UNIVERSITY OF SOUTHAMPTON
FACULTY OF SOCIAL AND HUMAN SCIENCES

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The therapeutic relationship in remote support for self-management of chronic dizziness

by

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Thesis for the degree of Doctor of Philosophy in Health Psychology Research and Professional Practice

December 2012

UNIVERSITY OF SOUTHAMPTON

ABSTRACT

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THE THERAPEUTIC RELATIONSHIP IN REMOTE SUPPORT FOR SELF MANAGEMENT OF CHRONIC DIZZINESS

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Telephone-delivered therapy is often used to deliver support as it can help overcome barriers that may previously have prevented patients with chronic illness from accessing key services. Very little research has looked at the therapeutic relationship during telephone support for people self-managing a chronic illness. The empirical work in this thesis is nested within a randomised controlled trial (RCT) of self-management of chronic dizziness, a condition that can be debilitating with serious consequences. This thesis explored the role of the therapeutic relationship during telephone support for using booklet-based vestibular rehabilitation (VR) to self-manage chronic dizziness.

A meta-analysis of telephone delivered therapy for chronic illness was conducted to examine whether or not telephone therapy can affect physical health outcomes. Eight RCTs (1093 patients) were included, and the results found that telephone delivered therapy significantly improved physical health outcomes in people with chronic illness (d = 0.225, 95% CI = 0.105, 0.344). A qualitative study of people's experiences of self-managing chronic dizziness using booklet-based VR with or without telephone support (n=33) identified themes characterising people's experiences, thoughts and feelings about these models of VR delivery. Findings indicated that participants valued telephone support. Quantitative analysis examining predictors of outcome (n=112) found that the therapeutic relationship predicted change in handicap, and was related to greater enablement, although it was not related to change in dizziness symptoms. A final mixed methods study aimed to evaluate the development of the therapeutic relationship using Roter Interaction Analysis System to examine recorded therapy sessions. This study found patient centeredness during therapy to be related to the therapeutic relationship. Exploratory analyses identified specific features of patient-centeredness that may be related to better and worse alliance. A qualitative analysis of high and low patient centred therapy sessions found that high patient centeredness sessions were more likely to include general chat, encouragement, reassurance, and therapists were more responsive to participant cues. Low patient centred sessions were more likely to include participant concerns and therapists not responding to participant cues.

This thesis identified a number of potential elements of telephone support that may be important for the development of the therapeutic relationship in patients self-managing dizziness.

Contents

List of tables

List of figures

DECLARATION OF AUTHORSHIP

I, Ingrid Muller

declare that the thesis entitled “The therapeutic relationship in remote support for self-management of chronic dizziness” and the work presented in the thesis are both my own, and have been generated by me as the result of my own original research. I confirm that:

- this work was done wholly or mainly while in candidature for a research degree at this University;
- where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
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  Muller, I., Yardley, L. (2011). Telephone Delivered CBT Based Therapy for Physical Health Outcomes in People with Chronic Illness: A Systematic Review and Meta-Analysis. *Journal of Telemedicine and Telecare*, 17, 177-184.

Siged: ……..

Date:……

Acknowledgements

The production of this thesis would not have been possible without the help and support of many people. Firstly, a huge thank you to my supervisors, Lucy Yardley and Sarah Kirby for their guidance, support and encouragement throughout this project. Thank you also to Roger Ingham, my academic advisor for his support and helpful advice.

Thanks must also go to all my other colleagues and friends at the University of Southampton. I have been blessed with an amazing group of fellow health psychology trainees who helped keep me smiling.

I would also like to give special thanks to my parents, Rex and Rana and my sisters, Madeleine, Rene and Mari for always supporting me and helping in whatever way they could.

Finally, I would like to thank all the participants who gave their time to take part in this study. Without their valuable input there would be no research at all.

Abbreviations

BACBP	British Association of Behavioural and Cognitive Psychotherapies
BO	Booklet Only
B+TS	Booklet with Telephone Support
CALPAS	California Psychotherapy Alliance Scale
CBT	Cognitive Behavioural Therapy
CFS	Chronic Fatigue Syndrome
CI	Confidence Interval
CMA	Comprehensive Meta-Analysis
DHI	Dizziness Handicap Inventory
FSN	Fail-Safe N
GP	General Practitioner
HADS	Hospital Anxiety and Depression Scale
IPA	Interaction Process Analysis
NHS	National Health Service
PEI	Patient Enablement Instrument
PETS	Problematic Experiences of Therapy
QALY	Quality-Adjusted Life Year
RCT	Randomised Controlled Trial
RIAS	Roter Interaction Analysis System
SEFT	Supportive Emotion Focussed Therapy
VR	Vestibular Rehabilitation
VSS-SF	Vertigo Symptom Scale Short Form
VTAS	Vanderbilt Therapeutic Alliance Scale
WAI-S	Working Alliance Inventory – Short Form

1. Chronic dizziness and its psychosocial impact

1.1 Chapter overview

The research reported in this thesis aims to understand the role of psychological factors in the effectiveness of remote support for people self-managing chronic dizziness using booklet-based vestibular rehabilitation (VR). This chapter will introduce the key features of chronic dizziness, including common causes of dizziness, symptoms, epidemiology, diagnosis and treatment. It proceeds to discuss the psychological and social impact of chronic dizziness, reviewing the empirical literature demonstrating the nature and extent of psychological and social difficulties experienced by people with chronic dizziness. This chapter ends with a discussion of the context in which the empirical work was conducted and a rationale for the programme of research in this thesis.

1.2 Causes of dizziness

Dizziness is considered a non-specific symptom that generally requires further medical investigation to provide a diagnosis (Yardley, Owen, Nazareth, & Luxon, 1998). The balance system relies on sensory information from vision, proprioception (the perception of movement and spatial orientation from sensors within the body) and the vestibular system in the inner ear, which is integrated and processed by the brain. Dysfunction of any of these systems can lead to balance problems and dizziness. Common aetiologies of dizziness include cardiovascular or neurological disorders, reactions to prescribed medication, psychiatric disorder or vestibular dysfunction (Sloane et al., 1994; Yardley et al., 1998). The empirical work in this thesis focusses on self-management using booklet-based VR, a treatment which is only appropriate for dizziness due to vestibular dysfunction. While it is recognised that dizziness can have several causes, this thesis uses the term dizziness to refer to a symptom of vestibular dysfunction unless specified otherwise.

Vestibular dysfunction is most commonly caused by ageing or viral infection, although head injury, genetic and environmental elements may also be causal or contributory factors (Agrawal, Carey, Della Santina, Schubert, & Minor, 2009). The vestibular organ is bilateral and is located in the inner ear. Dysfunction of the vestibular system is characterised by vertigo attacks, a specific type of dizziness described as a sensation of movement or spinning and can result in a loss of balance, sweating, nausea, and vomiting (Agrawal et al., 2009). Vertigo is likely to be induced or exacerbated by quick or unusual head movements, or situations with lots of movement such as busy traffic or supermarkets. Specific disorders of the vestibular system known to cause vertigo attacks include benign paroxysmal vertigo, labyrinthitis, and vestibular neuronitis (Yardley et al., 2004b).

An international committee for the classification of vestibular disorders defined dizziness as "the sensation of disturbed or impaired spatial orientation without a false or distorted sense of motion" (Bisdorff, Von Brevern, Lempert, & Newman-Toker, 2009). Often vestibular disorders can cause dizziness, without a clear sensation of movement. While it is recognised that some dizziness can be spontaneous, this committee classified known contexts and triggers that can cause dizziness. One of the most common triggers of dizziness due to vestibular dysfunction is head movements. This is defined as positional or head-motion dizziness. Positional dizziness occurs specifically after the head has moved, once it is rested in a new position (e.g. rolling over in bed), while head-motion dizziness occurs while the head is actually moving.

Dizziness can also be triggered by stimulus of other senses. People with dizziness commonly described their symptoms being triggered by a complex, distorted, or moving visual field. This is called visually-induced dizziness and can be triggered by situations such as a busy supermarket isle, moving traffic or travelling on an escalator. This kind of dizziness is more common in people with vestibular disorder, as they come to rely more on vision for orientation because of the confusing signals from the vestibular system.

1.3 Epidemiology of dizziness

Dizziness has been ranked as one of the most frequent complaints in medicine (Neuhauser, 2009; Baloh, 1992), affecting 20-30% of the population (Kroenke & Price, 1993a; Yardley et al., 1998; Hannaford et al., 2005). There have been inconsistencies in reported prevalence rates of dizziness (Sloane et al., 1994), with some studies including only vestibular or non-vestibular dizziness, and other studies including both. Varying definitions of dizziness have also contributed to inconsistencies in the literature, with some studies classifying a single episode of dizziness as suffering from dizziness, while others only consider more frequent episodes. Different research methodologies have also been employed to estimate the prevalence rates of dizziness, for example some researchers have conducted population surveys while others consider primary care consultations for dizziness as an indicator of prevalence.

A recent German population survey of 4869 adults attempted to establish the frequency of vestibular dizziness by combining screening of a National Health Survey general population sample for moderate or severe dizziness with validated neurotologic interviews (Neuhauser et al., 2008). Neurotologic interviews included an interactive assessment that mirrored clinical situations and also included detailed questionnaires and participants were independently classified by at least two raters. This study found vestibular dizziness to account for 24% of dizziness in the community. Vestibular dizziness had a life-time prevalence of 7.4%, with 4.8% of people having suffered an attack in the past year. Furthermore, this study found vestibular dizziness to be more common in women (with a ratio male to female 1:2.7), and three times more likely in the elderly. Similar results were found in a study examining data from a Dutch survey of 376,000 elderly primary care patients (Maarsingh et al., 2010). This study reported a one-year prevalence rate of 8.3%, and also found dizziness to be more common in women.

1.4 Diagnosing dizziness

Population studies have estimated that 70% of people suffering from dizziness consult their General Practitioner (GP) in the first instance (Neuhauser et al., 2008). Dizziness is commonly encountered in primary care, with figures showing that 2% of all primary care consultations are for dizziness (Sloane, 1989; Kroenke et al., 1992a), with this figure increasing to as high as 30% in people over 65 (Colledge, Wilson, Macintyre, & Maclennan, 1994). The majority of patients with dizziness seen in primary care have peripheral vestibular disorder, and serious sinister pathology, such as a brain tumour, in patients with no other symptoms is very rare (Kroenke, Hoffman, & Einstadter, 2000; Hanley, 2002; Hansson, Mansson, & Hakansson, 2005). Despite the frequency of primary care consultations, GPs have described dizziness complaints as 'confusing' and 'discouraging' (Bailey, Sloane, Mitchell, & Preisser, 1993).

