Doctoral Thesis

Exploring voice hearers' relationships with their voices: Can voices serve an adaptive function?

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Abstract

Background

Voice hearers' relationships with their voices can mirror their wider social relating (e.g. Paulik, 2012). Research has found a relationship between social isolation and beliefs about voices being benevolent (e.g. Favrod et al., 2004). Attachment style impacts on aspects on the voice hearing experience (e.g. Berry et al., 2012) but no previous study has used a measure of attachment to investigate voice hearers' relationship with their voices.

Aims

To investigate whether voice hearers develop attachment bonds with their voices, and whether this relates to general attachment style, social isolation and dependence on the voice.

Method

83 voice hearers were recruited online. Measures were: The Experiences in Close Relationships Revised (ECR-R), Dependence Scale of Voice and You (VAY), Reciprocal Attachment Questionnaire (RAQ), the Frequency and Distress items from the Hamilton Programme for Schizophrenia Voices Questionnaire (HPSVQ), UCLA Loneliness Scale, and Patient Health Questionnaire (PHQ-9). Narrative information was also collected.

Analysis

A cross-sectional correlational design was used with additional content analysis of the narrative data.

Results

Initial evidence was found of attachment bonds to voices in a proportion of voice hearers. Voice hearers with high attachment anxiety reported greater fear of losing their voice.

Correlations between attachment to voice and loneliness lost significance after post hoc adjustment and controlling for low mood. As this is the first study using a measure of attachment for relationships with voices it is important to interpret the results with caution.

Conclusion

The research highlights the importance of considering individuals relationships with their voices. It is hoped that the results of this research will lead to further investigation of attachment bonds with voices and the elucidation of how general attachment style and social isolation impacts on this. Further investigation of this could lead to clinical benefits for voice hearers who are distressed by their voices.

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She began to hear voices; voices that talk to her, talk about her, who comfort her, protect her and make her feel less alone . . . One of the first voices that she hears is that of ''The great mother.'' She is a very powerful maternal figure, a beneficent figure who is always there comforting and soothing her.

(Dillon, 2012, p. 81)

1. Introduction

1.1 Chapter Overview

This introductory chapter will first explore the nature, prevalence and development of voice hearing, and research on beliefs about voices. The research on beliefs about voices will lead into a consideration of social schema in relation to voice hearing, and research on voice hearers' relationships with their voices. The potentially adaptive function of voices will be explored through a review of the relevant literature, with a particular focus on social isolation. An overview of attachment theory will be given, including a consideration of attachment to non-human entities, such as God. This will be followed by a review of the literature which looks specifically at the relationship between attachment styles and voice hearing. Gaps in the current evidence base will be highlighted before concluding with the research questions posed in this thesis.

1.2 Psychotic disorders and Voice Hearing

Psychotic disorders are considered to be one of the most severe mental health disorders and people sometimes suffer their entire lives

(World Health Organisation, 2011). Distress arises not only from the symptoms themselves but from the concurrent emotional and cognitive problems, and reduced quality of life (e.g. Bleuler 1978; Hegarty, Baldessarini, Tohen, Waternaux, & Oepen 1994; Liberman, Kopelowicz, Ventura, & Gutkind, 2002; Tan, Gould, Combes & Lehmann, 2014). The World Health Organisation (WHO) Global Burden of Disease Study placed active psychosis third in a list of the most disabling health conditions - disability being defined in terms of impaired quality of life (Üstün et al., 1999). Positive symptoms of psychosis are thought of as being in 'addition' to the experiences of most people, and include hallucinations, thought disorder and delusions. Conversely, negative symptoms refer to deficits in the experiences that people usually have, such as absences in emotional response (blunted affect), or lack of pleasure (anhedonia).

The experience of voice hearing or auditory hallucinations has been defined as "a sensory perception that has a compelling sense of reality, but occurs without external stimulation" (American Psychological Association (APA), 2000, p.767). Although voice hearing is the most common positive symptom of the diagnosis schizophrenia, people with diagnoses of bipolar disorder and post-traumatic stress disorder (PTSD; APA, 2000) may also hear voices, as well as those without a mental health diagnosis. The British Psychological Society (BPS) Division of Clinical Psychology has explicitly criticised the current systems of psychiatric diagnosis such as ICD-10 and DSM –5 and has suggested that a paradigm shift is needed away from a disease model and towards a conceptual system (British Psychological Society, 2013). The BPS report (BPS, 2015) on psychological

understandings of psychosis is the most recent example of this stance. This thesis will take a trans-diagnostic approach to voice hearing (see Bentall, 2003) which recognises that voice hearing is found across a range of clinical conditions and in non-clinical populations. Throughout this thesis, the terms clinical voice hearer and non-clinical voice hearer will be used to distinguish between voice hearers recruited from within a mental health service and those sampled from the community.

1.3 Prevalence of voice hearing

There have been a range of studies, dating back to the 19th century (Sidgwick, Johnson, Myers, Podmore & Sidgwick, 1894), which show that the experience of voice hearing is not rare in the general population. Posey and Losch (1984) found that 10% of their 375 non-clinical sample heard voices. Many participants reported finding their voices comforting and some said that they conversed with their voices. Their finding is corroborated by the most recent systematic analysis of the prevalence of voice hearing which suggests that about 10% of the general population hear voices at some point in their lives (Beaven, Read & Cartwright, 2011). Voices have been found to occur in non-clinical populations post bereavement (Grimby, 1993), in hostage situations (Siegel, 1984), solitary confinement (Grassian, 1983), and due to sleep deprivation (Oswald, 1974). There is a generally accepted prevalence rate of 70% in schizophrenia (McCarthy-Jones, 2012; Mueser, Bellack & Brady, 1990) but the estimate rates for other diagnostic categories vary widely. The prevalence of voice

hearing in bipolar disorder has been estimated to be as high as 37% (Keck et al., 2003) and as low as 7% (Baethege et al., 2003).

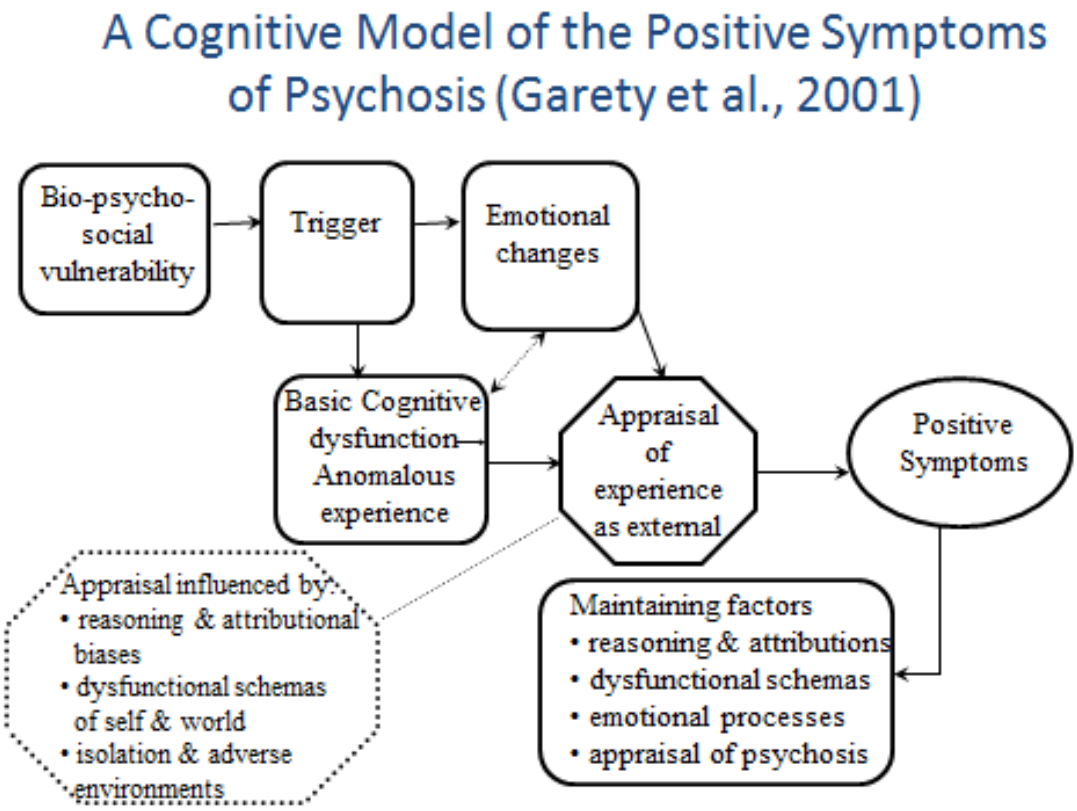
1.4 Development and maintenance of voice hearing

Recent psychological research has increasingly emphasised the role of normal psychological processes in the development and maintenance of voice hearing (Bentall, 2003; British Psychological Society, 2000; 2015, Thomas & Leudar, 1996). Garety, Kuipers, Fowler, Freeman, and Bebbington (2001) propose that heightened affect (due to negative events) can alter sensory perception and give rise to anomalous experiences, including voice hearing. The model (presented in Figure 1) posits that cognitive dysfunction within automatic processing may include difficulties in source-monitoring and self-monitoring of intentions and actions. This may lead to the individual's actions being interpreted as alien to self and subsequently to experiences such as voice hearing, which are then maintained by attributions, appraisals and dysfunctional schemas. A systematic review on source monitoring and voice hearing found support for the Garety et al. model (Ditman & Kuperberg, 2005). In addition, a meta-analysis by Waters, Woodward, Allen, Aleman and Sommer (2012) found a robustly significant relationship between self-recognition deficits and voice hearing.

Broome et al. (2005) suggest that the Garety et al. (2001) model may be a cognitive parallel of the heightened mesolimbic dopamine transmission which is associated with symptoms of psychosis such as voice hearing. They argue that dopamine influences the relative salience of information

which enters awareness (see Berridge & Robinson 1998), and therefore an increase in dopamine causes salience to be given to neutral stimuli.

Figure 1.



The Garety et al. model (2001) highlights the impact of biopsychosocial vulnerability and triggers in the development of voice hearing. This is consistent with evidence that 70% of voice hearers first experience voices after a traumatic event (Romme & Escher, 1989). A study by Bebbington et al. (2004) suggests that individuals with psychosis are 15.5 times more likely to have suffered childhood sexual abuse (CSA) than non-patients and a systematic review by McCarthy-Jones (2011) found a robust link between CSA and voice hearing. McCarthy-Jones does note

the methodological problems in the studies reviewed, as many did not control for potentially confounding variables such as physical and emotional abuse. However, the study which did control these variables (Shevlin, Dorahy & Adamson, 2007) found that the association between CSA and voice hearing remained significant.

One of the proposed mechanisms whereby CSA may lead to voice hearing is dissociation. Dissociation is conceptualised as a protective mechanism that allows individuals to detach from events that are too overwhelming to process (Van der Hart, Nijenuhuis, & Steele, 2006). This is expressed as a disruption in the normal integration of psychological functioning (affect and cognition). Allen, Coyne and Console (1997) posited that dissociation might lead to a vulnerability to voice hearing, through impacting the ability to discriminate between internally and externally generated events. Varese, Barkus and Bentall (2012) investigated this hypothesis and found that dissociation tendencies mediate the link between childhood trauma and hallucination proneness. There was a particularly strong effect for childhood sexual abuse. The mechanism through which dissociation processes lead to hallucinations is unclear, although recent evidence suggests that weakened cognitive inhibition occurs in both dissociation and voice hearing (Badcock, Waters, Maybery & Michie, 2005; Waters, Badcock, Maybery, & Michie, 2003). Andrew, Gray and Snowden (2008) propose that voices are interpreted in the context of traumatic memories, which influence beliefs about voices and consequent distress and there is evidence that trauma impacts on the content, distress and feelings of control over the voice (Honig et al., 1998). Andrew et al.

suggest that perhaps traumatic events increase vulnerability for voice hearing (and other positive symptoms of psychosis), and the nature of the trauma and the extent to which it has been resolved accounts for the appraisals and distress associated with the experience.

Longden, Madill and Waterman (2011) conceptualize voice hearing as a dissociative process which results from trauma and loss, and note the importance of attachment theory in elucidating the relationship between trauma and dissociative tendencies.

1.5 Clinical and Non-Clinical Voice hearers

Badcock and Hugdhal (2012) conducted a systematic review of the cognitive mechanisms of voice hearing and found evidence for shared cognitive mechanisms in clinical and non-clinical voice hearers alike, including increased intrusive cognitions and poor inhibitory control. These commonalities are indicative of a continuum model of psychosis. However, compared to those with a diagnosis of psychosis, non-clinical voice hearers are more likely to believe that their voices are internally generated (Kingdon & Turkington, 1993). Although traumatic events or memories usually trigger voice hearing experiences for both clinical and non-clinical voice hearers (Honig et al., 1998), overall, research shows that clinical voice hearers are exposed to more trauma than non-clinical voice hearers, particularly CSA (Andrew et al., 2008; Read, Van Os, Morrison, & Ross, 2005). Jenner, Rutten, Beuckens, Boonstra and Sytema (2008) found that, compared to clinical voice hearers, non-patients reported more positive beliefs and attributions about their voices, felt more in control and

experienced less distress. Clinical voice hearers have a greater tendency to believe that their voice has a malevolent intent (Birchwood & Chadwick, 1997), and that their voice is powerful (Birchwood, Meaden, Trower, Gilbert & Plaistow, 2000). This suggests that it may be beliefs about voices, rather than the phenomenon of voice hearing per se, which distinguishes clinical and non-clinical groups.

1.6 Beliefs about voices

Chadwick and Birchwood's (1994) cognitive model posits that cognitive appraisals about the voice (e.g. it's control, identity, power etc) occur following an experience of voice hearing which affect the voice hearers emotional and behavioural responses. In common with other cognitive models, it proposes that that there is a bidirectional relationship whereby affective and behavioural responses can either perpetuate or weaken the cognitive appraisals. It is proposed that beliefs about voices plays a key role in the maintenance of voice hearing, and in distress related to it. Enhancing understanding of the factors which mediate distress due to voice hearing is clinically important, as reducing the distress associated with voices has become one of the main therapeutic targets for therapists working with clinical voice hearers. Cognitive Behaviour Therapy (CBT) interventions which aim at reducing distress associated with voices often focus on the voice hearers beliefs about their voices (e.g. Chadwick & Birchwood, 1994), and significant treatment effects have been reported (Pilling et al., 2002). The recent, well-publicised, meta analysis of CBT for psychosis (Jauhar, 2014) which found only small treatment effect sizes used symptom reduction as the primary outcome measure. However, CBT

interventions are focused on distress and functioning as opposed to reducing symptoms per se.

As predicted by Chadwick and Birchwood's (1994) model of voice hearing, empirical research has found that beliefs about voices (Birchwood et al., 2000; 2004; Birchwood & Chadwick, 1997) and core beliefs about self and others (also known as schemas) are more important factors in determining distress than voice content or topography. Mawson, Cohen and Berry (2010) systematically reviewed studies which investigated the relationship between beliefs about voices and distress in clinical voice hearers and concluded that several types of appraisals are correlated with higher levels of distress in voice hearers. These were voices appraised as malevolent or omnipotent, and voices appraised to have personal acquaintance with the individual. However, the authors note that personal acquaintance appraisals have been investigated less than other variables, and therefore this conclusion is more tenuous. The majority of the studies reviewed by Mawson et al. reported that voice malevolence was independent of other factors (such as voice frequency) in predicting distress. Appraisals of voices as intrusive or controlling was found by Gilbert et al. (2001) to be an independent predictor of distress when analysed using regression. Two of the studies reviewed (Morrison & Baker, 2000; Shawyer et al., 2007) found that acceptance of the voice was associated with less distress whereas disapproval of the voice was associated with increased anxiety. In their discussion of the findings Mawson et al. note a number of methodological limitations of the studies reviewed, including low statistical power, high drop out in the intervention studies and the use of invalidated

measures. The authors also report on CBT intervention studies (e.g. Valmaggia, Van der Gaag, Tarrier, Punenborg & Sloof, 2005), and despite a specific targeting of voice appraisals, there are inconsistent findings that a change in voice appraisals leads to a reduction in distress or negative affect. This finding suggests that there may be further factors which influence distress and which may need to be targeted separately from the appraisals, such as social schema. In their initial description of their cognitive model, Chadwick and Birchwood suggested that the construction of beliefs about voices may be linked to interpersonal schemas, which are driven by past relationships.

1.7 Relating with Voices

A seminal study by Benjamin (1989) was the first to conclude that voice hearers could experience integrated and personally meaningful relationships with their voices, with the suggestion that perhaps this might serve an adaptive function in some voice hearers. There is a growing body of research investigating voice hearers' relationships with their voices. A recent systematic review (Hayward, Berry & Ashton, 2011) concluded that the experience of voice hearing can be understood in a number of interpersonal frameworks and that the relationship between the voice hearer and their voice shares many properties with interpersonal relationships within the person's social world. A number of theoretical perspectives informed the reviewed studies including Benjamin's Structural Analysis of Social Behaviour (SASB; Benjamin, 1989), Gilbert's Social Rank Theory (Gilbert & Allan, 1998) and Birtchnell's Relating Theory (Birtchnell, 1996, 2002). Benjamin's (1989) structural analysis model includes elements of

interpersonal relating around a circle, with opposing poles of the same construct (for example, rejecting and approaching) and defines 72 interpersonal behaviours. Complementarity predicts that when one person acts in a certain way it will lead to corresponding behaviour in the other person. However, Benjamin's own study (1989) and a more recent study (Thomas, McLeod & Brewin, 2009) did not find consistent support for this model when applied to voice hearing. For this reasons, Paulik's (2012) review of social schema in voice hearing did not include studies that used the Structural analysis model.

Social rank theory (Gilbert et al., 1995) proposes that social comparisons help people build an image of the self in terms of "social rank" and that whether someone is perceived by self and others as high or low rank can affect an individual's interactions and how others respond to them. In conflict situations people may use perceptions of their own and the others social rank to determine whether to submit to or challenge them. Based on Social rank theory Birchwood et al. (2000) found that the difference in perceived "rank" between voice and voice hearer is mirrored in social rank differences between self and others. Perceived social power was significantly lower among those who perceived themselves to be highly subordinate to their voices, suggesting that social schema led to distress in relation to voices. A later extension of this work allowed the authors to discount the hypothesis that the appraisal of voice power, social rank and distress arose from depressed mood (Birchwood, Meaden, Trower, Gilbert & Plaistow, 2004). A potentially confounding variable was the length of time of voice hearing; it is possible that people's perceived social power and

status change as a result of the relationship with the voice. However, the results are consistent with the established finding that disempowerment and marginalisation leads to increased risk of psychotic symptoms such as voice hearing (e.g. Bhugra, Leff & Mallett, 1997).

