0022-006X.70.5.1129>
- Bak, M., Krabbendam, L., Janssen, I., de Graaf, R., Vollebergh, W., & van Os, J. (2005). Early trauma may increase the risk for psychotic experiences by impacting on emotional response and perception of control. *Acta Psychiatrica Scandinavica*, *112*(5), 360–366. <https://doi.org/10.1111/j.1600-0447.2005.00646.x>
- Baumeister, D., Sedgwick, O., Howes, O., & Peters, E. (2017). Auditory verbal hallucinations and continuum models of psychosis: a systematic review of the healthy voice-hearer literature. *Clinical psychology review*, *51*, 125–141. <https://doi.org/10.1016/j.cpr.2016.10.010>
- Beer, M. D. (1996). Psychosis: a history of the concept. *Comprehensive psychiatry*, *37*(4), 273–291. [https://doi.org/10.1016/S0010-440X\(96\)90007-3](https://doi.org/10.1016/S0010-440X(96)90007-3)

Benjamin, L. S. (2000). *SASB Intrex user's manual for short, medium and long form questionnaires*. University of Utah.

*Birchwood, M., & Chadwick, P. (1997). The omnipotence of voices: testing the validity of a cognitive model. *Psychological medicine*, 27(6), 1345–1353.
<https://doi.org/10.1017/S0033291797005552>

*Birchwood, M., Gilbert, P., Gilbert, J., Trower, P., Meaden, A., Hay, J., Murray, E., & Miles, J. N. V. (2004). Interpersonal and role-related schema influence the relationship with the dominant 'voice' in schizophrenia: a comparison of three models. *Psychological medicine*, 34(8), 1571–1580. <https://doi.org/10.1017/S0033291704002636>

Birchwood, M., Iqbal, Z., & Upthegrove, R. (2005). Psychological pathways to depression in schizophrenia. *European archives of psychiatry and clinical neuroscience*, 255(3), 202–212. <http://doi.org/10.1007/s00406-005-0588-4>

*Birchwood, M., Meaden, A., Trower, P., Gilbert, P., & Plaistow, J. (2000). The power and omnipotence of voices: subordination and entrapment by voices and significant others. *Psychological medicine*, 30(2), 337–344.
<https://doi.org/10.1017/S0033291799001828>

Birchwood, M., Trower, P., Brunet, K., Gilbert, P., Iqbal, Z., & Jackson, C. (2007). Social anxiety and the shame of psychosis: a study in first episode psychosis. *Behaviour research and therapy*, 45(5), 1025–1037. <https://doi.org/10.1016/j.brat.2006.07.011>

*Brett, C., Heriot-Maitland, C., McGuire, P., & Peters, E. (2013). Predictors of distress associated with psychotic-like anomalous experiences in clinical and non-clinical populations. *British Journal of Clinical Psychology*, 53(2), 213–227.
<https://doi.org/10.1111/bjc.12036>

- *Brett, C. M. C., Peters, E. P., Johns, L. C., Tabraham, P., Valmaggia, L. R., & McGuire, P. K. (2007). Appraisals of Anomalous Experiences Interview (AANEX): a multidimensional measure of psychological responses to anomalies associated with psychosis. *The British Journal of Psychiatry*, *191*(S51), s23–s30. <https://doi.org/10.1192/bjp.191.51.s23>
- Bryant, R. A., & Guthrie, R. M. (2005). Maladaptive appraisals as a risk factor for posttraumatic stress: A study of trainee firefighters. *Psychological Science*, *16*(10), 749–752. <https://doi.org/10.1111/j.1467-9280.2005.01608.x>
- Byrne, R., & Morrison, A. P. (2010). Young people at risk of psychosis: A user-led exploration of interpersonal relationships and communication of psychological difficulties. *Early Intervention in Psychiatry*, *4*(2), 162–168. <https://doi.org/10.1111/j.1751-7893.2010.00171.x>
- Csipke, E., & Kinderman, P. (2006). A longitudinal investigation of beliefs about voices. *Behavioural and Cognitive Psychotherapy*, *34*(3), 365–369. <https://doi.org/10.1017/S1352465805002675>
- *Campbell, M. L., & Morrison, A. P. (2007). The psychological consequences of combat exposure: the importance of appraisals and post-traumatic stress disorder symptomatology in the occurrence of delusional-like ideas. *British Journal of Clinical Psychology*, *46*(2), 187–201. <https://doi.org/10.1348/014466506X128287>
- *Campbell, M. L., & Morrison, A. P. (2007b). The relationship between bullying, psychotic-like experiences and appraisals in 14–16-year olds. *Behaviour research and therapy*, *45*(7), 1579–1591. <https://doi.org/10.1016/j.brat.2006.11.009>

- *Cavelti, M., Thompson, K., Hulbert, C., Betts, J., Jackson, H., Francey, S., & Chanen, A. (2019). Preliminary evidence for the cognitive model of auditory verbal hallucinations in youth with borderline personality disorder. *Frontiers in psychiatry*, *10*, 292. <https://doi.org/10.3389/fpsyt.2019.00292>
- Chadwick, P., & Birchwood, M. (1995). The omnipotence of voices II: The beliefs about voices questionnaire (BAVQ). *The British Journal of Psychiatry*, *166*(6), 773–776. <https://doi.org/10.1192/bjp.166.6.773>
- *Chadwick, P., Lees, S., & Birchwood, M. (2000). The revised beliefs about voices questionnaire (BAVQ–R). *The British Journal of Psychiatry*, *177*(3), 229–232. <https://doi.org/10.1192/bjp.177.3.229>
- Chen, R., Davydov, E. V., Sirota, M., & Butte, A. J. (2010). Non-synonymous and synonymous coding SNPs show similar likelihood and effect size of human disease association. *PLoS one*, *5*(10), e13574. <https://doi.org/10.1371/journal.pone.0013574>
- Cohen, J. (1992). A power primer. *Psychological bulletin*, *112*(1), 155. <https://doi.org/10.1037/0033-2909.112.1.155>
- *Connell, M., Scott, J. G., McGrath, J. J., Waters, F., Larøi, F., Alati, R., Najman, J., & Betts, K. (2019). A comparison of hallucinatory experiences and their appraisals in those with and without mental illness. *Psychiatry Research*, *274*, 294–300. <https://doi.org/10.1016/j.psychres.2019.01.079>
- *Connor, C., & Birchwood, M. (2013). Power and perceived expressed emotion of voices: their impact on depression and suicidal thinking in those who hear voices. *Clinical psychology & psychotherapy*, *20*(3), 199–205. <https://doi.org/10.1002/cpp/798>

- Daalman, K., Boks, M. P., Diederer, K. M., de Weijer, A. D., Blom, J. D., Kahn, R. S., & Sommer, I. E. (2011). The same or different? A phenomenological comparison of auditory verbal hallucinations in healthy and psychotic individuals. *The Journal of clinical psychiatry*, 72(3), 18878. <https://doi.org/10.4088/JCP.09m05797yel>
- Dannahy, L., Hayward, M., Strauss, C., Turton, W., Harding, E., & Chadwick, P. (2011). Group person-based cognitive therapy for distressing voices: pilot data from nine groups. *Journal of behavior therapy and experimental psychiatry*, 42(1), 111–116. <https://doi.org/10.1016/j.jbtep.2010.07.006>
- *Davies, M. F., Griffin, M., & Vice, S. (2001). Affective reactions to auditory hallucinations in psychotic, evangelical and control groups. *British journal of clinical psychology*, 40(4), 361–370. <https://doi.org/10.1348/014466501163850>
- de Leede-Smith, S., & Barkus, E. (2013). A comprehensive review of auditory verbal hallucinations: lifetime prevalence, correlates and mechanisms in healthy and clinical individuals. *Frontiers in human neuroscience*, 7, 367. <https://doi.org/10.3389/fnhum.2013.00367>
- Dein, S., & Cook, C. C. (2015). God put a thought into my mind: the charismatic Christian experience of receiving communications from God. *Mental Health, Religion & Culture*, 18(2), 97–113. <https://doi.org/10.1080/13674676.2014.1002761>
- Dudley, R., Aynsworth, C., Cheetham, R., McCarthy-Jones, S., & Collerton, D. (2018). Prevalence and characteristics of multi-modal hallucinations in people with psychosis who experience visual hallucinations. *Psychiatry Research*, 269, 25–30. <https://doi.org/10.1016/j.psychres.2018.08.032>

Dudley, R., & Turkington, D. (2013). Using normalising in cognitive behavioural therapy for schizophrenia. In *CBT for Psychosis* (pp. 77–85). Routledge.

Dudley, R., Wood, M., Spencer, H., Brabban, A., Mosimann, U. P., & Collerton, D. (2012). Identifying specific interpretations and use of safety behaviours in people with distressing visual hallucinations: an exploratory study. *Behavioural and cognitive psychotherapy*, 40(3), 367–375. <https://doi.org/10.1017/S1352465811000750>

*Dugré, J. R., & West, M. L. (2019). Disentangling compliance with command hallucinations: heterogeneity of voice intents and their clinical correlates. *Schizophrenia Research*, 212, 33–39. <https://doi.org/10.1016/j.schres.2019.08.016>

Ellett, L., Luzon, O., Birchwood, M., Abbas, Z., Harris, A., & Chadwick, P. (2017). Distress, omnipotence, and responsibility beliefs in command hallucinations. *British Journal of Clinical Psychology*, 56(3), 303–309. <https://doi.org/10.1111/bjc.12139>

Esteves, S. C., Majzoun, A., & Agarwal, A. (2017). The problem of mixing ‘apples and oranges’ in meta-analytic studies. *Translational Andrology and Urology*, 6(\$), S412–S413. <https://doi.org/10.21037/tau.2017.03.23>

*Fannon, D., Hayward, P., Thompson, N., Green, N., Surguladze, S., & Wykes, T. (2009). The self or the voice? Relative contributions of self-esteem and voice appraisal in persistent auditory hallucinations. *Schizophrenia Research*, 112(1-3), 174–180. <https://doi.org/10.1016/j.schres.2009.03.031>

*Fielding-Smith, S. F., Greenwood, K. E., Wichers, M., Peters, E., & Hayward, M. (2022). Associations between responses to voices, distress and appraisals during daily life: an ecological validation of the cognitive behavioural model. *Psychological medicine*, 52(3), 538–547. <https://doi.org/10.1018/S0033291720002238>

- *Freeman, D., Garety, P. A., Bebbington, P., Slater, M., Kuipers, E., Fowler, D., Green, C., Jordan, J., Ray, K., & Dunn, G. (2005). The psychology of persecutory ideation II: a virtual reality experimental study. *The Journal of nervous and mental disease, 193*(5), 309–315. <https://doi.org/10.1097/01.nmd.0000161686.53245.70>
- Foa, E. B., Ehlers, A., Clark, D. M., Tolin, D. F., & Orsillo, S. M. (1999). The posttraumatic cognitions inventory (PTCI): Development and validation. *Psychological assessment, 11*(3), 303. <https://doi.org/10.1037/1040-3590.11.3.303>
- Garety, P. A., Bebbington, P., Fowler, D., Freeman, D., & Kuipers, E. (2007). Implications for neurobiological research of cognitive models of psychosis: a theoretical paper. *Psychological medicine, 37*(10), 1377–1391. <https://doi.org/10.1017/S003329170700013X>
- *Gauntlett-Gilbert, J., & Kuipers, E. (2005). Visual hallucinations in psychiatric conditions: appraisals and their relationship to distress. *British Journal of Clinical Psychology, 44*(1), 77–87. <https://doi.org/10.1348/014466504x19451>
- *Gaynor, K., Ward, T., Garety, P., & Peters, E. (2013). The role of safety-seeking behaviours in maintaining threat appraisals in psychosis. *Behaviour research and therapy, 51*(2), 75–81. <https://doi.org/10.1016/j.brat.2012.10.008>
- Geekie, J. (2007). *The experience of psychosis: Fragmentation, invalidation and spirituality* (Doctoral dissertation, ResearchSpace@ Auckland).
- Gilbert, P. (2000). The relationship of shame, social anxiety and depression: The role of the evaluation of social rank. *Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice, 7*(3), 174–189. [https://doi.org/10.1002/1099-0879\(200007\)7:3<174::AID-CPP236>3.0.CO;2-U](https://doi.org/10.1002/1099-0879(200007)7:3<174::AID-CPP236>3.0.CO;2-U)

- Gilbert, P. (Ed.). (2005). *Compassion: Conceptualisations, research and use in psychotherapy*. Routledge.
- Gopalkrishnan, N. (2018). Cultural diversity and mental health: Considerations for policy and practice. *Frontiers in public health*, 6, 179. <https://doi.org/10.3389/fpubh.2018.00179>
- Granek, L., Danan, D., Bersudsky, Y., & Osher, Y. (2016). Living with bipolar disorder: the impact on patients, spouses, and their marital relationship. *Bipolar disorders*, 18(2), 192–199. <https://doi.org/10.1111/bdi.12370>
- *Green, C., Garety, P. A., Freeman, D., Fowler, D., Bebbington, P., Dunn, G., & Kuipers, E. (2006). Content and affect in persecutory delusions. *British Journal of Clinical Psychology*, 45(4), 561–577. <https://doi.org/10.1248/014466506X98768>
- Grupe, D. W., & Nitschke, J. B. (2013). Uncertainty and anticipation in anxiety: an integrated neurobiological and psychological perspective. *Nature Reviews Neuroscience*, 14(7), 488–501. <https://doi.org/10.1038/nrn3524>
- Hartigan, N., & Ranger, G. (2014). Cognitive behaviour therapy for schizophrenia in a community mental health team. *Mental Health Practice*, 18(3). <https://doi.org/10.7748/mhp.18.3.22.e878>
- Hartley, S., Barrowclough, C., & Haddock, G. (2013). Anxiety and depression in psychosis: a systematic review of associations with positive psychotic symptoms. *Acta Psychiatrica Scandinavica*, 128(5), 327–346. <https://doi.org/10.1111/acps.12080>
- Hayward, M., Berry, C., Cameron, B., Arnold, K., Berry, K., Bremner, S., Cavanagh, K., Fowler, D., Gage, H., Greenwood, K., Hazell, C., Jones, A., Robertson, S., & Strauss, C. (2020). Increasing access to CBT for psychosis patients: a feasibility, randomised controlled trial evaluating brief, targeted CBT for distressing voices delivered by

assistant psychologists (GiVE2). *Trials*, 21(1), 1–14. <https://doi.org/10.1186/s13063-020-4181-y>

Hayward, M., Denney, J., Vaughan, S. & Fowler, D. (2008). The voice and you: development and psychometric evaluation of measure of relationships with voices. *Clinical Psychology and Psychotherapy*, 15 (1), 45–52. <https://doi.org/10.1002/cpp.561>

*Hayward, M., Jones, A. M., Strawson, W. H., Quadt, L., Larsson, D. E., Silva, M., Davies, G., Fielding-Smith, S., Hazell, C., Critchley, H. D., & Garfinkel, S. N. (2022). A cross-sectional study of auditory verbal hallucinations experienced by people with a diagnosis of borderline personality disorder. *Clinical Psychology & Psychotherapy*, 29(2), 631–641. <https://doi.org/10.1002/cpp.2655>

Hayward, M., & May, R. (2007). Daring to talk back. *Mental Health Practice (through 2013)*, 10(9), 12.