Dizziness has been said to pose a diagnostic challenge in primary care as descriptions of symptoms are often subjective and non-specific (Bird et al., 1998). Even though dizziness symptoms can generally be managed successfully in primary care (Sloane et al., 1994), less than 20% of patients receive a definitive diagnosis (Kruschinski & Hummers-Pradier, 2008) and less than a third receive any type of treatment (Yardley et al., 1998). This leaves many patients with untreated problems, and leads to the belief that no treatment exists and that dizziness is something they will have to learn to live with (Kroenke et al., 1992b). There have been claims that a definitive diagnosis for dizziness is often not possible, although this view has been challenged by a recent study showing that an accurate diagnosis is possible in more than 75% of patients over 70 years (Katsarkas, 2008). Part of the GP's role is to identify those patients requiring specialist referrals, but at present less than 4% of patients with chronic dizziness are referred for specialist assessment and treatment (Kruschinski & Hummers-Pradier, 2008).

1.5 Treatment and management options

Dizziness in primary care is generally treated with reassurance or medication to relieve symptoms (Yardley et al., 1998a). It has, however, been reported that pharmacologic interventions offer limited improvement for patients suffering from vestibular dysfunction (Smith-Wheelock, 1991; Kroenke, Lucas, Rosenberg, Scherokman, & Herbers, 1994; Yardley et al., 1998a). Medication for vestibular-related dizziness typically includes vestibular sedatives, diuretics and tranquillisers, which are not suitable for long-term use (Hanley, O'Dowd, & Considine, 2001; Hansson, 2007). These medications can have unpleasant side-effects such as drowsiness, and studies have suggested they can hinder a patient's recovery (Yardley, Beech, Zander, Evans, & Weinman, 1998; Yardley, Luxon, & Haacke, 1994). When considering the ineffectiveness of medication used to treat patients with chronic dizziness, it is surprising that such a small minority of patients are referred to secondary care for treatment (Yardley et al., 1998a). At the same time, specialist testing and treatment in secondary care is costly and does not necessarily guarantee a diagnosis and appropriate treatment (Yardley et al., 1998a).

Recent years have seen a general consensus that vestibular rehabilitation (VR) is the most appropriate and effective treatment for vestibular dizziness. (Black & Pesznecker, 2003; Cohen & Kimball, 2003; Yardley et al., 2012) Currently only a small percentage of suitable patients have access to this treatment (Jayarajan & Rajenderkumar, 2003; Polensek, Sterk, & Tusa, 2008), despite the fact that VR exercises are relatively simple and can be performed at home. (Cohen & Kimball, 2003; Hillier & Hollohan, 2007; Yardley et al., 2012). VR will be discussed in more detail later in this chapter.

1.6 Consequences of dizziness

Suffering from chronic dizziness can have a significant impact across a range of psychosocial domains, and has been linked with lower health related quality of life (Neuhauser et al., 2008; Fielder, Denholm, Lyons, & Fielder, 1996), an increased risk of falls (Gazzola et al., 2009; Herdman, Blatt, Schubert, & Tusa,

2000; Agrawal et al., 2009) and fear of falling (Yardley, 1998). As with many long term conditions, the psychological and social impact of suffering from dizziness can be more debilitating than the symptom itself (Kinney, Sandridge, & Newman, 1997). This section will provide an overview of the psychosocial impact of dizziness, including its effect on social and role functioning and mental health.

1.6.1 Social and role function

Dizziness symptoms can be unpredictable, unpleasant and frightening. Uncertainty surrounding dizziness diagnosis, prognosis, ineffective treatment and onset of attacks can result in the person feeling inadequate, helpless and anxious (Yardley, 2000). Dizziness can also cause embarrassment as an attack of dizziness in a public place can lead to bystanders needlessly calling an ambulance, or stigmatising the person as being under the influence of alcohol. People who suffer from dizziness may give up certain social or leisure activities, or feel unable to make future plans because of their symptoms, which can impact on family life. A survey of adults living in Germany found that vestibular dizziness has a profound personal impact on those affected (Neuhauser et al., 2008). This study found that 20% of people with vestibular dizziness reported avoiding leaving the house. Other large scale population surveys have reported that 22% of people with dizziness are prevented from performing their normal daily activities (Neuhauser et al., 2005) and 73% of people with dizziness reported severe disruption to their daily activities (Kroenke & Price, 1993a).

People with dizziness may find that their employment is affected by their condition. They may become unable to drive or travel, and they may need to take regular time off work, perform poorly at work, need to change jobs, or leave employment altogether. Research has shown that 41% of people with dizziness report occupational difficulties due to their symptoms, with 12% needing to take time off work, 25% needing to change their job, and 25% of people with dizziness struggling to perform their job satisfactorily because of their symptoms. Furthermore, 20% of unemployed people with dizziness listed

their symptoms as the reason for not working (Yardley et al., 1998; Kroenke et al., 1992b). Similar degrees of occupational disability were also reported by Von Brevern et al. (2007), who found that people with vestibular dizziness were more likely to take sick leave than people with non-vestibular dizziness (40% versus 15%).

1.6.2 Psychological impact of dizziness

Patients with dizziness more commonly experience psychological problems than patients with many other health conditions (Yardley, 2000). In a study of patients attending a neuro-otology out-patients clinic, 64% of patients with dizziness were in need of psychological treatment compared to only 27% of patients with hearing loss (Mckenna, Hallam, & Hinchcliffe, 1991). Many studies have found a link between balance problems and anxiety disorders (Yardley & Redfern, 2001; Kurre, Straumann, van Gool, Gloor-Juzi, & Bastiaenen, 2012; Soderman, Bagger-Sjoback, Bergenius, & Langius, 2002), with reported prevalence of anxiety symptoms in people with dizziness ranging from 11% to 40% (Kurre et al., 2012). Specific anxiety disorders include panic and agoraphobia, and research has found these conditions to be more prevalent in people with dizziness than the general population (Clark, Hirsch, Smith, Furman, & Jacob, 1994; Kroenke et al., 1994).

The relationship between dizziness and anxiety is complex as dizziness is one of the key symptoms of panic, but panic can also be triggered by a balance disorder (Eagger, 1992). Physical reactions to dizziness attacks often include symptoms of panic, such as a fast heart rate, feeling out of breath and feeling faint. People with dizziness often interpret these symptoms as a risk of danger, either through physical harm caused by falling over or from the embarrassment of attracting attention in public (Yardley et al., 1994). People with dizziness are more prone to attacks of dizziness in places with unusual or conflicting information about orientation (Yardley, 2000). This includes places where there is lots of movement, for example crowds, supermarket isles, or moving traffic. People with dizziness may learn to avoid places where attacks are likely to occur or social situations where attacks may be difficult to cope

with. This avoidance behaviour in people with dizziness may lead to anticipatory disability (Yardley, Todd, Lacoudraye-Harter, & Ingham, 1992) and agoraphobia (Yardley, Owen, Nazareth, & Luxon, 2001).

As discussed in section 1.4, many people with dizziness never receive a definitive diagnosis even if they have undergone sophisticated medical tests and examinations. This leaves many people feeling concerned rather than reassured and often leads to the development of somatisation, which is when people are overly attentive to their physical symptoms, and hypochondria, which is when people become excessively concerned that their dizziness symptoms are a sign of a serious disease (Mayou & Sharpe, 1995; Yardley, 2000). Dizziness attacks are often intermittent and can occur spontaneously and without any warning. This can lead to a feeling of helplessness and lack of control, exacerbating feelings of anxiety and panic and can in turn serve to reinforce avoidance behaviours, hypochondria and somatisation (Yardley et al., 1994).

Depression is also commonly found in people with dizziness, with research suggesting a prevalence rate of up to 22% (Piker, Jacobson, McCaslin, & Grantham, 2008; Ketola, Havia, Appelberg, & Kentala, 2007; Kurre et al., 2012). Beliefs that dizziness symptoms cannot be controlled and that the impact of dizziness can have a profound impact on quality of life can lead to despair, withdrawal and depression (Yardley, 2000). People with dizziness often display physical symptoms of depression, such as fatigue and poor concentration, although it has been suggested that these symptoms may in fact be due to mental overload as a result of extra central processing needed in people with balance disorders (Yardley & Higgins, 1998).

There is a clear link between dizziness and psychological disorders, and it has been suggested that psychological factors may affect patients' recovery from balance disorders. A review by Yardley and Redfern (2001) concludes that recovery from a balance disorder involves a complex process of habituation

and relearning that includes neurological adaptation, desensitisation, and the development of coping skills and strategies. Cognitive process such as catastrophic thinking and fear may hinder these processes and thereby delay recovery. Behaviours can also affect recovery. For example, people commonly avoid head movements that may provoke dizziness, but these movements are necessary for the balance system to adapt and this avoidance can therefore delay recovery.

VR has been recommended as a treatment for both the physical and psychological causes of dizziness (Yardley et al., 1994; Eagger, Luxon, Davies, Coelho, & Ron, 1992). Combined with basic education, VR provides patients with an understanding of the balance system and potential triggers for attacks, making dizziness symptoms understandable and predictable. This also allays fears of a dangerous underlying cause of dizziness, and stops people blaming themselves for their dizziness. VR also empowers people to take control of their symptoms, encouraging patients to gradually resume normal activities.

1.7 Vestibular rehabilitation for treating chronic dizziness

In 1946, Cawthorne and Cooksey observed an improvement in patients with balance problems performing head movements, even though this patient group typically avoid head movements to prevent provoking symptoms of dizziness (Cohen, 1994). This observation led to the development of a series of exercises known as the Cawthorne-Cooksey exercises, later termed Vestibular Rehabilitation (VR). Various programmes of VR have since been developed, although they are generally still based on the Cawthorne-Cooksey principles and still resemble the original exercise programme in a hierarchy of difficulty (Cohen, 1994).

The central component of VR is a program of graded exercises consisting of eye, head and body movements designed to stimulate the vestibular system and promote neurological adaptation (Brandt, 2000; Cohen, 2006). VR

exercises help movement or positional-provoked symptoms by a compensatory response where the central nervous system becomes less responsive to repetitive stimuli created by performing head movements. Performing VR exercises regularly helps the brain coordinate and substitute messages from the dysfunctional vestibular input and promotes reliance on other individual or combinations of sensory input, such as visual or proprioceptive. Repetitive and provocative head and eye movements also help visual-vestibular interaction by reducing error and restoring the vestibule-ocular reflex, which is responsible for stabilising vision and keeping the image in the centre of the visual field when moving your head.