Birtchnell's social relating theory (1996; 2002) has also been applied to voice hearing. The theory proposes that relating has two elements; power (upper/lower) and proximity (close/distant). Power is the amount of control and influence one person has over another and proximity is concerned with closeness and intimacy. Hayward (2003) utilized this theory of relating to investigate whether voice hearers relate to their voices and to people within their social environment in similar ways. Twenty seven voice hearers were asked about the characteristics of their voices, their relationship with their voice and their ways of relating socially. Significant positive correlations were found between relating to the voice and relating socially in terms of the 'dominant' and 'submissive' forms of power and the 'clinging' form of proximity (i.e. attempting to be close). These associations were independent of beliefs about the voices and mood-linked appraisals. This study offers some evidence that people who hear voices relate to them in ways that reflect more general patterns of social relating. The findings must be interpreted with some caution however, as there was a small (n=27) sample size, increasing the likelihood of Type II errors, and the sample consisted of only clinical voice hearers. However, this finding has been supported and extended through qualitative methodology. Sorrell, Hayward and Meddings (2010) found that, compared to clinical voice hearers, non-clinical voice hearers perceived their voices to relate to them in a less dominant and

intrusive manner. Due to the methodology of their research it was not possible to ascertain whether voice appraisals led to distance or vice versa. Whilst the sample size precluded a more robust regression analysis, the authors were able to use partial correlations and found that beliefs about voices as measured on the Belief about Voices Questionnaire- Revised (BAVQ-R; Chadwick, Lees & Birchwood, 2000) either moderate or mediate the relationship between voice distance and distress.

Birtchnell's relating theory was used to inform the development of a measure to assess the relationship between the voice hearer and their voice. Due to the Hearer to Voice and Voice to Hearer (Vaughan & Fowler, 2004) measures lacking reliability, a new measure (Voice and You) was developed by Hayward, Denney, Vaughan and Fowler (2008). Analysis of the original measure led to the generation of a 28-item measure which assesses the relating between the voice hearer and the voice. The measure assesses the relationship in four dimensions; Voice dominance, voice intrusiveness, hearer dependence on their voice and hearer distance from their voice.

Trower et al. (2004) conducted a randomised controlled trial (RCT) with participants who responded to commanding voices, aiming to address voice related distress and voice compliance through challenging voice related beliefs. The intervention aimed to change the participant's perception of the power of the voice, and increase their belief in their autonomy over their own behaviour. The intervention was successful in reducing both distress and compliance with commands from the voices.

In Paulik's (2012) review of forty studies investigating social schema in relation to voices it is suggested that the original cognitive model of voices developed by Chadwick and Birchwood (Birchwood & Chadwick, 1997, Chadwick & Birchwood, 1994) would benefit from an inclusion of social schema as a factor that may influence voice content, beliefs about voices, and responses. As social schema develop through relational experiences, attachment theory may be a particularly relevant theory to understanding differences in beliefs about voices.

A recent study (Luhrmann, Padmavati, Tharoor & Oesi, 2015) compared voice hearers from Ghana, California and India with diagnoses of schizophrenia. Many of the voice hearers from India spoke of their relationships with their voices and almost half described voices that were broadly good. Similarly, in Ghana many voice hearers mentioned mostly or entirely positive aspects of voice hearing and used less diagnostic labels. In general the authors found that the non-western participants viewed their voice hearing in a more relational and less diagnostic way. The authors concluded this was likely due to cultural differences, such that social expectations about minds and people may affect the experience of voice hearing itself. Although their research needs replication with larger samples and standardised measures, the findings are suggestive that the experience of relating to voices is influenced by cultural differences and social context. The findings are also in line with findings by Ashton et al. (2011), who suggest that when a voice hearer feels they are stigmatised as "ill" in response to their voices, they are more likely to find the experience distressing, which in turn affects their ability to relate to their voices.

Three main themes emerged from Hayward, Berry and Ashton's (2011) review of studies investigating relationships between voice hearers and their voice. The studies highlighted the importance of perceptions of voice power in determining distress. Secondly, the patterns of relating with voices are related to wider forms of interpersonal relating. The third theme is the possible adaptive function of voices. This will now be discussed in more detail.

1.8.1 Adaptive function of voices

Miller, O'Connor and DiPasquale (1993) note that asking people about their positive perceptions of the voice hearing experience could assist in identifying issues most suitable for psychological treatment, so "the needs met by hallucinations could be met by other means" (p. 586). In a quantitative study Jenner et al. (2008) found that between 40% and 60% of their sample (consisting of 65 non-clinical and 131 clinical voice hearers) experienced positive or useful voices as well as negative voices. Half the sample said their voices keep them company, make them confident and calm, and provide protection and reassurance. A third of the clinical sample said that they wanted to keep their positive voices. The authors suggested that as some patients may fear the disappearance or reduction in supportive voices this has implications for treatment compliance, engagement and recovery. However, no association was found between the number of years of voice hearing and positive or useful characterisations.

Suri (2010) interviewed eight voice hearers and found that many of them sought support, companionship, and care from their voices. One voice

hearer (Jane) stated that her voice reduced her feelings of isolation. Another participant (Rob) talked of being soothed when he was in despair. He described that his childhood had been very difficult and he felt that he had never received real parenting; when he felt at his most alone the voices comforted him. Several other qualitative studies have found that people can receive support, encouragement and intimacy from their voice (Fenekou & Georgaca, 2010; Nayani & David, 1996). Miller et al. (1993) interviewed 50 voice hearers about their experiences and, although 98% of participants talked of negative aspects, half also spoke of positive aspects. Participants talked about their voices helping them feel relaxed, providing companionship, being protective and helping them be creative and function more effectively in relationships. A third of participants reported that they did not wish their voices to stop completely. An Italian study (Faccio, Romaioli, Dagani & Cipolletta, 2012) found that, of 10 non-clinical voice hearers, eight did not want their voice to disappear and half of them described that they would have felt empty without their voices. These findings led the authors to posit that the voices had an adaptive function for these particular hearers.

Jackson, Hayward and Cooke (2010) interviewed clinical and non-clinical voice hearers who had positive experiences of voice hearing, and identified several themes relating to the development of positive relationships with voices. Overall, they found that developing a sense of control in the relationship with the voice, and reducing the fear associated with it was associated with positive relationships. These two factors were influenced by voice hearers actively engaging with the voice, establishing

boundaries in the relationship with the voice and developing a stronger sense of self and autonomy. The development of positive relationships with voices was also influenced by voice hearers engaging with other people who accepted and valued voices and building a personally meaningful understanding of their voice hearing.

1.8.2 Adaptive function of voices: Possible mechanisms

McCarthy-Jones and Davidson (2013) suggest that, following trauma, supportive voices may operate in an adaptive manner in order to provide the care lacking in the person's environment. For example, Dillon (2012) describes how following her own experience of childhood abuse where she was treated like ''a dirty little bitch, evil and unlovable,'' (p. 80) she began to hear voices.

One of the first voices that she hears is that of the great mother. She is a very powerful maternal figure, who is beautiful and kind, a beneficent figure who is always there comforting and soothing her. The great mother is one of the girl's greatest inventions for she is a clever little girl, yet she keeps this illusion secret from herself for the longest time. The great mother is central in supporting the girl to survive with her humanity intact. (p. 81)

Longden, Corstens, Escher and Romme (2012) discuss a voice hearer whose nurturing and compassionate voice faded when she "developed a secure base within herself and she no longer required the voice to perform that role"(p.564). The authors suggest that the voice may have compensated for maternal deprivation. Romme and Escher (2009) describe the experiences of a 42 year old woman whose voices provided her with

comfort and care and helped her through difficult times in childhood when she was sexually and physically abused.

These case studies provide instances of voices having a function in providing care and emotional regulation, when it is missing from the environment.

1.9 Voice hearing and loneliness

Benjamin (1989) considered that adverse social circumstances might influence a retreat into a voice world. This is consistent with Hoffman's (2007) social de-afferentation theory which argues that high levels of social withdrawal or isolation prompt the mind to search for social meaning in the forms of hallucinations. There are neurochemical parallels to this; rats (Heidbrader et al., 2001) and macaque monkeys (Morgan et al., 2002) which are reared in isolation have been found to have sensitised dopamine systems. It has also been suggested (e.g. Beavan & Read, 2010) that the stigma associated with voice hearing may lead to withdrawal from the social world.

One of the participants (Norman) in Chin, Hayward and Drinnan's (2009) study commented "I haven't got many friends so the only thing I can stay close to are the voices and so I do stay close to them" (p.15). Another participant (Russell) stated "If they stopped I'd quite miss them. They're almost like part of me and sometimes when I don't hear them I think where are the voices" (p.11).

Weiss (1973) described an attachment based theory of loneliness in which deficiencies in social relationships serving specific functions (e.g., attachment, social integration) were posited to contribute to feelings of loneliness. Weiss distinguished between social loneliness (e.g., lack of social integration), and emotional loneliness (e.g., absence of a reliable attachment figure). Several studies (Beavan & Read, 2010; Mawson, Berry, Murray & Hayward, 2011) have found that voices can be adaptive and serve a relational function, particularly where voice hearers lack other social contact. Favrod, Grasset, Spreng, Grossenbacher and Hode (2004) found a relationship between poor social functioning and benevolent beliefs about voices. They quote the example of a 36 year male voice hearer who was reluctant to engage in therapy as he did not want to lose his voices but agreed to try to develop cognitive strategies to reduce engagement with voices in public (as opposed to losing them completely). In a study using IPA (Interpretive Phenomenological Analysis) Mawson et al. (2011) found that those who disclosed more positive beliefs about, and interactions with, their voices were most rejecting of their social acquaintances and reported having the most depleted social networks. It is not possible to ascertain the direction of the correlation as it could be the case that benevolent beliefs about voices lead to communication difficulties or that social difficulties lead to increased positivity towards voices. However, it is possible that submissive and benevolent beliefs act in an adaptive way for some voice hearers when other social networks fail or become too difficult to maintain. Unfortunately neither Favrod et al. nor Mawson et al. measured the length of time participants had been hearing voices. It would also have been

helpful for the studies to have included a measure of distress in order to examine whether this was aligned to social functioning. It is further important to note that participants in both samples may have experienced psychological difficulties concomitant with voice hearing in clinical samples; thus the voice hearing experience per se may not have been what caused the difficulties in social networks.

1.10 Adaptive Function of Voices: Summary

In summary, there is evidence within a range of studies and personal accounts of voices providing companionship, support, guidance and comfort to voice hearers. There are also instances of voice hearers indicating that they would not wish to lose their voice. These findings have led a number of researchers to claim that voices have an adaptive function. There is also preliminary evidence that social isolation and loneliness may be related to the voice hearing experience in some way although the directionality of this relationship has not been established. A relatively recent area in voice hearing research is the application of attachment theory (e.g. Berry, Barrowclough & Weaden, 2007). The following section of Chapter one will review the literature on attachment theory, before examining the evidence for attachment to non-physical entities such as God. The chapter will conclude with a consideration of the literature applying attachment theory to voice hearing.

1.11 Attachment Theory- An Overview

John Bowlby, the original exponent of attachment theory, suggested that human infants need to have an 'affectional bond' (1977, p. 201) with a

primary caregiver or attachment figure who can understand and respond to their need for survival. This is proposed to operate through the attenuation of affective and physiological arousal (Diamond & Hicks, 2004). Bowlby (1969, 1973, 1980) argued that attachment is a model of behaviour which impacts on human biological, cognitive, and emotional development. Attachment theory is consistent with a range of psychological theories of development which emphasise the significance of the early relationship between caregiver and infant (e.g. Bowlby, 1969; Fonagy, Gergely, Junist & Target, 2002; Stern, 1977, 1984).

An attachment relationship between infant and caregiver is activated when the infant is in distress (e.g. pain, or hunger) and the caregiver helps the infant to regulate this. Attachment theory posits that a 'secure base' is needed from which the infant can explore the challenges of the world and return to for support. This secure base may be external where support is sought from the figure themselves or internal where the figure has become part of internal working models for responding to distress (Bowlby, 1998; Holmes, 2001). These internal working models of relationships are hypothesised to consist of beliefs about the self and others, which impact on people's communication, interpersonal behaviour, and their methods of regulating difficult emotions. Thus, early attachment leads to resources and ways of coping which can be utilised in times of stress throughout the lifespan.

There are three major aspects of attachment theory. The first is that individual attachment styles reflect differences in beliefs about the self and others. The second aspect is that attachment style impacts on interpersonal

behaviour and functioning. Finally, attachment influences the ways in which people cope with and regulate difficult emotions.

1.12.1 Infant and Childhood Attachment

In the first year of life the relationship between the infant and their caregiver forms a pattern of attachment behaviour. (Ainsworth, Blehar, Waters & Wall, 1978; Main, Kaplan & Cassidy 1985). Main, Hesse and Kaplan (2005) note that the attachment system is activated in infants, and an attachment bond formed, even if interaction with the caregiver is minimal. However, they go on to note that the quality and type of attachment bond results from the varying degrees to which the infant utilises that bond. Ainsworth et al.'s (1978) work on infant attachment categorisation posited that, depending on the sensitivity of the caregiver to the child's needs, three attachment styles can be observed in infants: secure, avoidant and ambivalent/resistant. This categorisation stemmed from Ainsworth's development of the Strange Situation Test (Ainsworth et al.). The infant's attachment to their primary caregiver is observed through episodes of separation and reunion, and the infant's response in the presence of a stranger.

1.12.2 Secure Attachment

In the Strange Situation test (Ainsworth et al. 1978) secure attachment is demonstrated by the infant displaying distress on separation from the primary caregiver, seeking proximity when they return, being easily comforted by the caregiver and quickly returning to exploratory behaviour. In secure attachment relationships, the primary caregiver helps

regulate the negative emotions of the infant through consistently labelling, responding to and modelling effective responses to their infant's distress. Research has found that caregivers who are sensitive to the mental states (beliefs, desires, feelings and so on) of their infant promote awareness and sensitivity of both their own and others minds in the child (Meins, Fernyhough, Russell & Clarke-Carter, 1998), a process described as mentalization by Fonagy et al. (2002). Relative to children with an insecure attachment, children with secure attachment styles have an increased ability to experience negative emotions without becoming overwhelmed, and are more able to communicate these negative states to others (Grossmann, Grossmann & Schwan 1986). Evidence also suggests that securely attached children use more constructive strategies to manage negative emotions and have a heightened understanding of emotions relative to children with insecure attachment styles. (see Thompson & Meyer, 2007 & Cassidy & Shaver, 2013 for reviews).

1.12.3 Ambivalent/resistant attachment

Ainsworth et al. (1978) found that, in the Strange Situation Test, infants with an ambivalent/resistant attachment style become visibly distressed on separation, and fail to resume their exploration when reunited with their caregiver. The presence of the attachment figure does not act as a soothing influence and the infant seems unable to inhibit their distress. An ambivalent/resistant attachment style is said to arise when a child experiences inconsistent responses from the primary caregiver when they are in distress. This unpredictability and inconsistency causes anxiety in the child and leads to an exaggeration of their emotional

responses (e.g. crying for extended periods of time). Infants are also said to develop ambivalent/resistant styles when the parent is perceived to be over-involved, or when the infant is expected to worry about their caregiver (Boris & Zeanah, 1999). Stevens (2014) found that those with ambivalent attachment styles can struggle to manage their emotions and impulses.

1.12.4 Avoidant Attachment

In the Strange Situation Test (Ainsworth et al., 1978), an avoidant attachment style is characterised by the infant displaying little emotion on separation from their primary caregiver and continuing to play. When reunited, the infant resists the caregiver's attempts to initiate contact (Ainsworth et al., 1978). This attachment style is said to emerge because expressing emotional distress has been discouraged by the primary caregiver, leading to the inhibition of emotions by the infant. Under these conditions, the infant learns to inhibit their emotions and to become overly independent. Infants with this attachment style have been found to have similar arousal levels (as measured by cortisol levels) as ambivalent/resistant infants but their behaviour displays this less (Hertsgaard, Gunnar, Erickson & Nachmias, 1995). Evidence also suggests that avoidant infants experience an increased heart rate whilst displaying little emotion behaviourally or facially, a finding consistent with the avoidant pattern of minimisation of emotional arousal (Zelenko et al., 2005). Stevens (2014) found that individuals with avoidant attachment style showed a lack of awareness of their emotional states.

1.12.5 Disorganised Attachment

Although avoidant and ambivalent attachment styles are insecure they function in an adaptive and organised way, protecting against a caregiver who displays limited emotional availability (leading to attachment avoidance) or who does so in an inconsistent way (leading to attachment anxiety). However, Main and Solomon (1986) observed that some children did not display an organised attachment pattern. In the Strange Situation test carried out by Main and Solomon the children labelled disorganised, displayed contradictory behaviours, such as incomplete movements, sudden movements towards and away from the attachment figure, and visible distress towards the attachment figure.

Disorganised attachment (Main & Solomon, 1986) is hypothesised to develop where the infant does not develop coherent and organised internal working models of relationships and therefore have deficits in emotional regulation. Upon separation from their primary caregiver in the Strange Situation test, Hertsgaard et al. (1995) found higher levels of cortisol in infants with disorganised attachment than those with other attachment profiles, suggesting particularly high distress. Given that the attachment system is activated in times of unsafety or anxiety, it is particularly detrimental to children's functioning if there is no coherent strategy for minimising this distress. There is evidence that children with disorganised attachment have grown up in households where they experience neglect or abuse and therefore the person that they depend on to meet their needs is also a source of threat (Main & Hesse, 1990). Compared to the other attachment styles disorganised attachment has been most commonly linked to

interpersonal problems and behavioural disorders (Lyons-Ruth & Jacobvitz, 1999) as well as mental health problems in both children (Benoit, 2004) and adults (Tyrrell & Dozier, 1997). Liotti and Gumley (2008) argue that attachment disorganisation is a dissociative process, arising from the conflict of being abused or neglected by ones source of security or comfort, and others have argued that psychotic symptoms are also dissociative (e.g. Ross, 2004; Longden et al., 2012).

1.12.6 Developments of New Attachments in Children

Children can form attachments beyond their primary caregivers, as illustrated by evidence of childhood attachment to grandparents (Howes & Ritchie, 1999) day-care providers (van Ijzendoorn, Sagi, & Lambermon, 1992) and teachers (Verschueren & Koomen, 2012). Barcons et al. (2007) found that nearly 90% of an international sample of adopted children appeared to develop new organised attachment styles despite being raised in institutions prior to adoption. As children develop they have an increased cognitive capacity to represent their attachment figure internally, and (in the case of secure attachment) the idea of person permanence may result in a felt security (Bowlby, 1984).

1.13.1 Adult Attachment

Attachment theory claims that the attachment system is continually active throughout the lifespan (Bowlby, 1973, 1982). Beyond infancy, attachment can be studied not only in terms of overt behaviour (as in the Strange Situation Test) but also in terms of cognitive biases and linguistic processes relating to attachment figures (Main, Kaplan, & Cassidy, 1985;

Mikulincer & Shaver, 2007). There is also physiological evidence for attachment in adulthood. The presence or symbolic presence (for example a photograph) of a partner has been found to reduce pain in response to heat (Master et al., 2009), and to attenuate threat-related neural activity during mild electric shocks (Coan, Schaefer, & Davidson, 2006).