Hazell, C. M., Hayward, M., Cavanagh, K., & Strauss, C. (2016). A systematic review and meta- analysis of low intensity CBT for psychosis. *Clinical Psychology Review*, 45, 183–192. <https://doi.org/10.1016/j.cpr.2016.03.004>

*Honig, A., Romme, M. A., Ensink, B. J., Escher, S. D., Pennings, M. H., & Devries, M. W. (1998). Auditory hallucinations: a comparison between patients and nonpatients. *The Journal of nervous and mental disease*, 186(10), 646–651. <https://doi.org/10.1097/00005053-199810000-00009>

Howes, O. D., Whitehurst, T., Shatalina, E., Townsend, L., Onwordi, E. C., Mak, T. L. A., Arumuham, A., O'Brien, O., Lobo, M., Vano, L., Zahid, U., Butler, E., & Osugo, M. (2021). The clinical significance of duration of untreated psychosis: an umbrella review

and random-effects meta-analysis. *World Psychiatry*, 20(1), 75–95.
<https://doi.org/10.1002/wps.20822>

*Hustig, H. H., & Hafner, R. J. (1990). Persistent auditory hallucinations and their relationship to delusions and mood. *Journal of Nervous and Mental Disease*.
<https://doi.org/10.1097/00005053-199004000-00009>

*Hutton, P., Di Rienzo, F., Turkington, D., Spencer, H., & Taylor, P. (2019). Suicidal ideation in people with psychosis not taking antipsychotic medication: Do negative appraisals and negative metacognitive beliefs mediate the effect of symptoms? *Schizophrenia bulletin*, 45(1), 37–47. <https://doi.org/10.1093/schbul/sby153>

Johns, L. C., Kompus, K., Connell, M., Humpston, C., Lincoln, T. M., Longden, E., Preti, A., Alderson-Day, B., Badcock, J. C., Cella, M., Fernyhough, C., McCarthy-Jones, S., Peters, E., Raballo, A., Scott, J., Siddi, S., Sommer, I. E., & Larøi, F. (2014). Auditory verbal hallucinations in persons with and without a need for care. *Schizophrenia bulletin*, 40(4), S255–S264. <https://doi.org/10.1093/schbul/sbu005>

Kaymaz, N., Drukker, M., Lieb, R., Wittchen, H. U., Werbeloff, N., Weiser, M., Lataste, T., & Van Os, J. (2012). Do subthreshold psychotic experiences predict clinical outcomes in unselected non-help-seeking population-based samples? A systematic review and meta-analysis, enriched with new results. *Psychological medicine*, 42(11), 2239–2253.
<https://doi.org/10.1017/S0033291711002911>

Kennedy, J. E., & Kanthamani, H. (1995). An exploratory study of the effects of paranormal and spiritual experiences on peoples' lives and well-being. *Journal of the American Society for Psychical Research*, 89(3), 249–264.

- Kuipers, E., & Bebbington, P. (2006). Cognitive behaviour therapy for psychosis. *Epidemiology and Psychiatric Sciences*, *15*(4), 267–275.
<https://doi.org/10.1017/S1121189X00002153>
- Larson, R., & Csikszentmihalyi, M. (1983). The experience sampling method in H. Reis (Ed.), *New directions for naturalistic methods in the behavioural science*. San Francisco: Jossey-Bass
- Lawrie, S. M., Hall, J., McIntosh, A. M., Owens, D. G., & Johnstone, E. C. (2010). The ‘continuum of psychosis’: scientifically unproven and clinically impractical. *The British Journal of Psychiatry*, *197*(6), 423–425.
<https://doi.org/10.1192/bjp.bp.109.072827>
- Lee, K. W., Chan, K. W., Chang, W. C., Lee, E. H. M., Hui, C. L. M., & Chen, E. Y. H. (2016). A systematic review on definitions and assessments of psychotic-like experiences. *Early Intervention in Psychiatry*, *10*(1), 3–16.
<https://doi.org/10.1111/eip.12228>
- Linscott, R. J., & Van Os, J. (2013). An updated and conservative systematic review and meta-analysis of epidemiological evidence on psychotic experiences in children and adults: on the pathway from proneness to persistence to dimensional expression across mental disorders. *Psychological medicine*, *43*(6), 1133–1149.
<https://doi.org/10.1017/S0033291712001626>
- *Lovatt, A., Mason, O., Brett, C., & Peters, E. (2010). Psychotic-like experiences, appraisals, and trauma. *The Journal of nervous and mental disease*, *198*(11), 813–819.
<https://10.1097/NMD.0b013e3181f97c3d>

- *Lucas, S., & Wade, T. (2001). An examination of the power of the voices in predicting the mental state of people experiencing psychosis. *Behaviour Change*, *18*(1), 51–57.
<https://doi.org/10.1375/bech.18.1.51>
- Maheshwari, S., Manohar, S., Chandran, S., & Rao, T. S. S. (2020). Psycho-education in schizophrenia. In *Schizophrenia treatment outcomes* (pp. 275–284). Springer, Cham
- Mawson, A., Cohen, K., & Berry, K. (2010). Reviewing evidence for the cognitive model of auditory hallucinations: The relationship between cognitive voice appraisals and distress during psychosis. *Clinical psychology review*, *30*(2), 248–258.
<https://doi.org/10.1016/j.cpr.2009.11.006>
- Mayhew, S. L., & Gilbert, P. (2008). Compassionate mind training with people who hear malevolent voices: A case series report. *Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice*, *15*(2), 113–138.
<https://doi.org/10.1002/cpp.566>
- McManus, S., Bebbington, P. E., Jenkins, R., & Brugha, T. (2016). *Mental health and wellbeing in England: the adult psychiatric morbidity survey 2014*. NHS digital
- McManus, S., Meltzer, H., Brugha, T. S., Bebbington, P. E., & Jenkins, R. (2009). *Adult psychiatric morbidity in England, 2007: results of a household survey*. The NHS Information Centre for Health and Social Care
- *Morris, E. M., Garety, P., & Peters, E. (2014). Psychological flexibility and nonjudgemental acceptance in voice hearers: relationships with omnipotence and distress. *Australian & New Zealand Journal of Psychiatry*, *48*(12), 1150–1162.
<https://doi.org/10.1177/0004867414535671>

- Morrison, A. P. (2001). The interpretation of intrusions in psychosis: an integrative cognitive approach to hallucinations and delusions. *Behavioural and cognitive psychotherapy*, 29(3), 257–276. <https://doi.org/10.1017/S1352465801003010>
- Morrison, A. P., Gumley, A. I., Schwannauer, M., Campbell, M., Gleeson, A., Griffin, E., & Gillan, K. (2005). The beliefs about paranoia scale: Preliminary validation of a metacognitive approach to conceptualizing paranoia. *Behavioural and cognitive psychotherapy*, 33(2), 153–164. <https://doi.org/10.1017/S1352465804001900>
- *Morrison, A. P., Nothard, S., Bowe, S. E., & Wells, A. (2004). Interpretations of voices in patients with hallucinations and non-patient controls: a comparison and predictors of distress in patients. *Behaviour research and therapy*, 42(11), 1315–1323. <https://doi.org/10.1016/j.brat.2003.08.009>
- Murphy, E. K., Tully, S., Pyle, M., Gumley, A. I., Kingdon, D., Schwannauer, M., Turkington, D. & Morrison, A. P. (2017). The beliefs about paranoia scale: Confirmatory factor analysis and tests of a metacognitive model of paranoia in a clinical sample. *Psychiatry Research*. 248, 87–94. <https://doi.org/10.1016/j.psychres.2016.11.012>
- National Institute for Health and Care Excellence. (2011). Common mental health disorders: Identification and pathways to care (NICE Guideline CG123) <https://www.nice.org.uk/guidance/cg123/>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S. . . . Moher, D. (2021). The PRISMA 2020 statement: an updated

guideline for reporting systematic reviews. *International Journal of Surgery*, 88, 105906. <https://doi.org/10.1136/bmj.n71>

*Peters, E., Day, S., McKenna, J., & Orbach, G. (1999). Delusional ideation in religious and psychotic populations. *British journal of clinical psychology*, 38(1), 83–96. <https://doi.org/10.1348/014466599162683>

Peters, E. R., Joseph, S. A., & Garety, P. A. (1999). Measurement of delusional ideation in the normal population: introducing the PDI (Peters et al. Delusions Inventory). *Schizophrenia bulletin*, 25(3), 553–576. <https://doi.org/10.1093/oxfordjournals.schbul.a033401>

*Peters, E., Lataster, T., Greenwood, K., Kuipers, E., Scott, J., Williams, S., Garety, P., & Myin-Germeys, I. (2012). Appraisals, psychotic symptoms and affect in daily life. *Psychological medicine*, 42(5), 1013–1023. <https://doi.org/10.1017/S0033291711001802>

*Peters, E., Ward, T., Jackson, M., Woodruff, P., Morgan, C., McGuire, P., & Garety, P. A. (2017). Clinical relevance of appraisals of persistent psychotic experiences in people with and without a need for care: an experimental study. *The Lancet Psychiatry*, 4(12), 927–936. [https://doi.org/10.1016/S2215-0366\(17\)30409-1](https://doi.org/10.1016/S2215-0366(17)30409-1)

*Peters, E. R., Williams, S. L., Cooke, M. A., & Kuipers, E. (2012). It's not what you hear, it's the way you think about it: appraisals as determinants of affect and behaviour in voice hearers. *Psychological medicine*, 42(7), 1507–1514. <https://doi.org/10.1017/S0033291711002650>

Power, L., Polari, A. R., Yung, A. R., McGorry, P. D., & Nelson, B. (2016). Distress in relation to attenuated psychotic symptoms in the ultra-high-risk population is not associated

with increased risk of psychotic disorder. *Early intervention in psychiatry*, 10(3), 258–262. <https://doi.org/10.1111/eip.12233>

Sanjuan, J., Gonzalez, J. C., Aguilar, E. J., Leal, C., & Van Os, J. (2004). Pleasurable auditory hallucinations. *Acta Psychiatrica Scandinavica*, 110(4), 273–278. <https://doi.org/10.1111/j.1600-0447.2004.00336.x>

Scherer, K. R. (1999). Appraisal theory. In T. Dalgleish & M. J. Power (Eds.), *Handbook of cognition and emotion* (pp. 637–663). John Wiley & Sons Ltd. <https://doi.org/10.1002/0470013494.ch30>

*Slotema, C. W., Blom, J. D., Deen, M., Niemantsverdriet, M. B., Van Der Gaag, M., Hoek, H. W., & Sommer, I. E. (2017). Negative beliefs about voices in patients with borderline personality disorder are associated with distress: a plea for cognitive-behavioural therapy? *Psychopathology*, 50(4), 255–261. <https://doi.org/10.1159/000477669>

*Soppitt, R., & Birchwood, M. (1997). Depression, beliefs, voice content and topography: A cross-sectional study of schizophrenic patients with auditory verbal hallucinations. *Journal of Mental Health*, 6(5), 525–532. <https://doi.org/10.1080/09638239718617>

*Sorrell, E., Hayward, M., & Meddings, S. (2010). Interpersonal processes and hearing voices: a study of the association between relating to voices and distress in clinical and non-clinical hearers. *Behavioural and cognitive psychotherapy*, 38(2), 127–140. <https://doi.org/10.1017/S1352465809990506>

- *Taylor, H. E., Parker, S., Mansell, W., & Morrison, A. P. (2013). Effects of appraisals of anomalous experience on distress in people at risk of psychosis. *Behavioural and cognitive psychotherapy*, *41*(1), 24–33. <https://doi.org/10.1017/S1352465812000227>
- *Taylor, P. J., Pyle, M., Schwannauer, M., Hutton, P., & Morrison, A. (2015). Confirming the structure of negative beliefs about psychosis and bipolar disorder: A confirmatory factor analysis study of the Personal Beliefs about Experience Questionnaire and Personal Beliefs about Illness Questionnaire. *British Journal of Clinical Psychology*, *54*(4), 361–377. <https://doi.org/10.1111/bjc.12079>
- Thomas, N., Farhall, J., & Shawyer, F. (2015). Beliefs about voices and schemas about self and others in psychosis. *Behavioural and Cognitive Psychotherapy*, *43*(2), 209–223. <https://doi.org/10.1017/S1352465813000817>
- *Thomas, N., McLeod, H. J., & Brewin, C. R. (2009). Interpersonal complementarity in responses to auditory hallucinations in psychosis. *British Journal of Clinical Psychology*, *48*(4), 411–424. <https://doi.org/10.1348/014466509X411937>
- Thomson, C., Wilson, R., Collerton, D., Freeston, M., & Dudley, R. (2017). Cognitive behavioural therapy for visual hallucinations: an investigation using a single-case experimental design. *The Cognitive Behaviour Therapist*, *10*. <https://doi.org/10.1017/S1754470X17000174>
- Tsang, A., Bucci, S., Branitsky, A., Kaptan, S., Rafiq, S., Wong, S., Berry, K., & Varese, F. (2021). The relationship between appraisals of voices (auditory verbal hallucinations) and distress in voice-hearers with schizophrenia-spectrum diagnoses: A meta-analytic review. *Schizophrenia Research*, *230*, 38–47. <https://doi.org/10.1016/j.schres.2021.02.013>

- *Underwood, R., Kumari, V., & Peters, E. (2016). Cognitive and neural models of threat appraisal in psychosis: a theoretical integration. *Psychiatry Research*, *239*, 131–138. <https://doi.org/10.1016/j.psychres.2016.03.016>
- van der Gaag, M., Nieman, D. H., Rietdijk, J., Dragt, S., Ising, H. K., Klaassen, R. M., Koeter, M., Cuijpers, P., Wunderink, L., & Linszen, D. H. (2012). Cognitive behavioral therapy for subjects at ultrahigh risk for developing psychosis: a randomized controlled clinical trial. *Schizophrenia bulletin*, *38*(6), 1180–1188. <https://doi.org/10.1093/schbul/sbs105>
- van Os, J., Driessen, G., Gunther, N., & Delespaul, P. (2000). Neighbourhood variation in incidence of schizophrenia: evidence for person-environment interaction. *The British Journal of Psychiatry*, *176*(3), 243–248. <https://doi.org/10.1192/bjp.176.3.243>
- van Os, J., Hanssen, M., Bijl, R. V., & Vollebergh, W. (2001). Prevalence of psychotic disorder and community level of psychotic symptoms: an urban-rural comparison. *Archives of general psychiatry*, *58*(7), 663–668. <https://doi.org/10.1001/archpsyc.58.7.663>
- van Os, J., Linscott, R. J., Myin-Germeys, I., Delespaul, P., & Krabbendam, L. J. P. M. (2009). A systematic review and meta-analysis of the psychosis continuum: evidence for a psychosis proneness–persistence–impairment model of psychotic disorder. *Psychological medicine*, *39*(2), 179–195. <https://doi.org/10.1017/S0033291708003814>
- *Varese, F., Morrison, A. P., Beck, R., Heffernan, S., Law, H., & Bentall, R. P. (2016). Experiential avoidance and appraisals of voices as predictors of voice-related distress. *British Journal of Clinical Psychology*, *55*(3), 320–331. <https://doi.org/10.1111/bjc.12102>

- Wagner, L. C., & King, M. (2005). Existential needs of people with psychotic disorders in Porto Alegre, Brazil. *The British Journal of Psychiatry*, *186*(2), 141–145. <https://doi.org/10.1192/bjp.186.2.141>
- *Ward, T. A., Gaynor, K. J., Hunter, M. D., Woodruff, P. W., Garety, P. A., & Peters, E. R. (2014). Appraisals and responses to experimental symptom analogues in clinical and nonclinical individuals with psychotic experiences. *Schizophrenia bulletin*, *40*(4), 845–855. <https://doi.org/10.1093/schbul/sbt094>
- Yung, A. R., Nelson, B., Baker, K., Buckby, J. A., Baksheev, G., & Cosgrave, E. M. (2009). Psychotic-like experiences in a community sample of adolescents: implications for the continuum model of psychosis and prediction of schizophrenia. *Australian & New Zealand Journal of Psychiatry*, *43*(2), 118–128. <https://doi.org/10.1080/00048670802607188>

Appendix b

Extra filters in search strategy

Extra filters for Scopus:

- Limited to (subjects): medicine, psychology, neuroscience, social sciences, nursing
- Language: English
- Document type: article
- Source type: journal

Extra filters for Proquest dissertation and theses

- Doctoral thesis only
- Within the last five year
- Limited to (subjects) psychology OR clinical psychology OR mental health OR behavioural psychology OR cognitive psychology
- Language: English

Appendix c

A table to show the risk of bias ratings

Authors (year)	Selection bias	Study design	Confounders	Blinding	Data collection methods	Withdrawals and dropouts	Analysis appropriate to Question	Overall quality score
Andrew, Gray and Snowden (2008)	Weak	Weak	Weak	Weak	Strong	N/A	Yes	Weak
Birchwood and Chadwick (1997)	Moderate	Weak	Weak	Moderate	Strong	N/A	Yes	Weak
Birchwood, Gilbert, Gilbert, Trower, Meaden, Hay, Murray, and Miles (2004).	Weak	Weak	Weak	Weak	Strong	N/A	Yes	Weak
Birchwood, Meaden, Trower, Gilbert, and Plaistow (2000)	Moderate	Weak	Weak	Weak	Strong	N/A	Yes	Weak
Brett, Heriot-Maitland, McGuire, and Peters (2013)	Moderate	Weak	Weak	Weak	Strong	N/A	Yes	Weak
Brett, Peters, Johns, Tabraham, Valmaggia, and McGuire (2007)	Strong	Weak	Moderate	Weak	Strong	N/A	Yes	Weak,
Campbell and Morrison (2007a).	Moderate	Weak	Weak	Weak	Strong	N/A	Yes	Weak