Patients start off doing the VR exercises slowly, gradually increasing the speed over time. Exercises include nodding and shaking the head, first with the eyes open and then with the eyes closed. Performing VR exercises is likely to provoke symptoms of dizziness when they are first performed and it is only with repetition over several weeks that the brain and balance system will adapt to the various sensory inputs to cope with such movements (Yardley et al., 1994). The aim of VR exercises is to stimulate the balance system, which means it is essential that symptoms are provoked by head movements. If symptoms of dizziness are not induced when performing the exercises at rapid speed it is generally an indication that the exercises will be of little benefit as the balance system may not require retraining.

As discussed in section 1.6, VR also has psychological benefits. One of the aims of performing VR exercises is to encourage patients to actively cope with dizziness symptoms. Regularly inducing symptoms teaches patients that dizziness can be managed and controlled, which will help restore confidence and overcome fears of making dizziness provoking head movements. Making these head movements in everyday life, will also in turn promote recovery (Yardley et al., 1994; Yardley et al., 1998a).

While the physical exercises are likely to be similar from one VR programme to the next, other elements of VR programmes can vary substantially. For example, some VR programmes may include educational components where patients are educated about the balance system, causes of dizziness and the rationale for VR (Yardley et al., 1998). This may be a critical element of VR as the exercises promote symptoms of dizziness, which can be frightening and have major implications for adherence to the exercises programme if patients do not understand why the treatment is making them feel worse.

VR programmes also differ in their method of delivery. Traditionally VR has only been accessible through a costly and lengthy referral process to secondary care, which required assessment by a variety of specialities treatment (Jayarajan & Rajenderkumar, 2003; Polensek et al., 2008; Fife & Fitzgerald, 2005). The goal of making VR more widely available has led to research exploring various new models of delivering VR, ranging in intensity and amount of personal contact.

1.8 Effectiveness of vestibular rehabilitation

Many studies have found VR to be a safe and effective treatment for a range of vestibular disorders (Cohen, 1994; Hillier & McDonnell, 2011). A recent Cochrane review of 27 clinical trials of VR for vestibular dizziness concluded that there is moderate to strong evidence from high quality studies that VR provides a resolution of dizziness symptoms and improvement in the medium term (Hillier & McDonnell, 2011). Improvements were found across a range of outcomes including dizziness symptoms, gait, visual impairments, balance and quality of life. This review also concluded that VR programmes that include educational elements and demonstrations may increase efficacy, and that VR can successfully be delivered as home-based exercises. Furthermore, evidence suggests that improvements are typically maintained for several months post-intervention.

Clinical trials have varied in their method of delivering VR. Traditionally, the exercise regime has been delivered face to face in specialist clinics, but the need for improving access to VR has led to researchers exploring more cost effective methods of delivering this treatment. Early research indicated the potential for VR to be carried out at home, rather than in a hospital or specialist clinic. Strupp et al. (1998) conducted a trial of VR for patients with vestibular neuritis. Participants were treated in a specialist hospital for 5-7 days before going home with written instructions to perform VR exercises three times a day. Compared to a control group, participants in the VR treatment group's balance was significantly improved after the 3 week treatment period. Although this study included a very small sample (n= 39) and the report contained insufficient information to assess risk of bias, it showed that people are able to carry out VR exercises at home. Similar results were found in a larger trial (n = 143) of VR in primary care (Yardley et al., 1998). In this trial, participants in the treatment arm received two 30 minute face-to-face VR session with a trained practice nurse, one at baseline and one after six weeks. This was supplemented with written materials and participants were asked to perform the VR exercises at home, twice a day for six weeks. Participants in the VR treatment group showed a significant reduction in symptoms at six week and six month follow-up, supporting the notion that VR delivery can be supplemented by written material and be effectively performed at home.

This self-management model of delivering VR in primary care was furthered by the development of a treatment booklet for dizziness (Yardley et al., 1998; Yardley et al., 2004c). This treatment booklet includes a programme of VR that patients can adapt to suit their symptoms, capabilities and lifestyle. The booklet also contains educational material explaining why dizziness occurs and how VR works. The booklet was primarily designed to promote adherence to VR, but also addresses relevant cognitions, such as beliefs about the causes of dizziness, symptom controllability and appropriate treatments. Principles of behavioural change are also incorporated into the booklet, and include eliciting and addressing concerns, action planning, progress monitoring, goal setting,

written commitments, modelling, relapse prevention, and generalisation to real-life situations.

This booklet-based method of delivering VR was first tested in a RCT comparing booklet based VR with usual care (Yardley et al., 2004a). Participants received one 30-40 minute appointment with a trained nurse, followed by two supportive telephone calls during the trial period. The results of this study showed significant improvements in dizziness symptoms, disability and handicap for the VR group compared to the control group, with 67% of participants in the VR group showing clinically significant improvement three months post treatment. This study highlighted the potential for an inexpensive and easily disseminated booklet-based model of delivering VR supplemented by brief face-to-face nurse support.

Yardley and Kirby (2006) continued this programme of research by testing the effectiveness of the VR treatment booklet without any professional support for the treatment of dizziness symptoms in patients with Meniere's disease. This three-armed RCT compared the VR treatment booklet to a Symptom Control booklet and a waiting list control group. The Symptom Control booklet was designed to look similar to the VR treatment booklet in terms of size, quality and layout. The content used cognitive-behavioural techniques to divert attention from dizziness symptoms and reduce arousal, stress and catastrophic thinking. At three month follow-up, the VR booklet group showed significant improvement compared to both the Symptom Control and waiting list control groups. At 6 month follow-up, however, both treatment groups reported significant improvements compared to the waiting list control group. Measures of adherence indicated that only 37.5% of participants in the VR booklet group adhered to the exercise programme, and the study reported a significant correlation between adherence and outcome. These results support the efficacy of the VR treatment booklet in reducing dizziness symptoms, and also show that it is possible for patients to follow the programme without any health care professional support. This study did, however, experience low adherence to the exercises, with the primary reason given for non-adherence

being that the exercises induced or aggravated dizziness symptoms. While research clearly indicated the VR treatment booklet to be a potentially cost-effective and disseminated model for increasing access to VR for chronic dizziness, it is possible that better adherence may have been achieved by providing some therapist support and advice.

1.9 Context of the research programme

The research described in this thesis was nested within a RCT of the clinical and cost-effectiveness of booklet-based VR for chronic dizziness (Yardley et al., 2012). The aforementioned VR treatment booklet was used to treat primary care patients with chronic dizziness, with or without telephone support. I was employed as a research associate on this trial, which included day-to-day management of all trial aspects such as recruiting participants, screening, managing telephone support sessions and follow-ups, assisting with data analysis and dissemination of trial results. The results of the trial itself do not form part of this thesis, but data collection for this thesis was carried out in conjunction with the main trial data. The following sections will provide an overview of this trial to create the context for the empirical work described in this thesis.

1.9.1 Design of the VR trial

This study used a single blind, three arm, parallel group, pragmatic randomised controlled trial design to measure the clinical and cost-effectiveness of booklet-based VR in primary care. The trial was approved by National Research Ethics Service, and the trial followed a detailed statistical and health economics analysis plan that was agreed by the trial steering committee prior to data analysis.

1.9.2 Participants

Participants were recruited from 35 general practices between October 2008 and July 2009. Potential participants were identified via practice database searches for patients over 18 with a complaint of dizziness or a prescription for medication to treat dizziness symptoms in the past 12 months. GPs

screened the lists to ensure patients were suitable and did not have an identifiable non-vestibular cause of dizziness, and had no contraindications for making normal head movements. Eligible patients were then sent invitation packs to take part in the trial form their GP practice, and asked to return the consent form directly to the research team. Consented participants were then asked to complete a baseline questionnaire, at which point they were excluded if they were not currently dizzy, or if their symptoms were not provoked by head movements.

337 participants met eligibility criteria and were randomised to one of three groups: usual care, booklet only or booklet with telephone support. The sample was 71% female, and had a mean age of 59.4 years. Participants allocated to one of the two treatment arms were sent the VR treatment booklet described in section 1.8 and asked to perform the VR exercises twice a day for 12 weeks. Participants in the booklet with telephone support arm were also contacted by an independent administrator to arrange a telephone appointment with a randomly allocated VR therapist. Outcomes were assessed by questionnaire at 12 weeks and 1 year.

1.9.3 Telephone support

The telephone support was carried out by three qualified vestibular therapists with varying levels of experience in treating dizziness. Participants had three telephone sessions with their therapist. The initial session lasted up to 30 minutes, and two follow-up sessions up to 15 minutes one week and three weeks after starting the self-treatment. The telephone therapy was standardised across the three therapists who all received a half-day training workshop and session checklist that can be used as a treatment guide during the session. Therapists had no formal psychological training, but the session content and format drew on behaviour change techniques. Examples of this include intention formation, action planning and habit building. Therapists discuss participants' beliefs about VR and encourage participants to commit to a set time and place where they will carry out the VR exercises twice a day so

that it will become part of their daily routine. Specific behaviour change techniques will be discussed in more detail in Chapter 2. See Appendix A for therapist training materials and Appendix B for session checklist.

The initial therapy sessions involved talking through the booklet, answering questions and concerns and advising patients on how to use the booklet for their own personal needs. Therapists assessed the participant's attitude towards their condition and treatment and discussed ways of implementing the intervention. Therapists mentioned relapse prevention and discussed putting strategies in place to avoid this. The follow-up sessions were specifically aimed at monitoring adherence and either discussing barriers to adherence or reinforcing the systems in place to ensure the programme is followed. Again, any questions or concerns were addressed.

1.9.4 Summary of trial results

All groups showed some improvement in dizziness symptoms as measured by the Vertigo Symptom Scale Short Form (Yardley et al., 1992) at 12 week follow up, and group differences failed to reach significance. At one year follow-up, however, both treatment groups showed a significant improvement in dizziness symptoms compared to routine care. At both 12 week and 1 year follow-up, a larger proportion of participants in both treatment groups reported a reduction in subjective dizziness symptoms compared to routine care. Closer examination of the data showed that 60% of participants in the booklet with telephone support group reported feeling much better or completely well compared to just 33% of participants in the usual care group.