Research on adult attachment has developed in two distinct methodological paradigms (see Simpson & Rholes, 1998). Developmental psychology research has predominantly based attachment research on the Adult Attachment Interview (AAI), a semi structured interview from which an individual's attachment style is inferred from the way they describe their childhood relationships (Hesse, 1999; Main & Goldwyn, 1998). The other paradigm, based within social psychology, relies on self-reports of cognition and emotions in adult relationships (see Cassidy & Shaver, 1999). Roisman et al. (2007) reviewed the divide between these paradigms and summarise that both traditions have a theoretical and clinical role in explaining interpersonal functioning in adults. In a review of adult attachment styles in people with psychotic symptoms Gumley, Taylor, Schwanner and Macbeth (2014) found high consistency across studies which used the AAI and self-report measures of attachment, and evidence of construct validity within the measures.

Bowlby (1980) and others (e.g. Hazan & Shaver, 1987) have suggested that the typical attachment figure in adulthood is a partner or close friend rather than a parent. There has been some confusion in the literature regarding the factors which distinguish attachment relationships

from other relationships and there is a dearth of empirical studies which investigate what characterises attachment relationships in particular. The theoretical delineation of attachment relationships from other relationships has been expounded on by the exponents of attachment theory. Ainsworth (1991) distinguished between the terms 'attachment/attachment bond', and 'attachment relationship' and stated that "bonds are characteristic of the individual but not the dyad; although they develop in the context of the dyad, they come to entail representation in the internal organization of the individual" (p. 37).

Ainsworth (1985) delineated four criteria of an attachment bond which include maintaining proximity with the attachment figure, seeing the attachment figure as a secure base of explorative behaviour, considering the attachment figure as a haven of safety, and experiencing separation anxiety when removed from the attachment figure. Ainsworth further distinguished attachment relationships from other relationships by noting that they provide security rather than guidance, companionship or the sharing of common interests. She went on to add that the lack of attachment relationships results in loneliness.

Attachment relationships have been found to exist within patient-therapist relationships (e.g. Hietanen & Punamaki, 2006), and Arbuckle, Berry, Taylor and Kennedy (2012) have found evidence that psychiatric patients can form attachment bonds to their mental health teams. A significant finding in their research was that individuals with an insecure attachment style could become securely attached to their key workers.

1.13.2 Adult Attachment Styles

Factor analysis has led to adult attachment styles being measured and conceptualised according to two affective-behavioural dimensions (Crowell, Fraley & Shaver, 1999). Attachment avoidance is related to 'model of others' where behaviour involves appropriately seeking proximity to others (low avoidance) or withdrawing from others (high avoidance). Attachment anxiety relates to one's 'model of self:' a low sense of self-worth could give rise to high levels of preoccupation and fears around gaining acceptance from others (high anxiety), whereas assuredness that one is worthy of others' responsiveness leads to the opposite (low anxiety; Bartholomew, 1990).

Attachment theory would predict that attachment styles are mostly stable across the lifespan. However, consistent with Bowlby's (1973) theoretical predictions, stressful life events (such as parental loss, separation, or child abuse) before adulthood can lead to changes in attachment representations. In a longitudinal study, Waters et al. (2000) found that categories of attachment remained mostly consistent between 12 months and 21 years. Where there were significant changes in attachment these occurred following trauma, abuse or loss. Weinfield, Sroufe, and Egeland (2000) also found that attachment styles can change in adults following significant events, particularly interpersonal trauma. Furthermore, in a study of couples who had recently married, there was evidence of a change in attachment style in a quarter of them from insecure to secure (Crowell, Treboux, & Waters, 2002). Similarly, Davila and Cobb's (2003) 1-year longitudinal study of attachment in young adulthood,

suggested that interpersonal stressors (such as difficulties in romantic relationships) were associated with change in attachment status. Liotti and Gumley (2008) assert that significant relationships can change internal working models (schemas) which developed in infancy or childhood. These relationships may be negative or positive and may include, for example, a strong therapeutic relationship (Maertens, 2006). This evidence suggests that, in the voice hearing population, a measure of an individual's current attachment style is more relevant than their childhood attachment style, particularly bearing in mind the interpersonal trauma often associated with the onset of voice hearing (e.g. Romme & Escher, 2000).

1.14 Attachment to Non-Human Entities

There is increasing evidence that people can form attachment bonds towards non-human entities. Attachment has been investigated in those approaching the end of their life and utilising palliative care, and it has been found that residents of care homes can develop attachments towards the home itself (Milberg et al. 2012). Various researchers (Kirkpatrick, 1998; Kirkpatrick & Shaver, 1990; Noller, 1992; Pargament, 1997; Zahl, & Gibson, 2014) have argued that God may serve as an attachment figure for adherents of monotheistic religions.

The desire for proximity and contact is satisfied through communication with God in prayer and by participation in religious services and activities. God is viewed as always available to serve as a source of security and comfort. When believers are threatened in some way they turn to God as a haven to regain a sense of security and comfort. The threat of

separation from God (e.g., loss of belief, fear of separation from God in the hereafter) causes anxiety in believers. (Granqvist & Hagekull, 2000, p. 119)

Kirkpatrick (1999) recognised that, on the basis that infant attachment bonds are formed through interaction with a physical being, it may be questioned as to whether the concept of attachment can be applied to an individual's relationship to God. In order to answer this Kirkpatrick cites Bretherton (1987), who notes that older children (with the associated increase in cognitive capacity and ability in symbolic representation) can form and maintain attachments through solely verbal contact with a caregiver.

A number of empirical studies have found evidence for the idea of God as an attachment figure (for a recent review, see Granqvist, Mikulincer, & Shaver, 2010). In one experiment, believers expressed an increase in their wish to be close to God following priming with subliminal separation threats targeting their relationship with God, a finding which did not occur in attachment-neutral control conditions (Birgegard & Granqvist, 2004). Granqvist and Kirkpatrick (2008) have delineated two potential attachment related pathways to religion. The correspondence pathway posits that securely attached people develop relationships with God which exhibit the same security, and view God as a safe and loving caregiver. In contrast, the compensation pathway is hypothesised to begin as a way to regulate distress following experiences of less sensitive caregivers. This pathway tends to involve a less consistent relationship with God and individuals with an anxious attachment style have been found to be more prone to sudden increases in religiousness (Kirkpatrick, 1997, 1998). Granvqist (2002)

suggested that perhaps those with anxious styles may utilise God for emotional regulation purposes and reduce the emotional dependence on their close ones thus benefiting their relationships. Houser and Welch (2012) found that individuals with high anxiety and low avoidance are more likely to develop a compensatory attachment relationship to God, and also suggested that this may serve an emotional regulation purpose.

The literature on attachment to God provides evidence that people can develop an attachment to non-physical entities. To date, no published study has explicitly investigated whether voice hearers can form attachments to their voices. However, given the evidence reviewed above suggesting that people gain comfort and support from their voices, it could be argued that attachment relationships to voices may occur. The subsequent section of this introduction will review the empirical evidence applying attachment theory to people's experience of voice hearing. It will conclude by asking whether voice hearers can develop an attachment bond to their voice.

1.15 Voice hearing and Attachment

Bentall, Fernyhough, Morrison, Lewis and Corcoran (2007) argue that the consistent findings of a link between interpersonal experiences and psychotic experiences such as voice hearing suggest the need for theories of normal human development such as attachment to be utilised in understanding them. The majority of the research on voice hearing and attachment has been carried out in clinical samples of people with psychosis. These studies differentiate between positive symptoms (such as

paranoia, hallucinations or delusions) and negative symptoms (such as adhenonia and lack of affect).

1.16 Insecure Attachment and Psychotic Symptoms

There is evidence that insecure attachment results in higher vulnerability to mental health problems in adulthood (Dozier, Stovall & Albis, 1999), and that people with psychotic symptoms have greater levels of insecure attachment than people with mood disorders such as depression (Dozier, 1990). The evidence reviewed above suggests some of the mechanisms whereby insecure attachment may lead to difficulties with emotional regulation as well as relational problems.

There is evidence from non-clinical samples that there is a positive correlation between schizotypy (the propensity for unusual experiences) and insecure attachment (Berry, Band, Corcoran et al., 2007; Cooper, Shaver, & Collins, 1998). Berry et al. (2006) found that attachment anxiety and avoidance were both predictive of positive psychotic symptoms in a non-clinical sample whereas negative symptoms were strongly related to attachment avoidance and not anxiety. The most recent review of psychotic symptoms and attachment style (Gumley, Taylor, Schwannaeur & Macbeth, 2014) looked at 22 studies and found small to moderate associations between insecure attachment styles and both positive and negative symptoms of psychosis. The review also highlighted small to moderate correlations between insecure attachment styles and interpersonal problems, experience of trauma and poor engagement with mental health services. Many of the studies of attachment and psychosis use the Parental Bonding Instrument (PBI) which uses retrospective memories of childhood relationships with

caregivers to assess attachment style. However, the correlations between adult attachment styles and scores on the PBI are low, limiting the validity of the findings (Berry et al., 2006). Berry et al. (2012) argued that it is important to concentrate on adult attachment in regards to voice hearing as attachment styles can change over the lifespan, especially due to trauma experiences (Weinfield, Sroufe & Egeland, 2000).

The findings of relationships between psychotic symptoms and attachment style have likely been impacted by the inclusion of a wide range of symptoms, and the investigation of levels of symptoms as opposed to the level of distress or impact on functioning. More recently, there has been an increase in studies investigating specific symptoms of psychosis such as voice hearing.

1.17 Attachment Style and Voice hearing

Most studies investigating the role of attachment style in voice hearing have recruited clinical voice hearers with a diagnosis of psychosis or a psychotic disorder. Berry, Barrowclough and Wearden (2008) developed a measure of attachment style (PAM; Psychosis Attachment Measure) and, in a clinical sample, found that attachment anxiety (and not avoidance) was related to positive psychotic symptoms including voice hearing. Although the PAM measure displays adequate reliability and validity its use has been limited to few studies.

Research has also looked at the impact of attachment style in relation to voice content and voice related distress. In a clinical sample, Berry, Wearden, Barrowclough, Oakland and Bradley (2011) found an association

between attachment anxiety (not attachment avoidance) and voice distress and severity. The authors found predicted relationships between avoidant attachment style and themes of rejection and criticism in voice content, with large effect sizes. This finding is in line with the theory that avoidant attachment arises from early caregiver which is neglectful and critical (Bartholomew, 1997; Shaver & Mikulincer, 2002). Contrary to their hypothesis they did not find an association between attachment anxiety and themes of threat and control of voices. This may be due to weaknesses in the methodology used as the authors did not use a reliable and valid measure of beliefs about voices. They used a mixed methodology, using qualitative analysis of participants' experiences of voice hearing, and used these to investigate associations between these themes and self-reported attachment styles. They examined the content (rather than voice hearers' interpretation) of voices explaining this was because of the "potential delusional interpretation of speech-content often evident in people with psychosis" (p.5). This is a potential flaw in their research, as there is evidence that beliefs about voices only follow directly from content in 25% of cases (Birchwood & Chadwick, 1997). In a clinical sample, Berry, Wearden, Barrowclough, Oakland and Bradley (2012) found predicted associations between anxious attachments and severity of voices and voice-related distress, but found no significant relationships between avoidant attachment and severity and distress. The author posited that this may have been due to underreporting of symptoms by participants with an avoidant attachment style. Patients with avoidant attachment have been found to report less mental health symptoms than those with anxious attachment (Dozier & Lee, 1995). Berry et al. (2012)

reported that case managers and interviewers rated the symptoms of avoidant participants as higher than they did themselves. This led the authors to question whether self-report measures are sufficient to find a correlation between voice hearing and avoidant attachment style. This also helps explicate the mixed findings in the voice hearing and psychosis literature generally. The authors acknowledged a number of limitations in their research, such as the possible mediating factors of mood and anxiety which were not controlled for. However, in a study investigating schizotypy, the relationships between voice hearing and anxious attachment was maintained even after low mood was controlled (Berry et al., 2006).

Although the majority of the relevant studies indicate that attachment anxiety may be more predictive of voices than attachment avoidance other studies show that both attachment anxiety and attachment avoidance are associated with voice hearing. Macbeth, Schwannaeur and Gumley (2008) investigated attachment and voice hearing (amongst other psychotic symptoms) in a non clinical sample, using an analogue cross-sectional cohort design. The use of covariance modelling suggested that both interpersonal dependence and avoidance strategies predicted the presence of voices. Therefore it appeared that voice hearing was predicted by a contradictory combination of attachment anxiety and avoidance (both affiliating and distancing interpersonal strategies). The authors proposed that this contradiction could represent disorganised attachment in terms of the dysfunctional use of a variety of strategies. The authors acknowledge that as they were not able to categorise participants into attachment categories due to poor internal consistency, it is not possible to claim that disorganised

attachment leads to voice hearing. It is unclear whether the same participants used both strategies simultaneously or whether voices are predicted separately by two types of attachment style: anxiously attached people with more interpersonal affiliating and avoidant people with more interpersonal distancing. However Macbeth et al.'s results are consistent with a qualitative study (Chin, Hayward & Drinn, 2009) which found that some voice hearers simultaneously accept and refute the concept of relating to their voice; this may be due to disorganised attachment leading to contradictory relating strategies.

In addition, as there was no measure of voice distress in Macbeth's (2008) study, it is not possible to know whether, and to what extent, attachment style and interpersonal behaviours are associated with distress from voice hearing. It has also been noted (Berry, Barrowclough & Wearden, 2007) that as interpersonal events can change attachment styles, it is also possible that the experience of voice hearing itself may change an individual's attachment patterns.

1.18 Summary and Rationale

Previous research has investigated the relationships between attachment style and aspects of the voice hearing experience. Considering the evidence that people's relationship with their voices can mirror their general social relationships it is possible that this is also true of attachment relationships. Although they did not test this hypothesis empirically, Chadwick and Birchwood (2012) note that people may form attachments to their voice, for the reason that "any intimacy is better than no intimacy" (p.521). This has also been proposed by Berry et al. (2012), and Romme and

Escher (2000). The above cited research provides preliminary evidence of possible attachment bonds to voices in some voice hearers, which is bolstered by several personal accounts; however, there has been no previous attempt to use a validated measure of attachment to investigate this. Measures of attachment have been applied successfully to a variety of relationships including people's relationship with God (Zahl, Poon, Gibson & Nicholas, 2012) and between psychiatric patients and their mental health teams (Arbuckle, Berry, Taylor & Kennedy, 2012). This study aims to extend this work by using a validated measure of attachment to assess people's relationship with their voices, using an international online sample.

1.19 Research questions

Based on the existing literature, the following four research questions were generated.

1. **Does an individual's relationship with their voice exhibit qualities of an attachment bond?**

A systematic review (Hayward et al., 2011) concluded that the experience of hearing voices can be understood within interpersonal frameworks. It has been found that people's relationships with their voices can mirror their wider social relating (see Paulik et al., 2012 for a review) and some hearers also report experiences of closeness and trust in their relationship with their voice (e..g. Romme & Escher, 2000). In addition, qualitative studies have found that people can receive support, encouragement and intimacy from their voice (e.g. Fenekou & Georgaca, 2010; Nayani & David, 1996; Chin et al., 2009). Measures of attachment

have been applied successfully to a variety of relationships including peoples relationships with God (e.g. Fenekou, Georgan & Nicholas, 2012) and between psychiatric patients and their mental health teams (Arbuckle, Berry, Taylor & Kennedy, 2012).

2. Is there a relationship between an individual's general attachment style (i.e.. levels of anxiety and avoidance) and the attachment bond with the voice?

This arises from two areas of research. The first is the literature investigating psychosis and attachment. Gumley et al. (2013) concluded that there was a small to medium sized association between insecure attachment styles and symptoms such as voice hearing. The second area concerns the attachment to God literature. Granqvist and Kirkpatrick (2008) have delineated two potential pathways to attachment with God. The correspondence pathway posits that securely attached people develop relationships with God which exhibit the same security, and view God as a safe and loving caregiver. In contrast, the compensation pathway is hypothesised to begin as a way to regulate distress following experiences of less sensitive caregivers. Granvqist (2002) suggested that perhaps those with anxious styles may utilise God for emotional regulation purposes and reduce the emotional dependence on their close ones thus benefiting their relationships. Houser and Welch (2012) found that individuals with high anxiety and low avoidance are more likely to develop a compensatory attachment relationship to God, and also suggested that this may serve an emotional regulation purpose.

3. **Is there a relationship between an individual's dependence on the voice and the attachment bond with the voice?**

This research question arises from the dimensional model of attachment whereby adult attachment styles have been conceptualised according to two affective-behavioural dimensions (Crowell, Fraley & Shaver, 1999). Attachment avoidance is related to 'model of others' where behaviour involves appropriately seeking proximity to others (low avoidance) or withdrawing from others (high avoidance). Attachment anxiety relates to one's 'model of self:' a low sense of self-worth could give rise to high levels of preoccupation and fears around gaining acceptance from others (high anxiety), whereas assuredness that one is worthy of others' responsiveness leads to the opposite (low anxiety; Bartholomew, 1990). A priori then, it could be anticipated that levels of anxiety and avoidance in the relationship with the voice could be related to the voice hearers dependence on the voice. The Voice and You (Hayward et al. 2008) is a validated measure of relationship with the voice which includes a subscale of dependency on the voice.

4. **Is social isolation (i.e. a lack of social support) related to an attachment bond with the voice?**

Several studies (Beavan & Read, 2010; Mawson et al., 2011) have found that voices can be adaptive and serve a relational function, particularly where voice hearers lack other social contact and Favrod et al. (2004) found a relationship between poor social functioning and benevolent beliefs about voices.

2. Method

2.1 Overview of the chapter

This chapter will describe the design of the research, recruitment and characteristics of participants, along with consideration of the statistical power of the sample size. Following this, the study procedure and measures will be presented. This will be followed by a consideration of ethical issues pertaining to the research. The planned analysis will then be outlined.

2.2 Design

This study employed a cross-sectional mixed methods correlational design using an online sample of voice hearers. The quantitative methodology using validated questionnaires was supplemented by open questions designed to collect written narrative about participants' experiences of voice hearing.

2.3 Participants

Eighty three participants were recruited. The participants were an international, self-selecting sample who expressed an interest in the research online. Much of the quantitative research into voice hearing has been hampered by small sample sizes (e.g.; Andrew et al., 2008; Cottam et al., 2001; Favrod et al., 2004) which increase liability to Type II errors. One method which has allowed larger sample sizes is the use of online research with people who hear voices (e.g. Berry, Band, Corcoran, Barrowclough & Wearden, 2007; Joppich, 2010; Lawrence et al., 2010).