Campbell and Morrison (2007b)	Weak	Weak	Weak	Weak	Strong	N/A	Yes	Weak
Cavelti, Thompson, Hulbert, Betts, Jackson, Francey, and Chanen (2019)	Weak	Weak	Moderate	Weak	Strong	N/A	Yes	Weak
Chadwick, Lees, and Birchwood (2000)	Moderate	Weak	Weak	Weak	Strong	N/A	Yes	Weak
Connell, Scott, McGrath, Waters, Larøi, Alati, Najman, and Betts (2019)	Moderate	Weak	Moderate	Moderate	Moderate	N/A	Yes	Moderate
Connor and Birchwood (2013).	Moderate	Weak	Weak	Weak	Strong	N/A	Yes	Weak
Davies, Griffin and Vice (2001)	Strong	Weak	Strong	Weak	Strong	N/A	Yes	Weak
Dugré and West (2019)	Moderate	Weak	Moderate	Weak	Strong	N/A	Yes	Weak
Ellett, Luzon, Birchwood, Abbas, Harris, and Chadwick (2017)	Moderate	Weak	Moderate	Weak	Strong	N/A	Yes	Weak
Fannon, Hayward, Thompson, Green, Surguladze, and Wykes (2009)	Moderate	Weak	Weak	Weak	Strong	N/A	Yes	Weak
Fielding-Smith, Greenwood, Wichers, Peters, and Hayward (2022)	Moderate	Weak	Weak	Weak	Strong	Strong	Yes	Weak

Freeman, Garety, Bebbington, Slater, Kuipers, Fowler, Green, Jordan, Ray, and Dunn (2005)	Moderate	Weak	Weak	Moderate	Moderate	N/A	Yes	Weak
Gauntlett-Gilbert and Kuipers (2005)	Moderate	Weak	Weak	Moderate	Strong	N/A	Yes	Weak
Gaynor, Ward, Garety, and Peters (2013)	Moderate	Weak	Weak	Weak	Strong	N/A	Yes	Weak
Green, Garety, Freeman, Fowler, Bebbington, Dunn, and Kuipers (2006)	Moderate	Weak	Weak	Moderate	Strong	N/A	Yes	Weak
Hayward, Jones, Strawson, Quadt, Larsson, Silva, Davies, Fielding-Smith, Hazell, Critchley, and Garfinkel (2021)	Moderate	Weak	Weak	Weak	Strong	N/A	Yes	Weak
Honig, Romme, Ensink, Escher, Pennings, and Devries (1998)	Moderate	Weak	Moderate	Weak	Weak	N/A	Yes	Weak
Hustig and Hafner (1990)	Weak	Moderate	Weak	Weak	Weak	Moderate	Yes	Weak
Hutton, Di Rienzo, Turkington, Spencer, and Taylor (2018)	Moderate	Moderate	Strong	Weak	Strong	Moderate	Yes	Moderate
Lovatt, Mason, Brett, and Peters (2010)	Moderate	Weak	Moderate	Weak	Strong	N/A	Yes	Weak
Lucas and Wade (2001)	Moderate	Moderate	Weak	Weak	Strong	Strong	Yes	Weak
Morris, Garety, and Peters (2014)	Moderate	Weak	Moderate	Weak	Strong	N/A	Yes	Weak

Morrison, Nothard, Bowe, and Wells (2004)	Weak	Weak	Weak	Weak	Strong	N/A	Yes	Weak
Peters, Day, McKenna, and Orbach (1999)	Moderate	Weak	Strong	Weak	Strong	N/A	Yes	Weak
Peters, Lataster, Greenwood, Kuipers, Scott, Williams, Garety, and Myin-Germeys (2011)	Weak	Weak	Moderate	Weak	Strong	N/A	Yes	Weak
Peters, Ward, Jackson, Woodruff, Morgan, Mcguire, and Garety (2017)	Moderate	Moderate	Weak	Weak	Strong	N/A	Yes	Weak
Peters, Williams, Cooke, and Kuipers (2012)	Moderate	Weak	Moderate	Moderate	Strong	N/A	Yes	Moderate
Slotema, Dirk Blom, Deen, Niemantsverdriet, van der Gaag, Hoek, and Sommer (2017)	Weak	Weak	Moderate	Weak	Strong	N/A	Yes	Weak
Soppitt and Birchwood (1997)	Weak	Weak	Weak	Moderate	Strong	N/A	Yes	Weak
Sorrell, Hayward, and Meddings (2009)	Moderate	Weak	Weak	Weak	Strong	N/A	Yes	Weak
Taylor, Parker, Mansell, and Morrison (2012)	Moderate	Moderate	Strong	Weak	Strong	N/A	Yes	Moderate
Taylor, Pyle, Schwannauer, Hutton, and Morrison (2015)	Moderate	Weak	Weak	Weak	Strong	N/A	Yes	Weak
Thomas, McLeod, and Brewin (2009)	Moderate	Weak	Weak	Weak	Strong	N/A	Yes	Weak

Underwood, Kumari, and Peters (2016)	Moderate	Weak	Weak	Weak	Moderate	N/A	Yes	Weak
Varese, Morrison, Beck, Heffernan, Law, and Bentall (2016)	Moderate	Weak	Weak	Weak	Strong	N/A	Yes	Weak
Ward, Gaynor, Hunter, Woodruff, Garety, and Peters (2014)	Moderate	Moderate	Strong	Weak	Strong	N/A	Yes	Moderate

Part II: Empirical Study

What Factors Influence Intentions to Regulate Psychotic Like Experiences?

Abstract

Background: The question of when a person intends to “do something” to change the way they feel about an experience is crucial to understanding when and why people seek help or try to change. The Theory of Planned Behaviour (TPB) is a framework in which to answer this question.

Objectives: The aims of the study are to determine what factors influence a person’s intention to regulate their experiences in response to psychotic-like and depressive experiences in the general population. It is hypothesised that attitudinal beliefs, normative beliefs, and control beliefs as outlined in the TPB will be associated with intentions to regulate experiences.

Methods: 198 volunteers from the general population participated. Using a cross-sectional design, participants were asked to report if they had ever had a range of experiences from the Community Assessment of Psychic Experiences (CAPE), including depressive experiences and positive and negative psychotic-like experiences. Based on a power analysis each experience that was endorsed at by at least 43 participants was analysed by multiple linear regressions, which was 25 experiences.

Results: Attitudinal, normative, and control beliefs were all associated with intention to regulate psychotic-like and depressive experiences, to varying degrees. Perceived behavioural control was most consistently associated with intention to regulate. Descriptive norms were also consistently associated with intention to regulate experiences.

Conclusions: It would be helpful for future research to consider the role of cultural beliefs. The research also highlights the importance of perceived control and creating environments where people feel like change is possible if they want it.

Key Words: Psychotic-like experiences, anomalous experiences, depressive experiences, theory of planned behaviour, psychosis continuum., CAPE, intention to regulate.

Practitioner Points:

- Control beliefs impact intention to change experience. There may be a role in therapy of focusing on understanding, reappraisal self-efficacy and acceptance to help individuals feel a greater sense of control, to support positive change.
- Health education and public health strategies regarding PLEs could help people feel more in control and allow people to make informed decisions about intention to change.
- Social norms and culture should be taken into consideration for intervention and when considering change.
- Including significant others in people's choice in intention to change their experiences and in intervention would be beneficial.

1. Introduction

When do people decide to do something about how they feel? Every day and throughout life people will have a range of experiences. Experiences may be mundane such as thinking about going to the shop. Other experiences may be viewed as more unusual, such as hearing voices other people cannot. People may want – or intend – to change or regulate the way that they feel about some experiences, but not others and this is likely to vary from person to person. For example, two people might report hearing the voice of a deceased loved one. One person may find meaning and comfort in hearing this voice, whilst another person might feel distressed by the experience (Clements et al., 2020). One prediction would be that the person who feels distressed would be more likely to want to “do something” to change their experience.

The question of when does a person decide or intend to “do something” to change the way they feel about an experience has rarely been considered in the field of clinical psychology. Research tends to focus on what people experience, when, and how (e.g., Lee et al. 2016, Cristóbal-Narváez et al. 2016, Cicero et al. 2017). However, contemporary perspectives on emotion regulation (e.g., Peña-Sarrionandia et al.; Matthews, Webb, Shafir, Snow, & Sheppes, 2022; Sheppes, Scheibe, Suri, & Gross, 2011) emphasise the importance of understanding when and why people choose to regulate. The factors involved in whether someone intends to change or regulate their behaviour, thoughts, or emotions in response to ‘experiences’ will be investigated in this project. By looking at when and why people intend to change their experiences we can understand some of the mechanisms involved in intention to change, which has important implications for both theory and clinical practice. For example, when can experiences be considered problematic for people, when and why people may want to access help or support, and what can be focused on in clinical practice. In this paper the word ‘experiences’ will be used to refer to perceived events, emotions, thoughts, and behaviours.

Increasing evidence suggests that subjective experiences exist on a spectrum ranging from mundane to anomalous (Verdoux & van Os, 2002). Cardeña, Lynn, and Krippner (2014) define an

anomalous experience as “an uncommon experience (e.g., synesthesia) or one that, although it may be experienced by a significant number of (people), is believed to deviate from ordinary experience or from the usually accepted explanations of reality according to Western mainstream science” (pg 4). Mundane experiences have been defined by the philosopher Charles Fort (1919) as things that can be explained away without a second thought. Experiences that go unnoticed because they do not challenge our preconceptions.

Another term for anomalous experiences is psychotic-like experiences (PLEs) and these are linked to psychotic symptoms (Preti, Cella, Raballo, and Vellante, 2012). PLE’s may include hearing voices, magical thinking, or feelings of paranoia for example. It has been well documented that PLEs occur in the general population without a clinical diagnosis of psychosis (van Os, Hansen, Bijl, & Ravelli, 2000). A meta-analysis by Linscott and van Os (2013) suggests that the prevalence of PLEs in the general population is approximately 7%. 80% of cases are reported to be transitory and 20% are described as persistent. Additionally, in approximately 7% of people they pre-date the onset of a psychotic disorder (Kaymaz et al., 2012; Linscott and van Os, 2013; Zammit et al., 2013). In contrast it is estimated that 1.5% of the population will have received a diagnosis of psychosis at some point in their life (van Os et al, 2001). Yung and Lin (2016) suggested that PLEs are not always maladaptive and mostly do not coincide with mental illness. However, PLEs that are associated with distress and poor functioning may be linked towards a vulnerability for a psychosis diagnosis (Yung et al., 2009).

Psychotic conditions have some of the most severe and enduring mental health outcomes. These include stigmatisation, high suicide rates, poverty, loss of economic productivity, and disengagement from society (Bentall & Morrison, 2002). As PLEs can be a precursor for psychotic conditions, especially when people are distressed by them, it is important to understand when or if people intend to change their experiences or “do anything” to regulate. This will give insight into when a person may seek intervention. A Cochrane systematic review regarding early intervention for psychosis concluded that there is emerging evidence to suggest people in the prodrome of psychosis (including

having PLEs) can be helped by some interventions (Marshall & Rathbone, 2011). Understanding the reasons why people intend to change their experiences and why some people do not intend to change their experiences might help us to understand when someone wishes to seek help. However, regulating experiences can be achieved through a variety of means and these don't always have to be considered adaptive. For example, someone may respond to a voice telling them to harm themselves in order to change their experiences and stop the voice. Support can help people find adaptive and useful strategies to regulate their experiences and could be focused on the factors which are driving the change, for example the distress, feeling "abnormal" or perceptions of control. Interventions could therefore be tailored to best meet the needs of the individual. Additionally, we shouldn't make assumptions as to how someone wants to feel. Some emotions or experiences may be seen as undesirable, however, they may be helpful to that person in the moment, for example, feelings of sadness in bereavement. Anomalous experiences can help people to cope, understand a problem, or create meaning in their lives. PLEs have been shown to be helpful at times after a traumatic incident for example (Rabeyron & Loose, 2015).

Depression is an example of another experience whereby one person may intend to change their experiences and another person may not. The experience of depression is less likely to be experienced as anomalous as 1 in 6 people report anxiety or depression every week in the United Kingdom (McManus et al. 2014) and therefore, this might have an impact on the intention to change the experience or not. This study aims to investigate the same factors for both depressive-like experiences and PLE's to compare the two experiences and aid our understanding of the factors involved in intending to regulate experiences.

Research on emotion regulation may provide useful insights into intention to regulate as emotions are a core part of people's "experiences". Emotion regulation refers to a heterogenous set of processes where emotions are regulated (Gross, 2008). The idea that sometimes people regulate their emotions indicates that although sometimes emotions can be helpful and adaptive, this is not

always the case (Parrot, 1993). Before a person can regulate, they must first realise that there is a gap in how they want to feel and how they currently feel and identify a need to regulate (Webb et al, 2012). Perhaps similar processes occur for PLEs and not identifying the gap or need to regulate will have an impact on intention to change experiences? Research into emotion regulation tends to focus on the strategies used; however, a key challenge facing people is deciding when to regulate their emotions in response to their experiences. Webb et al. (2012) suggests that emotion regulation involves three stages: 1. Identifying the need to regulate, 2. Deciding whether and how to regulate, and 3. Enacting a regulation strategy. This research will focus on understanding *when* people decide to regulate and not how they do so nor what strategies they use.

Understanding how people think and feel about their experiences may help to predict when – and why – they seek to regulate those experiences. Social cognition models, such as the Theory of Planned Behaviour (TPB; Ajzen, 1991), have helped to identify salient beliefs that are likely to be associated with intentions and behaviour. Indeed, the TPB has been used to explain and predict behaviour in a multitude of behavioural domains such as leisure choice, registration of children in physical activity programmes, and changing to a low-fat diet (for a review, see Armitage & Conner, 2001). The TPB has not, however, been used to understand why someone intends to regulate their experiences.

According to the TPB, behavioural intentions are determined by three factors. The first is attitude toward the behaviour or experience. This might include thoughts about whether the experience is distressing, and whether they think other people would have the experience or not. The second factor is subjective and injunctive norms. This may relate to beliefs about whether a person close to them would change their experiences or not and if people close to them would approve or not of the person changing their behaviour. Thirdly, perceived behavioural control, meaning if a person has confidence or not in their ability to regulate their experiences. (Ajzen and Kruglanski, 2019). The TPB therefore encapsulates many potential factors as to why someone will intend to regulate their experiences and

could be used as a framework to help understand when someone will intend to change PLEs or depressive experiences.

With the TPB in mind there are likely several factors which influence whether a person intends to regulate their experiences or not. They may include: how distressing the experiences are; the perceived anomalousness of an experience. how other people view the experiences; whether people believe other people would try and change their experiences; and self-efficacy and confidence in being able to regulate experiences (see figure 1).

In relation to attitudinal/behavioural beliefs, appraisals of experiences may be important in whether a person experiences distress and intends to regulate their experiences. If an experience is appraised as externally generated, personally significant, and uncontrollable, then it is particularly implicated in the development of psychosis and is likely to be a factor in whether someone intends to regulate their experiences (Bentall, Corcoran, Howard, Blackwood, & Kinderman, 2001; Garety, Kuipers, Fowler, Freeman, & Bebbington, 2001). How distressed a person feels about their experiences therefore links to the idea of attitudinal/ behavioural beliefs outlined by the TPB which indicates that if a person is more distressed by an experience, they would be more likely to intend to change that experience. Attitudinal/behavioural beliefs towards an experience could also be understood as how anomalous the experience is to a person and whether they believe that other people would also have the same experience. Shenav, Botvinick, and Cohen (2013) propose that people will try to regulate a feeling or experience if this feeling occurs frequently, is distressing, and they believe they have self-efficacy.

Bandura (1997) reported that people often draw on their sense of efficacy when deciding whether to deal with challenging situations and avoid tasks and goals that they believe may be beyond their reach. Self-efficacy is captured by the TPB's consideration of control beliefs, which reflect how much confidence a person has in their ability to change their behaviour – or in this case their experiences. Of relevance here might be the extent to which people believe that their experiences are fixed or

malleable. For example, Tamir, et al. (2007) showed that some people view emotions as malleable and others view emotions as fixed entities. People who believed that emotions were fixed had less confidence in their ability to regulate emotions and had poorer emotional outcomes.