At 12 week follow up the booklet with telephone support group reported significantly improved autonomic anxiety on the Vertigo Symptom Scale Short Form (VSS-SF) compared to the usual care group. When controlling for differences at baseline, the telephone support group also showed significant improvement in dizziness symptoms at 12 weeks compared to the usual care

group. At 1 year follow-up both treatment groups showed significant improvements in autonomic anxiety compared to the usual care group. Both treatment groups also showed significant improvements in dizziness handicap, anxiety and depression compared to the usual care group at 1 year follow-up, but not at 12 weeks. Most of the outcome measures at both time points (12 weeks and 1 year) were very similar for both the booklet only and booklet with telephone support groups, but the telephone support group was found to be slightly more effective than the booklet only treatment group. While differences between the intervention groups did not reach significance, the booklet with telephone support group showed a greater improvement in dizziness symptoms and anxiety at 12 weeks. At 1 year follow-up the telephone support also showed greater improvement in dizziness symptoms, anxiety and depression than the booklet-only group.

Cost effectiveness analysis showed all three treatment groups to be similar in cost, with the booklet with telephone support intervention incurring a slightly higher cost that routine care or booklet only treatment groups. Quality-adjusted life years (QALYs) were used to measure the value of each intervention in relation to improved quality of life and disease burden due to dizziness symptoms. Compared to routine care, both treatment groups showed improved QALYs and point change on the VSS-SF. Compared with booklet only self-management, the booklet with telephone support intervention was found to be the most cost-effective, because it was the most effective treatment group.

This study demonstrated booklet-based self-management of dizziness in primary care (with or without telephone support) to be an effective and cost-effective model for treating dizziness. These inexpensive models have the potential to deliver VR to the large number of primary care patients suffering from dizziness who do not currently have access to treatment. Providing telephone support with booklet-based self-management does incur a slightly higher cost, but this study showed this method to be most cost-effective.

1.10 Thesis rationale and overview

This thesis investigates the role of psychological factors in the effectiveness of telephone support for people self-managing chronic dizziness using booklet-based VR. The empirical studies are conducted in order to further understanding of telephone support while self-managing dizziness and to identify potential factors that could be incorporated into remote support to promote improved outcomes. In Chapter 2, literature surrounding psychological mechanisms and the therapeutic relationship in therapy for people with chronic illness is reviewed and critiqued. This chapter will also consider theories, frameworks and research methods used to evaluate psychological aspects of therapy for people with chronic health conditions, and specifically chronic dizziness.

Chapter 3 is a meta-analysis of telephone delivered therapy for people with chronic illness. It is important to know whether or not telephone-delivered therapy can improve outcomes, and no review to date has evaluated physical health outcomes in people receiving telephone therapy for managing long-term health conditions. Results from previous clinical trials are therefore synthesised in this chapter to provide an estimate of the effectiveness of telephone therapy for improving physical health outcomes. Chapter 4 is a qualitative study that aims to explore patient experiences of using booklet-based VR to self-manage dizziness symptoms, with or without telephone support. No research to date has explored patient experiences of following this treatment, and this chapter aims to gain further insight into the acceptability of booklet-based VR with or without telephone support as well as understanding any problems participants may have.

Chapter 5 is a quantitative study investigating predictors of outcome in patients receiving booklet-based VR with telephone support. The aim of this study was to identify and improve understanding of factors related to telephone support and the therapeutic relationship that may hinder or promote outcomes in this population. The final empirical chapter, Chapter 6, is a mixed

methods study that aims to understand the development of the therapeutic relationship by looking at the interaction between therapist and patient during telephone support sessions. Chapter 7 contains the general discussion and conclusion of the thesis.

2. Understanding psychological mechanisms in therapy for chronic illness: theories, frameworks and methods

2.1 Introduction

Patients with chronic medical conditions frequently experience psychological problems associated with their illness (White, 2001). It has been argued that these psychological dimensions of chronic illness are often overlooked as the majority of patients with chronic illness adjust well to their condition (Turner & Kelly, 2000). Adjustment to a chronic illness can, however, become more difficult as a patient's physical health deteriorates, and it is generally accepted that 20-25% of patients with a chronic illness experience clinically significant psychological symptoms (Cassileth et al., 1984; White, 2001). Being diagnosed with a chronic illness can stigmatise patients, limit independence and negatively impact on daily routine (Scanlan, Vitaliano, Daruwala, Hang, & Savage, 2002). The nature of most chronic illnesses requires the patient to adapt their behaviour, routine, and expectations. Holman and Lorig (2000) described that neither a chronic illness nor its consequences are static, and their interaction creates illness patterns that require on-going and complex management that is challenged by the uncertainty about prognosis. They argue that treating a chronic illness should not focus on finding a cure, but to maintain a high quality of life and enable independent living.

It is increasingly acknowledged that treating psychological problems can improve physical health as psychological factors are known to affect various physiological processes through behaviours, hormonal changes or the central nervous system (Cohen & Herbert, 1996). Prat et al. (1996) suggested that psychological factors can result in physical morbidity in their own right. They reported that, when medical factors are controlled for, the risk of myocardial infarction increases four to five times as a result of the presence of depressive symptoms. Friedman et al. (Friedman, Sobel, Myers, Caudill, & Benson, 1995)

have suggested a number of pathways through which psychological variables affect patient interaction with health services. These include information and decisional support, social support, behaviour change, somatisation, psycho-physiological factors and an undiagnosed psychological disorder. Psychological interventions can influence these pathways and thereby have a positive impact on quality of life, quality of health care and financial cost of health care delivery (White, 2001). Cognitive behavioural therapy (CBT) often targets one or more of these pathways, making it a valuable therapy for treating people with a chronic illness.

This chapter aims to review and critique psychological mechanisms involved in therapy for chronic illness through considering empirical evidence, theories and frameworks. Firstly, this chapter will evaluate CBT for chronic illness, particularly in the treatment of chronic dizziness. This chapter will then consider the therapeutic relationship, the evaluation of therapeutic alliance and other non-specific factors in psychotherapy.

2.2 CBT for chronic illness

The cognitive-behavioural approach to psychotherapy was first advocated by Beck (Beck, 1976; Beck & Young, 1979), and has since become one of the major orientations of psychotherapy (Roth & Fonagy, 2005). CBT is a structured form of psychotherapy which derives from cognitive and behavioural models of human behaviour such as theories of emotion, theories of normal and abnormal development, and psychopathology. According to the British Association of Behavioural and Cognitive Psychotherapies (BACBP), the term CBT may be used to describe therapies dominated by behavioural approaches, cognitive approaches, and therapy based on the pragmatic combination of principles of cognitive and behavioural theories.

CBT-based psychotherapies are usually formulation driven. In CBT the case formulation is based on the cognitive model of emotional disorders (Beck, 1976). At its simplest level it addresses negative automatic thoughts that are

locked into a cycle with dysfunctional emotions, behaviours and somatic symptoms, but can also be expanded to include dysfunctional underlying cognitions in the form of assumptions and core beliefs. In practice, case formulation is an effective tool for structuring the course of treatment by prioritising symptoms, influencing type and timing of interventions, and predicting potential problems. While formulation is generally done at an individual level, specific CBT frameworks have been formulated in clinical psychology for conditions such as panic and anxiety (Clark et al., 1999), post-traumatic stress (Dunmore, Clark, & Ehlers, 1999), and depression (Mohr, Hart, & Vella, 2007a). These frameworks are often influenced by generic frameworks such as Prochaska and DiClemente's (1983) stages of behaviour change that outlines five discreet stages to aid understanding of people's attitudes when their behaviours are being evaluated.

Chronic illnesses have become increasingly prevalent as people are living longer and advances in medicine mean that illnesses that previously carried a substantial mortality risk can now be managed more effectively. Increased focus has been placed on the role of behaviours on disease. Advances in behavioural medicine have led to a better understanding of the way health behaviours can affect the development of disease as well as the management of existing illness. There are fundamental differences in the psychological impact of acute diseases and chronic illness, and it is known that psychosocial responses to illness rarely correlate with disease severity (White, 2001).

It has been suggested that CBT can be applied to the assessment and treatment of almost any chronic illness (Enright, 1997; White, 2001). Several factors make CBT particularly suited to addressing the problems associated with chronic illness. Long-term health conditions are often associated with psychological problems in which CBT has proven efficacy such as poor adjustment, anxiety and depression (DeRubeis & Crits-Christoph, 1998). The nature of most chronic illnesses require a high degree of self-management, and the need for patients to build collaborative relationships with various health care professionals in order to take an active role in the management of

their illness. These are skills and issues which are also central to the philosophy and key principles of CBT, making this approach a particularly suitable treatment choice for people with chronic illness.

Clinical applications of CBT have a large evidence base, and there are an ever-increasing number of conditions for which CBT models and treatment protocols have been developed. These include CBT for depression (Beck & Young, 1979; Dobson, 1989), panic disorder (Clark et al., 1994), obsessive compulsive disorder (Salkovskis, 1999), post-traumatic stress disorder (Dunmore et al., 1999), generalised anxiety disorder (Butler, Fennell, Robson, & Gelder, 1991), bulimia nervosa (Bacaltchuk, Trefiglio, de Oliveira, Lima, & Mari, 1999), hypochondria (Clark, Cook, & Snow, 1998), schizophrenia (Jones, Cormac, Silveira da Mota Neto JI, & Campbell, 2004; Tarrier et al., 1999), personality disorders (Davidson et al., 2006) and bipolar disorders (Scott, 1996). The application of psychological approaches to other branches of medicine has been slower than expected when compared to developments in psychological models and therapies within psychiatry (Rachman, 1998). The past decade has however seen many developments in psychological models and approaches to treating people with physical health conditions. CBT approaches to chronic illness are still a comparatively young, but fast growing area of psychology. CBT has successfully been applied to the management of several chronic illnesses, including irritable bowel syndrome (Greene & Blanchard, 1994), chronic fatigue syndrome (Price, Mitchell, Tidy, & Hunot, 2008), chronic pain (Morley, Eccleston, & Williams, 1999), cancer (Greer et al., 1992), heart disease (White, 2001), and multiple sclerosis (Mohr, Vella, Hart, Heckman, & Simon, 2008) to name but a few.

While CBT has been applied to several chronic illnesses, few CBT frameworks have been formulated to treat specific chronic illnesses. Padesky and Greenberger (1996) proposed a generic CBT framework for the construction of problem-level formulations that can be applied to almost any situation experienced by patients with chronic health problems. This framework is frequently applied in clinical and research settings (Roth & Fonagy, 2005), and

is particularly suited to the formulation of problems for which there are no established CBT models. This framework is particularly helpful because it acknowledges the importance of physical symptoms which may be critical in patients' acceptance of a cognitive behavioural model of their psychosocial adjustment.