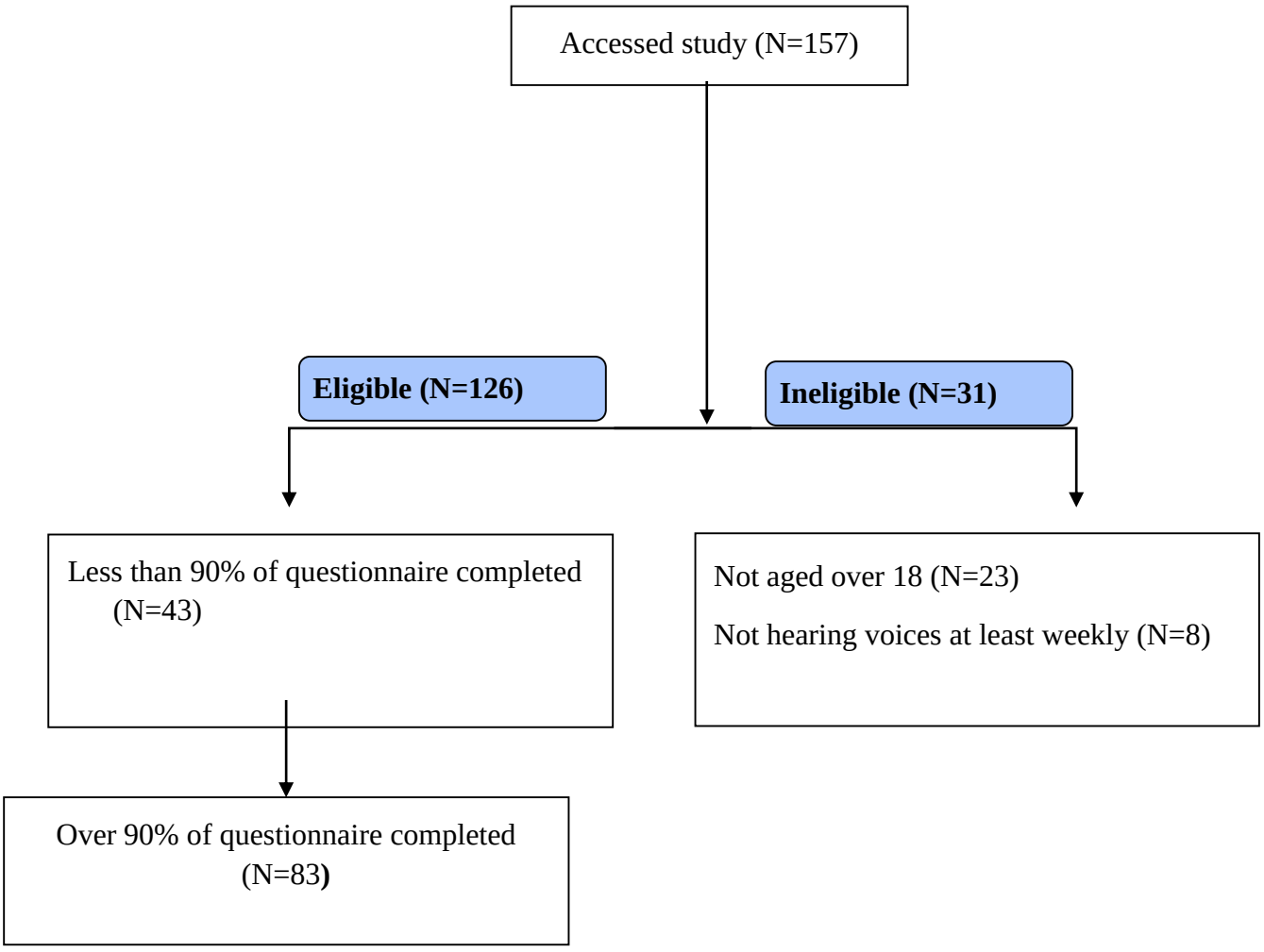
Participants were eligible if they were fluent in reading English, over 18 years of age, and experienced voices at least weekly. The voices needed to have a speech-like quality (e.g. words or phrases). To be suitable for inclusion participants also needed to consider themselves to have a relationship with their voice (positive, negative, neutral or mixed), which was ascertained in the screening questions. If participants did not meet these criteria then they were taken to a debriefing screen.

Figure 2 shows the flow diagram for participants recruited into the study. 157 participants began the survey. Of these, 31 were ineligible as they were under 18 or not hearing voices weekly. Of the eligible participants who completed the screening questions, 100% consented to take part in the study. Of the eligible participants who consented, 83 completed the questionnaires and 43 dropped out of the study.

Figure 2. CONSORT 2010 Flow Diagram

CONSORT
TRANSPARENT REPORTING of TRIALS

CONSORT 2010 Flow Diagram



2.4 Sample Characteristics

Demographic information is shown in Table 1. Seventy four participants (89% of the total sample) answered the demographic questions. Fifty three percent of the sample were currently being seen by mental health services, 26.5% had been seen by mental health services previously and 9.6% had never been seen by mental health services. The sample was predominantly female (71.1%) and the median age of participants was 25-34. The median length of time that the participants had been hearing voices was over twenty years (27.7%).

2.5 Procedure

2.5.1 Recruitment

Below is summarised the recruitment journey leading to the research being carried out in its current form.

Originally, this research was intended to be a qualitative study addressing whether people can form attachment bonds to their voices. The plan was to recruit twelve voice hearers from local hearing voices groups run by the Hearing Voices Network (HVN). The HVN is an organization which supports people who hear voices through running groups (some of which are facilitated by voice hearers). This recruitment strategy was provisionally agreed with the particular groups in the summer of 2013. Approval was granted to conduct the research, firstly from the doctoral training course and secondly from the UEA Faculty of Medicine and Health Research Ethics Committee. This was granted on March 25th 2014. Attempts made to contact the local groups in April 2014 were unsuccessful,

and the lead of the HVN in England informed the researcher that those groups had stopped running in the Winter of 2013. The decision was then made by the researcher and supervisors to change the project to address the same area through a quantitative methodology. This was redesigned and planned and ethical approval for this was granted in January 2015.

The online survey was open for 3 months. Participants were recruited through emails sent to HVN groups in England (see Appendix E). Recruitment was also carried out through advertisements on the HVN website, and through social networking websites. As an incentive to participate, participants were offered the opportunity to enter into a prize draw for one of ten £20 Amazon vouchers. After the online survey was closed, participant numbers were entered into a computer programme which chose ten numbers at random. Ten percent of the sample were recruited through emails to HVN, 10% were recruited through the HVN website, and 20% through Facebook. The remaining 60% were recruited through Twitter.

Table 1. *Descriptive statistics for participant information*

	Sample Frequency	Sample Percentage
Gender		
Male	12	14.5%
Female	59	71.1%
Prefer not to say	3	4.1%
Missing	9	10.8%
Age		
18-24	13	15.7%
25-34	22	26.5%
35-44	10	12.0%
45-54	18	21.7%
55-64	7	8.4%
65+	4	4.8%
Missing	9	10.8%
Mental Health Service Use		
Currently in contact	44	53.0%
Previously in contact	22	26.5%
Never in contact	8	9.6%
Missing	9	10.8%
Years voice hearing		
Less than six months	5	6.0%
Between six months and one year	3	3.6%
Between one year and five years	18	21.6%
Between five years and ten years	8	9.6%
Between ten and fifteen years	11	13.3%
Between fifteen and twenty years	6	7.2%
Over twenty years	23	27.7%
Missing	9	10.8%

N = 83

2.5.2 Data Collection

The study utilised an online survey hosted on Survey Monkey. If participants heard more than one voice, they were asked to answer the questions about the voice that is most significant to them or that they considered themselves to have the strongest relationship with. The webpage contained the following in this order:

- Information page (Appendix B)
- Screening questions
- Consent form (Appendix C)
- Questionnaire measures
- Qualitative questions
- Demographic questions including asking how long the participant has heard their voice for
- A debriefing screen with suggested organisations for support (Appendix D).
- A question asking participants if they would like to enter their email address to be considered for the prize draw (for one of 10 £20 Amazon vouchers).

The questionnaires took approximately 35 minutes to complete in total. Data were exported and stored anonymously in SPSS Version 21. Each participant's data were identifiable only by a number generated by Survey Monkey. Identifying information about participants (e.g. email addresses) were only collected where participants opted to be entered into the prize draw. There was no way in which to link the data and any identifying information about participants.

2.6 Measures

Throughout the online survey, all questions for the quantitative measures were forced-choice. After the information and consent screens,

participants proceeded to the questionnaires in the following order (copies of measures in Appendices).

a. Reciprocal Attachment Questionnaire (RAQ; West, 1990). Appendix F.
b. The Experiences in Close Relationships-Revised (ECR-R; Fraley, et al., 2000). Appendix G.
c. Frequency and Distress Items from The Hamilton Program for Schizophrenia Voices Questionnaire (HPSVQ; Van Lieshout & Goldberg, 2007). Appendix H.
d. The Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001). Appendix I.
e. UCLA Loneliness Scale (Russell, Peplau & Ferguson, 1978). Appendix J.
f. Dependence scale from Voice and You (Hayward, Denny, Vaughan and Fowler, 2008). Appendix K.

2.6.1 Reciprocal Attachment Questionnaire (RAQ, West, 1990).

The RAQ was selected, alongside narrative methodology, to investigate whether participants' relationships with their voices displayed qualities of attachment bonds (Research question one, section 1.20). The RAQ measures various aspects of an attachment bond and does not explicitly measure the levels of attachment anxiety and avoidance within that attachment. For this study the words "attachment figure" were replaced with "your voice". The scale's author granted the Researcher permission to adapt the scale in this way.

The RAQ consists of 15 items, most of which were derived from the Adult Attachment Scale (Collins & Read, 1990). Participants report the extent to which each item is representative of them using a 4-point Likert scale from 'strongly agree to 'strongly disagree'. It asks respondents to rate a figure according to questions which explore proximity seeking, separation protest, feared loss, availability and use of the attachment figure. An example of the Proximity seeking scale is "I have to have my voice with me when I'm upset". An example of the Availability scale is "I'm confident that my voice will try to understand my feelings". The Feared loss subscale includes the statement "I'm afraid I will lose my voice's love". An example of the Separation Protest subscale is "I don't object when my voice goes away for a few days", and one of the Use subscale statements is "I turn to my voice for many things, including comfort and reassurance". Four of the five scales are scored positively (e.g. higher score on the Proximity seeking scale indicates higher levels of proximity seeking). However, the scale for Availability is reverse scored such that a high score on availability indicates that the participant views the voice as less available. Test-retest coefficients of the RAQ in a community sample ranged from 0.76 to 0.82, and in both clinical and non-clinical populations coefficient alpha values ranged from 0.74 to 0.85 (Ravitz et al., 2010).

2.6.2 The Experiences in Close Relationships-Revised (ECR-R; Fraley, et al., 2000).

The ECR-R was used to assess participant's general attachment anxiety and avoidance (as opposed to their specific relationship with their

voice) in relation to research question three. This was used rather than the PAM (Psychosis Attachment Measure; Berry, 2008) as recruitment targeted non clinical as well as clinical voice hearers.

The ECR-R is a 36-item measure derived from a list of over 300 attachment items collated by Brennan et al. (1998). The original items refer to thoughts, feelings and behaviours in romantic relationships, but the scale may be adapted, according to the authors' guidance, so that experience of romantic relationships is not essential to answering the items. For this research any references to 'romantic partners' or 'partners' were replaced with the word 'others'. An example item on the ECR-R is "I feel comfortable depending on others". The ECR-R differs from the RAQ in that it assumes the existence of an attachment bond and measures the levels of attachment anxiety and avoidance within that attachment.

Participants reported the extent to which each item was representative of them using a 7-point Likert scale from 'strongly disagree' to 'strongly agree'. Scores are continuous, on the dimensions of anxiety and avoidance. Two separate scores are obtained for attachment anxiety and attachment avoidance. However, there are no validated cut-off scores to categorise people into different attachment styles.

The ECR-R has high internal consistency reliability with a Cronbach's α (Cronbach, 1951) of over 0.90. Sibley et al., (2005) also show that the ECR-R has significant associations with the Relationships Questionnaire (RQ; Bartholomew & Horowitz, 1991): the ECR-R and RQ measures of attachment anxiety were moderately positively correlated, r = .69

($p < 0.001$), as were both measures of attachment avoidance, $r = .45$ ($p < 0.001$), indicative of construct validity.

2.6.3 The Hamilton Program for Schizophrenia Voices Questionnaire (HPSVQ; Van Lieshout & Goldberg, 2007).

The HPSVQ measures physical and emotional characteristics of voices and was used to provide contextual information about the voice hearing experiences of the participants and to control for voice frequency in research question three. In this study only two of the nine items were used (relating to frequency and voice related distress).

The HPSVQ questions were adapted from existing measures such as the Auditory Hallucinations Subscale of the Psychotic Symptom Rating Scales (PSYRATS-AH; Haddock et al., 1999). The HPSVQ is a 9-item measure with a 5-point Likert scale from 0 (least severe) to 4 (most severe). The items refer to frequency, distress, voice volume, negative content, duration, interference in life, clarity, impact on self-appraisal and compliance with demands.

The HPSVQ has good construct validity, showing strong significant correlations with the PSYRATS-AH (van Lieshout & Goldberg, 2007). Kim et al. (2010) found the HPSVQ had good-to-excellent internal consistency reliability at baseline, one week and at a period of six months (Cronbach's $\alpha = 0.83 - 0.94$).

2.6.4 Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001).

The PHQ-9 is a screening measure for depression, and was used to assess mood in this study. Mood was used as a control variable in research question four to control for the effect of depression on social isolation. The PHQ-9 was considered suitable due to its brevity and good reliability. It has high internal consistency (Cronbach's α = .80; Lee et al., 2007), good test-retest reliability (r = .84, Kroenke et al., 2001) and construct validity (r =.73, Martin et al., 2006). The nine items are based on experience of a range of problems, presenting in the last two weeks, which are signs of depressed mood such as 'Little interest or pleasure doing things' and 'feeling tired and having little energy'. Items are on a four-point Likert scale from 'not at all' to 'nearly every day'. This results in continuous data, and a single score between 0 and 27, with higher scores indicating lower mood.

2.6.5 UCLA Loneliness Scale (Russell, Peplau & Ferguson, 1978).

As qualitative studies have found voices to be particularly adaptive in people who are socially isolated a quantitative measure of social support was used. The UCLA Loneliness Scale (Russell, Peplau & Ferguson, 1978) is a 20-item scale designed to measure subjective feelings of loneliness as well as feelings of social isolation. Participants rate each item as either O ("I often feel this way"), S ("I sometimes feel this way"), R ("I rarely feel this way") or N ("I never feel this way"), on a 0-3 Likert scale. There is a possible total score of 60, with higher scores indicating higher subjective feelings of social isolation and loneliness. Russell (1996) found good reliability, in terms of internal consistency (coefficient a ranging from .89 to .94) and test-retest

reliability over a 1-year period (r = .73). Convergent validity for the scale was indicated by significant correlations with other measures of loneliness.

2.6.6 Voice and You (VAY; Hayward, Denny, Vaughan and Fowler, 2008).

The VAY is a 28-item measure which measures the relationship between the voice hearer and their voice. The dependence scale of the VAY was included in this study as it is a validated measure of relationships with voices. The subscales include dominance (e.g. My voice wants things done his/her way)., intrusiveness (e.g My voice does not let me have time to myself.), distance (e.g. I don't like my voice to know what I am thinking) and dependence (e.g. I have a great need to talk to my voice.). Each item is measured on a four point scale (0-4),with higher scores indicating that the voice-hearer relates to the voice in that particular domain (e.g. a higher score on dependence indicates a greater level of dependence on the voice).

The VAY has acceptable internal consistency (Cronbach's a = .82), test-retest reliability (r=.80) and concurrent reliability with the appropriate scales of the PSYRATS (Psychotic Symptoms Rating Scale (Drake et al.,2006). The hearer relating to the voice from a position of dependence was associated with engagement (r = .63, p <.01) and with a voice perceived as benevolent (r = .55, p <.01). Hearer dependence was negatively associated with distress (r =−.37, p <.05) (Hayward et al., 2008).

2.7 Demographic Information

Participants were asked their gender, age, how long they have been hearing their voice, and whether they are receiving support from mental

health services, or have received support from mental health services in the past.

2.8 Narrative Questions

The quantitative methodology outlined above was supplemented by the following open questions.

1. Please describe your voice.
2. Please give an example/examples of what your voice says.
3. Would you describe yourself as having a relationship (positive, negative or neutral) with your voice/any of your voices? Please describe this relationship in as few or many words as you wish.

The participants were encouraged to answer these questions in as few or as many words as they wished.

2.9 Ethical considerations

2.9.1 Ethical Approval

Prior to recruitment of participants, ethical approval was obtained from the UEA Faculty of Medicine and Health Sciences Research Ethics Committee (see Appendix A for approval letter).

2.9.2 Distress

Due to the nature of the research topic, there was a possibility of participants becoming distressed. In order to manage this, participants were given the opportunity to withdraw from the study at the end of each screen. If participants chose to abandon the questionnaires prematurely they were re-

directed to the final screen with debriefing information and information about support organisations. Once all the questionnaires were completed, participants were directed to a screen thanking them for their participation and then to the same debriefing information and support organisations as those who declined to participate in the study.

2.9.3 Consent

Potential participants were required to read a Participant Information Sheet (see Appendix C) before giving their informed consent to participate in the study. As the Participant Information Sheet was presented online, there were no time restrictions placed on individuals to decide whether or not they wished to take part in the study. Participants were directed to a consent screen after the screening questions and information screen so that informed consent could be obtained. Participants were not able to proceed to the self-report questionnaires until they had agreed to all statements on the consent form. In addition to containing details of the study, the information sheet also informed individuals of their right to withdraw from the study before completion.

2.9.4 Confidentiality

All data collected were anonymous. Participants were informed that there would be a selection of verbatim quotes used in the final report. However, any personally identifiable details (names, locations) were anonymised. Each participant was only known by a number generated by Survey Monkey. Participants' contact details, for entering the prize draw and for receiving a summary of the study's findings, were stored separately from the data and destroyed immediately after the prize draw was completed

and the research results shared. All the email addresses (for the prize draw) were stored separately from the data. All electronic data were stored in a password protected encrypted database or on a password protected encrypted memory stick and stored in accordance with the DPA (Data Protection Act, 1998).

2.9.5 Deception and Debriefing

According to the British Psychological Society's (BPS) Code of Human Research Ethics (2010), there is a difference between withholding detailed information about the hypotheses being investigated and deliberately misinforming participants regarding the purpose of a study. Although participants were not actively deceived about the goals of the study, they were not told that the explicit aim of the research was to investigate attachment bonds and voices. This was to avoid demand characteristics causing participants to answer in ways they thought the researcher was looking for, and invalidating the data. At the end of the study, participants were presented with a Debriefing Sheet (Appendix E) that informed them about the goals of the research. It briefly stated that the research was looking at whether people could develop an attachment bond with their voice. It also noted that people can form attachments to parents, partners, teachers, friends, and (in people who are religious) to God. Participants were also asked if they would like to receive a summary of the research when it was completed.

2.10.1 Statistical Analysis

Descriptive statistics and normality assessment of the data were carried out using SPSS Version 21. As the data did not follow a normal distribution, non parametric correlations were conducted. Analysis plans for each research question will now be considered in turn.

2.10.2 Research Question One. Does an individual's relationship with their voice exhibit qualities of an attachment bond?

Descriptive statistics were calculated in relation to this question. The percentages of participants who strongly endorsed, somewhat endorsed and did not endorse each individual question of the RAQ were calculated. Descriptive statistics were supplemented with content analysis of the narrative questions.

2.10.3 Research Question Two. Is there a relationship between an individual's general attachment style (i.e. levels of anxiety and avoidance) and the attachment bond with the voice?

Spearman's rank order correlations were carried out to determine if there was an association between an individual's level of anxiety and avoidance in attachment relationships (as measured by ECR-R) and the extent to which their relationship with their voice exhibited qualities of an attachment bond. Analysis for question two used the subscales on the RAQ. Separate correlations were performed for attachment anxiety and avoidance.