Other people's views of the experience and whether they would intend to change their experiences or not is also likely to be a factor in whether a person intends to change their experiences. Research into help seeking, although only one way in which people might try to regulate their experiences, could provide helpful insights. For example, in the case of psychosis people were reported to avoid seeking help because of the persuasive influence of significant others in their lives (Boydell, et al., 2006). Ajzen (1985) notes that beliefs about whether most people would approve or disprove of the person performing that way is important for a person's intention to change. Social norms are also reported to be important and refers to customary codes of behaviour in people or a group of people or in a larger cultural context. These ideas relate to the TPB's descriptive and injunctive normative beliefs that others would change their experiences if they had the same experience and they would approve of the person intending to change their experience.

1.1 The present research

The aims of the study are to determine what factors influence a person's intention to regulate their experiences in response to psychotic-like and depressive experiences in the general population.

1.2. Hypotheses

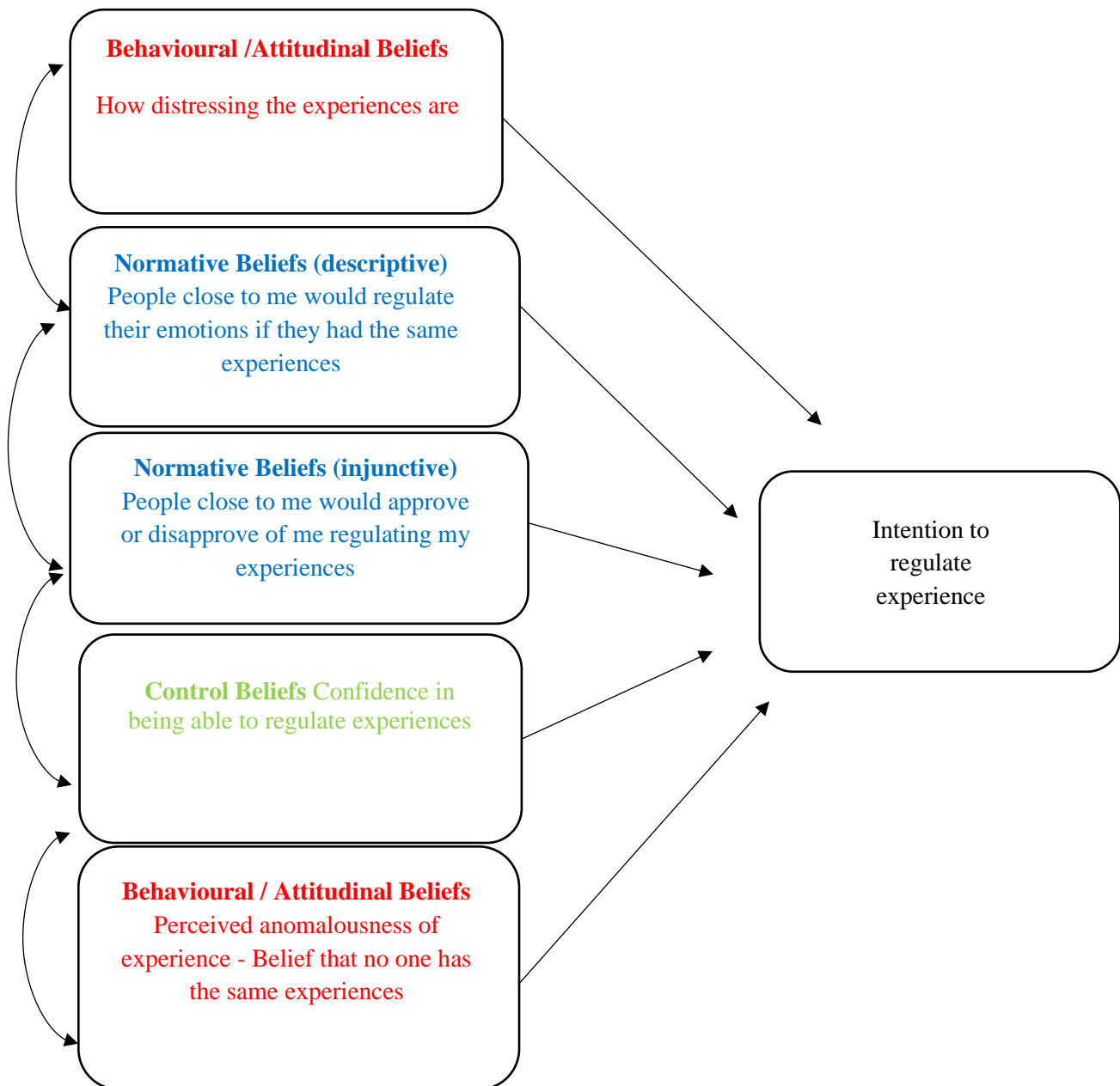
It is hypothesised that attitudinal beliefs, normative beliefs, and control beliefs will be associated with when a person intends to regulate their experiences. More specifically, there are five hypotheses:

1. a person will intend to change their experiences if the experiences are distressing,
2. a person will intend to change their experiences if the experiences are perceived to be anomalous,

3. a person will intend to change their experience if they believe other people close to them would change the same experiences,
4. a person will intend to change their experience if other people would approve of them changing their experiences, and
5. a person will intend to change their experience if they feel they have the ability and confidence to regulate their experiences.

Figure 1

Diagram to represent the hypotheses



2. Method

2.1. Participants

198 participants took part in the study. 80.8% of participants completed all measures and the remaining 19.2% answered questions about at least one experience they have had. 157 of the participants (79.3%) were female, 39 (19.7%) were male, and 2 responded with “other” or “prefer not to say” (1%). 47 (23.7%) participants were aged 18 – 24, 84 (42.4%) were aged 25 – 34. 38 (19.2%) were aged between 35 – 44, 17 (8.6%) were aged 45 – 54, 10 (5.1%) were aged 55 – 64, and 2 (1%) of participants were aged 65 and above. 170 (85.9%) participants were white, 3 (1.5%) participants were mixed / multiple ethnic groups, 14 (7.1%) were Asian / Asian British, 4 (2%) participants were Black /African / Caribbean / Black British, and 7 (3.5%) were of another ethnicity. In terms of highest level of education, 14 (7.1%) participants reported to have a doctoral level degree, 67 (33.8%) participants indicated a master’s or postgraduate level degree, 69 (34.8%) participants had an undergraduate degree, 38 (19.2%) participants had a-level qualifications or equivalent, 6 (3%) had GCSE level qualification or equivalent, 2 (1%) had other qualifications, 1 (0.5%) participant had no qualifications, and 1 (0.5%) participant did not respond to this question (see table 1).

Table 1*Demographics of the sample*

Demographic Category	Frequency	Percentage
Gender		
Female	157	79.3
Male	39	19.7
Other	2	1
Age		
18 – 24	47	23.7
25 – 34	84	42.4
35 – 44	38	19.2
45 – 54	17	8.6
55 – 64	10	5.1
Ethnicity		
White	170	85.9
Other	28	14.1
Education		
Undergraduate degree and above	150	75.7
Below an undergraduate degree	48	34.3
Marital status		
Married / in a civil partnership	56	28.3
Living with a partner	55	27.8
Separated	1	0.5
Divorced	4	2
Single	81	40.9
Unknown	1	0.5

Total	198	100
-------	-----	-----

Convenience sampling was used for recruitment and participants were recruited from the general population. Eligible participants were sought through the University of Sheffield volunteer lists and online through social media outlets such as Twitter and Facebook. Inclusion criteria comprised of being over the age of 18 and consenting to the study. Exclusion criteria consisted of people who do not speak English as the questionnaire, consent form, information sheets, and debrief were only available in English. People who had been in contact with mental health services in the context of a psychotic disorder or any other mental health disorder were not excluded from the study. Excluding people who have had mental health difficulties would not be reflective of the general population as 1 in 6 over the age of 16 are reported to have experienced symptoms of a common mental health problem within the last week and 2% of people had experienced bipolar disorder, 0.7% of people experienced psychotic disorder, 4.4% respondents met criteria for post-traumatic stress disorder, and 5% of people has suicidal thoughts in the past year (McManus et al., 2016).

Recruitment started after ethical approval was gained from the University of Sheffield (registration number: 038087, see appendix a). All participants were shown an information sheet (appendix b) and asked to complete a consent form (appendix c) to ensure informed consent. They were also given a debrief (appendix d) which included contact details of the experimenters and sources of support, if needed. Participants were invited to be entered into a prize draw to win one of two £25 Amazon vouchers.

A power analysis for each experience was conducted and each experience was analysed using regression. A large effect size ($f^2 = 0.15$) was estimated based on the typical size of the relationship reported between cognitions specified by the TPB and intentions (e.g. Armitage and Conner, 2001), where the significance criteria was set to 0.05, and the statistical power was set to

0.8. A sample size of 43 for each experience was indicated. For each regression model Bonferroni adjustments were made.

2.2. Design

This quantitative study used a cross-sectional design to investigate the relationship between intention to regulate experiences and several factors outlined in figure 1 (control beliefs, descriptive norms, injunctive norms, distress, and anomalousness of the experiences). The dependent variable was intention to regulate an experience in any way and the five independent variables were control beliefs, descriptive norms, injunctive norms, distress, and anomalousness of the experience.

2.3. Materials

Participants were invited to complete an online questionnaire hosted by Qualtrics.

2.3.1. *Community Assessment of Psychic Experiences (CAPE)*

The CAPE (appendix e) was used to measure the extent to which participants had PLEs and depressive experiences. The CAPE is a 42-item questionnaire developed by Jim van Os, Hélène Verdoux and Manon Hanssen, and is based on the Peter's et al. Delusions Inventory – 21 items (PDI- 21) and Peter's et al. Delusions Inventory (PDI-40). The PDI-21 and the PDI-40 were both developed by Peter's in 1999. The measure is often used to gather clinical information and sometimes used for diagnosis (Mark & Touloupoulou, 2016). It is comprised of three dimensions, which are negative symptoms¹, positive symptoms², and depressive symptoms³.

CAPE scores have been found to be psychometrically reliable—i.e., scores obtained could be attributed to true score variance in a review and meta-analysis by Mark and Touloupoulou (2016).

-
1. Positive symptoms: positive symptoms of psychosis are characterised by the presence of odd or unusual feelings, thoughts, or behaviours, for example. Hearing voices and delusions.
 2. Negative symptoms: negative psychotic symptoms are characterised by the absence or loss of experience, for example, affective flattening and anhedonia.
 3. Depressive symptoms: depressive symptoms are characterised by feelings of unhappiness, hopelessness, low self-esteem, and finding no pleasure in things usually enjoyed.

Twenty-three articles were reviewed which included exploratory and confirmatory factor analysis. Factorial validity of the CAPE-42 was reported to be “satisfactory” and “generally reliable”. The positive and negative dimensions of the CAPE (both the frequency of the experiences and distress) were seen to be more reliable in younger people, but all three dimensions were reported to be reliable across all age groups. The review noted that most studies that obtained Cronbach’s alpha’s were above the recommended levels of 0.70. However, the internal reliability of the depressive dimension received less support, which may have been due to a smaller number of items compared to the positive and negative subscales.

2.3.2. Measures Related to the Hypothesis

Further questions to answer each hypothesis were added to each set of CAPE questions. The further questions were developed based on instructions by Azjen (2006) on how to construct a questionnaire based on the TPB. The constructed questionnaire was not psychometrically evaluated as single items were used to measure beliefs with respect to each experience and we did not expect beliefs about different experiences to be correlated. However, questionnaires designed with the advice of Azjen (2006) have been shown to have good reliability and validity. One example of the reliability of a theory of planned behaviour questionnaire indicated a Cronbach alpha of 0.95 (excellent) and a principal components analysis indicated factor loadings of items as ranging from 0.64 to 0.95 (moderate to good) and a split-half reliability of 0.85 (very good; Yue et al., 2022). A second example indicated that another theory of planned behaviour questionnaire had internal consistency ranging from alpha 0.68 to 0.89 (moderate to very good). Average test-retest across two administrations had a G-coefficients score of 0.9, which is considered strong (Boyko, et al. 2011).

If a participant endorsed the experience, then follow-up questions to test the hypotheses were given. The participant was asked to rate the following on a 4-point Likert scale: how distressed they were by having that experience and if other people were likely to have had that experience before to measure attitudinal beliefs; they were asked if significant others in their lives would approve of them

changing their experience and would others change their experiences if they also had the same experiences, to measure normative beliefs; and they were also asked if they felt like they could change their experience if they wanted to (control beliefs). Finally, participants were asked if they had the experience again, would they intend to change it in any way, to measure intention to change an experience (see appendix f).

2.3.3. Generalised Anxiety Disorder Questionnaire – 2 items (GAD-2) and the Patient Health Questionnaire – 2 items (PHQ-2)

The prevalence of anxiety and depression in the sample was measured using the GAD-2 and PHQ-2. These measures were included to better understand the sample and their current mental health, and the extent to which the sample was representative of the general population. The GAD-2 was designed as a screening tool for generalised anxiety and for other common anxiety disorders. The PHQ-2 is a screening tool for depressive disorders. Both have cut-off point of 3, meaning a score of 3 or higher on the scale would indicate possibly meeting criteria for an anxiety or depressive disorder. Both have a maximum score of 6. The GAD-2 was seen to have to have 86% sensitivity and 83% specificity in relation to generalised anxiety disorder. It also performs well as a screening tool for other anxiety disorders (Kroenke, Spitzer, Williams, Monahan, & Löwe, 2007). The PHQ-2 was also found to be high in sensitivity and specificity in relation to major depressive disorders and other depressive disorders (Kroenke, Spitzer, & Williams, 2003). In terms of test-retest reliability the PHQ-2 (0.79) and GAD-2 (0.81) were good, discriminate validity for the GAD-2 was seen as acceptable and excellent for the PHQ-2, and finally internal consistency was good for both (PHQ-2 – 0.83 and GAD-2 0.81) in a non-clinical sample (Staples et al. 2019).

2.4. Procedure

Two people piloted the questionnaire before recruitment to check how long the questionnaire might take, how comprehensible the questions were, and to check viability. Participants were asked to complete questions about their gender, ethnicity, marital status, and level of education. They also

completed the GAD-2 and PHQ-2. Following this this were asked to complete questions based on the CAPE. The measure was divided into positive symptom items, negative symptoms items, and depressive symptom items. Participants were asked about positive and negative PLEs and depressive experiences. They were asked if they had ever had several experiences and the frequency of these experiences. If the participants endorsed the experience, they were then asked additional questions: how distressed they were by this experience (attitudes), did they feel able to change their experiences if they wanted to (control beliefs), if people close to them would approve of them changing their experience (subjective norms), would others intend to change their experiences if they also had the same experience (descriptive norms), if other people are likely to have had that experience before (perceived anomalousness of experience), and if they had the experience again would they intend to try and change it (intentions). The order in which the questions were presented to the participants was randomised and the order in which the follow up questions were presented was also randomised for each participant.

2.5. Statistical Analysis

Questionnaire data was analysed using SPSS. Participants had to have endorsed at least one experience and complete the follow up questions on that experience for their data to be analysed. This was represented by completing 10% of the data, so participants who completed less than 10% of the questionnaire were removed. Multiple linear regressions were conducted to see whether the 5 outlined variables are associated with intention to regulate for each of the 25 experiences that had been endorsed by at least 43 participants. This was based on the power analysis above. As separate analyses were conducted for each experience that was endorsed by sufficient participants, Bonferroni adjustments were used to adjust the p values associated with each regression model (i.e., new $p = .05 / 25 = .002$). Where the overall regression model was significant, it was decided to further examine which independent variables were associated with intention to regulate, without adjusting the respective p -values.

3. Results

Sixty-five (32.8%) of participants scored above the cut-off (>3) for anxiety on the GAD-2. Anxiety scores had a mean of 4.29 and a standard deviation of 1.75. 48 (24.7%) of participants were above the cut-off (>3) for depression on the PHQ-2 (see table 2). Depression scores had a mean of 3.57 and a standard deviation of 1.63.