The current UK health service places increased emphasis on factors central to the philosophy of CBT, such as self-management of illness and strong relationships with health care providers. The National Health Service (NHS) also places great emphasis on patients having access to evidence based, cost-effective treatments. While there is ample evidence for the efficacy of CBT for various psychological conditions affecting people with chronic illness, the majority of clinical trials have included participants with no significant medical condition. While there is no reason to expect CBT to be less effective in treating patients with chronic illness, it is mainly in the treatment and management of cancer, chronic pain and chronic fatigue syndrome that CBT currently has established a specific role in primary care.

CBT formulations for cancer patients often focus on tackling avoidance and facilitating control, which are often significant maintenance factors for many cancer-related psychological problems (Brewin, Watson, McCarthy, Hyman, & Dayson, 1998). Other CBT formulations for cancer patients may include promoting social support and handling uncertainty, which is a key factor associated with the course of the illness. CBT formulations for chronic pain patients, on the other hand, might focus on reducing catastrophising, pacing activity, and promoting reconceptualisation to alter patients' interpretation of their experience of painful stimuli, as this is known to affect the levels of pain experienced (Spence & Sharpe, 1993). It can be argued that the behaviours and cognitions targeted by CBT for cancer and chronic pain patients, such as avoidance, uncertainty, social support and catastrophising are relevant to many chronic illnesses, although more empirical evidence is needed to promote the use of CBT for other chronic illnesses in primary care.

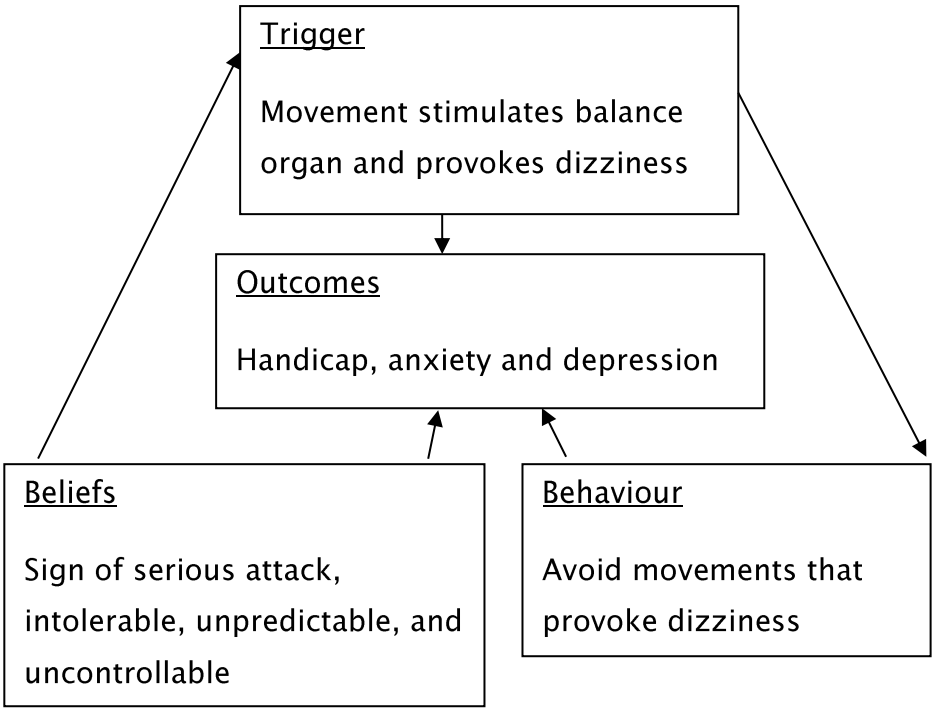
As demonstrated by the interventions included in the meta-analysis in Chapter three, psychological interventions for patients with a chronic illness have often used both cognitive and behavioural techniques without employing formal CBT. For example, Bambauer et al. (2005) provided a CBT-based telephone counselling intervention to cardiac patients. This intervention addressed issues such as loss of control, self-image, anger and fear of death using cognitive and behavioural techniques without being described as formal CBT. Similarly, Blumenthal et al. (2006) trained patients awaiting lung transplants how to use cognitive-behavioural skills to enhance their coping. While this intervention was not formal CBT, many cognitive and behavioural principles and techniques were employed in delivering this intervention. This use of CBT techniques outside an explicit CBT framework highlights the ways in which interventions can apply CBT elements with proven efficacy without applying a full CBT model in the treatment of chronic illness.

2.3 CBT in the treatment of dizziness

Psychological problems are more common amongst patients with chronic dizziness than many other health conditions (Yardley, 2000). In a study of neuro-otological outpatients, McKenna et al. (1991) found that 64% of patients with chronic dizziness were in need of psychological treatment compared to only 27% of patients with hearing loss. Similarly, Clark et al. (1994) found that 20% of patients with dizziness attending an otolaryngology clinic met criteria for diagnosis of panic disorder, and a further 25% had symptoms of panic compared to no patients with hearing loss meeting diagnostic criteria for panic disorder and only 8% reporting panic symptoms. Anxiety disorders have also been shown to be more prevalent in people with dizziness than the general population (Eagger et al., 1992; Frommberger, Tettenborn, Buller, & Benkert, 1994; Kroenke, Lucas, Rosenberg, & Scherokman, 1993; Stein, Asmundson, Ireland, & Walker, 1994). While anxiety and panic disorder is particularly common in people suffering from chronic dizziness, other psychiatric conditions, such as depression and somatisation, have also been found to frequently accompany vestibular disorder (Yardley, 2000; Clark et al., 1994; Stein et al., 1994).

Evidence of balance disorders has been found in people with panic disorder and agoraphobia (Jacob, Whitney, tweiler-Shostak, & Furman, 2001; Jacob & Furman, 2001; Yardley, Britton, Lear, Bird, & Luxon, 1995), leading to the suggestion that, in some cases, dizziness might simply be a somatic manifestation of anxiety (Greenfield et al., 2000). The majority of people with a primary complaint of dizziness, however, exhibit balance dysfunction upon further medical investigation (Clark et al., 1994; Kroenke & Price, 1993b; Yardley et al., 1998b; Yardley, 2000). Psychosomatic processes may, however, contribute to the development, maintenance, or severity of dizziness symptoms, as dizziness can be a frightening experience that could cause panic and avoidance behaviours (Mendel, Lutzen, Bergenius, & Bjorvell, 1997; Yardley et al., 1992; Yardley, 2000). The theoretical rationale for the psychological aspects of VR is based on the contribution of beliefs and behaviours in the maintenance of dizziness. As demonstrated in Figure 1, dizziness triggers can lead to unhelpful beliefs about dizziness, which reinforce avoidance behaviours of movements that may provoke symptoms. These beliefs and avoidance behaviours can then impact on outcomes like handicap, anxiety and depression.

Figure 1 Theoretical rationale for psychological aspects of VR



This cycle and several other aspects of the experience of dizziness can be addressed using CBT techniques as a therapeutic tool integrated with VR in the treatment of chronic dizziness (Yardley, 2000; Gurr & Moffat, 2001; Johansson, Akerlund, Larsen, & Andersson, 2001). Firstly, many sufferers of chronic dizziness are never given a definitive diagnosis, which may pose a barrier to patients adopting the active self-management needed for chronic illnesses. A lack of clear diagnosis could also lead to symptoms of somatisation disorder or hypochondria through anxious fixation on dizziness symptoms and excessive use of medical services (Yardley, 2000). Patients with dizziness may exhibit negative thoughts and beliefs about their illness, such as there being no possibility of control over symptoms and that any attempt at coping is futile. Such beliefs could have a long-term negative affect on quality of life or lead to learned helplessness. CBT for people with dizziness may also include health education to increase people's understanding of their condition. Addressing health beliefs in CBT may be a valuable tool for promoting adherence to VR exercise programmes through better understanding of the aims and benefits of the therapy. CBT might also be used to enhance communication with

healthcare professionals, which could alleviate some of the concerns patients have during their search for a diagnosis.

CBT can be applied to many of the problems affecting people with chronic dizziness. The way people interpret their experiences of dizziness may affect the amount of panic and distress, and ultimately dizziness they experience. Patients may, however, be reluctant to accept this, making it essential to promote reconceptualisation through education and engagement in therapy. CBT is a valuable technique for tackling avoidance behaviours in chronic illness through exploring and modifying avoidance beliefs and evaluating emotional, cognitive and behavioural consequences of interacting with previously avoided stimuli and environments. Similarly, cognitive intervention strategies could be applied to coping with uncertainty and unpredictability to promote new ways of viewing these issues associated with dizziness. Dizziness coping strategies can be promoted through analysing the effectiveness of existing coping strategies and brief training in cognitive coping skills, which has been shown to increase coping attempts and decrease negative thinking (Gil et al., 1996). While all the aforementioned elements and strategies within CBT could be applied to the problems faced by people with chronic dizziness, individual case formulation may be beneficial in targeting particular problems faced by the individual. CBT does, however, offer strategies and methods for addressing the psychological problems frequently faced by people with chronic dizziness.

Yardley (2000) described problematic cognitions and behaviours commonly found in patients with dizziness. These cognitions include acute fear of physical harm, fear of losing control, persistent worry that dizziness is a sign of serious illness, perceived lack of control and incapacity, and pessimism about the future. Cognitive restructuring techniques may be a useful tool to change such unhelpful thought patterns. For example, all-or-nothing thinking, or catastrophising could be addressed by testing the validity of the person's thoughts or beliefs by examining the objective evidence and exposing invalid thoughts and beliefs. Unhelpful beliefs and negative automatic thoughts could also be addressed through CBT techniques such as cognitive rehearsal, where

the person thinks about a problematic situation that occurred in the past and find ways of better dealing with it in case it arises again, or keeping a thought diary.

As described by Yardley (2000), behaviours commonly found amongst people with dizziness include avoidance (of travel, public places, going out alone), persistent help-seeking for physical symptoms, seeking repeated investigations into causes of dizziness, withdrawal, inactivity, and apathy. Behavioural techniques in CBT are ideal for addressing these behavioural problems commonly found in people with dizziness. Modelling can be used to demonstrate how others cope with difficult situations caused by dizziness, and positive reinforcement can be used to encourage helpful behaviours such as not avoiding public places or going shopping. Goal setting can also be used to guide behaviour change, such as practicing the VR exercises twice a day to promote habituation to induced dizziness.