2.10.4 Research Question Three: Is there a relationship between an individual's dependence on, and closeness to the voice and the attachment bond with the voice?

Spearman's rank order correlations were carried out to determine if there was an association between an individual's dependence on their voice and the extent to which their relationship with their voice exhibited qualities of an attachment bond. Correlations were performed using scores from subscales of the RAQ and scores on the dependence subscale of the VAY.

2.10.5 Research Question Four: Is social isolation (i.e.. a lack of social support) related to an attachment bond with the voice?

Spearman's rank order correlations were carried out to determine if there was an association between an individual's social isolation and the extent to which their relationship with their voice exhibited qualities of an attachment bond. Analysis for research question four used the subscales on the RAQ. In the case of significant correlation between social support (as measured by the UCLA Loneliness Scale) and attachment bond, a partial correlation was used to examine whether this correlation remained when mood (as measured by the PHQ-9) was controlled for.

2.11 Sample Size and Power

The sample size for partial two-tailed correlation was calculated using G*Power (Erdfelder, Faul, & Buchner, 1996). Based on the effect size 0.3, a power of 0.8 and a significance level of 0.05, it was calculated that 82 participants would be needed. An effect size of 0.3 was chosen as

the majority of studies investigating relationship with voices have found medium effect sizes (see Paulik, 2012, and Berry, 2011 for reviews).

2.12 Content Analysis

Narrative responses to the open ended questions were analysed using content analysis (Howitt, 1998) in order to answer research question one. Content analysis is a method which can be used in either a qualitative or quantitative way (Howitt). It can be either semantic (collating numbers of specific words) or conceptual (analysis of themes or concepts irrespective of the specific wording). It can also be used in an inductive or deductive way. As the research question specifically concerned a specific theoretical construct (attachment theory), a deductive and conceptual approach was taken.

A list of codes were created to elucidate the research question based on the definition of attachment bonds by Ainsworth (1985), as outlined in Chapter one, section 1.14. The four criteria are: maintaining proximity with the attachment figure, seeing the attachment figure as a secure base of explorative behaviour, considering the attachment figure as a haven of safety, and experiencing separation anxiety when removed from the attachment figure. Codes for each of the four criteria were created prior to data collection, and were refined throughout the data collection process. Codes are formal lists specifying what is taken to be examples of each variable. Data were analysed for evidence of these codes and the presence or absence of each was noted. The presence of contrasting evidence was also coded (e.g. attempts to reduce proximity to the voice would be coded as

counter to "maintaining proximity with the attachment figure"). A list of codes created is found in Appendix L. The data were also analysed to assess the proportion of participants who described their voice in positive, neutral, negative, or mixed or ambivalent terms.

3. Results

3.1 Chapter Overview

This chapter begins by describing preliminary data screening including a consideration of missing data and tests of normality. Descriptive data are then presented. The research questions are tested as described in Chapter Two. Research question one is answered using descriptive statistics, and supplemented by content analysis of the qualitative questions. Research questions two to four are subsequently tested using correlational analyses.

3.2 Preliminary Data Screening

The measures were screened for missing data, and the data tested for normality.

3.2.1 Missing data

Seventy four participants answered all of the measures and there were a further nine participants whose data was incomplete.

Of those nine, two participants had incomplete answers for the PHQ-9 and the ECR-R. They omitted more than 50% of the questions. Their data was used for questions one and three but excluded from questions two and four. Seven participants had incomplete answers for the UCLA measure (they omitted more than 50% of the questions). Therefore their data was used for questions one, two and three but excluded from question four.

3.2.2 Testing for Normality

Histograms of the variables were visually inspected and the Shapiro-Wilk test of normality was conducted. This test was chosen over other tests (e.g. the Kolmogorov-Smirnov test) as it is appropriate for use with sample sizes below 250 (Razali & Wah, 2011).

Shapiro-Wilk tests revealed that ECR-R avoidant attachment, and UCLA were normally distributed. However, the rest of the variables showed significant skewness. RAQ Proximity seeking: $W(83) = .86$, $p < .01$; RAQ Separation Protest: $W(83) = .90$, $p < .01$; RAQ Feared loss: $W(83) = .91$, $p < .01$; RAQ Availability: $W(83) = .95$, $p < .01$; RAQ Use: $W(83) = .96$, $p < .05$; ECR-R anxious attachment: $W(81) = .97$, $p < .05$; HPSVQ Frequency: $W(81) = .84$, $p < .01$ and VAY Dependence: $W(83) = .96$, $p < .05$.

A log transformation of the skewed variables still resulted in a skewed data set and therefore nonparametric statistics were used to analyse the data.

3.3.1 Descriptive Statistics

Table two shows the descriptive statistics (range, mean, median, standard deviations, skewness and kurtosis) of the research variables. Participants in this study scored almost twice as high on the ECR-R Attachment Avoidance subscale as a non-clinical sample (mean score = 4.51 vs. 2.55; Tiliopoulos & Goodall, 2009) and higher than a clinical sample (mean = 4.51 vs. 3.55; Stein et al., 2011). Mean scores on the ECR-R

Attachment anxiety subscale were similar to those reported in a clinical sample (mean = 4.10 vs. 3.76; Stein et al., 2011). The mean PHQ-9 depression score was in the moderate clinical range (Kroenke et al., 2001; Spitzer et al., 2006). Furthermore, of the 74 people who answered the demographic questions, 60% were currently in contact with mental health services and 30% had been previously in contact. This suggests that the participants in this study closely resembled a clinical population. The median frequency of voice hearing within the sample was several times a day, and the median value for distress relating to voices was moderately distressing.

3.3.2 Reliability of Scales

Three of the five RAQ subscales appear to have relatively good internal consistency (Proximity seeking: Cronbach's α = .8, Feared Loss: Cronbach's α = .9; Separation protest: Cronbach's α =.73). However, internal consistency was low for the Availability (Cronbach's α = .4), and Use (Cronbach's α = .5) subscales. Internal consistency was excellent for both ECR-R Anxiety (Cronbach's α =.9).and Avoidance (Cronbach's α =.9.) Internal consistency was also excellent for the PHQ-9 (Cronbach's α =.9), the UCLA (Cronbach's α =.9) and the Hearer Dependence scale of the VAY.

Table 2. *Normality Characteristics and Descriptive Statistics of the Research Variables*

Measures (scale min/max) N	**Median**	**Mean (SD)**	**Skewness (*z*)**	**Kurtosis (*z*)**
Separation Protest RAQ (3/15) 83	6	6.0(2.67)	-.13	-.13
Feared Loss RAQ (3/15) 83	7	7.70(1.78)	.30	.81
Availability RAQ (3/15) 83	10	9.75 (2.76)	-.44	.00
Use RAQ (3/15) 83	10	9.45 (2.99)	-.41	-.34
Proximity RAQ (3/15) 83	11	10.87 (3.41)	-.56	.73
ECR-R Anxious attachment (1/7) 81	4.2	4.1 (1.5)	-.23	-.94
ECR-R Avoidant attachment (1/7) 81	4.6	4.51 (1.47)	.27	-.35
PHQ9 Depression (0/27) 81	14	14.29 (7.76)	-.28	-2.66
HPSVQ Frequency (0/4) 81	3	2.91 (1.04)	-.58	-.83
HPSVQ Distress (0/4) 81	2	2.5 (1.34)	-.27	-.43
UCLA (0/60) 76	31	31.07 (15.31)	.13	-.71
VAY Dependence (0/27) 83	11	11.1 (5.32)	-.35	-.83

3.4 Hypothesis Testing

3.4.1. Research Question One: Does an individual's relationship with their voice exhibit qualities of an attachment bond?

Descriptive statistics were calculated in order to answer Research question One. As described in Chapter two this research question was also answered using content analysis of the written narrative.

The percentages of participants endorsing each response of the RAQ is displayed in Table three. Table four displays the mean for each subscale. As this is a preliminary investigation, no comparison is made between this sample and participants in other studies which have used the RAQ to look at human relationships.

Thirty six participants (43% of the sample) endorsed at least one response of the RAQ which indicated an aspect of attachment to their voice. This is in addition to endorsements of "I talk things over with my voice" as this was not considered to be unique to attachment bonds. Sixteen participants (19% of the sample) endorsed three or more responses of the RAQ which indicated an aspect of attachment to their voice, and ten participants (8% of the sample) endorsed six or more responses. Below is detailed the five subscales and the responses across each.

3.4.1.1 Proximity seeking

Across the three questions making up this subscale 15% of participants indicated some form of proximity seeking towards their voice. However, across the three questions 45% of participants strongly disagreed,

and 29% of participants disagreed with statements related to proximity seeking.

In terms of the individual questions in this subscale, 16% of participants agreed or strongly agreed with the statement " I have to have my voice with me when I'm upset" compared to 9% who somewhat agreed and somewhat disagreed, and 72% who disagreed or strongly disagreed with this.

Similar responses were found for "I feel lost if I'm upset and my voice is not around." Thirteen percent of participants agreed or strongly agreed with this, as opposed to 70% who disagreed or strongly disagreed and 17% who somewhat agreed and somewhat disagreed.

Seventy seven percent of participants disagreed with "When I'm anxious I desperately need to be close to my voice", compared to 6% who somewhat agreed and somewhat disagreed, and 16% who agreed or strongly agreed.

3.4.1.2 Separation Protest

Across the three questions making up this subscale 14% of participants indicated some form of separation protest from their voice. However, across the three questions 46% of participants strongly disagreed, and 27% of participants disagreed with statements indicating separation protest.

In terms of the individual questions in this subscale, 66% of participants agreed or strongly agreed with the statement "I don't object when my voice goes away for a few days" compared to 17% who somewhat

agreed and somewhat disagreed, and 17% who disagreed or strongly disagreed with this.

For the question "I resent it when my voice spends time away from me" 7% agreed with this as opposed to 79% who disagreed or strongly disagreed and 13% who somewhat agreed and somewhat disagreed. Nineteen percent of participants agreed or strongly agreed that "I feel abandoned when my voice is away for a few days" compared to 8% who somewhat agreed and somewhat disagreed, and 73% who disagreed or strongly disagreed.

3.4.1.3 Feared Loss

Across the three questions making up this subscale 16% of participants indicated some form of feared loss regarding their voice. However, across the three questions 49% of participants strongly disagreed, and 25% of participants disagreed with statements indicating separation protest.

In terms of the individual questions in this subscale, 8% of participants agreed or strongly agreed with the statement "I'm afraid that I will lose my voices love" compared to 6% who somewhat agreed and somewhat disagreed, and 86% who disagreed or strongly disagreed with this.

Twenty two percent agreed with "I'm confident my voice will always love me" as opposed to 66% who disagreed or strongly disagreed and 12% who somewhat agreed and somewhat disagreed. Nineteen percent of participants agreed or strongly agreed that "I have a terrible fear that my relationships with my voice will end" compared to 9% who somewhat

agreed and somewhat disagreed, and 70% who disagreed or strongly disagreed.

3.4.1.4 Availability

Across the three questions making up this subscale 25% of participants indicated that they felt their voice was available for them. However, across the three questions 36% of participants strongly disagreed, and 15% of participants disagreed with statements indicating separation protest.

In terms of the individual questions in this subscale, 21% of participants agreed or strongly agreed with the statement "I'm confident that my voice will try to understand my feelings" compared to 2% who somewhat agreed and somewhat disagreed, and 59% who disagreed or strongly disagreed with this.

Twenty percent of participants agreed with the statement "I worry that my voice will let me down" as opposed to 37% who disagreed or strongly disagreed and 15% who somewhat agreed and somewhat disagreed. Twenty six percent of participants agreed or strongly agreed that "When I'm upset I'm confident that my voice will be there to listen to me" compared to 15% who somewhat agreed and somewhat disagreed, and 57% who disagreed or strongly disagreed.

3.4.1.5 Use

Across the three questions making up this subscale 37% of participants indicated that they used their voice for a variety of functions. However, across the three questions 30% of participants strongly disagreed,

and 15% of participants disagreed with statements indicating use of the voice

In terms of the individual questions in this subscale, 23% of participants agreed or strongly agreed with the statement "I turn to my voice for many things including comfort and reassurance" compared to 18% who somewhat agreed and somewhat disagreed, and 58% who disagreed or strongly disagreed with this.

Forty seven percent of participants agreed with the statement "I talk things over with my voice" as opposed to 33% who disagreed or strongly disagreed and 2% who somewhat agreed and somewhat disagreed. Forty one percent participants agreed or strongly agreed that "Things have to be really bad for me to ask my voice for help" compared to 13% who somewhat agreed and somewhat disagreed, and 46% who disagreed or strongly disagreed.

In summary, almost half the sample (43%) endorsed at least one item on the RAQ suggestive of an attachment bond (in addition to "I talk things over with my voice"), and 19% of the sample endorsed three or items.

Table 3. *Percentage of participants endorsing each reply on RAQ items*

Item (Subscale)	Strongly agree	Agree	Somewhat agree and somewhat disagree	Disagree	Strongly disagree
I have to have my voice with me when I'm upset (Proximity seeking)	9.6	7.2	9.6	28.9	44.6
I feel lost if I'm upset and my voice is not around (Proximity seeking)	1.2	12	16.9	25.3	44.6
When I'm anxious I desperately need to be close to my voice (Proximity seeking)	4.8	12	6	31.3	45.8
I don't object when my voice goes away for a few days (Separation protest)	42.2	24.1	16.9	9.6	7.2
I resent it when my voice spends time away from me (Separation protest)	.0	7.2	13.3	26.5	53.0
I feel abandoned when my voice is away for a few days (Separation protest)	3.6	15.7	8.4	31.0	42.2
I'm afraid that I will lose my voice's love (Feared loss)	3.6	4.8	6.0	32.5	53.0
I'm confident that my voice will always love me (Feared loss)	9.6	12	12	16.9	49.4
I have a terrible fear that my relationship with my voice will end (Feared loss)	6.0	13.3	9.6	25.3	45.8
I'm confident that my voice will try to understand my feelings (Availability)	1.8	19.3	1.8	21.7	37.3
I worry that my voice will let me down (Availability)	12	18	14.5	2.5	34.9
When I'm upset I'm confident my voice will be there to listen to me (Availability)	8.4	18.1	15.7	21.7	36.1
I turn to my voice for many things including comfort and reassurance (Use)	8.4	15.7	18.1	19.3	38.6
I talk things over with my voice (Use)	24.3	25.3	2.5	8.4	25.3
Things have to be really bad for me to ask my voice for help (Use)	19.3	21.7	13.3	19.3	26.5

Table 4. *Mean percentage of participants endorsing each reply on the five subscales of the RAQ*

Subscale	Strongly agree	Agree	Somewhat agree and somewhat disagree	Disagree	Strongly disagree
Proximity Seeking	5.2	10.4	10.8	28.5	45
Separation Protest	3.6	10.8	12.9	27.2	45.8
Feared Loss	6.4	10.1	9.2	24.9	49.3
Availability	7.4	18.5	10.7	15.3	36.1
Use	10.1	27.5	11.3	15.7	30.l

3.4.1.2 Qualitative analysis

The following section will summarise the Qualitative data, before exploring this in terms of Ainsworth's definition of attachment (1985), and illustrating with examples. Seventy three participants (88%) answered the three open ended research questions. Responses ranged from one word to 525 word answers. Thirty four (47%) of the seventy three participants described their relationship with their voice in purely negative terms, compared to five participants (7%) who described it in neutral terms, 10 (18%) in completely positive terms , and 22 participants (28%) who described their relationship as ambivalent or mixed. Examples are given below of each category.

Thirty four participants described their voice in negative terms. Participant 18 described "A negative relationship - voice is very controlling - wants to always have the upper hand - plays power / mind games. »

I have a negative relationship with my main voice, and with many of my other voices. They say negative things about me and nothing I do is ever

good enough for them. Basically I try to ignore them as much as I can. (Participant 40)

Five participants described their voices in neutral terms. Participant 32 described "my voice is me, it tells me what others won't because it doesn't care about hurting me". Participant 67 described their voice as "Neutral, my own audible voice is louder and more powerful. I choose not to engage with the voice anymore, I now see it as mostly useless/senseless chatter from my subconscious."

Ten participants described their relationship with their voices in wholly positive terms, with participant 42 saying "We have a genuine loving relationship like husband and wife".

Very friendly and loving, Always available, easy to live with, conversationally consultative; good analyst Helpful but never imposing. I delight in this direct and positive line with my best friend. Relationship is so positive; so natural, so easygoing. I truly enjoy life like this! (Participant 56)

Twenty two participants indicated that they had a mixed or ambivalent experience of voice hearing. An example of this is Participant 66 who stated "It's like having my best friend or sister living in the same household; there are many positive aspects as well as negative ones".

It is changing all the time, sometimes having the personality of an old woman sometimes a little girl, but it's all the one erratic voice, audibly instructing me or commenting on my actions and what I'm doing or have done, or haven't accomplished yet. It also constantly analyses people and their motives and what the interaction is about, seemingly desperately to

understand the person or situation I'm faced with. Varying between positive affirmations and extreme criticism. Constantly questioning, questioning every action. It's an extremely volatile relationship, sometimes they're my best friend and the only thing I'll ever need, and sometimes they make me feel absolutely useless and worthless. (Participant 62)

An inductive content analysis was carried out on the qualitative data. A list of codes was created to elucidate the research question based around the definition of attachment bonds by Ainsworth (1985), as outlined in Chapter one, section. These codes were initially created prior to data collection and refined during data collection and analysis. See Appendix x for codes. The following examples have been selected to illustrate the four aspects of attachment bonds as described by Ainsworth (1985) and each has been contextualised using some of their quantitative data.

There was no reference to attempts made to maintain proximity with the voice in any of the qualitative data. On the contrary, two participants described attempts to get rid of their voices; Participant 40 noted "Basically I try to ignore them as much as I can. When it all gets too much I blast music through my headphones to drown them out and relax me and eventually they shut up and I fall asleep with exhaustion.

Evidence for seeing the attachment figure as a secure base of explorative behaviour was found in the responses of five participants. Participant three noted "I have come to rely on them as one would with smell perhaps. They quite often give me guidance and congratulations on

good choices, just last night I was woken by applause at a choice I had made.

Two participant's referred to experiences which suggested the contrary to this.

She is like someone who knows all, can see into the future, around every corner and is constantly warning me of the things that can go wrong. I live in constant fear of what MIGHT go wrong or what MIGHT happen… so much so that it stops me from trying new things. (Participant four)

Considering the attachment figure as a haven of safety emerged in the description of five participants.

These ones are always totally benign and I think of them as angels, guiding me on my way. They always say loving protective things, I am an asthmatic and they have come to me as beautiful beings of love when I've been very ill. When I talk to them they always listen and I am not afraid even though many many very very frightening things have happened to me in my life." (Participant 5)

Experiencing separation anxiety when removed from the attachment figure did not emerge from any participants responses. However the opposite of this was found e.g. the voice causing anxiety when present. This theme emerged in two participants. Participant 71 described that "Voices just make my life a bit difficult usually difficult to concentrate or makes me anxious"

In summary, approximately 43% of participants endorsed RAQ questions which indicate a possible attachment bond with their voice. Given that only 10 participants described wholly positive voices this

suggests that it is not people with positive voices who may have aspects of an attachment bond with their voice. There is also evidence within nine participants narrative responses of varied aspects of an attachment bond with their voice. There is evidence that it is not only people with wholly positive voices who may have an attachment bond with their voice.