Table 2

Anxiety (GAD-2) and depression scores (PHQ-2) of the sample

Psychometric Test	Frequency above clinical cut-off	Percentage	Frequency below clinical cut-off	Percentage	Total
GAD-2 (Anxiety)	65	32.8	133	67.2	198
PHQ-2 (Depression)	48	24.7	146	75.3	194

Table 3*Correlations between variables and intentions to regulate depressive experiences*

Variable	Depressive Experiences							
	a. N = 161	b. N = 84	c. N = 48	d. N = 53	e. N = 78	f. N = 135	g. N = 107	h. N = 145
Distress	0.10	0.09	-0.32	0.10	-0.06	0.03	0.10	0.09
Descriptive Norm	0.21*	0.21*	0.12	-0.01	0.27*	0.00	0.19*	0.17*
Injunctive Norm	0.20*	0.16	0.08	0.15	0.40*	0.31**	-0.04	0.08
Control Beliefs	0.41**	0.49**	0.39*	0.49**	0.17	0.22*	0.32*	0.48**
Anomalousness	0.07	0.102	0.37*	0.12	-0.10	0.01	0.06	0.04
R^2	23.87	10.19	9.31	8.81	11.87	7.32	6.06	11.02
F	15.13**	8.47**	5.72**	3.90*	8.17**	5.68**	4.51**	11.45**

Note. Values in the table are beta weights from multiple regressions, regressing intentions to regulate each experience on potential variables.

* $p < 0.05$ ** $p < 0.001$

a. feeling sad

b. feeling pessimistic about everything

c. No future

d. Do not want to live

e. cry about nothing

f. feeling guilty

g. feeling like a failure

h. feeling tense

Table 4*Variables associations with intentions to regulate negative psychotic like experiences*

Variables	Negative PLEs												
	i.	j.	k.	l.	m.	n.	o.	p.	q.	r.	s.	t.	u.
	<i>N</i> = 46	<i>N</i> = 97	<i>N</i> = 64	<i>N</i> = 51	<i>N</i> = 62	<i>N</i> = 66	<i>N</i> = 91	<i>N</i> = 80	<i>N</i> = 138	<i>N</i> = 124	<i>N</i> = 94	<i>N</i> = 65	<i>N</i> = 83
Distress	0.18	0.25*	0.43**	0.35*	0.191	0.22*	0.23*	0.53**	0.12	0.18*	0.25*	0.37**	0.18
Descriptive Norm	0.05	0.31**	0.20	0.14	0.173	0.32*	0.25*	0.34**	0.38**	0.19*	0.35**	0.32*	0.29*
Injunctive Norm	0.26	0.27*	-0.00	0.05	0.127	0.34**	0.05	-0.04	0.17*	0.05	0.06	0.096	0.14
Control Beliefs	0.41*	-0.00	0.37*	0.47**	0.56**	0.24*	0.41**	0.35**	0.24*	0.39**	0.30*	0.33*	0.12
Anomalousness	-0.02	- 0.14	-0.14	0.16	0.03	0.24*	-0.12	0.06	0.13	0.23*	-0.08	-0.05	0.33
<i>R</i> ²	4.93	15.08	13.63	9.02	8.98	9.12	4.31	14.74	10.62	13.21	16.16	9.51	9.38
<i>F</i>	2.81*	10.58*	8.63**	6.51**	7.61**	11.97*	5.31**	17.10*	10.24**	10.58**	11.57*	7.04**	6.30**
		*				*		*			*		

Note. Values in the table are beta weights from multiple regressions, regressing intentions to regulate each experience on potential variables.

* $p < 0.05$ ** $p < 0.001$

I. not a very animated person

j. not much of a talker

k. few or no emotions at important events

l. feelings lacking intensity

m. emotions are blunted

n. neglecting appearance / personal hygiene

o. never get things done

p. few hobbies or interests

q. lacking motivation

r. lacking energy

s. no interest to be with other people

t. lacking in spontaneity

u. spending my days doing nothing

Table 5

Variables associations with intentions to regulate positive psychotic like experiences

Variable	Positive PLEs			
	v.	w.	x.	y.
	<i>N</i> = 64	<i>N</i> = 100	<i>N</i> = 58	<i>N</i> = 47
Distress	0.02	0.30**	0.06	0.32*
Descriptive Norm	0.17	0.21*	0.48**	0.30*
Injunctive Norm	0.23	0.11	-0.07	0.28*
Control Beliefs	0.32*	0.32**	0.29*	0.16
Anomalousness	0.01	-0.04	0.02	0.15
<i>R</i> ²	8.10	14.15	12.14	16.86
<i>F</i>	4.68**	8.72**	5.63**	10.15**

Note. Values in the table are beta weights from multiple regressions, regressing intentions to regulate each experience on potential variables.

p* < 0.05 *p* < 0.001

v. drop hints with double meaning

w. people not what they seem to be

x. people look at you oddly because of your appearance

y. Feeling like a very special / unusual person

3.1. Depressive Experiences

All eight of the CAPE depressive experiences were endorsed by participants. The regression models were significant for seven of these experiences, suggesting that beliefs/variables were associated with a statistically significant proportion of the variance in participants intentions to regulate each experience.

As shown in table 3 the following experiences had statistically significant regression equations: feeling sad ($\text{adj } R^2 = 23.87$, $F(5, 155) = 15.13$, $p < 0.001$; i.e. the variables were able to explain 23.87% of the variance in intention to regulate); feeling tense ($\text{adj } R^2 = 11.02$, $F(5, 139) = 11.45$, $p < 0.001$); feeling guilty ($\text{adj } R^2 = 7.32$, $F(5, 129) = 5.68$, $p < 0.001$); feeling like a failure ($\text{adj } R^2 = 6.06$, $F(5, 100) = 4.51$, $p = 0.001$); feeling pessimistic about everything ($\text{adj } R^2 = 10.19$, $F(5, 78) = 8.47$, $p < 0.001$); feeling like I have no future ($\text{adj } R^2 = 9.31$, $F(4, 42) = 5.72$, $p < 0.001$); and the experience of crying about nothing ($\text{adj } R^2 = 11.87$, $F(5, 71) = 5.63$, $p < 0.001$). The eighth experience of feeling like you do not want to live anymore was not significant ($\text{adj } R^2 = 8.81$, $F(5, 45) = 3.89$, $p = 0.005$).

For depressive experiences control beliefs was indicated to be most consistent associated with intention to regulate experiences and was significant for seven out of the eight experiences. Descriptive norms were significant for five of the experiences and injunctive norms were significant for three of the experiences. Perceived anomalousness was significant for one of the experiences and distress was not a significantly associated with any of the regression models

3.2. Negative psychotic-like experiences

Thirteen out of fourteen negative PLEs from the CAPE were endorsed by participants. The regression models were significant for twelve of these experiences, suggesting that the variables were associated with a statistically significant proportion of the variance in participants intentions to regulate each experience.

As seen in table 4, the following experience's regression equations were significant: feeling like I am lacking in motivation (adj $R^2 = 10.62$, $F(5, 132) = 10.24$, $p < 0.001$); lacking in energy (adj $R^2 = 13.12$, $F(5, 118) = 10.58$, $p < 0.001$); feeling like I am not much of a talker (adj $R^2 = 15.08$, $F(5, 90) = 10.58$, $p < 0.001$); feeling like I have no interest to be with others (adj $R^2 = 16.16$, $F(5, 87) = 11.57$, $p < 0.001$); feeling like I never get things done (adj $R^2 = 4.31$, $F(5, 84) = 5.31$, $p < 0.001$), feeling like I am spending all day doing nothing (adj $R^2 = 9.38$, $F(5, 76) = 6.30$, $p < 0.001$); feeling like I have few hobbies or interests (adj $R^2 = 14.74$, $F(5, 71) = 17.10$, $p < 0.001$); feeling like I am neglecting my appearance or personal hygiene (adj $R^2 = 9.12$, $F(5, 60) = 11.97$, $p < 0.001$); feeling like I am lacking in spontaneity (adj $R^2 = 9.51$, $F(5, 59) = 7.04$, $p < 0.001$); feeling like I have few or no emotions at important events (adj $R^2 = 13.63$, $F(5, 58) = 8.63$, $p < 0.001$); feeling like my emotions are blunted (adj $R^2 = 8.96$, $F(5, 56) = 7.61$, $p < 0.001$); feeling like my feelings are lacking intensity (adj $R^2 = 9.02$, $F(5, 44) = 6.51$, $p < 0.001$); and feeling like I am not a very animated person (adj $R^2 = 2.81$, $F(5, 40) = 4.93$, $p = 0.029$).

For the negative symptoms control beliefs were again had the most consistent association with intention to regulate, with eleven of the experiences suggesting control beliefs are significant contributors to intention to regulate. Distress was significantly associated in nine experiences, descriptive norms was also significant in nine experiences, injunctive norms was significant in three experiences, and anomalousness was significant in two experiences.

3.3. Positive psychotic-like experiences

Four out of twenty of the positive experiences on the CAPE were endorsed by the participants. All four of the analysed positive PLEs that were endorsed by participants had statistically significant regression models. Therefore, the five variables / beliefs were associated with a statistically significant proportion of the variance in participants intentions to regulate each experience. As seen in table 5 the following experiences had the following results: feeling as if people are not what they seem to be (adj $R^2 = 14.15$, $F(5, 93)$, $p < 0.001$); feeling as if people

drop hints about me or say things with a double meaning (adj $R^2 = 8.10$, $F(5, 57) = 4.64$, $p = 0.001$); feeling like people look at me oddly because of my appearance (adj $R^2 = 12.14$, $F(5, 50) = 5.63$, $p < 0.001$); and feeling as if I am a very special or unusual person (adj $R^2 = 16.86$, $F(5, 41) = 10.15$, $p < 0.001$).

Again, control beliefs were consistent in their association with the intention to regulate for positive symptoms. Three out of four experiences indicated that control beliefs were significant. Descriptive norms were also significant in three of the positive PLEs. Distress was significant in two experiences, injunctive norms was significant in one experience, and anomalousness of the experiences did not have any significant associations for any of the positive PLEs.

3.4. Summary of findings

Each experience had different factors which were significantly associated with intention to regulate. For depressive experiences, negative PLEs, and positive PLEs, control beliefs were the most consistent in their significant association with intention to regulate. Across the experiences control beliefs had significant regression equations for 84% of cases. Descriptive norms were significant in 68% of the experiences, distress was significant in 43.5% of experiences, injunctive norm was significant for 28% of the experiences, and anomalousness was significantly associated with 12% of the experiences. Distress had more of a significant association with intention to regulate in PLEs compared to depressive experiences. Anomalousness had more significant associations for depressive experiences and negative PLEs compared to positive PLEs. Control beliefs, descriptive norms, and injunctive norms had more consistent associations across the experiences.

4. Discussion

The aim of the present study was to try to understand *when* people decide to regulate or change their experiences, where experiences encompass perceived events, emotions, behaviours, or thoughts. The study aimed to develop better understanding and investigate when people are likely to want or need help. To do this we drew upon the Theory of Planned Behaviour to identify and measure normative, control, and attitudinal beliefs about the experiences outlined in the CAPE, as well as whether participants intended to regulate those experiences. We hypothesised that attitudinal beliefs (how distressing and anomalous an experience is), normative beliefs (the likelihood that other people close to them would change the same experience or would approve of them changing their experience), and control beliefs (confidence in their ability to change their experience) would all be associated with when a person intends to change their experiences. The results supported these hypotheses to varying degrees.

Overall, control beliefs were most consistently associated with whether a person intended to change their experiences or not. Therefore, how much that person feels able to change their experience is an important factor in whether they decide to do so. This is in keeping with previous research from Bandura (1997). Bandura indicated that self-efficacy was important as to whether someone decides to do something or change something. Bandura's research suggested that without feelings of self-efficacy, a person may feel like it is impossible or not worthwhile to intend to regulate their experiences, regardless of other factors. Additionally, a number of studies report that perceived capability is an important predictor of a number of health-related behaviours (Armitage & Conner, 2001; Godin & Kok, 1996), e.g. healthy eating (AbuSabha & Achterberg, 1997).

Despite the popularity of self-efficacy theory, there has been some criticism (Borkovec, 1978; Cahill et al, 2006; Corcoran, 1991, 1995; Eastman & Marzillier, 1984; Kazdin, 1978; Kirsch, 1985, 1995; Williams, 2010; Wolpe, 1978). The criticism relates to how self-efficacy is operationalised i.e., confidence that the person can do the target behaviour (Bandura, 2006). It

has been argued that self-efficacy is more of a reflection of motivation and not a determinant (Williams and Rhodes, 2016). However, this current study was looking at intention only and not if the person has tried to change their experience or not. The TPB supports that intention to change is an important first step and this also has important implications for understanding change and for working clinically.

Self-determination theory (Deci & Ryan, 2012) highlights the importance of autonomy for people to feel in control of their own behaviours and goals and by extension perhaps experiences. This has an important implication for mental wellbeing and fulfilment. Deci & Ryan (2012) indicate that without a sense of autonomy then the person may lack motivation to intend to change anything.

Descriptive norms were also associated with whether people intended to change their experience or not. Descriptive norms refer to whether people believe that other significant people would also try to change similar experiences (Azjen, 1985, 1987, 1991). Whether significant others would approve of them changing their experience or not (injunctive norm) was significantly associated with intention to regulate in fewer experiences. This is supportive of Boydell et al. (2006) qualitative paper on help seeking with young people and Pescosolido & Boyer's (1999) review of help seeking as a social process. Therefore, what significant others think and what they do will have a large impact on other people's intentions.

Boydell et al (2006) found that influence of significant others can lead to people either seeking or avoiding change/seeking help. They outlined that many young people who have experienced psychosis do not seek help, even though a first episode of psychosis is considered a "critical time" for intervention to take place. Even so a gap of one or two years from first episode psychosis before someone seeks help has been found by many studies (Beiser, et al., 1993; Johnstone et al., 1986; Larsen et al., 1996; Lincoln & McGorry, 1995; McGlashan, 1999). This

might be due to family and friends not understanding the importance of help seeking at an early stage. Interviews of young people after a first episode of psychosis revealed the impact of social networks and their perceived views on psychosis was predictive of them seeking help or revealing their experiences (Boydell et al., 2006). Therefore, perceived attitudes of significant others were important in whether the young people would seek help or reveal their experiences. Boydell et al., (2006) indicates a fear of judgement and lack of understanding from others can lead to someone having no intention to change.

Attitudinal beliefs, reflected by distress caused by the experience, was associated with intention to regulate PLEs but distress was not associated with intention to regulate any of the depressive experiences. Therefore, the type of experience seems to be an important moderator of the relationship between distress and intention to regulate an experience. Although this was not investigated in this study because the aim was to investigate the overarching factors that were associated with intention to change experiences.

The other aspect of attitudinal beliefs measured— namely, the perceived anomalousness of the experience – wasn't significantly associated with intention to regulate for most of the experiences. In particular, anomalousness was not associated with intention to regulate any of the positive PLEs. One hypothesis would be that the anomalousness of the experiences could help the person feel special or like they have been “chosen” to have this experience (Gauntlett-Gilbert & Kuipers, 2005). Therefore, this might impact their intention to regulate and how they feel about their experience.

Maybe other factors such as perceived control also needed to be present for a person to intend to change their experience. It is possible that an intention to change may include several moderators such as frequency, distress, and self-efficacy (Shenhav et al. 2013). It is also possible that intention to regulate is an additive model and individual factors on their own may have non-

significant or small contributions. However, the results do not have enough power to look at testing these models. Perhaps distress on its own or anomalousness on its own may not be enough to intend to change an experience but normative beliefs and perceived control may also be required. Indeed, perceived control seemed to be the most important contributor to intention to regulate.

4.1. Clinical Implications

In clinical practice, control beliefs are important to consider as it may act as a barrier for people seeking help. People may want to change but may feel like change is not possible, leading to learned helplessness (Maier & Seligman, 2016). The role of acceptance may also be important regarding distress or seeking support for PLEs and it has been found that habitual acceptance and reappraisal self-efficacy can protect against distress associated with PLEs (Osbourne et al, 2017). An understanding and acceptance of the experiences can therefore be adaptive and in these cases control beliefs may be less important for psychological wellbeing.

Health education, public health strategies, and outreach about PLEs could contribute to better psychological outcomes for people and ensure people seek support when it would benefit them. Psychoeducation such as public health communications or strategies could help people feel more in control and knowledgeable about PLEs and therefore make informed decisions about whether change would be helpful. For example, Herrera et al., (2021) have developed an educational guide for people “at risk” for psychosis.