Table 1 Cogntitive and behavioural techniques in VR treatment booklet

Cognitive aspects of the booklet	**Mechanisms within booklet**
Addressing unhelpful beliefs and concerns	• Why dizziness occurs • Causes of dizziness • Most appropriate treatment for dizziness • Whether symptoms can be controlled
Behavioural aspects of the booklet	
Action planning	Choosing specific exercises to carry out and deciding when and where daily exercises will be performed
Progress monitoring	Scoring sheet to complete
Graded exposure	Explanation of how to adapt the exercises to suit individual recovery
Modelling effectiveness	Description of how VR has helped others
Relapse prevention	Explanation of common barriers to adherence and how to overcome these
Generalisation to real life situations	Description of how everyday activities can help speed up recovery

Yardley (2004a) applied CBT principles and behaviour change techniques to develop a booklet teaching vestibular rehabilitation for the self-management of dizziness symptoms. Participants received one 30 minute appointment with a primary care nurse who taught them how to do VR exercises at home, with the support of the aforementioned treatment booklet. Specific principles and techniques included in this booklet are detailed in Table 1. This VR treatment booklet is used in the empirical work in this thesis. As described in Chapter 1, RCTs using this booklet have found it significantly reduced dizziness symptoms, depression, and handicap.

A systematic review of trials combining VR with formal CBT identified four RCTs applying this combination of treatments for chronic dizziness (Cervant, Haker, Jiwa, Jori, & Pemble, 2006). Combining VR with CBT was found to be a successful intervention for treating people with chronic dizziness in the majority of outcomes measured in the four included trials. These outcomes were dizziness handicap, measures of exposure to dizziness-provoking movements, and dizziness related distress. Unfortunately none of the trials compared the VR and CBT treatment combination to either VR or CBT alone, making it impossible to conclude whether or not VR with CBT is better than either therapy alone.

CBT clearly has benefits for people with chronic dizziness, and may greatly contribute to therapy if used in combination with VR. Current research of this treatment combination is, however, limited and a cost-effectiveness evaluation is yet to be conducted to evaluate the feasibility of rolling out a programme of VR and CBT. At present, 90% of people with dizziness are treated in primary care for milder symptoms and never receive VR, suggesting an approach containing elements of CBT might benefit these patients - delivered either remotely, via booklet, or face-to-face.

2.4 The therapeutic relationship

Most therapists believe the quality of the relationship between themselves and their clients is a key factor in how successful the therapy will be (Horvath, 2000). The relationship between analyst and patient was central from the outset in Freud's conception of psychoanalysis. This has remained a central concept, particularly in the analytic and humanistic schools, and is now widely accepted as an important medium for psychotherapeutic change (Scott, 2004).

Carl Rogers' book, *Client-Centred Therapy* (1951), presented three original hypotheses that first focussed attention on the fact that the therapeutic relationship may have a positive and healing effect on clients. Firstly, Rogers proposed the notion that the relationship conditions created by the therapist (such as empathy, congruence and positive regard, later termed core conditions) are themselves sufficient to promote the client's natural healing process. Secondly, it was argued that the greatest contribution therapists make to promoting change is the interpersonal relationship, and the conditions offered by therapists are responsible for change and growth in all attempts to assist clients, regardless of the theoretical framework the therapist applied. Thirdly, Rogers hypothesised that it is the therapist, not the client, who creates the relationship conditions allowing the client to enhance their growth potential.

Rogers insisted on subjecting his theoretical hypothesis to empirical validation, and pioneered research into the process of psychotherapy using audio and video recordings to examine therapist response in relation to client process and outcome. Studies evaluating Rogers' hypotheses number in the thousands, and generally support the notion that a good therapeutic relationship correlates with positive outcome (Horvath, 2000; Howard, Orlinsky, & Lueger, 1994). Rogers' concept of core conditions has also been said to be the first integration hypothesis and has had a major influence throughout all psychotherapeutic approaches (Smith, 1982) and influenced the therapeutic relationship within a wide range of professions (Levitt & Wall, 1992).

2.4.1 Therapeutic alliance

Edward Bordin (1976; 1980; 1994) first suggested the concept of therapeutic alliance when he presented a theoretical reformulation of the concept of alliance entitled: *The Working Alliance: Basis for a General Theory of Psychotherapy*. Unlike the original psychodynamic concept, his definition of alliance was a conscious, current relationship. It was acknowledged, however, that the early stages of this relationship may be influenced by past experiences. Like Rogers, it was claimed that this therapeutic alliance applied to all helping processes, but unlike Rogers, Bordin proposed a truly bidirectional relationship that involves agreement and collaboration between therapist and client.

Bordin's model of therapeutic alliance had a major impact on psychotherapies and research. Several researchers simultaneously developed reliable measures to assess the alliance and started investigating the relationship between alliance and therapy outcome using Bordin's model with positive results. Psychotherapy researchers and therapists now widely accept this collaborative and affective bond between therapist and client to be an essential part of the therapeutic process.

A meta-analysis of 15 years of investigations into therapeutic alliance found that the quality of alliance is a robust predictor of therapy outcome (Horvath & Symonds, 1991). This meta-analytic review accepted the definition of therapeutic alliance encompassing a collaborative relationship between the client and therapist and takes into account both parties' capacity to negotiate the terms of therapy. Horvath and Symonds (1991) reported an overall effect size of .26, which is within the .22 to .29 range of alliance-outcome correlations consistently reported in the literature (Horvath, 2005). They found that clients' ratings of alliance were more highly correlated with treatment outcome than therapist or observer ratings. Furthermore they found that the relationship between alliance and eventual therapeutic outcome was apparent from as early as the third session, and that the association between alliance

and treatment outcome is constant across various treatments, clinical diagnoses and client populations. They even found that some researchers were able to predict which participants will drop-out based on alliance scores at the end of the first session, emphasising the importance of this concept in psychotherapy.

One possible limitation of this review is that a variety of alliance measures were used in the included studies and the analysis found low correlation between these measures. This was, however, in contrast to existing research at the time, which generally found strong correlations between different measures of alliance (Horvath & Luborsky, 1993). Research since this review has also supported the notion that various scales measuring alliance are in fact highly correlated (Horvath & Luborsky, 1993).

Martin, Garske and Davis (2000) updated Horvath and Symonds' meta-analysis to incorporate the large number of new studies investigating the relationship between alliance and outcome. As part of their report they reviewed the various scales commonly used to measure alliance and concluded that while some scales measure specific theoretical constructs, other scales measure more general alliance constructs. They did find, however, that most scales measured therapist-client affective attachments and willingness to invest in the therapeutic process and that this is enough overlap to make the outcomes comparable in their analysis. Meta-analysis of 79 studies found an effect size of .22 for the relationship between outcome and alliance, which is consistent with previous reviews. Furthermore, this relationship did not appear to be affected by moderator variables such as type of outcome measure, type of outcome or alliance rater (therapist, client or observer), time of alliance assessment, type of therapy or publication status. This suggests that the relationship between alliance and outcome cannot be reduced by a moderator variable in order to explain this correlation. This finding that alliance is directly associated with outcome supports the hypothesis that alliance itself is therapeutic, and, regardless of the type of therapy, clients will experience the

relationship with their therapist as therapeutic provided a proper alliance is established (Henry, Strupp, Schacht, & Gaston, 1994).

Despite evidence suggesting that therapeutic orientation is not a relevant factor in the development or maintenance of therapeutic alliance, several studies have considered this relationship specifically within CBT. Therapeutic alliance in CBT may be influenced by unique factors due to the focus on current problems adopted by the CBT model. CBT frequently requires rationality, behavioural activation, problem solving and a review of self-help homework, which may conflict with other strategies the client has been employing rather than taking action (e.g. avoidance, reassurance seeking, blaming, ruminating, and interpreting). Factors which may affect the therapeutic relationship in CBT can develop as early as the formulation of a treatment model (Beck, 2005), as different therapists may emphasise different dimensions in their case formulations, such as focussing on the present or functions and processes (Flitcroft, James, Freeston, & Wood-Mitchell, 2007).

Validation may also be an important aspect of the therapeutic alliance in CBT. Research found perceived therapist empathy and validation of clients' feelings to be a predictor of outcome (Leahy, 2008). One study even found that comprehensive validation led to no drop-outs in treatment and a significantly improved outcome (Linehan et al., 2002). As with many therapeutic tools, however, individual differences need to be considered. Gottman et al. (1996) suggested that everyone has a unique emotional philosophy about painful emotions, such as being dismissive, contemptuous or nurturing. Therapists and clients may vary in their emotional schemas for interpreting and responding to emotions (Leahy, 2007). Incompatible emotional philosophies may cause the client to feel invalidated and may adversely affect the therapeutic alliance, or even cause the client to terminate treatment (Leahy, 2007). Client factors believed to affect therapeutic alliance in CBT include motivation, psychological status, quality of social and family relations, and indices of stressful life events (Roth & Fonagy, 2005).

2.4.2 Therapist qualities affecting the therapeutic relationship

Researchers have attempted to establish specific factors that may be more important than others in facilitating a strong therapeutic relationship. In a review of psychotherapy research, Fonagy and Target (1996) reported that the therapeutic techniques of the models they reviewed were only one factor involved in being an effective therapist, and there may be several other components to a successful therapeutic relationship. They suggested that these may include factors such as the ability to adhere to manuals, accuracy of interpretations, training and experience.

Three conceptual dimensions have been suggested to encompass therapist contributions to the effectiveness of treatment. These are: technique, skill, and personal qualities (Schaffer, 1982). As previously detailed, research evidence have suggested that the therapeutic relationship is not affected by therapeutic orientation. Most therapists would support the notion that personal qualities impact on the therapeutic relationship, although methodological problems with existing research make it difficult to delineate therapist effect from the effect of therapies (Carroll & Nuro, 2002). An example of such a methodological problem is that clinical trials are generally designed to measure the effect of a therapy rather than therapist, and manuals are often used to minimise variability due to individual therapists. Furthermore, exploratory analyses to investigate therapist effect are generally conducted post hoc, and randomisation is usually to therapy rather than therapist, leading to complex interactions between therapist and client characteristics (Elkin et al., 1999).