3.4.2 Correlational Findings

In order to answer research questions two, three and four, 20 correlations were carried out. In order to correct for the familywise error rate, post-hoc adjustment was used; the Bonferroni (1979) correction for multiple comparisons. A corrective p-value of .0025 was used. As is usual in non parametric correlations the correlational coefficient itself is used to interpret the strength of the relationship (Field, 2009). Small, medium and large effect sizes are taken to be in line with Cohen (1988); the strength of the relationship can be described as small (.2), medium (.3) or large (>.5). A correlation matrix of all the variables is presented below in Table 4.

Table 5. *Spearman's rho (r_s) correlations between Research Variables*

	HPSVQ Distress	HPSVQ Frequency	Attachment anxiety	Attachment avoidance	RAQ Proximity seeking	RAQ Use	RAQ Availability	RAQ Feared loss	RAQ Separation Protest	PHQ-9	UCLA	VAY
HPSVQ Distress		.16 NS	.17 NS	.15 NS	-.26*	.35**	.47**	.06 NS	-.25*	.59***	.32**	.40*
HPSVQ Frequency			.07 NS	-.12 NS	-.04 NS	-.30 NS	.06 NS	.11 NS	.05 NS	1.12 NS	-.04 NS	.22*
Attachment anxiety				.33**	.21*	-.03 NS	.13 NS	.40***	.19 NS	.50***	.57***	.41***
Attachment Avoidance					.12 NS	.09 NS	.21 NS	.23*	.03 NS	.34*	.45***	.23*
RAQ Proximity seeking						-.48**	-.434*	.28*	.72**	.02 NS	.17 NS	.08 NS
RAQ Use							.59***	.18 NS	-.31**	.14 NS	.06 NS	.083
RAQ Availability								.12 NS	-.29**	.31*	.25*	.36**
RAQ Feared loss									.48***	.23*	.28*	.19 NS
RAQ Separation Protest										-.81 NS	.12 NS	.05 NS
PHQ9											.56***	.45***
UCLA										.		.40***
VAY												

NS = non-significant, *p<.05, **p<.01, ***p<.00

Research question two: Is there a relationship between an individual's general attachment style (levels of anxiety and avoidance) and the attachment bond with the voice?

Non-parametric bivariate correlations (Spearman's rho) were conducted to address this question since the variables in question violated the parametric assumption of normally distributed data. The subscales of the RAQ (Proximity seeking, Use, Availability, Feared loss, and Separation Protest) were correlated with anxious attachment and avoidant attachment.

There were no significant correlations between anxious attachment and Separation protest (r_s (79) =.14, p =.09), between anxious attachment and Availability (r_s (79) =.01, p =.23), and between anxious attachment and Use (r_s (79) = .037, p =.66). A significant correlation was found between anxious attachment and Proximity seeking (r_s (79) =.16, p =.04), which indicates that voice hearers with higher levels of general attachment anxiety were more likely to seek closeness with their voice. However, this correlation did not remain significant after use of the Bonferroni correction. The correlation between anxious attachment and feared loss was significant (r_s (79) =.30, p <.01, *rs =.30)*, with a medium effect size. This indicates that voice hearers with higher levels of general attachment anxiety were more likely to fear losing their voice. This correlation remained significant after use of the Bonferroni correction.

There were no significant correlations between avoidant attachment and Separation protest (r_s (79) = .02, p = .78), between avoidant attachment

and use (r_s (79) = .07, p =.39), or between avoidant attachment and proximity seeking, (r_s (79) = .09, p =.24). There was a significant correlation between avoidant attachment and feared loss (r_s (79) =.17, p = .04). After post hoc Bonferroni adjustment this did not remain. A non-parametric partial correlation was carried out to control for anxious attachment, as anxious and avoidant attachment are significantly correlated in this sample (r_s (79)= .36, p <.01. When anxious attachment was controlled for, the correlation between Avoidant attachment and feared loss was no longer significant (r_s (78) = .11, p =.17). A significant correlation was found between avoidant attachment and availability (r_s (79) =.16, p=.05, r_s =*.16)*. This subscale is reverse scored such that a high score on Availability indicates that the respondent has a low level of confidence in the Availability of their voice (e.g. they are not confident that the voice will try to understand their feelings). Therefore, this correlation suggests that voice hearers with higher levels of avoidant attachment were less likely to view their voices as available to them in times of need. However, after adjustment using the Bonferroni correction this relationship did not remain significant.

Research Question three: Is there a relationship between an individual's dependence on the voice and the attachment bond with the voice?

Non-parametric bivariate correlations (Spearman's rho) were conducted to address this question since the variables in question violated the parametric assumption of normally distributed data. Correlations were

performed using the five subscales on the RAQ and the score on the dependence subscale of the VAY.

Correlations were not significant between Dependence and Separation Protest (r_s *(81)* =.028, p =.73), Dependence and Proximity seeking (r_s (81) =.06, p = .47) Dependence and Feared Loss (r_s (81) = .15, p = .08) and Dependence and Use (r_s (81) =.06, p =.46). A significant correlation was found between Dependence and Availability; r_s (81) = .28, p <.01. This indicates that participants who were more dependent on their voices experienced them as less available. However, the correlation did not remain significant after use of the Bonferroni correction.

3.4.2.1 Research question four: Is social isolation (i.e. a lack of social support) related to an attachment bond with the voice?

Non-parametric bivariate correlations (Spearman's rho) were conducted to address this question since the variables in question violated the parametric assumption of normally distributed data. Each subscale of the RAQ (Proximity seeking, Use, Availability, Feared loss, and Separation Protest) was correlated with UCLA scores (Social Isolation) in individual correlations. Proximity Seeking and Social isolation were not significantly correlated (r_s (74) =.17, p =.15). Separation Protest was not significantly correlated with Social isolation (r_s (74) =.17,p =.15) and Use was not correlated with Social isolation (r_s (74)= .60, p =.61).

There was a significant correlation between Feared Loss and Social Isolation (r_s (74) =.28, p =.02). This suggests that more socially isolated individuals were more fearful of losing their relationship with their voice.

The strength of the relationship is small (r_s = .23) and did not remain significant after the Bonferroni correction for multiple comparisons. A non-parametric partial correlation was carried out, to control for low mood (PHQ9), and the correlation did not remain after this had been partialled out (r_s (73)= .17, p = .08).

There was a significant correlation between Availability and Social Isolation,(74) = .30, p=.03, with a small effect size (*r_s = .3).* The Availability subscale is reverse scored such that a high score on Availability indicates that the respondent has a low level of confidence in the Availability of their voice (e.g. a lack of confidence that the voice will try to understand their feelings). This result therefore indicates that more socially isolated participants viewed their voice as less available to them in times of need. This correlation did not remain significant after use of the Bonferroni correction. A non-parametric partial correlation was used to determine whether low mood was confounding this result, and this correlation did not remain (r_s (73) =.06 p =.32).

4. Discussion

4.1 Chapter Overview

This chapter begins with a reiteration of the aims of the research followed by a summary of the findings. These findings are then contextualized within the research literature on voice hearing and attachment discussed in chapter one. The strengths and limitations of the study are then outlined. The clinical implications of the findings are discussed and possible directions for future research are considered. The chapter ends with a brief conclusion of the research.

4.2 Aims of the Research

This study aimed to extend previous research by asking whether voice hearer's relationship to their voice can exhibit qualities of an attachment bond, using an international online sample. As highlighted in chapter one, the use of a measure of attachment in relation to voices is an interesting but novel development, and therefore it is important to interpret the results with caution. The study also aimed to investigate potential relationships between evidence of attachment bonds to voices and people's attachment styles in other relationships, and between a possible attachment bond to the voice and social isolation. In addition, the study considered the relationship between attachment to the voice and dependency on the voice.

4.3 Summary of Research Findings

There is some evidence that, for a proportion of voice hearers, their relationship with their voice shares qualities of an attachment bond. These

qualities can exist even when people have negative experiences of their voices. There is some evidence that an individual's general attachment style influences the relationship they have with their voice. The relationship between proximity seeking and anxious attachment did not remain significant after use of the Bonferroni correction. However, there was a robust medium sized relationship between anxious attachment and feared loss. This indicates that individuals with higher levels of anxious attachment in their general relationships fear losing their voice more than those with lower levels of anxious attachment. There was no evidence to suggest that those who were more dependent on their voice had greater qualities of attachment to their voice. Although the correlation lost significance after Bonferroni correction, there was an indication that those who were more dependent on their voices also experienced them as less available. Results which showed that socially isolated individuals feared losing their voice more, and experienced their voice as less available, did not maintain significance after use of the Bonferroni correction. The results also lost significance after controlling for depression, suggesting that mood impacts on appraisals about the voice.

4.4 Contextualising the Research Findings Within the Research Literature on Voice Hearing and Attachment

The following section will discuss the research findings sequentially with reference to the literature discussed in Chapter One.

4.4.1 Research question one: Does an individual's relationship with their voice exhibit qualities of an attachment bond?

Forty three percent of participants endorsed at least one RAQ question which indicated a possible attachment bond with their voice, and 19% endorsed at least three such questions. As only 18% of the sample described wholly positive experiences of voice hearing it is clear that participants with mixed or negative experiences of voice hearing also endorsed RAQ questions. There is also a suggestion within the qualitative data (in nine participants) of two of the four attachment bond criteria outlined by Ainsworth (1978); using the voice as a base for explorative behaviour and considering the voice as a haven of safety. However, there is no evidence within the narrative data of separation anxiety or attempts to maintain proximity with the voice. The results from the narrative data alone could imply that perhaps proximity seeking and separation anxiety are less applicable to a relationship with a voice; if the voice is always or nearly always present, this would distinguish it particularly strongly from a human relationship in these respects. However, a number of participants did endorse questions on the RAQ which addressed feared loss and proximity seeking. The narrative data therefore does not reflect the quantitative data. However, this could be due to the limited answers and the fact that people were not asked specifically about the areas of attachment. Very few participants gave details in their answers (the median answer given was only nineteen words long). Due to the design of the study it was not possible to ask participants further information. Therefore, it could be the case that the qualitative questions were too broad to allow the accessing of attachment qualities. It is possible that the absence of two elements of attachment in the qualitative data is due to the paucity of the data.

The results on the RAQ indicate preliminary evidence that for a proportion of voice hearers their relationships with their voices may exhibit qualities of an attachment bond (or one of their voices if they hear multiple voices). As discussed above, this research was the first to use the RAQ to assess relationships with voices and several subscales had unacceptable internal consistency. Therefore, it is appropriate to be tentative in drawing conclusions from these results. The use of this measure will be considered in section 4.6.3. The results also suggest that people's relationships with their voices can be complex, and sometimes ambivalent or contradictory. An example of this ambivalence can be found in the qualitative responses of two participants who indicated that although they had negative experiences of their voices, they felt that they would miss them if they were not there. Eighteen percent of the 73 participants who answered the qualitative questions described their voice in wholly positive terms. This is in contrast to a study by Jenner et al. (2008) where between 40% and 60% of the sample reported hearing positive voices. However, in the current study participants were not specifically asked "Do you have any positive voices?" but were asked "Would you describe yourself as having a relationship (positive, negative or neutral) with your voice?" Therefore some participants may have had experiences of more positive voices which they did not reveal. For this reason, it may be less useful to compare the percentage of participants describing positive voices with rates such as those found by Jenner et al. (2008).

Conclusions relating to research question one are impacted by the lack of empirical research on what distinguishes an attachment bond from other relationships. This research aimed to elucidate whether the concept of attachment bonds applied to voices is a valid one rather than measuring the security of the hypothesized attachment bond. There is no a priori reason to presume that people's attachment to their voice would be a secure one, and therefore a measure of attachment in this relationship is complicated. It is important in the initial exploration to ascertain if an attachment bond exists before then distinguishing security and levels of attachment anxiety and avoidance. Definitions of attachment bonds can become conflated with definitions of secure attachment which further complicates the findings and conclusions in this novel area of exploration. The above considerations notwithstanding, this research provides preliminary evidence that for a proportion of voice hearers their relationships with their voices may exhibit qualities of an attachment bond. This is supportive of the qualitative research and case studies described in chapter one. A number of voice hearers described seeking care and support from their voices and being soothed in despair (e.g Suri, 2011), and noted that they did not want their voice to disappear and would have felt empty without them (e.g. Faccio, Romaioli, Dagani & Cipolletta, 2012). The findings of the current study add to the growing application of attachment theory to non-human relationships. Granvqist (2002) suggested that perhaps those with anxious attachment styles may utilise God for emotional regulation purposes. Houser and Welch (2012) found that individuals with high anxiety and low avoidance are more likely to develop a compensatory attachment

relationship to God, and also suggested that this may serve an emotional regulation purpose. It is possible that attachment to voices operate in a similar way. A key way in which it differs from relationships with God is in the shared understanding that comes from a shared belief in God amongst religious adherents. However, there is evidence that people's concept of voice hearing, and their relationship with their voice, can be impacted by their society and culture (Lurhmann et al., 2015). Over half the sample (57%) did not report any features of attachment bonds in their relationship with their voice. This could be a valid result, reflecting that the relationships between those particular voice hearers and their voices do not exhibit any qualities of attachment bonds. However, it could also be an under or over estimate. There are issues regarding the validity of the RAQ in assessing a possible attachment bond to the voice (which will be explored further in section 4.6.4). The sample was a mixed one, and it is possible that if the research included more non clinical voice hearers then a greater percentage of the sample may have reported elements of attachment bonds in their relationship with their voice.

It is possible that the sample are not representative of voice hearers in general as the inclusion criteria excluded voice hearers who did not consider themselves to have any kind of relationship with their voice. Previous research has found that some voice hearers are ambivalent about the concept of a relationship with their voice (e.g. Chin et al., 2009). The response rate for this study suggests that this is a broadly acceptable idea to many voice hearers, including many with negative relationships. However, there was an attrition rate of 34% which may be related to this, in so much

as questions concerning a relationship with the voice may have been viewed as irrelevant to some participants who then discontinued the study. Therefore, it is possible that the results have overrepresented the number of voice hearers whose relationship with their voices exhibit qualities of an attachment bond.

4.4.2 Research question two: Is there a relationship between an individual's general attachment style (levels of anxiety and avoidance) and the attachment bond with the voice?

As discussed in chapter one there is evidence that a person's relationship with their voice can mirror their relationships with other people (see review by Paulik, 2012). The findings from the current research are consistent with this, in finding evidence that an individual's more general attachment style with others may influence the relationship they have with their voice. The relationship between proximity seeking and anxious attachment did not remain significant after use of the Bonferroni correction. However, there was a robust medium sized relationship between anxious attachment and feared loss. Feared loss was a subscale with acceptable internal consistency within this sample and therefore it is likely to be valid in assessing this aspect of relationships with voices. The result indicates that individuals with higher levels of anxious attachment in their general relationships feared losing their voice more than those with lower levels of anxious attachment, which has implications for clinical voice hearers in terms of their engagement with treatment and support. This will be considered further in section 4.7.

In this sample, levels of general attachment anxiety and avoidance were much higher than non-clinical norms (as outlined in chapter three). Gumley et al. (2014) found that within a cohort of individuals with first episode psychosis, most participants were insecure in their attachment and almost a third of the sample were unresolved in regards to attachment. It is possible that there was a level of disorganised attachment within the current sample. It has been argued that psychotic symptoms are a form of dissociation, potentially linked to attachment disorganisation (e.g. Ross, 2004). As outlined in chapter one, MacBeth et al. (2008) found that the presence of voice hearing was predicted by a contradictory combination of attachment anxiety and avoidance (combining distancing and affiliating interpersonal strategies) which the authors thought could represent disorganised attachment. However, it was unclear whether the same participants used both strategies simultaneously or whether voices are predicted separately by two types of attachment style: anxiously attached people with more interpersonal affiliating and avoidant people with more interpersonal distancing. However, this does raise a possibility that voice hearers with a disorganised attachment style in other relationships may also have a disorganised attachment to their voice and therefore use this combination of strategies by simultaneously approaching and distancing themselves from their voice.

The findings of the current study suggest that voice hearer's general attachment style has some impact on voice hearer's relationships with their voices, which is consistent with previous research (Berry et al., 2011). The finding relating high levels of anxious attachment to feared loss of the voice

was a robust one, and there was also an indication that anxious attachment is related to seeking proximity with the voice, although this correlation lost significance after use of the Bonferroni adjustment.

4.4.3 Research question three: Is there a relationship between an individual's dependence on the voice and the attachment bond with the voice?

There was no evidence to suggest that those who were more dependent on their voice reported more features of an attachment bond in relation to their voice. It is possible that this result was partially related to the validity of the RAQ outcome measure for voice hearing. There is an indication that participants who were more dependent on their voices experienced them as less available although the correlation did not remain significant after use of the Bonferroni correction. This appears to be a contradictory finding; however, it is possible that those who were more dependent on their voice had a greater need for their voice's availability which could not then be met. Potentially this could be said to partially parallel an anxious attachment style (Ainsworth et al., 1978), in terms of clinging to the voice and yet not feeling that it is available to meet emotional needs. However, those who were more dependent on their voice did not exhibit higher amounts of feared loss or proximity seeking towards it.

4.4.4 Research question four: Is social isolation (i.e. a lack of social support) related to an attachment bond with the voice?

Both loneliness and depression levels were high in the current sample. Loneliness has been identified as a risk factor for depressive symptoms in longitudinal studies (Heikkinen & Kauppinen, 2004). Results which showed that socially isolated individuals feared losing their voice more, and experienced their voices as less available, did not maintain significance after use of the Bonferroni correction. The results also lost significance after controlling for depression, suggesting that mood may impact on the perception of the relationship with the voice. This means that it is not possible to know whether it is low mood or loneliness which may lead to fear of losing the voice. It is possible that the low mood leads to negative beliefs and appraisals about others leading to a higher dependence on the voice, and a lack of confidence in other relationships. It could be a combination of the two which may be determining this feared loss of the voice; statistical analysis such as bootstrapping mediation analysis might allow for this to be analysed. It is possible that higher levels of emotional difficulties (depression) lead to a greater fear of losing the voice. Weiss's (1978) theory of loneliness distinguished between social loneliness (e.g., lack of social integration), and emotional loneliness (e.g., absence of a reliable attachment figure). It could be hypothesised that an attachment bond to a voice potentially alleviates emotional loneliness in a partially adaptive way (by providing some form of emotional regulation). However, this may possibly contribute to a withdrawal from society and an increase in social loneliness, increasing low mood and increasing reliance on the voice. It could also be that depression leads to going out less and thus needing the voice more. This hypothesis is indirectly supported by two studies which

have found relationships between poor social functioning and beliefs about voices being benevolent (Favrod et al., 2004; Mawson et al., 2011). This hypothesis is further complicated by the possibility that attachment bonds to voices may be insecure, thus leading to an unsatisfactory and potentially distressing relationship (albeit an attachment relationship).