What other people do or whether they would intend to change certain experiences was also seen to be associated with intention to regulate. This might relate to social and cultural norms. Although, this study did not specially look at cultural beliefs and social norms. This might be important for future research as cultural and social norms have been found to impact how people perceive their experiences and intention to regulate them. Culture has been found to impact the

development and maintenance of psychotic experiences. It can also influence how someone interprets their experiences and how and if they seek help (Gupta & Bhugra, 2009; Suhail & Cochrane, 2002; Napo et al, 2012; Saravanan et al., 2007; Okulate & Jones, 2003; Earl et al., 2015). This has relevance in being able to deliver culturally sensitive interventions.

When offering psychological intervention to people from different cultural backgrounds then it would be important for the therapist to consider the impact of significant others. Vermeiden et al. (2019) found that positive PLEs were more commonly endorsed in non-Western society. There has also been increasing evidence in the importance of making cultural adaptations for people who have experiences of psychosis (e.g. Rathod, 2010). Stigma around change or seeking support may also impact whether a person would intend to change their experiences or not (Mirza et al., 2018). A more culturally sensitive understanding of different experiences would be helpful in our understanding of people and our ability to reach “harder to reach” groups, but also in understanding when change may not be necessary or could cause harm.

The results of this study also highlight the importance of autonomy and feeling in control of change. Self-determination theory (Deci & Ryan, 2012) suggest that autonomy, competence, and connection is related to people’s motivation to change and this is driven by a need for fulfilment and growth. It is therefore to consider how autonomous and how much control a person will feel when considering psychological intervention. The idea of connectedness to others is also important to consider as what significant others would do in the same situation was also related to intention to regulate. Without this sense of belonging, psychological intervention may not be beneficial. Including significant others and considering their point of view is an important clinical implication of this paper. Particularly as the results indicate the impact of the beliefs and actions important people seem to have on our decisions to change.

4.2. Strengths and limitations

This paper has strengths in that it is a novel application of the TPB which has strong theoretical underpinnings and has been shown to predict a wide range of behaviours. Overall, the TPB appears to be a good framework in which to understand intention to change experiences, captured by the CAPE, and emotional states and the reason as to why people may intend to change their experiences.

One of the main limitations of the study was that it has a cross-sectional design. Therefore, only associations between the variables and intention to regulate experiences can be inferred and not cause and effect. Some other limitations include not collecting information around nationality and religion. People who did not speak English were also not included in the study. It would have been interesting to see the effect of culture or religion on people's intention to change their experiences or not. Additionally, convenience sampling was used and led to participants that were mainly female, white, and well educated. This may have introduced bias as women make up 51% of the population in the UK (World Bank, 2020). The results therefore may not be representative of the general population in the UK and other countries

The question of how frequent a person had an experience could have been altered. A 4-point scale was used (never, sometimes, often, nearly always). This may have meant that people who had an experience once chose never, instead of sometimes and a yes or no answer would have been more informative. This may have prevented some people who only had an experience once or very infrequently from answering the follow up questions.

Finally, not many of the positive PLE's were endorsed on average and so it may have been helpful to invite more participants to gain more information about experiences of positive PLE's. A meta-analysis by Linscott & van Os, (2013) indicated that the annual incidence of positive symptoms in the population was 2.5% and the prevalence was 7.2%. In comparison Dominguez et al., (2010) found a 15.7% prevalence of negative/disorganised symptoms in adolescents and

young adults and a 5.5% prevalence in experiencing both positive and negative symptoms. Therefore, positive symptoms are less prevalent in the general population. Maybe more targeting during recruitment could have helped build on our understanding of these experiences and when people intend to change them.

4.3. Future directions

Future research would benefit from a more varied sample and collecting more demographic information. Trying to recruit groups of people who have high prevalence of PLEs would also be of interest.

Future research could also look at how the type of experience moderates intention to change experience, i.e. depressive experiences, negative PLEs, or positive PLE's, particularly as intention to regulate positive PLE's was not associated with how anomalous the experience was and intention to regulate depressive experiences was not associated with level of distress. Maybe the experience itself and how it is appraised is an important consideration. For example, Yung et al (2006) found that bizarre experiences and persecutory ideas were associated with more negative emotions, whereas magical thinking was not. It would be interesting to see if this translates to intention to regulate those experiences. Additionally, Peters et al (2017) found that "abnormal" appraisals of PLEs were significantly more associated with being in a patient group compared to a non-patient group. Again, this has clinical implications and we must consider what the person wants to change or not and not to make assumptions. Distress might be expected during difficult life circumstances and to feel otherwise may not be desirable. Additionally, our findings indicate that distress was associated with intention to change in less experiences than other factors.

It would be helpful for future research to ask why people did not feel able to control an experience, such as was it a lack of skill, support, resources, or something different? It would

also be beneficial to discover more about the role of subjective norms and whether this is supportive to their mental health or can it act as a barrier to change. This study helps us to consider that people may be more likely to seek support for PLEs and depression if they feel like this is within their control and this would include access to the right support. Changes in helping people to feel in control of their care and services might be helpful therapeutically (Wood et al., 2019) Change itself and intending to change through seeking help or support could be undesirable if it means social stigma or lack of understanding from significant people (Peteet, 2019; Gronhol, et al., 2017).

4.4. Conclusions

In conclusion, people intend to regulate their experiences if they feel they are in control and if significant others would also regulate their experience. Significant other's approval of change, level of distress, and to a lesser extent anomalousness was also consistently associated with intention to regulate some experiences. These findings can help us consider interventions in health promotion and in tackling stigma. The results would also be important to consider who may or may not want psychological therapy for their experiences. It emphasises the importance of control and the role of significant others in people's lives and for their psychological wellbeing.

References

- AbuSabha, R., & Achterberg, C. (1997). Review of self-efficacy and locus of control for nutrition-and health-related behavior. *Journal of the American Dietetic Association*, 97(10), 1122–1132. [https://doi.org/10.1016/S0002-8223\(97\)00273-3](https://doi.org/10.1016/S0002-8223(97)00273-3)
- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckmann (Eds.), *Action control* (1st Ed., pp. 11–39). Springer. https://doi.org/10.1007/978-3-642-69746-3_2
- Ajzen, I. (1987). Attitudes, traits, and actions: Dispositional prediction of behavior in personality and social psychology. In *Advances in experimental social psychology* (Vol. 20, pp. 1–63). Academic Press. [https://doi.org/10.1016/S0065-2601\(08\)60411-6](https://doi.org/10.1016/S0065-2601(08)60411-6)
- Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179–111.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179–211. <https://doi.org/10.1080/00222216.1992.11969889>
- Ajzen, I. (2006). Constructing a theory of planned behaviour questionnaire, from <https://people.umass.edu/aizen/pdf/tpb.measurement.pdf>
- Ajzen, I., & Kruglanski, A. W. (2019). Reasoned action in the service of goal pursuit. *Psychological Review*, 126(5), 774–786. <https://doi.org/10.1037/rev0000155>
- Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British journal of social psychology*, 40(4), 471–499. <https://doi.org/10.1348/014466601164939>

- Ashford, S. J., & Cummings, L. L. (1983). Feedback as an individual resource: Personal strategies of creating information. *Organizational Behavior and Human Performance*, 32(3), 370–398. [http://dx.doi.org/10.1016/0030-5073\(83\)90156-3](http://dx.doi.org/10.1016/0030-5073(83)90156-3)
- Bak, M., Myin-Germeys, I., Delespaul, P., Vollebergh, W., de Graaf, R., & van Os, J. (2005). Do different psychotic experiences differentially predict need for care in the general population? *Comprehensive Psychiatry*, 46(3), 192–199. <https://doi.org/10.1016/j.comppsy.2004.08.003>
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W.H. Freeman and company.
- Bandura, A. (2002). Social cognitive theory in cultural context. *Journal of Applied Psychology*, 51, 269–290. <https://doi.org/10.1111/1464-0597.00092>
- Bandura, A. (2006). Guide for constructing self-efficacy scales. *Self-efficacy beliefs of adolescents*, 5(1), 307–337.
- Besier, M., Erickson, D., Fleming, J. A., & Iacono (1993). Establishing the onset of psychotic illness. *The American Journal of Psychiatry*, 150(9), 1349–1354. <https://doi.org/10.1176/ajp.150.9.13.49>
- Borkovec, T. D. (1978). Self-efficacy: Cause or reflection of behavioral change?. *Advances in behaviour research and therapy*, 1(4), 163–170. [https://doi.org/10.1016/0146-6402\(78\)90003-6](https://doi.org/10.1016/0146-6402(78)90003-6)
- Boyko, J. A., Lavis, J. N., Dobbins, M., & Souza, N. M. (2011). Reliability of a tool for measuring theory of planned behaviour constructs for use in evaluating research use in policymaking. *Health Research Policy and Systems* 9(1), 1–7. <https://doi.org/10.1186/1478-4505-9-29>

- Bentall, R. P., Corcoran, R., Howard, R., Blackwood, N., & Kinderman, P. (2001). Persecutory delusions: a review and theoretical integration. *Clinical Psychology Review*, *21*(8), 1143–1192. [https://doi.org/10.1016/s0272-7358\(01\)00106-4](https://doi.org/10.1016/s0272-7358(01)00106-4)
- Bentall, R. P., & Morrison, A. P. (2002). More harm than good: The case against using antipsychotic drugs to prevent severe mental illness. *Journal of Mental Health*, *11*(4), 351–356. <https://doi.org/10.1080/09638230020023723>
- Blanchard-Fields, F., & Heckman Coats, A. (2008). The experience of anger and sadness in everyday problems impacts age differences in emotion regulation. *Developmental Psychology*, *44*, 1547–1556. <https://doi.org/10.1037/a0013915>
- Boonstra, N., Wunderink, L., Sytema, S., & Wiersma, D. (2009). Improving detection of first-episode psychosis by mental health-care services using a self-report questionnaire. *Early Intervention in Psychiatry*, *3*(4), 289–295. <https://doi.org/10.1111/j.1751-7893.2009.00147.x>
- Boydell, K. M., Gladstone, B. M., & Volpe, T. (2006). Understanding help seeking delay in the prodrome to first episode psychosis: A secondary analysis of the perspectives of young people. *Psychiatric rehabilitation journal*, *30*(1), 54. <https://doi.org/10.2975/30.2006.54.60>
- Brett, C. M. C., Peters, E. P., Johns, L. C., Tabraham, P., Valmaggia, L. R., & McGuire, P. K. (2007). Appraisals of anomalous experiences interview (AANEX): a multidimensional measure of psychological responses to anomalies associated with psychosis. *The British Journal of Psychiatry*, *191*(S51), s23–s30. <https://doi.org/10.1192/bjp.191.51.s23>
- British Psychological Society (2017). Ethics guidelines for internet-mediated research. Retrieved from <https://www.bps.org.uk/sites/beta.bps.org.uk/files/Policy%20->

[%20Files/Ethics%20Guidelines%20for%20Internetmediated%20Research%20%282017%29.pdf](#)

- Bukenaite, A., Stochl, J., Mossaheb, N., Schäfer, M. R., Klier, C. M., Becker, J., Schloegelhofer, M., Papageorgiou, K., Montego, A. L., Russo, D. A., Jones, P. B., Perez, J. & Amminger, G. P. (2017). Usefulness of the CAPE-P15 for detecting people at ultra-high risk for psychosis: Psychometric properties and cut-off values. *Schizophrenia Research*, *189*, 69–74. <https://doi.org/10.1016/j.schres.2017.02.017>
- Caprara, G. V., Di Giunta, L., Pastorelli, C., & Eisenberg, N. (2013). Mastery of negative affect: A hierarchical model of emotional self-efficacy beliefs. *Psychological Assessment*, *25*(1), 105. <https://doi.org/10.1037/a0029136>
- Cardeña, E., Lynn, S. J., & Krippner, S. (2014). Introduction: Anomalous experiences in perspective. In E. Cardeña, S. J. Lynn, & S. Krippner (Eds.), *Dissociation, trauma, memory, and hypnosis series. Varieties of anomalous experience: Examining the scientific evidence* (pp. 3–20). American Psychological Association. <https://doi.org/10.1037/14258-001>
- Cahill, S. P., Gallo, L. A., Lisman, S. A., & Weinstein, A. (2006). Willing or able? The meanings of self-efficacy. *Journal of Social and Clinical Psychology*, *25*(2), 196–209. <https://doi.org/10.1521/jscp.2006.25.2.196>
- Carver, C. S., & Scheier, M. F. (1990). Origins and functions of positive and negative affect: A control-process view. *Psychological Review*, *97*(1), 19–35. <https://doi.org/10.1037/0033-295X.97.1.19>

- Cicero, D. C., Neis, A. M., Klaunig, M. J., & Trask, C. L. (2017). The Inventory of Psychotic-Like Anomalous Self – Experiences (IPASE): Development and Validation. *Psychological Assessment, 29*(1), 13–25. <https://doi.org/10.1037/pas0000304>
- Claridge, G. S. (1990). Can a disease model of schizophrenia survive? In R. P. Bentall (Ed.), *Reconstructing schizophrenia*. (pp. 157–183). Routledge.
- Clements, S., Coniglio, F., & Mackenzie, L. (2020). “I’m not telling an illness story. I’m telling a story of opportunity”: Making sense of voice hearing experiences. *Community Mental Health Journal, 56*(2), 196–205. <https://doi.org/10.1007/s10597-019-00465-x>
- Corcoran, K. J. (1991). Efficacy," skills," reinforcement, and choice behavior. <https://doi.org/10.1037/0003-066X.46.2.155>
- Corcoran, K. J. (1995). Understanding cognition, choice, and behavior. *Journal of behavior therapy and experimental psychiatry, 26*(3), 201–207. [https://doi.org/10.1016/0005-7916\(95\)00020-Z](https://doi.org/10.1016/0005-7916(95)00020-Z)
- Cristóbal-Narváez, P., Sheinbaum, T., Ballespí, S., Mitjavila, M., Myin-Germeys, I., Kwapil, T. R., & Barrantes-Vidal, N. (2016). Impact of adverse childhood experiences on psychotic-like symptoms and stress reactivity in daily life in nonclinical young adults. *PLoS one, 11*(4), e0153557. <https://doi.org/10.1371/journal.pone.0153557>
- Deci, E. L., & Ryan, R. M. (2012). Self-determination theory. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (pp. 416–436). Sage Publications Ltd. <https://doi.org/10.4135/9781446249215.n21>
- Dominguez, M. D. G., Saka, M. C., Lieb, R., Wittchen, H. U., & van Os, J. (2010). Early expression of negative/disorganized symptoms predicting psychotic experiences and

subsequent clinical psychosis: a 10-year study. *American Journal of Psychiatry*, 167(9), 1075-1082. <https://doi.org/10.1176/appi.ajp.2010.09060883>

Earl, T. R., Fortuna, L. R., Gao, S., Williams, D. R., Neighbors, H., Takeuchi, D., & Alegría, M. (2015). An exploration of how psychotic-like symptoms are experienced, endorsed, and understood from the National Latino and Asian American Study and National Survey of American Life. *Ethnicity & health*, 20(3), 273-292. <https://doi.org/10.1080/13557858.2014.921888>

Eastman, C., & Marzillier, J. S. (1984). Theoretical and methodological difficulties in Bandura's self-efficacy theory. *Cognitive Therapy and Research*, 8(3), 213–229. <https://doi.org/10.1007/BF01172994>

Eisenberg, N., Fabes, R. A., Guthrie, I. K., & Reiser, M. (2000). Dispositional emotionality and regulation: their role in predicting quality of social functioning. *Journal of Personality and Social Psychology*, 78(1), 136–157. <https://doi.org/10.1037/0022-3514.78.1.136>

Everitt, B., Steel, C., Tarrier, N., & Wykes, T. (2007). Cognitive behavior therapy for schizophrenia: effect sizes, clinical models, and methodological rigor. *Schizophrenia Bulletin*, 34(3), 523–537. <https://doi.org/10.1093/schbul/sbm114>

Fort, C. (1999) *Book of the Damned*. Prometheus Books.