Despite the aforementioned limitations in existing literature, several studies have aimed to identify factors affecting the therapeutic relationship. Luborsky et al. (1986) used data from four major studies of psychotherapy to calculate the variance accounted for by individual therapists. They found that this was often larger than the variance attributed to between treatment differences, despite all the therapists being equally qualified and experienced. Significant differences in therapist efficacy were found across different outcome measures

and while some therapists seem to achieve consistently better outcomes than others, even those who performed poorly had some clients with positive outcomes. Upon further examination it was revealed that therapists produced better outcomes in specific domains. For example, some therapists may achieve better outcomes on target symptoms while others achieved better interpersonal functioning.

Other studies have focussed on identifying the impact of specific therapist characteristics on outcome. A review by Beutler et al. (2004) compared several studies investigating the role of therapist characteristics on outcome. The majority of studies included in this review found very little impact of therapist age, ethnicity or gender on outcome. Similarly, these studies found no effect on outcome when clients and therapists were matched on these demographic variables. This review was inconclusive regarding the effect of therapist personality variables on outcomes as the majority of studies conducted atheoretical post-hoc analyses and the remainder of studies were inconclusive.

Other researchers have, however, found therapist characteristics to influence outcome. For example, Ackerman and Hilsenroth (2001; 2003) identified a number of therapist characteristics, consistent across psychological orientations, which have been associated with stronger therapeutic alliance and outcome. These include: empathy, warmth, understanding, perceived trustworthiness, experience, confidence, and perceived investment in the therapeutic relationship. Perhaps unsurprisingly, Ackerman and Hilsenroth found that therapists who were uncertain, perceived to be rigid, critical and uninvolved were more likely to have worse alliance.

Research looking at factors affecting therapeutic alliance has also demonstrated several pre-therapy factors which do not impact on the relationship. Firstly, gender combinations in therapist and client do not appear to impact on the therapeutic alliance. Secondly, therapeutic alliance is independent from early therapy gains and the two factors do not impact on

each other. Finally, researchers are now aware of the “halo” effect that can occur if a participant is asked to rate both therapeutic relationship and therapy outcome, highlighting the importance of using independent assessments of therapy outcome.

Other attempts to identify factors underlying better therapeutic alliance have focussed on active listening, regulating, differentiating and attending (Van Der Molen, Hommes, Smit, & Lang, 1995; Gillespie, Florin, & Gillam, 2004) as therapist training has been criticised for neglecting these skills in favour of teaching techniques and processes (Leahy, 2008). Research evaluating these factors affecting the therapeutic relationship is at an early stage, and the majority of results are inconclusive. For example, training appears to be directly related to a therapist's ability to develop a strong therapeutic alliance. However, less trained therapists are more likely to misjudge the relationship early on and not identify emerging problems, and this may actually enable the relationship to develop in the long run (Horvath, 2000).

The benefits of therapist training and experience on outcome and alliance may appear obvious, but research evidence for this is surprisingly unclear. A meta-analysis of 32 high quality studies of therapist training reported effect sizes close to zero both at post-treatment and follow up (Berman & Norton, 1985). Lyons and Woods (1991) conducted another meta-analysis of 70 studies of rational-emotive therapy. They defined therapist experience as having a degree and found that therapist training was significantly correlated to outcome. Other studies have reported modest correlations between therapist training and outcome (Abramowitz, Franklin, Schwartz, & Furr, 2003), but methodological problems with many of the studies make it difficult to draw firm conclusions regarding the research. For example, in many of the studies less experienced therapists were closely monitored and received additional supervision and some studies did not randomly allocate clients to therapists.

Hilsenroth et al. (2002) examined the effect of structured therapist training on alliance in early psychotherapy, and found that clients rated their alliance much stronger with therapists who received structured training. Clients still rated their alliance with therapists who did not have structured training as good, but alliance with therapists who had the training was rated as significantly better. Therapists who had training also rated their own alliance better than those who did not received training, and the researchers were able to show how therapists applied the skills they were taught in training. This highlights the benefits structured therapist training can have on the therapeutic alliance, rather than experience.

As demonstrated by the work outlined in this section, the vast majority of research focussing on the therapeutic relationship comes from the psychotherapy literature. This current thesis focusses on a population with a chronic illness, which may have different characteristics, needs and therapeutic dynamics. Current health psychology research focussing on the therapeutic relationship is extremely limited, making the vast literature from psychotherapy research a valuable starting point for framing the work in this thesis. It is, however, acknowledged that transferring concepts from the psychotherapy literature should be done with caution as it is not clear how a chronic illness population may differ and whether or not they share similarities during psychotherapy or have unique characteristics.

2.5 Other non-specific effects in therapy

All psychotherapies involve some benefit for certain clients, although many questions relating to the efficacy of psychotherapy remain unanswered. For example, researchers are still attempting to identify the active ingredient making psychotherapy an effective treatment for a vast variety of problems. The previous section of this chapter evaluated the role of the therapeutic relationship on therapy outcome, and established this relationship to be a critical factor in the effectiveness of most therapies. Factors that have been associated with therapeutic outcome have often been referred to as placebo or non-specific effects. This section will provide an overview of research and

theoretical developments in non-specific factors in psychotherapy and healthcare by considering key aspects such as context effects, impact of the healing ritual, and client expectancy.

Placebo is a concept commonly used in medical research and generally refers to the psychological processes that produce change in a patient independently of administered drugs or surgery. Traditional practice involves physicians administering interventions believed not to have any effect on the patient's condition, to control for the powerful impact social and psychological factors can have on treatment outcome (Sherman & Hickner, 2008). The increasing use of the double-blind randomised controlled trial design to assess treatment outcome acknowledges and addresses the impact of such factors on outcome. Nevertheless, clinical medicine still tends to attribute therapeutic change to the medications or procedures administered by physicians rather than accepting and enhancing the effects of these other processes (Miller & Kaptchuk, 2008). Such practices have often led to negative conceptualisations of the term placebo, with this devaluation of placebo effects being reflected in the language by referring to placebo arms as inert, inactive, dummy or sham.

Many researchers now prefer the term non-specific to refer to unspecified factors that produce change across therapies without being specified in the theory (Oei & Shuttlewood, 1996). Several studies have reported no difference in treatment outcome across various forms of psychotherapy (Luborsky, Singer, & Luborsky, 1975; Smith & Glass, 1977; Baskin, Tierney, Minami, & Wampold, 2003). Despite strong advocacy that behaviour therapy is more effective than other types of psychotherapy (Eysenck, 1994) consensus regarding the equivalence hypothesis (that therapeutic orientations produce similar outcomes) has remained (Oei & Shuttlewood, 1996). Some researchers have argued that all psychotherapies work solely through non-specific effects (Critelli & Neumann, 1984). Prioleau et al. (1984) conducted a meta-analysis comparing placebo conditions with psychotherapy and concluded that there was no evidence that psychotherapy produces benefits that exceed the benefits

found in the non-specific conditions. These results were, however, highly controversial and the equivalence hypothesis debate remains unresolved.

Frank et al., (1971; 1991) proposed a theoretical conceptualisation of non-specific factors in psychotherapy after observing and analysing healing rituals in non-western cultures. They noted the major changes clients experienced despite no scientific or specific methods being present to account for the change. Frank et al. (1971; 1991) proposed that all forms of psychotherapy and faith healing contain four non-specific elements which are responsible for therapeutic change. These include an emotionally charged trusting relationship with a helping person; a safe healing setting; a rational conceptual scheme or myth to provide a plausible explanation for the client's symptoms; and a ritual or procedure that both client and therapist participate in and believe will restore the client's health. It is proposed that these non-specific factors combat the demoralisation experienced by all clients seeking psychotherapy by reducing the client's sense of alienation through the therapeutic relationship; by inspiring and meeting the client's expectations of therapy; by offering the client new ways of looking at themselves and their problems; by arousing emotion and thereby proving to clients that they can cope with emotions they fear; by increasing the client's sense of self-efficacy; and by providing opportunities for the client to practice new behaviours.

2.5.1 Context effects

Contextual factors have long been believed to influence health outcomes in care settings (Di Blasi & Kleijnen, 2003). Although these contextual factors are yet to be clearly defined, care delivery environment, treatment characteristics and healthcare interactions have been suggested as specific contextual factors that can affect outcome (Di Blasi, Harkness, Ernst, Georgiou, & Kleijnen, 2001). For example, medical research has found the way in which a medicine is delivered to affect outcome. For placebo pills, patients have better outcomes when instructed to take the pill four times a day, compared to a twice daily regimen (De Craen, Kaptchuk, Tijssen, & Kleijnen, 1999). Patients perceive injections to be more effective than tablets, and capsules to be more effective

than pills (Buckalew & Coffield, 1982). Furthermore, research has shown that the colour, shape and size of pharmaceuticals affect people's perception of their efficacy and purpose, and this perception can alter treatment outcome (Kleijnen, Decraen, Vaneverdingen, & Krol, 1994).

A systematic review by de Craen et al. (1996) looked at the effect drug colour has on perception and efficacy. They found that people associated red, yellow and orange drugs with a stimulant effect, and white, blue and green drugs with a tranquilising effect. This perception appears to also affect treatment effectiveness, with patients who were given a blue pill falling asleep much quicker than patients who were given a red pill. Drug colour also appears to affect perceived strength, with black and red drugs perceived as very strong and white drugs as weak. This colour association might apply to self-help materials used to aid psychotherapy, or the colour scheme of the room where therapy is taking place, although no research has specifically focussed on the role of colour in psychotherapy. Colour is, however, known to affect mood, stress levels, and confidence (Kwallek & Lewis, 1990), so it is possible that colour may have some impact on psychotherapy settings and materials.

Drug names have also been found to affect outcome, with generically branded aspirin consistently being rated as less effective for treating headaches than well-known brands (Braithwaite & Cooper, 1981). This suggests that the brand name holds meaning to the participant, whether through the linguistics of the name itself or the participants' past experience of that brand, and that this 'meaning', a concept which will be explored later in this chapter, can have a significant clinical impact. This suggests that the name of a therapy, and a client's past experience or knowledge of that therapy may have a significant effect on outcome. Schonauer (1994) explored the linguistic aspect of drug names by asking medics to rate the effectiveness of a series of drug names, some real and some false. The study concluded that phonetic and semantic qualities can affect a drug's perceived effectiveness, although Schonauer did not investigate whether or not the medics' ratings of drug names translated to

clinical effectiveness, making it impossible to relate this potential context effect to a therapeutic setting.