4.5 Wider Interpretation of Findings

The results of this study add to the burgeoning literature on attachment to non-human entities, which support the application of attachment theory to a wide range of relationships. The results of this research also add further support to relational understandings of voice hearing. The fact that the sample included many individuals being seen by mental health services adds extra weight to the recommendations made for clinical practice and the applicability of it to individuals in mental health services. The decision was made to sample a broad range of experiences (as opposed to only voice hearers with positive experiences of voice hearing) in order to increase generalisability and the utility of findings for clinical practice.

4.6 Strengths and limitations of the study

This section will address the research questions, design of the study, sampling and participants, measures employed, design and data analysis.

4.6.1 Research questions

The research questions are novel and arose from well-established literature and research findings on both attachment and voice hearing.

Furthermore, there are clinical implications which arise from the consideration of an attachment relationship to voices, which concern people's engagement with services and treatment. However, due to the novelty of exploring whether people can have an attachment to their voice, difficulties were encountered in operationalising this, in terms of finding an appropriate outcome measure to evaluate the existence of an attachment bond. As explored below, it is therefore appropriate to be tentative in interpreting the results.

4.6.2 Sample and Recruitment

As noted in Chapter two, much of the quantitative research into voice hearing has been hampered by small sample sizes (e.g. Andrew et al., 2008; Cottam et al., 2001; Favrod et al., 2004) which increase liability to type II errors. Although missing data did lead several tests to be slightly underpowered, 83 participants in this study answered over 90% of the questions. The sampling for this study illustrates the cost and time effectiveness of using Twitter as a recruitment tool (60% of participants were recruited through this method), which can be used in other studies. There are considerable benefits to internet sampling, given the often low sample sizes of voice hearers recruited through mental health services (Sorrell et al., 2010). A criticism that can be levelled at internet research concerns whether the participants are people who genuinely hear voices, a criticism which cannot be made of recruitment through mental health services. Recruiting through mental health charities and bloggers on Twitter reduced this risk. Recruiting through mental health services can be further

narrowed due to mental health workers only referring clients they see as stable enough, as opposed to the self selective method of online recruitment.

The demographic information suggests that the sample was atypical compared to much of the research in voice hearing, which has had high numbers of male participants (e.g. Berry et al., 2008). In contrast, 71% of this sample was female. Gender differences have been found regarding gender and symptoms of psychosis. Thorup et al. (2014) investigated gender differences in first-episode psychosis after 5 years and found significant differences in several aspects. Males were more likely to live alone and suffer from substance abuse. Females reached higher levels of social functioning at follow up and were more compliant with medication. It is possible that the levels of loneliness and social isolation in the sample would have been even higher if more males had taken part. This overrepresentation of females may have also impacted on levels of anxious and avoidant attachment. Schimtt et al. (2003) looked at the attachment styles of 17,804 people internationally and found that, across all regions, men did not have higher levels of attachment avoidance than women. However, within the UK and North America men did have higher levels of attachment avoidance than women. Therefore, the amount of women in this sample may have led to an under representation of avoidant attachment which may have influenced findings.

Although they cannot be claimed to be a clinical sample per se, the sample scored at or above the clinical mean on measures of depression and attachment, 60% were currently using mental health services, and 30% had

used mental health services in the past. Furthermore, studies have shown that participants who take part in internet-based research on mental health have similar characteristics to those who are recruited face-to-face (Joppich, 2010). Purposive sampling of people with positive experiences of voices or people who had never used mental health services may have resulted in different findings. Due to the small numbers of participants who had never used mental health services it was not possible to investigate this using inferential statistics.

Although this thesis takes a trans diagnostic approach, it is acknowledged that some of the participants may have had symptoms of psychosis such as delusional beliefs which could have impacted on some of the variables measured in this study. It is possible that for some voice hearers the relationship with their voice is incorporated into a wider delusional belief system impacting the distress related to it. Participants were not asked about other unusual experiences or symptoms and therefore this cannot be ascertained. However, it is important to note that this may have had an impact on results. Research suggests that people prone to hearing voices and delusions have poorer social and occupational functioning and higher distress than those who hear voices without delusions (Compton, 2012; Stainsby & Lovell, 2014).

It would have been beneficial to collect information on other demographic data as well as age, gender and use of mental health services. It would have been useful to have included a question asking about religious or spiritual beliefs as they may inform peoples frame of reference and ways

of relating to their voices. It has been found that people who endorse spiritual understanding of their voices, tend to have a more positive relationship with their voice and manage without interventions from mental health services (Romme & Escher, 1993). It would be interesting to investigate whether spirituality and religion was related to the attachment to the voice or other variables. Peoples cultural and ethnic backgrounds or countries of origin would also have been useful information in light of the burgeoning literature (e.g. Lurhmann et al., 2015) suggesting that culture has an impact on relationships with voices. In a similar way to the data on spirituality and religion this would have helped to contextualise the findings, and led to richer data.

Overall, the recruitment for this study is a strength. Use of social networking sites in future studies of voice hearing should help negate the risk of underpowered studies. Large sample sizes mean that a wide range of experiences can be investigated and analysed without the loss of power (e.g. age, length of time hearing voices, etc.).

4.6.3 Measures

The measures used in this research display high validity and reliability (as outlined in chapter two). The majority of the measures also had excellent internal consistency in this sample, as measured by Cronbach's alpha (UCLA, PHQ9, ECR-R and Hearer Dependence scale). As stated in chapter two, the RAQ measure was chosen over other measures of attachment as the subscales assess different aspects of an attachment relationships, rather than measuring anxiety or avoidance levels.

It was considered that this would be more appropriate for an initial exploratory study. This is the first time, to the researcher's knowledge, that the RAQ has been used to measure people's relationship with the voice they hear. It is therefore appropriate to be cautious in interpretation. Furthermore, there were internal consistency issues with several subscales of the RAQ. Three of the subscales had acceptable internal consistency (proximity seeking, feared loss and separation protest); however the availability and use subscales had unacceptably low internal consistency (Cronbach, 1951). This suggests that those two subscales may not be appropriate for exploring possible attachment to voices. This can be illustrated with an overview of the items within the Use subscale. This contains the statement "I talk things over with my voice" which was endorsed by almost half the sample. However, talking things over within a relationship is not unique to attachment. The same subscale also contains "I turn to my voice for many things including comfort and reassurance" which was endorsed by less than a quarter of the sample. The third item in this subscale is "Things have to be really bad for me to ask my voice for help". A quarter of the sample strongly disagreed with this statement. However, this cannot be assumed to mean that a quarter of the sample ask their voice for help. Some may have disagreed that things have to be really bad because they ask their voice for help readily. However for others their disagreement on this item could have reflected a belief such as "however bad things are I would not ask my voice for help". It is not possible to know this but it is important to be aware of this difficulty in interpretation when considering the results. This is suggestive as to why this subscale had such low internal consistency.

Although three of the subscales did have acceptable internal consistency, there are also items within those subscales which are difficult to interpret. For example, the Feared Loss subscale contains the item "I am afraid I will lose my voices love". Participants may have disagreed with this item for one of two reasons: because they felt secure of their voices love, or because the question felt so irrelevant to them (in other words, the idea of their voice loving them is not valid for them). The use of the word love in this context is therefore likely to be relevant to some people and not others. It is therefore possible that the use of the measure underestimated attachment bonds, due to the phrasing of the RAQ questions which did not allow it to be captured appropriately. It also not possible to ascertain the difference between endorsement and strong endorsement. It is likely that some of the individual items or subscales may be valid in assessing voice hearers relationships with their voices, but others are not. Overall then it is necessary to be cautious when drawing interpretations and conclusions from the current study's findings.

4.6.4 Design

Due to the cross-sectional nature of this research it is not possible to infer causation between variables. Cross-sectional designs examine variables at a single point in time across a group of individuals. Therefore it is not possible to examine the process of change in terms of how variables are dynamically related over a period of time. For example, it is not impossible that people's relationship with their voice has an impact on their attachment style, especially if they have been hearing the voice for many

years. To date, there has been no published research which has investigated this.

4.6.5 Analysis

A strength of this study is the use of additional narrative data to aid the interpretation of the quantitative data, in answer to research question one. A weakness of the analysis is that due to post hoc adjustments several results became non-significant. In interpreting the results of the study it is important to consider the debate around the use of Bonferroni corrections. As Bonferroni (1979) corrections decrease the likelihood of Type I errors, they necessarily lead to a higher probability of type II errors. Although it is important to use a form of post hoc analysis to correct for the family-wise error rate, it is often argued that the Bonferroni correction leads to a result which is too conservative. In this study, several significant correlations lost significance after use of the Bonferroni correction and it is possible that due to the overly conservative post hoc correction this is an invalid acceptance of the null hypotheses. Therefore, it is likely that the results of this study have underestimated the impact of attachment style on relationships with voices, and of the effect of social isolation on the attachment bond with the voice. Future research using larger sample sizes or a smaller range of measures could help elucidate this.

4.7 Clinical implications

There is tentative evidence that for a minority of voice hearers, their relationship with their voices exhibits some qualities of an attachment bond. There is also evidence that people with experience of negative voices may

also sometimes be reluctant to lose them, which has implications for treatment. This section will address potential clinical implications of this study's findings with the caveat that this is a preliminary investigation which requires replication, and therefore appropriate caution should be taken in the application of any of the findings. A further caveat concerns the sample for this current study; although 60% were currently under mental health services the other 40% were not and therefore it cannot be claimed to represent a clinical population. However, initial recommendations can be still be made regarding clinical implications of the findings.

Although many voice hearers are distressed by their voices, this study's findings show that voice hearers' experiences may be ambivalent and mixed. Forty three percent of the sample endorsed at least one aspect of an attachment bond in relation to their voice and 19% endorsed three or more. Therefore, there is a likelihood that a proportion of clinical voice hearers accessing services may have some kind of attachment bond to their voice. It may be useful for health workers and professionals to be aware of this when working with voice hearers and to consider the potential adaptive or functional nature of some aspects of the experience or relationship. It may be difficult for voice hearers to share information about the more positive experiences spontaneously, especially in a medical context. Being open to this possibility might help professionals in their attempts to engage voice hearers. It is vital that people working with voice hearers acknowledge that not all voices cause significant distress or impair the person's functioning. Exploring the impact of the voice can help voice hearer and clinician to discern which voices should be the target for

intervention. In this study, 20% of participants indicated that they had a terrible fear that their relationship with their voice would end and 28% of the participants described a mixed or ambivalent relationship with their voice. The clinician should not assume the voice hearer wants to be completely rid of all of their voices, although, of course, this may be the case for many clients. There are significant clinical implications for treatment since the assumption that patients wish to totally rid themselves of the experience may lead to disengagement and lack of adherence to treatment. It is important for clinicians to be aware that voices can sometimes be supportive, protective and positive experiences and that by exploring this, clinicians could begin to understand issues such as ambivalence to treatment interventions aimed at eliminating the experience. This may sometimes involve negotiation, whereby the voice hearer is supported to cope with the negative aspects, without totally eliminating the experience.

Over half the participants in this study agreed that they "talk things over" with their voice. This is important to consider especially in light of the high levels of loneliness in the sample and considering the use people may make of the conversations with their clinicians. 20% of the sample indicated that they felt love from their voice by endorsing "I am confident my voice will always love me". In understanding the relationship between the voice hearer and their voice it is therefore also important to consider the possibility that it may involve strong affect (positive, negative or mixed).

The current study provides further evidence that relational processes found to affect relationships in the external world also have relevance to the relationship with voices, and should therefore be considered and perhaps addressed in any therapy that aims to reduce distress with regard to voice hearing. The variety of experiences and relationships illustrated in the findings support a person-centred, individualised approach to psychological formulation and treatment. The current findings add support for formulations in psychosis that link attachment style to ways of relating to the voice. It could be clinically meaningful to elucidate the attachment styles of people presenting with voice distress and this could help people link how they view their voices with their attachment style.

The present findings lend indirect support for an intervention based on Relating Therapy for people who hear voices (Hayward & Fuller, 2010). This therapy aims to modify distressing relationships with voices through skills training in assertiveness techniques for controlling voices, engaging voices in dialogue and building on more positive experiences of relationships. There is qualitative evidence that Relating Therapy can be beneficial (Hayward & Fuller, 2010), and changes have been reported to occur through improving clients' relationships with their voices and social relationships, improving mood and well-being, and building acceptance of the voice (Hayward & Fuller, 2010). The consideration of a potential attachment to voices could potentially be used as an adjunct to this therapy in helping them find other ways to fulfil the needs being met by the relationship with the voice.

The finding that those with higher levels of anxious attachment were more likely to fear losing their voice has potentially important implications for treatment for those who wish to stop hearing voices or change their relationship with them. Voice hearers with high levels of anxious attachment may be less willing to engage in therapy or treatment which they fear will result in the loss of their voice (or one of their voices).

Finally, in line with the work of Macbeth et al. (2008) the current study also lends support to the idea that an attachment perspective could benefit the delivery of interventions addressing voice hearing distress. These recommendations are included with the caveat that such ways of working may be difficult to achieve in the current NHS (National Health Service). Macbeth et al. suggest that, ideally, interventions for voice hearing or other psychotic symptoms could be tailored to attachment style as well as symptoms. They give the example of individuals with a secure attachment who may engage well and disclose distress. They compare this with someone who is high in attachment avoidance who may benefit from therapy starting at a slower pace, and gradually becoming more affect focused. Macbeth et al. go onto note that in order to increase potential for recovery some interventions may need to cover many years. This approach is used in interventions such as the Finnish "Needs-adapted" model (Lehtinen, et al., 1996) of treatment for psychosis which is focused on adaptation to symptoms, and people's relationships.

4.8 Suggestions for future research

As discussed in chapter one, there have been difficulties in distinguishing attachment relationships from other relationships. Issues of

the validity of the RAQ to voice hearing notwithstanding, this research clearly highlights the lack of research distinguishing attachment from non-attachment relationships (rather than the assessment of security of that relationship). Therefore, a further area for future research in attachment generally would be to elucidate this further. Results (although impacted by Bonferroni corrections and the influence of low mood) were promising that there may be a relationship between loneliness and relationships with voices. It would be invaluable to carry out long term follow up on voice hearers relationships with their voices and with other people. Through further piloting with people who hear voices, the RAQ could be developed into a measure of attachment with voices. It could also be useful for future research to pilot other attachment measures with voice hearers and use factor analysis to discover the dimensions that may be valid. It may be beneficial to carry out a mixed methods study, which combines a face to face qualitative interview and validated outcome measures, in an experimental manner to continue the exploration of this. Future studies could also benefit from the use of mediational analysis in order to determine the impact of people's attachment bond with their voice; specifically addressing the link between elements of an attachment bond with the voice and distress caused by voices. It would also be beneficial to consider the potential impact on functioning. Questions which also remain include whether people with a disorganised attachment style can adopt a secure attachment bond with their voice.

It would be valuable for future research to explore the potential impact of medication and medical terminology on relationships with voices.

Lurhman et al. (2015) found that voice hearers from different cultures had considerably different relationships with their voices, which illustrates the significance of using a socio cultural approach to voice hearing and considering the medical and psychiatric discourse people are exposed to in determining how they respond to and relate to their voices. It is also possible that antipsychotics which have an effect on voice topography or beliefs about voices may impact the relationship between the voice hearer and their voice.

Very few studies have considered multiple voices, and it could be worthwhile for future studies to investigate people's multiple voices and the relationships between them. This may be valuable theoretically in helping elucidate mechanisms through which one or several voices develop and are maintained. It may also be of potential clinical benefit to people who have a mixture of negative and positive voices, in terms of their engagement in services and treatment.

4.9 Conclusions

This study aimed to extend previous research by asking whether voice hearers' relationships with their voices can exhibit qualities of an attachment bond, using an international online sample. The use of a measure of attachment in relation to voices is novel, and therefore it is important to interpret the results with caution. The findings of this study, although tentative, contribute further to the evidence base that some voice hearers experience relationships with their voices, and report value and importance in the relationship. There is some evidence that, for a minority of voice

hearers, their relationship with their voice shares qualities of an attachment bond. These qualities can also exist even when people have negative experiences of their voices. There is some evidence that an individual's more general attachment style with others also influences the relationship they have with their voice. In common with a range of other studies this research emphasises the importance of considering individuals relationships with their voices, and the possible function of voices for voice hearers. It is hoped that the results of this research will lead to further investigation of attachment bonds with voices and the elucidation of how general attachment style and social isolation impact on this. As well as being of potential theoretical benefit to relational understandings of voice hearing, further investigations of this could also lead to clinical benefits for voice hearers who are distressed by their voices.

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6. Appendices

List of Appendices

Faculty of Medicine and Health Sciences Research Ethics Committee

University of East Anglia

Teresa Nevard
MED

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10th March 2015

Dear Teresa

Title: Exploring voice hearer's relationships with their voices: Can voices serve an adaptive function?
Reference: 2014/2015 - 23

Thank you for your e-mail dated 25th February 2015 notifying us of the amendments you would like to make to your above proposal. These have been considered and we can now confirm that your amendments have been approved.

Please can you ensure that any further amendments to either the protocol or documents submitted are notified to us in advance, and also that any adverse events which occur during your project are reported to the Committee.

Please can you also arrange to send us a report once your project is completed.

Yours sincerely,

Mark Wilkinson
Chair FMH Research Ethics Committee

Cc Joanne Hodgekins

University of East Anglia

Appendix B

Participant Information Sheet.
An investigation of experiences of voice hearing.
Version 1, 22/09/2014

Introduction

You have been invited to take part in a piece of research exploring people's relationships with their voices. Before you decide whether you would like to give consent to take part, please take the time to read the following information, to help you understand why the research is being carried out and what it will involve.

The researchers

My name is Teresa Nevard. I am a Trainee Clinical Psychologist, and I am carrying out this study as part of a Doctoral qualification in Clinical Psychology at UEA (University of East Anglia). The research is being supervised by Dr Joanne Hodgekins (Clinical Psychologist).

What is the purpose of the research?

This study aims to gain an understanding of how people with voices view their voices in relation to themselves. It is hoped that this study will enhance understanding and promote new ideas and ways of thinking about voices.

Who is being invited to participate?

We are looking for 82 adults over 18 to take part in the study. Participants must be able to complete questionnaires in English, and hear voices that other people can't. For the purposes of this study, we are interested in voices which have a voice-like quality and can be understood (conversational or odd words and phrases). We are looking for participants who consider that they have some kind of relationship with their voice/voices. This relationship could be positive, negative or mixed.

Do I have to take part?

No. Your participation is totally voluntary. After you have read this information, you will be asked to click a box that shows you are happy to

take part. If you have further questions, you may email the researcher before, during or after the study (study email address goes here). In making your decision you may wish to seek advice from somebody independent. For example, a friend, family member, facilitator of your hearing voices group or trusted professional.

What will happen if I take part?

If you agree to take part in the study you will be asked to firstly give consent. You will then be given several questionnaires to complete. These will assess your relationship with your voice/voices and your other relationships. You will then be asked to fill in some brief non identifiable questions about yourself (e.g. age). Finally, you will be asked if you would like to enter a draw to win one of 10 £20 Amazon vouchers for your participation.

Can I stop taking part if I change my mind?