Garety, P. A., Kuipers, E., Fowler, D., Freeman, D., & Bebbington, P. E. (2001). A cognitive model of the positive symptoms of psychosis. *Psychological Medicine*, 31(2), 189–195. <https://doi.org/10.1017/S0033291701003312>

Gauntlett-Gilbert, J., & Kuipers, E. (2005). Visual hallucinations in psychiatric conditions: appraisals and their relationship to distress. *British Journal of Clinical Psychology*, 44(1), 77-87. <https://doi.org/10.1348/014466504x19451>

Godin, G., & Kok, G. (1996). The theory of planned behavior: a review of its applications to health-related behaviors. *American journal of health promotion*, *11*(2), 87–98.
<https://doi.org/10.4278/0890-1171-11.2.87>

Gronholm, P. C., Thornicroft, G., Laurens, K. R., & Evans-Lacko, S. (2017). Mental health-related stigma and pathways to care for people at risk of psychotic disorders or experiencing first-episode psychosis: a systematic review. *Psychological medicine*, *47*(11), 1867–1879. <https://doi.org/10.1017/S0033291717000344>

Gross, J. J. (2008). Emotion regulation. *Handbook of emotions*, *3*(3), 497–513.

Gross, J. J., & Levenson, R. W. (1993). Emotional suppression: physiology, self-report, and expressive behavior. *Journal of Personality and Social Psychology*, *64*(6), 970–986.
<https://doi.org/10.1037/0022-3514.64.6.970>

Gross, J. J., & Thompson, R. A. (2007). Emotion regulation: Conceptual foundations. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 3–24). The Guilford Press

Gupta, S., & Bhugra, D. (2009). Globalization, economic factors and prevalence of psychiatric disorders. *International journal of mental health*, *38*(3), 53–65.
<https://doi.org/10.2753/IMH0020-7411380304>

Herrera, S. N., Lyallpuri, R., Sarac, C., Dobbs, M. F., Nnaji, O., Jespersen, R., DeLuca, J. S., Wyka, K., Yang, L. H., Corcoran, C. M., & Landa, Y. (2021). Development of the Brief Educational Guide for Individuals in Need (BEGIN): A psychoeducation intervention for individuals at risk for psychosis. *Early Intervention in Psychiatry*.
<https://doi.org/10.1111/eip.13242>

- Hazell, C. M., Hayward, M., Cavanagh, K., & Strauss, C. (2016). A systematic review and meta-analysis of low intensity CBT for psychosis. *Clinical Psychology Review, 45*, 183–192. <https://doi.org/10.1016/j.cpr.2016.03.004>
- Heimpel, S. A., Wood, J. V., Marshall, M. A., & Brown, J. D. (2002). Do people with low self-esteem really want to feel better? Self-esteem differences in motivation to repair negative moods. *Journal of Personality and Social Psychology, 82*(1), 128–47. <https://doi.org/10.1037//0022-3514.82.1.128>
- Heriot-Maitland, C., Knight, M., & Peters, E. (2012). A qualitative comparison of psychotic-like phenomena in clinical and non-clinical populations. *British Journal of Clinical Psychology, 51*(1), 37–53. <https://doi.org/10.1111/j.2044-8260.2011.02011.x>
- Jauhar, S., McKenna, P. J., Radua, J., Fung, E., Salvador, R., & Laws, K. R. (2014). Cognitive-behavioural therapy for the symptoms of schizophrenia: Systematic review and meta-analysis with examination of potential bias. *The British Journal of Psychiatry, 204*(1), 20–29. <https://doi.org/10.1192/bjp.bp.112.116285>
- Jenner, J. A., Rutten, S., Beuckens, J., Boonstra, N., & Sytema, S. (2008). Positive and useful auditory vocal hallucinations: prevalence, characteristics, attributions, and implications for treatment. *Acta Psychiatrica Scandinavica, 118*(3), 238–245. <https://doi.org/10.1111/j.1600-0447.2008.01226.x>
- Johnstone, E. C., Crow, T. J., Johnson, A. L., & MacMillan, J. F. (1986). The Northwick Park study of first episodes of schizophrenia: I. Presentation of the illness and problems relating to admission. *The British Journal of Psychiatry, 148*(2), 115–120. <https://doi.org/10.1192/bjp.148.2.115>

- Kaymaz, N., Drukker, M., Lieb, R., Wittchen, H. U., Werbeloff, N., Weiser, M., Lataster, T., & Van Os, J. (2012). Do subthreshold psychotic experiences predict clinical outcomes in unselected non-help-seeking population-based samples? A systematic review and meta-analysis, enriched with new results. *Psychological medicine*, *42*(11), 2239–2253. <https://doi.org/10.1017/S0033291711002911>
- Kazdin, A. E. (1978). Conceptual and assessment issues raised by self-efficacy theory. *Advances in behaviour research and therapy*, *1*(4), 177–185. [https://doi.org/10.1016/0146-6402\(78\)90005-X](https://doi.org/10.1016/0146-6402(78)90005-X)
- Kirsch, I. (1985). Self-efficacy and expectancy: Old wine with new labels. *Journal of Personality and Social Psychology*, *49*(3), 824. <https://doi.org/10.1037/0022-3514.49.3.824>
- Kirsch, I. (1995). Self-efficacy and outcome expectancies. In *Self-efficacy, adaptation, and adjustment* (pp. 331–345). Springer, Boston, MA. https://doi.org/10.1007/978-1-4419-6868-5_12
- Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin*, *119*(2), 254–284. <https://doi.org/10.1037/0033-2909.119.2.254>
- Kroenke, K., Spitzer, R. L., & Williams, J. B. (2003). The Patient Health Questionnaire-2: Validity of a two-item depression screener. *Medical Care*, *41*(11) 1284–1292. <https://doi.org/10.1097/01.MLR.0000093487.78664.3C>
- Kroenke, K., Spitzer, R. L., Williams, J. B., Monahan, P. O., & Löwe, B. (2007). Anxiety disorders in primary care: prevalence, impairment, comorbidity, and detection. *Annals of Internal Medicine*, *146*(5), 317–325. <https://doi.org/10.7326/0003-4819-146-5-200703060-00004>

- Larsen, T. K., McGlashan, T. H., & Moe, L. C. (1996). First-episode schizophrenia: I. Early course parameters. *Schizophrenia bulletin*, 22(2), 241–256. <https://doi.org/10.1093/schbul/22.2.241>
- Lee, K. W., Chan, K. W., Chang, W. C., Lee, E. H. M., Hui, C. L. M., & Chen, E. Y. H. (2016). A systematic review on definitions and assessments of psychotic-like experiences. *Early intervention in psychiatry*, 10(1), 3–16. <https://doi.org/10.3389/fpsyt.2021.582392>
- Lincoln, C. V., & McGorry, P. (1995). Who cares? Pathways to psychiatric care for young people experiencing a first episode of psychosis. *Psychiatric Services*. <https://doi.org/10.1176/ps.46.11.1166>
- Linscott, R. J., & Van Os, J. (2013). An updated and conservative systematic review and meta-analysis of epidemiological evidence on psychotic experiences in children and adults: On the pathway from proneness to persistence to dimensional expression across mental disorders. *Psychological medicine*, 43(6), 1133–1149. <https://doi.org/10.1017/S0033291712001626>
- Lovatt, A., Mason, O., Brett, C., & Peters, E. (2010). Psychotic-like experiences, appraisals, and trauma. *The Journal of Nervous and Mental Disease*, 198(11), 813–819. <https://doi.org/10.1097/NMD.0b013e3181f97c3s>
- Lovibond, S.H. & Lovibond, P.F. (1995). *Manual for the Depression Anxiety & Stress Scales*. (2nd Ed.). Psychology Foundation of Australia.
- Maier, S. F., & Seligman, M. E. (2016). Learned helplessness at fifty: Insights from neuroscience. *Psychological review*, 123(4), 349. <https://doi.org/10.1037/rev0000033>
- Marshall, M., & Rathbone, J. (2011). Early intervention for psychosis. *Cochrane Database of Systematic Reviews*, (6). <https://doi.org/10.1002/14651858.CD004718.pub3>

- Matthews, M., Webb, T. L., Shafir, R., Snow, M., & Sheppes, G. (2022). Identifying the determinants of emotional regulation choice: A systematic review and meta-analysis. *Cognition and Emotion*, 35(6), 1056–1084. <https://doi.org/10.1080/02699931.2021.1945538>.
- Mauss, I. B., Butler, E. A., Roberts, N. A., & Chu, A. (2010). Emotion control values and responding to an anger provocation in Asian-American and European-American individuals. *Cognition and Emotion*, 24(6), 1026–1043. <https://doi.org/10.1080/02699930903122273>
- McGlashan, T. H. (1999). Duration of untreated psychosis in first-episode schizophrenia: marker or determinant of course?. *Biological psychiatry*, 46(7), 899–907. [https://doi.org/10.1016/S0006-3223\(99\)00084-0](https://doi.org/10.1016/S0006-3223(99)00084-0)
- McManus, S., Bebbington, P. E., Jenkins, R., & Brugha, T. (2016). *Mental Health and Wellbeing in England: the Adult Psychiatric Morbidity Survey 2014*. NHS digital. <https://openaccess.city.ac.uk/id/eprint/23646>
- Millgram, Y., Huppert, J. D., & Tamir, M. (2020). Emotion goals in psychopathology: A new perspective on dysfunctional emotion regulation. *Current Directions in Psychological Science*, 29(3), 242–247. <https://doi.org/10.1177/0963721420917713>
- Mirza, A., Birtel, M. D., Pyle, M. & Morrison, A. (2018). Cultural differences in psychosis: The role of causal beliefs and stigma in white British and south Asians. *Journal of cross-cultural psychology*, 50(3), 441–459. <https://doi.org/10.1177/0022022118820168>
- Napo, F., Heinz, A., & Auckenthaler, A. (2012). Explanatory models and concepts of West African Malian patients with psychotic symptoms. *European Psychiatry*, 27(S2), S44–S49. [https://doi.org/10.1016/S0924-9338\(12\)75707-3](https://doi.org/10.1016/S0924-9338(12)75707-3)

- National institute for health and social care excellence (2014). Psychosis and schizophrenia in adults: prevention and management (NICE guidelines CG178).
<https://www.nice.org.uk/guidance/cg178>
- Okulate, G. T., & Jones, O. B. E. (2003). Auditory hallucinations in schizophrenic and affective disorder Nigerian patients: phenomenological comparison. *Transcultural psychiatry*, 40(4), 531–541. <https://doi.org/10.1177/1363461503404004>
- Osborne, K. J., Willroth, E. C., DeVyllder, J. E., Mittal, V. A., & Hilimire, M. R. (2017). Investigating the association between emotion regulation and distress in adults with psychotic-like experiences. *Psychiatry Research*, 256, 66–70.
<https://doi.org/10.1016/j.psychres.2017.06.011>
- Parrott, W. G. (1993). *Beyond hedonism: Motives for inhibiting good moods and for maintaining bad moods*. In D. M. Wegner & J. W. Pennebaker (Eds.), *Century psychology series. Handbook of mental control* (p. 278–305). Prentice-Hall, Inc.
- Peña-Sarrionandia, A., Mikolajczak, M., & Gross, J. J. (2015). Integrating emotion regulation and emotional intelligence traditions: A meta-analysis. *Frontiers in psychology*, 6, 160.
<https://doi.org/10.3389/fpsyg.2015.00160>
- Pescosolido, B. A., & Boyer, C. A. (1999). How do people come to use mental health services? Current knowledge and changing perspectives. In A. V. Horwitz & T. L. Scheid (Eds.), *The sociology of mental health and illness* (pp. 392– 411). New York: Cambridge University Press.
- Peteet, J. R. (2019). Approaching religiously reinforced mental health stigma: A conceptual framework. *Psychiatric services*, 70(9), 846–848.
<https://doi.org/10.1176/appi.ps.201900005>

- Peters, E., Ward, T., Jackson, M., Woodruff, P., Morgan, C., McGuire, P., & Garety, P. A. (2017). Clinical relevance of appraisals of persistent psychotic experiences in people with and without a need for care: an experimental study. *The Lancet Psychiatry*, *4*(12), 927–936. [https://doi.org/10.1016/S2215-0366\(17\)30409-1](https://doi.org/10.1016/S2215-0366(17)30409-1)
- Powers, W. T. (1973). Feedback: Beyond Behaviorism: Stimulus-response laws are wholly predictable within a control-system model of behavioral organization. *Science*, *179*(4071), 351–356. <https://doi.org/10.1126/science.179.4071.351>
- Preti, A., Cella, M., Raballo, A., & Vellante, M. (2012). Psychotic-like or unusual subjective experiences? The role of certainty in the appraisal of the subclinical psychotic phenotype. *Psychiatry Research*, *200*(2-3), 669–673. <https://doi.org/10.1016/j.psychres.2012.07.014>
- Rabeyron, T., & Loose, T. (2015). Anomalous experiences, trauma, and symbolization processes at the frontiers between psychoanalysis and cognitive neurosciences. *Frontiers in psychology*, *6*, 1926. <https://doi.org/10.3389/fpsyg.2015.01926>
- Rathod, S. (2010). Developing culturally sensitive cognitive behavioural therapy for psychosis for ethnic minority patients by exploration and incorporation of service users' and health professionals' views and opinions. *Behavioural and cognitive psychotherapy*, *38*, 511–533. <https://doi.org/10.1017/S1352465810000378>
- Ridner, S. H. (2004). Psychological distress: Concept analysis. *Journal of Advanced Nursing*, *45*, 536–545. <https://doi.org/10.1046/j.1365-2648.2003.02938>
- Saravanan, B., Jacob, K. S., Johnson, S., Prince, M., Bhugra, D., & David, A. S. (2007). Belief models in first episode schizophrenia in South India. *Social psychiatry and psychiatric epidemiology*, *42*(6), 446–451. <https://doi.org/10.1007/s00127-007-0186-z>

- Shenhav, A., Botvinick, M. M., & Cohen, J. D. (2013). The expected value of control: An integrative theory of anterior cingulate cortex function. *Neuron*, *79*(2), 217–240.
<https://doi.org/10.1016/j.neuron.2013.07.007>
- Sheppes, G., Scheibe, S., Suri, G., & Gross, J. J. (2011). Emotion-regulation choice. *Psychological science*, *22*(11), 1391–1396.
<https://doi.org/10.1177/0956797611418350>
- Staples, L. G., Dear, B. F., Gandy, M., Fogliati, V., Fogliati, R., Karin, E., Nielssen, O., & Titov, N. (2019). Psychometric properties and clinical utility of brief measures of depression, anxiety, and general distress: The PHQ-2, GAD-2, and K-6. *General Hospital Psychiatry*, *56*, 13–18. <https://doi.org/10.1016/j.genhosppsych.2018.11.003>
- Stefanis, N. C., Hanssen, M., Smirnis, N. K., Avramopoulos, D. A., Evdokimidis, I. K., Stefanis, C. N., Verdoux, H., & Van Os, J. (2002). Evidence that three dimensions of psychosis have a distribution in the general population. *Psychological Medicine*, *32*(2), 347–358.
<https://doi.org/10.1017/s0033291701005141>
- Suhail, K., & Cochrane, R. (2002). Effect of culture and environment on the phenomenology of delusions and hallucinations. *International Journal of Social Psychiatry*, *48*(2), 126–138.
<https://doi.org/10.1177/002076402128783181>
- Tamir, M. (2009). What do people want to feel and why? Pleasure and utility in emotion regulation. *Current Directions in Psychological Science*, *18*(2), 101–105.
<https://doi.org/10.1111/j.1467-8721.2009.01617.x>
- Tamir, M., Chiu, C. Y., & Gross, J. J. (2007). Business or pleasure? Utilitarian versus hedonic considerations in emotion regulation. *Emotion*, *7*(3), 546–554.
<https://doi.org/10.1037/1528-3542.7.3.546>

- Tamir, M., John, O. P., Srivastava, S., & Gross, J. J. (2007). Implicit theories of emotion: affective and social outcomes across a major life transition. *Journal of Personality and Social Psychology*, 92(4), 731–744. <https://doi.org/10.1037/0022-3514.92.4.731>
- Tamir, M., & Ford, B. Q. (2009). Choosing to be afraid: Preferences for fear as a function of goal pursuit. *Emotion*, 9(4), 488–497. <https://doi.org/10.1037/a0015882>
- Tamir, M., Mitchell, C., & Gross, J. J. (2008). Hedonic and instrumental motives in anger regulation. *Psychological Science*, 19(4), 324–328. <https://doi.org/10.1111/j.1467-9280.2008.02088.x>
- The World Bank, World Development Indicators (2012). GNI per capita, Atlas method [Data file]. Retrieved from <http://data.worldbank.org/indicator/NY.GNP.PCAP.CD>.
- van der Gaag, M., Valmaggia, L. R., & Smit, F. (2014). The effects of individually tailored formulation-based cognitive behavioural therapy in auditory hallucinations and delusions: a meta-analysis. *Schizophrenia Research*, 156(1), 30–37. <https://doi.org/10.1016/j.schres.2014.03.016>
- van Os, J., Hansen, M., & Bijl, R. R. A (2000). Strauss (1969) revisited: Evidence for a psychosis continuum in the general population. *Schizophrenia Research*, 45(1-2), 11–20. [https://doi.org/10.1016/s0920-9964\(99\)00224-8](https://doi.org/10.1016/s0920-9964(99)00224-8)
- van Os, J., Hanssen, M., Bijl, R. V., & Vollebergh, W. (2001). Prevalence of psychotic disorder and community level of psychotic symptoms: An urban-rural comparison. *Archives of general psychiatry*, 58(7), 663–668. [https://doi.org/10.1016/S0272-7358\(01\)00103-9](https://doi.org/10.1016/S0272-7358(01)00103-9)
- Vermeiden, M., Janssens, M., Thewissen, V., Akinsola, E., Peeters, S., Reijnders, J., Jacobs, N., van Os, J. & Lataster, J. (2019). Cultural differences in positive psychotic experiences assessed with the Community Assessment of Psychic Experiences-42 (CAPE-42): A

comparison of student populations in the Netherlands, Nigeria and Norway. *BMC Psychiatry* 19(1), 1–15. <https://doi.org/10.1186/s12888-019-2210-8>

Verdoux, H., Maurice-Tison, S., Gay, B., Van Os, J., Salamon, R., & Bourgeois, M. L. (1998). A survey of delusional ideation in primary-care patients. *Psychological Medicine*, 28(1), 127–134. <https://doi.org/10.1017/S0033291797005667>

Verdoux, H., & van Os, J. (2002). Psychotic symptoms in non-clinical populations and the continuum of psychosis. *Schizophrenia Research*, 54(1-2), 59–65. [https://doi.org/10.1016/S0920-9964\(01\)00352-8](https://doi.org/10.1016/S0920-9964(01)00352-8)

Webb, T. L., Schweiger Gallo, I., Miles, E., Gollwitzer, P. M., & Sheeran, P. (2012). Effective regulation of affect: An action control perspective on emotion regulation. *European Review of Social Psychology*, 23(1), 143–186. <https://doi.org/10.1080/10463283.2012.718134>

Westermann, S., & Lincoln, T. M. (2010). Using signal detection theory to test the impact of negative emotion on sub-clinical paranoia. *Journal of Behavior Therapy and Experimental Psychiatry*, 41(2), 96–101. <https://doi.org/10.1016/j.jbtep.2009.10.007>

Williams, D. M. (2010). Outcome expectancy and self-efficacy: Theoretical implications of an unresolved contradiction. *Personality and Social Psychology Review*, 14(4), 417–425. <https://doi.org/10.1177/1088868310368802>

Williams, D. M., & Rhodes, R. E. (2016). The confounded self-efficacy construct: conceptual analysis and recommendations for future research. *Health psychology review*, 10(2), 113–128. <https://doi.org/10.1080/17437199.2014.941998>

- Wolpe, J. (1978). Self-efficacy theory and psychotherapeutic change: A square peg for a round hole. *Advances in behaviour research and therapy*, *1*(4), 231–236. [https://doi.org/10.1016/0146-6402\(78\)90011-5](https://doi.org/10.1016/0146-6402(78)90011-5)
- Wood, L., Williams, C., Billings, J., & Johnson, S. (2019). The therapeutic needs of psychiatric in-patients with psychosis: A qualitative exploration of patient and staff perspectives. *BJPsych open*, *5*(3). <https://doi.org/10.1192/bjo.2019.33>
- Yue, H., Li, C., Liu, M., Jin, R., & Bao, H. (2022). Validity test of the theory of planned behavior in college students' withdrawal from smartphone dependence. *Current Psychology*, *41*, 5524–5531. <https://doi.org/10.1007/s12144-020-01068-6>
- Yung, A. R., Buckby, J. A., Cotton, S. M., Cosgrave, E. M., Killackey, E. J., Stanford, C., Godfrey, K., & McGorry, P. D. (2006). Psychotic-like experiences in non-psychotic help-seekers: Association with distress, depression, and disability. *Schizophrenia Bulletin*, *32*(2), 352–359. <https://doi.org/10.1093/schbul/sbj018>
- Yung, A. R., & Lin, A. (2016). Psychotic experiences and their significance. *World Psychiatry*, *15*(2), 130. <https://doi.org/10.1002/wps.20328>
- Yung, A. R., Nelson, B., Baker, K., Buckby, J. A., Baksheev, G., & Cosgrave, E. M. (2009). Psychotic-like experiences in a community sample of adolescents: Implications for the continuum model of psychosis and prediction of schizophrenia. *Australian & New Zealand Journal of Psychiatry*, *43*(2), 118–128. <https://doi.org/10.1080/00048670802607188>
- Zammit, S., Kounali, D., Cannon, M., David, A. S., Gunnell, D., Heron, J., Jones, P., Lewis, S., Sullivan, S., Wolke, D., & Lewis, G. (2013). Psychotic experiences and psychotic disorders at age 18 in relation to psychotic experiences at age 12 in a longitudinal

population-based cohort study. *American Journal of Psychiatry*, 170(7), 742–750.

<https://doi.org/10.1176/appi.ajp.2013.12060768>

Appendices

Appendix a

Ethics approval letter



Downloaded: 28/05/2022

Approved: 24/02/2021

Colleen Mcelhatton
 Registration number: 190218010
 Psychology
 Programme: Doctorate in Clinical Psychology

Dear Colleen

PROJECT TITLE: What factors influence intentions to regulate psychotic like experiences?
APPLICATION: Reference Number 038087

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 24/02/2021 the above-named project was **approved** on ethics grounds, on the basis that you will adhere to the following documentation that you submitted for ethics review:

- University research ethics application form 038087 (form submission date: 16/02/2021); (expected project end date: 22/05/2022).
- Participant information sheet 1086805 version 2 (16/02/2021).
- Participant consent form 1086806 version 1 (31/01/2021).

If during the course of the project you need to [deviate significantly from the above-approved documentation](#) please inform me since written approval will be required.

Your responsibilities in delivering this research project are set out at the end of this letter.

Yours sincerely

Department Of Psychology Research Ethics Committee
 Ethics Administrator
 Psychology

Please note the following responsibilities of the researcher in delivering the research project:

- The project must abide by the University's Research Ethics Policy: <https://www.sheffield.ac.uk/rs/ethicsandintegrity/ethicspolicy/approval-procedure>
- The project must abide by the University's Good Research & Innovation Practices Policy: https://www.sheffield.ac.uk/pplppoly_fs/1_6710661/file/GRIPPpolicy.pdf
- The researcher must inform their supervisor (in the case of a student) or Ethics Administrator (in the case of a member of staff) of any significant changes to the project or the approved documentation.
- The researcher must comply with the requirements of the law and relevant guidelines relating to security and confidentiality of personal data.
- The researcher is responsible for effectively managing the data collected both during and after the end of the project in line with best practice, and any relevant legislative, regulatory or contractual requirements.

Appendix b

Participant information sheet



Participant Information Sheet

1. **Research Project Title:**

When do people try to change how they feel

2. **Invitation paragraph**

You are being invited to take part in a research project. Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether you wish to take part.

3. **What is the project's purpose?**

We have a range of experiences and feelings every day, At what point do people want to change their experiences and what leads to this? The study aims to investigate what factors will influence a person's intention to change their experiences or how they feel.

This research may help us design support services for people who are struggling to change the experiences in the way they want to. The study should not take longer than an hour. The research is part of a doctorate in Clinical Psychology.

4. Why have I been chosen?

You have been chosen or invited to take part because you are over the age of 18 and speak English.

5. Do I have to take part?

It is up to you whether or not to take part in this study. If you do decide to take part, you will be given this information sheet (and asked to sign a consent form) and you can withdraw at any time without any negative consequences. You do not have to give a reason. If you wish to withdraw from the research, please contact Colleen McElhatton (Trainee Clinical Psychologist) on cmcelhatton1@sheffield.ac.uk.

6. What will happen to me if I take part? What do I have to do?

The research will involve completing an online questionnaire. This should not take longer than an hour. The questionnaire will ask questions about experiences you may or may not have had. It will also ask some demographic questions and questions regarding your mood. You will be entered into a prize draw to win amazon vouchers one of 2 £25 Amazon vouchers, if you wish. If you consent to taking part in the prize draw, we will collect your name and email address. This information will be kept separate from the other data collected and so responses will not be identifiable nor linked to the online questionnaire.

7. What are the possible disadvantages and risks of taking part?

Talking about experiences that may be distressing may be difficult for some people and you are free to withdraw from the research at any point. However, after submitting the answers you will not be able to withdraw as from that point the data is anonymised.

If participating in this study causes any distress, please refer to the material through the following links, or email one of the investigators for more information:

Free mental health support for students at the University of Sheffield:

<https://togetherall.com/en-gb/>

Sheffield Student Access to Mental Health Support:

<https://www.sheffield.ac.uk/mental-wellbeing/about-samhs>

Sheffield nightline (24-hour phone support):

<https://www.sheffieldnightline.co.uk/>

The Samaritans:

<https://www.samaritans.org/>

NHS Every Mind Matters:

<https://www.nhs.uk/oneyou/every-mind-matters/>

8. What are the possible benefits of taking part?

Whilst there are no immediate benefits for those people participating in the project, it is hoped that this work will lead to better understanding of why people intend to change their experiences and inform the design of improved pathways to accessing psychological intervention.

Will my taking part in this project be kept confidential?

All the information that we collect about you during the course of the research will be kept strictly confidential and will only be accessible to members of the research team. You will not be identifiable in any reports or publications. If you agree to us sharing the information you provide with other researchers (e.g. by making it available in a data archive) then your personal details will not be included.

9. What is the legal basis for processing my personal data?

According to data protection legislation, we are required to inform you that the legal basis we are applying in order to process your personal data is that 'processing is necessary for the performance of a task carried out in the public interest' (Article 6(1)(e)). Further information can be found in the University's Privacy Notice

<https://www.sheffield.ac.uk/govern/data-protection/privacy/general>

10. What will happen to the data collected, and the results of the research project?

Data will be used as part of a doctoral thesis. All data collected will be anonymised and only those involved in the project will have access to it. The data will be stored at the University of Sheffield for a period of 10 years. However, names and email addresses for the prize draw will be destroyed after the prize draw takes place. Due to the nature of this research it is very likely that other researchers may find the data collected to be useful in answering future research questions. We will ask for your explicit consent for your data to be shared in this way.

11. Who is organising and funding the research?

This research is funded by the University of Sheffield as part of a doctorate in Clinical Psychology.

12. Who is the Data Controller?

The University of Sheffield will act as the Data Controller for this study. This means that the university is responsible for looking after your information and using it properly.

13. Who has ethically reviewed the project?

This project has been ethically approved via the University of Sheffield's Ethics Review Procedure, as administered by the Department of Psychology.

14. What if something goes wrong and I wish to complain about the research?

If you wish to make a complaint or report a serious adverse event please contact Colleen McElhatton (Trainee Clinical Psychologist) on cmcelhatton1@sheffield.ac.uk in the first instance. If you do not feel like your complaint has been handled satisfactorily you can contact the Head of Psychology Department, Professor Liz Milne on psy-hod@sheffield.ac.uk or Dr Robert Schmidt and Dr Jilly Gibson-Miller, chairs of the Department Ethics Subcommittee on r.schmidt@sheffield.ac.uk and j.gibson-miller@sheffield.ac.uk.

If the complaint relates to how the participants' personal data has been handled, information about how to raise a complaint can be found in the University's Privacy Notice:

<https://www.sheffield.ac.uk/govern/data-protection/privacy/general>.

15. Contact for further information

If you would like any further information please contact Colleen McElhatton, Trainee Clinical Psychologist (Principal Investigator) via email: cmcelhatton1@sheffield.ac.uk.

Or my supervisors: Dr Vyv Huddy (Lecturer in Clinical Psychology): v.huddy@sheffield.ac.uk and Professor Thomas Webb: t.webb@sheffield.ac.uk

Thank you for taking part in this project

Appendix c

Consent form



When do people try and change how they feel?

Consent Form

<i>Please tick the appropriate boxes</i>	Yes	No
Taking Part in the Project		
I have read and understood the project information sheet dated 29/01/2021 or the project has been fully explained to me. (If you will answer No to this question please do not proceed with this consent form until you are fully aware of what your participation in the project will mean.)	<input type="checkbox"/>	<input type="checkbox"/>
I have been given the opportunity to ask questions about the project.	<input type="checkbox"/>	<input type="checkbox"/>
I agree to take part in the project. I understand that taking part in the project will include completing a questionnaire.	<input type="checkbox"/>	<input type="checkbox"/>
I understand that my taking part is voluntary and that I can withdraw from the study at any time. I do not have to give any reasons for why I no longer want to take part and there will be no adverse consequences if I choose to withdraw.	<input type="checkbox"/>	<input type="checkbox"/>
How my information will be used during and after the project		
I understand my personal details such as name and email address etc. will not be revealed to people outside the project.	<input type="checkbox"/>	<input type="checkbox"/>
I understand and agree that my responses may be quoted in publications, reports, web pages, and other research outputs. I understand that I will not be named in these outputs.	<input type="checkbox"/>	<input type="checkbox"/>

I understand and agree that other authorised researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.	<input type="checkbox"/>	<input type="checkbox"/>
I understand and agree that other authorised researchers may use my data in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form.	<input type="checkbox"/>	<input type="checkbox"/>
I give permission for the questionnaire data that I provide to be deposited in ORDA so it can be used for future research and learning	<input type="checkbox"/>	<input type="checkbox"/>
So that the information you provide can be used legally by the researchers		
I agree to assign the copyright I hold in any materials generated as part of this project to The University of Sheffield.	<input type="checkbox"/>	<input type="checkbox"/>

Name of participant [printed]

Signature

Date

Name of Researcher [printed]

Signature

Date

Appendix d

Debrief form



EXPERIMENT DEBRIEF INFORMATION

When do people try to change how they feel?

Understanding when a person wants to change their experiences would inform the design of improved pathways to accessing psychological intervention. We want to know when people intend to change their experiences by any means. In particular we wanted to look at unusual or depressive experiences that occur in the general population.

The factors we predict may influence when a person intends to change or not are: how distressing the experiences is, how frequent the experience is, whether someone believes someone close to them would change their experience, whether they believe someone close to them would approve of them changing their experience, if they feel they have the ability to change their experience, and how unusual the experience seems to them.

Thank you for your time

Contact for further information

If you would like any further information or support please contact Colleen McElhatton, Trainee Clinical Psychologist (Principal Investigator) via email: cmcelhatton1@sheffield.ac.uk

Contact for support if participation has caused distress

1. Free mental health support for students at the University of Sheffield:
<https://togetherall.com/en-gb/>
2. Sheffield Student Access to Mental Health Support:
<https://www.sheffield.ac.uk/mental-wellbeing/about-samhs>
3. Sheffield nightline (24-hour phone support):
<https://www.sheffieldnightline.co.uk/>
4. The Samaritans:
<https://www.samaritans.org/>
5. NHS Every Mind Matters:
<https://www.nhs.uk/oneyou/every-mind-matters/>

If something goes wrong and I want to make a complaint

If you wish to make a complaint or report a serious adverse event please contact Colleen McElhatton (Trainee Clinical Psychologist) on cmcelhatton1@sheffield.ac.uk in the first instance. If you do not feel like your complaint has been handled satisfactorily you can contact the Head of Psychology Department, Professor Liz Milne on psy-hod@sheffield.ac.uk or Dr Robert Schmidt and Dr Jilly Gibson-Miller, chairs of the Department Ethics Subcommittee on r.schmidt@sheffield.ac.uk and j.gibson-miller@sheffield.ac.uk.

If the complaint relates to how the participants' personal data has been handled, information about how to raise a complaint can be found in the University's Privacy Notice:
<https://www.sheffield.ac.uk/govern/data-protection/privacy/general>.

Appendix e

The Community Assessment of Psychic Experiences (CAPE)

Redacted

Appendix f

The questionnaire items inputted into Qualtrics

Questionnaire Items

Redacted

Note: The Community Assessment of Psychic Experiences (CAPE) and a questionnaire based on the CAPE and the Theory of Planned behaviour have been redacted