If you decide to take part in the study you can change your mind about participating and withdraw from the study if you have not yet completed it. However, once you have finished the questionnaire you will not be able to withdraw your data.

Will my taking part in this study be anonymous and kept confidential?

Yes. All the collected data will be anonymous and treated as confidential. A number will be used to link the different measures and this will not be able to be linked with your details in any way. All information that we enter on the computer will be secured with a password. Once the study is completed, all the information will be securely stored and archived at the University of East Anglia for 10 years.

What will happen to the results of the research study?

The information collected will be written up as a thesis and submitted for publication in a relevant journal. You will not be identified in any of these articles. If you are interested in finding out about the results from the study you will be given a chance at the end of the study to leave your email or postal address. These details will be kept separate from your responses and will not be able to be linked in any way. After we have sent you information about what we have found your email/postal addresses will be destroyed.

What are the possible disadvantages and risks of taking part?

You will be asked to answer questions about your views about your voices and relationships generally. It is possible that you may feel some distress

during the task. If you do feel distress, you may stop completing the study at any point. If you feel distressed at any point during or after the task, then you are encouraged to contact the researcher, or your local General Practitioner (GP), or mental health support services such as MIND (08457 660163) or Samaritans (08457 909090).

What are the potential benefits of taking part?

The information we get from this study will help improve understandings of the experience of voice-hearing for both researchers and professionals.

What if there is a problem?

If you have a concern about any aspect of this study, you can contact me and I will do my best to answer your questions. Alternatively you could contact my research supervisor, Joanne Hodgekins (see contact details below). If you remain unhappy and wish to complain formally, you can contact Dr Ken Laidlaw (Director of the UEA Clinical Psychology Course on 01603 593076.

Who has reviewed the study?

This study has been reviewed and approved by the UEA Faculty of Medicine and Health Sciences Research Ethics Committee.

Further Information

If there is anything that is not clear or you would like any more information please contact me at t.nevard@uea.ac.uk
Contact Details:
Teresa Nevard
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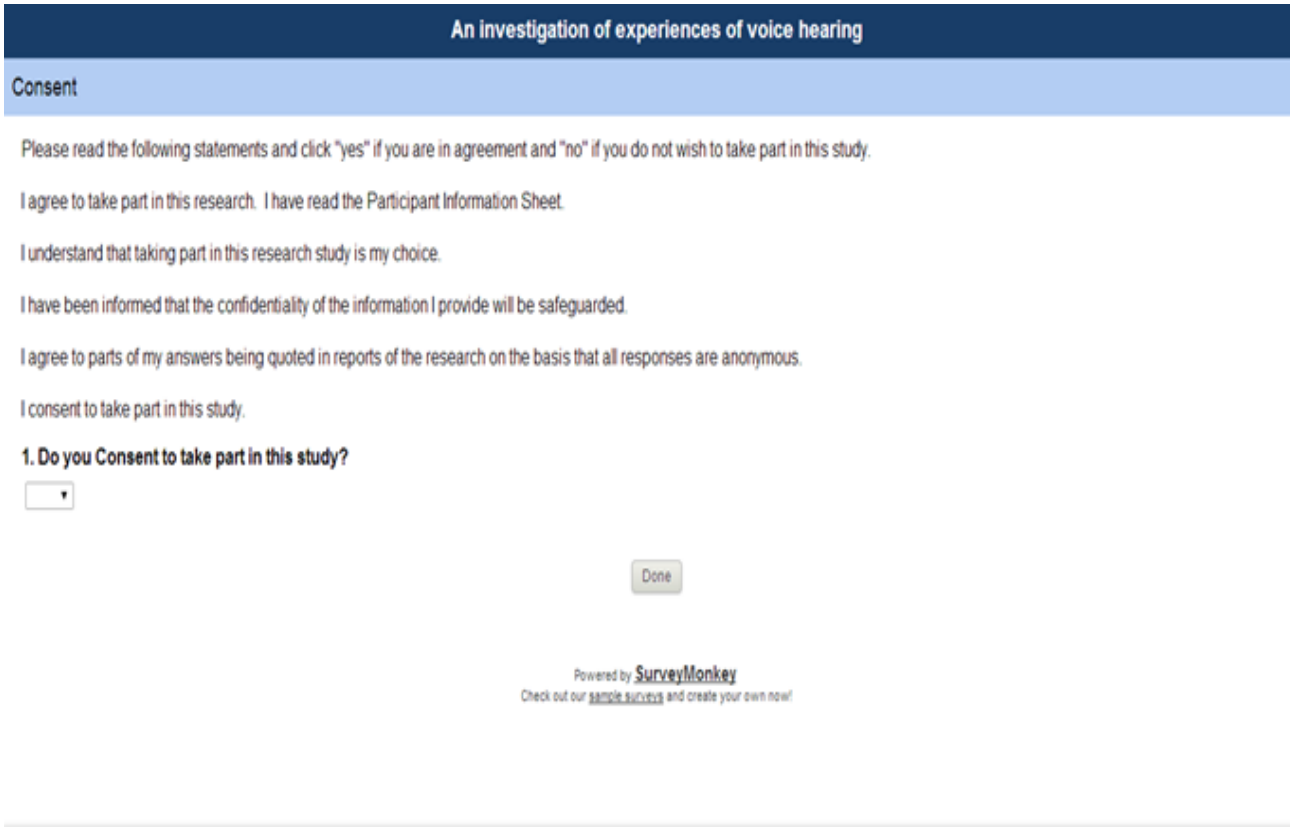
Appendix C



An investigation of experiences of voice hearing

Consent

Please read the following statements and click "yes" if you are in agreement and "no" if you do not wish to take part in this study.

I agree to take part in this research. I have read the Participant Information Sheet.

I understand that taking part in this research study is my choice.

I have been informed that the confidentiality of the information I provide will be safeguarded.

I agree to parts of my answers being quoted in reports of the research on the basis that all responses are anonymous.

I consent to take part in this study.

1. Do you Consent to take part in this study?

Done

Powered by SurveyMonkey
Check out our sample surveys and create your own now!

Appendix D

Participant Debrief Sheet

Version 1: 27/08/2014

Thank you very much for participating in this research! If you have indicated that you would like to receive a brief summary of the results of this research, then you will be emailed this when the research is complete (July, 2015).

How are you feeling?

If you find yourself distressed after completing this study then please read the following information about places to seek support.

UK Participants

Please contact your GP, or the Samaritans if you need support. Although there can be positive aspects of voice-hearing, sometimes they can cause distress. If your voices or other experiences start to cause you distress, please contact your GP.

NHS Direct 08457 46 47
This is a free 24 hour line where you can get extra support and help regarding where to go if you are feeling in distress or vulnerable.
Samaritans 08457 909090
This is a free 24 hour confidential telephone support service, run by trained listeners who provide emotional support.
Hearing Voices Network
The Hearing Voices Network offers information, support and understanding to people who hear voices. They support self-help groups nationwide which support people who hear voices.
www.hearingvoicesnetwork.co.uk nhvn@hotmail.co.uk; 0114 271 8210
Rethink
www.rethink.org.uk 0845 4560455
Rethink is an organisation which provides practical and emotional support to those struggling with mental health difficulties. Their advice and information line open from 10am-1pm and experienced staff can provide a range of support.

International participants

If you based outside the UK please see the website of Intervoice for information about support, and living with voices at www.intervoiceonline.org

Purpose of the research

Our study is looking at the kinds of relationships people form with their voices. Previous research has found that some people receive comfort, advice and support from their voice. This study is investigating whether people can form an attachment to their voice. An attachment is a type of close relationship, which involves feeling supported and comforted. Research has found that people can form attachments to parents, partners, teachers, friends, and (in people who are religious) to God. This current study is the first to investigate whether some people develop an attachment to their voice.

If you have any questions, queries or concerns at all please do not hesitate to contact either Teresa Nevard or Dr Joanne Hodgekins on the contact details below…..

Teresa Nevard (Trainee Clinical Psychologist)…..Dr Joanne Hodgekins (Clinical Psychologist)

Appendix E

Version 1 22/09/2014

(Email sent to Hearing Voices Network).

Address of Organisation

UEA address

E-mails

Dear _____,

RE: Research into hearing Voices

I am a Trainee Clinical Psychologist at the University of East Anglia, carrying out research into people's experiences of hearing voices. This research is being carried out for my doctoral thesis. I am aware of the support that organisations such as the Hearing Voices Network and other groups provide for their members.

I am conducting research into people's views of their voices. I would like to invite people who hear voices to participate in my internet-based research.

Participants will be asked to complete a questionnaire through our website. This should take about 40 minutes and responses would remain anonymous. To thank people for their time, participants can choose to enter into a prize draw for a chance to win one of 10 £20 Amazon vouchers.

I would like to ask if I could post a description and link to our electronic survey on your website. Where possible, it would also help to include information about the study in any newsletters or forums linked to your organisation. Our webpage is as follows: I have enclosed a Participant Information sheet for your information.

Thank you for taking time to read about my research and for considering my request. Please get in touch on any of the contact details below to discuss how I could proceed with publicising this research.

Yours sincerely,

Teresa Nevard
Trainee Clinical Psychologist
t.nevard@uea.ac.uk

Supervised by: Dr Joanne Hodgekins
Clinical Psychologist
j.hodgekins@uea.ac.uk

Appendix F

Reciprocal Attachment Questionnaire (RAQ ; West, 1990).

1 Strongly disagree	2 Disagree	3 Somewhat agree/ somewhat disagree	4 Agree	5 Strongly agree

Mark the number that best describes you and your voice.

1. I turn to my voice for many things, including comfort and reassurance.	1	2	3	4	5
2. I don't object when my voice goes away for a few days.	1	2	3	4	5
3. I'm confident that my voice will try to understand my feelings.	1	2	3	4	5
4. I worry that my voice will let me down.	1	2	3	4	5
5. I resent it when my voice spends time away from me.	1	2	3	4	5
6. I have to have my voice with me when I'm upset.	1	2	3	4	5
7. When I'm upset, I am confident my voice will be there to listen to me.	1	2	3	4	5
8. I feel abandoned when my voice is away for a few days.	1	2	3	4	5
9. I have a terrible fear that my relationship with my voice will end.	1	2	3	4	5
10. I talk things over with my voice.	1	2	3	4	5
11. I'm afraid that I will lose my voices love.	1	2	3	4	5
12. I feel lost if I'm upset and my voice is not around.	1	2	3	4	5
13. I'm confident that my voice will always love me.	1	2	3	4	5
14. Things have to be really bad for me to ask my voice for help.	1	2	3	4	5
15. When I am anxious, I desperately need to be close to my voice.	1	2	3	4	5

Appendix G

The Experiences in Close Relationships Scale-Revised (ECR-R; Fraley, et al.,2000).

The statements below concern how you generally feel in relationships with people you are close to. We are interested in how you generally experience close relationships not just what is happening in a current relationship. Using the 1 to 7 scale, after each statement write a number to indicate how much you agree or disagree with the statement.

1	2	3	4	5	6	7
strongly disagree						strongly agree

1.	I'm afraid that I will lose others' love.	
2.	I prefer not to show others how I feel deep down.	
3.	I often worry that others will not want to stay with me.	
4.	I feel comfortable sharing my private thoughts and feelings with others.	
5.	I often worry that others don't really love me.	
6.	I find it difficult to allow myself to depend on others.	
7.	I worry that others won't care about me as much as I care about them.	
8.	I am very comfortable being close to others.	
9.	I often wish that others feelings for me were as strong as my feelings for them.	
10.	I don't feel comfortable opening up to others.	
11.	I worry a lot about my relationships.	
12.	I prefer not to be too close to others.	
13.	When this others are out of sight, I worry that they might become interested in someone else.	
14.	I get uncomfortable when others want to be very close.	
15.	When I show my feelings for others, I'm afraid they will not feel the same about me.	
16.	I find it relatively easy to get close to others.	
17.	I rarely worry about others leaving me.	

18.	It's not difficult for me to get close to others.	
19.	Others make me doubt myself	
20.	I usually discuss my problems and concerns with others.	

21.	I do not often worry about being abandoned.		
22.	It helps to turn to others in times of need.		
23.	I find that others don't want to get as close as I would like.		
24.	I tell others just about everything.		
25.	Sometimes others change their feelings about me for no apparent reason.		
26.	I talk things over with others.		
27.	My desire to be very close sometimes scares others away.		
28.	I am nervous when others get too close to me.		
29.	I'm afraid that once others get to know me, they won't like who I really am.		
30.	I feel comfortable depending on others.		
31.	It makes me mad that I don't get the affection and support I need from others.		
32.	I find it easy to depend on others.		
33.	I worry that I won't measure up to other people.		
34.	It's easy for me to be affectionate with others.		
35.	Others only seems to notice me when I'm angry.		
36.	Others really understand me and my needs.		

Appendix H

The Hamilton Program for Schizophrenia Voices Questionnaire (HPSVQ; Van Lieshout & Goldberg, 2007).

Please choose the one response that best describes your experience of voices during the past week including today.

1. How frequently did you hear a voice or voices?

No voices Less than once a day Once or twice a day Several times a day Constantly

2. How bad are the things the voices say to you?

No voices saying bad things Not that bad Fairly bad Very Bad Horrible

3. How loud are the voices?

No voices Very quiet (like whispering) Average (like your own voice) Fairly loud Very loud (yelling)

4. How long do the voices usually last?

Not present A few seconds to a minute A few minutes

More than a few minutes but less than 1 hr More than one hr/they seem to persist

5. How much do the voices interfere with your daily activities?

No interference A little bit Moderately Quite a bit Extremely interfering

6. How distressing are the voices that you hear?

No distress A little bit Moderately Quite a bit Extremely distressing

7. How bad (worthless/useless) do the voices make you feel about yourself?

No voices make me feel bad A little bit Fairly bad

Very bad Extremely bad

Appendix I

Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001).

Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things.....……	0	1	2	3
2. Feeling down, depressed, or hopeless.……..……	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much.....……..……..	0	1	2	3
4. Feeling tired or having little energy.....……..……	0	1	2	3
5. Poor appetite or overeating.....…….…	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down……..	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television……..	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving .around more than usual……	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way.....……	0	1	2	3

Appendix J

UCLA Loneliness Scale (Russell, Peplau & Ferguson, 1978).

Please indicate how often you feel in the ways described below.

O indicates "I often feel this way"

S indicates "I sometimes feel this way"

R indicates "I rarely feel this way"

N indicates "I never feel this way"

1. I am unhappy doing so many things alone O S R N
2. I have nobody to talk to O S R N
3. I cannot tolerate being so alone O S R N
4. I lack companionship O S R N
5. I feel as if nobody really understands me O S R N
6. I find myself waiting for people to call or write O S R N
7. There is no one I can turn to O S R N
8. I am no longer close to anyone O S R N
9. My interests and ideas are not shared by those around me O S R N
10. I feel left out O S R N
11. I feel completely alone O S R N
12. I am unable to reach out and communicate with those around me O S R N
13. My social relationships are superficial O S R N
14. I feel starved for company O S R N
15. No one really knows me well O S R N
16. I feel isolated from others O S R N
17. I am unhappy being so withdrawn O S R N
18. It is difficult for me to make friends O S R N
19. I feel shut out and excluded by others O S R N
20. People are around me but not with me O S R N

Appendix K

Voice and You (Hayward, Denny, Vaughan and Fowler, 2008).

The statements listed here are the sorts of feelings and attitudes which people sometimes have about or towards the voices they hear. Please read each statement carefully and indicate, by ticking the appropriate column, the extent to which you think it applies to you in relation to your predominant voice. Try to be completely frank and honest about yourself. Avoid answering the way you would like to be or the way you would like others to think of you, rather than the way you really are.

Try as far as possible, to place your ticks in the "Nearly always true" and "Rarely true" columns. The two middle columns are really for if you cannot make up your mind.

1 Nearly always true	2 Quite often true	3 Sometimes true	4 Rarely true

1. My voice wants things done his/her way	1	2	3	4
2. My voice helps me make up my mind.	1	2	3	4
3. I prefer to keep my voice at a safe distance.	1	2	3	4
4. My voice makes hurtful remarks to me.	1	2	3	4
5. My voice does not let me have time to myself.	1	2	3	4
6. I have a tendency to look up to my voice.	1	2	3	4
7. When my voice gets too close to me it makes me uneasy.	1	2	3	4
8. My voice constantly reminds me of my failings.	1	2	3	4
9. My voice dislikes being excluded when I show an interest in others.	1	2	3	4
10. I allow my voice to take control of me.	1	2	3	4
11. I feel I have little to offer my voice.	1	2	3	4
12. It Is easy for my voice to change my mind.	1	2	3	4
13. My voice does not give me credit for the good things I do.	1	2	3	4
14. My voice tries to accompany me when I go out.	1	2	3	4
15. I feel deserted when my voice is not around.	1	2	3	4
16. I try to hide my feelings from my voice.	1	2	3	4
17. My voice tries to get the better of me.	1	2	3	4

18. My voice dislikes spending time on his/her own.	1	2	3	4
19. My voice's judgment is better than mine.	1	2	3	4
20. I do not like to get too involved with my voice.	1	2	3	4
21. My voice makes me feel useless.	1	2	3	4
22. I need to have my voice around me a lot	1	2	3	4
23. I don't like my voice to know what I'm thinking	1	2	3	4
24. I have difficulty letting go of my voice.	1	2	3	4
25. My voice tries to make me out to be stupid.				
26. My voice finds it hard to allow me time away from him/her.				
27. I have a great need to talk to my voice.				
28. I don't wish to spend much time listening to my voice.				

Appendix L

Content Analysis: Coding

For each criteria of an attachment bond, evidence of it within the written data of each participant was coded 1, and evidence of the opposite way of relating was coded as 2. Absence of either of these was coded as 0.

Coding frame

Maintaining Proximity with the voice.

Reference to attempts to maintain closeness to the voice was coded as 1.

Reference to attempts to reduce closeness to the voice was coded as 2.

Absence of either of these was coded 0.

Seeing the attachment figure as a secure base of explorative behaviour

Reference to the voice encouraging or praising the participant was coded 1.

Reference to the voice providing approval of behaviour was coded 1.

Reference to the voice explicitly allowing time without it (framed in a positive way by the participant) was coded 1.

Reference to the voice encouraging the participant to carry out tasks independently was coded 1.

Participants attributing success or functioning, or achievements to their voice was coded 1.

Reference to the voice impeding, discouraging or making difficult tasks, other relationships and general functioning were coded 2.

Absence of any of these was coded 1. Voices instructing or commanding (rather than encouraging), or criticism of actions was also coded as 0 in this dimension.

Considering the attachment figure as a haven of safety,

Reference to love towards or from the voice was coded as 1.

Reference to comfort, safety or closeness was coded as 1.

Reference to use of voice for support in times of distress, stress, anxiety or during difficult times was coded as 1.

Reference to the voice causing distress, anxiety or stress was coded 2.

Absence of above criteria coded as a 0.

Use of the word "negative" in description of the relationship with no further detail was coded as 0 on this dimension.

Experiencing separation anxiety when removed from the attachment figure

Reference to anxiety, fear or stress when the voice is not present was coded as 1.

Reference to anxiety, fear or stress in the presence of the voice was coded as 2.

Absence of either of the above was coded as 0.