Some researchers have suggested that the psychotherapy session serves as a context in which clients structure their own 'interior world' (Howard, Kopta, Krause, & Orlinsky, 1986). Therapeutic outcome can be affected by personal factors such as health beliefs, beliefs about therapy, personal opinions and the complexity of various socio-cultural effects (Vermeire, Hearnshaw, Van Royen, & Denekens, 2001). Simply being present in a therapy setting may produce therapeutic benefits (Miller & Kaptchuk, 2008). Research has also shown therapist adherence to the core principles of the specific type of therapy they practice, and the degree to which therapists used the techniques prescribed by the specific therapy to be significantly linked to therapy outcome and adherence (Luborsky, Mclellan, Woody, Obrien, & Auerbach, 1985; Elkin, Pilkonis, Docherty, & Sotsky, 1988). Finally, the majority of recent research investigating non-specific effects in psychotherapy or medicine uses a randomised controlled trial (RCT) design, a context which may influence participants' motivation and therapeutic outcome (Kleijnen et al., 1994).

2.5.2 The healing ritual

The effectiveness of ancient and non-western healers such as Hippocrates, the shaman of Africa and the Native American Indians have often been attributed to a non-specific effect resulting from their ritualistic approach to healing (Lowinger & Dobie, 1969). Such healing rituals generally take place in a unique space set aside for healing, and often include song, dance, burning incense, calling gods, casting out of evil, physical touch, and the use of unknown substances as medicine (Moerman, 1997).

Healing rituals have been said to serve important social functions. For example, healing rituals generally call upon the power of gods, which generates a source of culture and structure. This serves to affirm societal world views and ethos, shaping society and culture (Alexander, 1994).

Western health providers have been said to also incorporate rituals in their healing (Welch, 2003). Evidence of ritual is found throughout modern hospital structure and doctor-patient interaction. Firstly, hospitals are spaces society set aside for the purpose of healing, where people have new sets of expectations of how to behave and how they should be treated. The western healing ritual often involves dressing in hospital robes that identify the individual as a patient. Doctors often use instruments to assess the patient's condition and medical terminology to communicate diagnosis before prescribing a regimen designed to heal. This reiterates societal views of health and illness and how we believe we should be healed (Welch, 2003). The same principle of rituals could be applied to psychotherapy settings, although the specific rituals will differ between therapeutic orientations. For example, the CBT ritual may include reviewing homework while a mindfulness therapist only focuses on your thoughts and feelings at that moment.

Research investigating the role of rituals on healing has produced mixed results. Hunt (2002) provided an in-depth insight of how healing can be induced through the use of rituals. He reconceptualised this non-specific effect and identified key areas needed to enhance the non-specific effect. These include consulting someone believed to be an effective healer who provides inert care, which the patient experiences and believes to be effective. Schieffelin (1985) distinguished between healing rituals which include meaning, and healing rituals which focus on performance. Research has suggested that the performance element of rituals is more important than the meaning of the ritual (Bell, 1997), although a shortage of empirical research investigating the role of rituals in healthcare makes it impossible to draw any firm conclusions.

2.5.3 Expectancy effects

Research looking at the role of expectation has established that it can be a useful tool for reducing anxiety and pain (Petrovic et al., 2005). As previously discussed, non-specific effects generally correspond with a person's prior

belief about the therapy, so it can be assumed that expectation may also correspond to outcome. The effect of expectancy can be so potent that it has been conceptualised as one of the major elements of non-specific factors that contribute to psychotherapeutic efficacy (Frank, Kupfer, Wagner, Mceachran, & Cornes, 1991). Weinberger and Eig (1999) also considered expectancy as the non-specific factor contributing to therapeutic outcome that is most often ignored, overlooked or undervalued.

Thompson and Sunol (1995) developed a model of expectation. Although this model was initially developed to conceptualise expectation in relation to patient satisfaction, it is also frequently used as a framework from which to consider the phenomenon of expectancy effects. The model consists of four categories of expectation: predicted expectation, ideal expectation, normative expectation, and uniformed expectation. Predicted expectation relates to what the individual believes will happen and is the construct most frequently measured in expectancy research (O'Malley, Roddey, Gartsman, & Cook, 2004). Ideal expectation refers to what the individual would ideally like to happen, but does not necessarily think very likely. While this construct is not very well delineated, RCTs frequently measure this expectancy when asking participants what condition they hope to be randomised to in order to control for possible expectancy effects. Normative expectation refers to the individual's beliefs about what should occur. Although few studies have evaluated this construct, it is generally linked to treatment satisfaction (Bell, Kravitz, Thom, Krupat, & Azari, 2002; Eisler, Svensson, Tengstrom, & Elmstedt, 2002). The final category of expectation, unformed expectation, refers to subconscious expectations the individual might not be aware of and is least often used in expectation literature. This model has been useful in demonstrating the complex construct of expectancy, and has provided a valuable framework for researchers to work from.

The role of expectancy in psychotherapy has been said to be the least researched of all the non-specific factors (Weinberger & Eig, 1999). Several studies have, however, examined the role of expectation, with some research

evidence suggesting a client or patient's expectation of improvement predicts treatment outcome. Shea et al. (1990) found that expectation of improvement predicted the likelihood of full recovery and reduction of symptoms in participants receiving interpersonal psychotherapy and CBT for major depressive disorder. Similar effects have been found across populations and therapeutic orientations (Kirsch, Wickless, & Moffitt, 1999). For example, Safren et al. (1997) found that participants' expectation of the therapeutic relationship predicted outcome in participants receiving group CBT for social phobia.

Expectation has also been linked to physical health improvement in patients with chronic health problems. Crow et al. (1999) conducted a systematic review of literature focussing on the effect of expectation on outcome as well as expectation of self-efficacy. They concluded that outcome can be improved by increasing expected self-efficacy (rather than actual self-efficacy) before medical procedures or in the management of chronic health conditions. Furthermore, the review concluded that optimistic outcome expectancies are more likely to improve clinical outcome than sceptical expectations, particularly on subjective self-report measures. Other health research has also supported the effect expectation can have on physical outcomes. For example, Buckman and Sabbagh (1993) managed to reduce morning sickness in pregnant women who believed they were taking an anti-emetic drug when in fact they had been given an emetic. It is believed that expectation is the non-specific factor that reversed the pharmacological effects of the drug.

Expectancy research has started to investigate possible mediating pathways through which this construct operates. Goal theorists have attempted to explain how expectations can affect positive or negative outcomes. Such models suggest that people will strive to reach a goal as long as they expect that it can eventually be attained, while negative expectancies (that the goal cannot be reached) will lead to disengagement (Carver & Scheier, 1998). This may have significant implication for therapeutic adherence as initial expectations of a therapy's effectiveness may affect therapeutic engagement

and compliance. Clinical practice already aims to address this effect of expectation. In interpersonal psychotherapy, clients are generally told that the possibility of a full recovery is excellent and the mechanisms by which the therapy aims to solve the individual's problems are generally explained (Weissman & Markowitz, 2000). Similarly, CBT generally involves practices to encourage positive expectation from the outset (Meyer et al., 2002).

While research evidence indicates expectancy to be a significant non-specific factor affecting efficacy and satisfaction, studies have shown this to be limited by certain demographic and individual characteristics. These include gender and education level (Ozegovic, Carroll, & vid Cassidy, 2009), with men and people with higher education levels being more likely to have positive expectations of recovery. Older age has also been associated with positive expectations (Gepstein, Arinzon, Adunsky, & Folman, 2006). Psychological variables suggested to affect expectancy include fear and coping ability (Goossens, Vlaeyen, Hidding, Kole-Snijders, & Evers, 2005), with higher fear and lower coping ability linked to lower expectation. Higher levels of depression (Ozegovic et al., 2009) and emotional distress (Glinder, Beckjord, Kaiser, & Compas, 2007) have also been linked to lower expectation. Researchers investigating expectancy effects have used the term 'meaning effects' to describe the unconscious processes that may underlie expectation. Meaning effects are frequently investigated in psychiatric practice, although they are perhaps most prominent in cross-cultural psychiatry, which is concerned with the different meanings different cultures attribute to physical and psychological health and illness. According to Moerman (2002), research evidence for meaning effects on health is substantial. Examples include Cambodian witnesses to torture becoming functionally blinded (Drinnan & Marmor, 1991) and the 'postponement' of death until after symbolically meaningful occasions such as religious festivals (Phillips & Smith, 1990).

It is clear that expectation and meaning impacts on outcome and satisfaction. Nevertheless, several factors have been suggested to affect expectation. It is very difficult to generalise from the research evidence as many factors are

specific to the individual, the situation or their condition. Furthermore, there is currently no established measure of expectancy. This has led to a variety of expectancy measures being used in research which are said to be inconsistent in their measurement of self-reported expectation (Peck et al., 2001). This has major implications for generalising results and applying findings to clinical practice.

Non-specific effects appear to have significant implications for psychotherapy and healthcare. Evidence for the effect of context, rituals and expectancy is substantial and these factors appear to make significant contributions to outcome and satisfaction of psychotherapy and healthcare. This area of research would, however, benefit from further research.

2.6 Combining qualitative and quantitative research

Traditionally, quantitative research has dominated psychology as it has strived to demonstrate its scientific grounding. Health psychology has been particularly dominated by quantitative methods because of its links to medical science (Dures, Rumsey, Morris, & Gleeson, 2011). Quantitative research is generally associated with a realist perspective (Yardley & Bishop, 2009). Realists aim to establish objective truths and generalisable laws by assessing operationalised variables using standard measures that have established reliability. Experimental procedures are applied where possible to minimise or eliminate confounding variables, and procedures are applied consistently with representative samples. Qualitative research, on the other hand, is generally associated with constructivist perspectives, challenging the possibility of objective knowledge. This tradition contends that our understanding and interpretation of reality is shaped by our subjective, social and cultural experiences (Yardley and Bishop, 2009). Qualitative research provides rich and detailed non-numerical data on subjective meanings and experiences. Data are often collected through interviews or focus groups, and research is generally designed to minimise participant responses being constrained or influenced by the researcher.

Research methods used by qualitative and quantitative researchers have been heavily critised by supporters of the other tradition. Realists argue that qualitative research lacks generalisability and is subjective and unscientific. Constructivists argue that the human mind and behaviour cannot be reduced to quantitative investigation and that other methods of research are needed (Yardley and Bishop, 2009). They argue that qualitative methods are more appropriate as the realist focus on generalizable laws and unbiased measurement is outdated (Mitchell, 2004).

Qualitative and quantitative approaches to research have frequently been depicted as rivals, supporting incompatible paradigms and philosophical stances. It has, however, also been suggested that the differences between the two camps have been overstated and that both research methodologies are valuable and acceptable (Yardley & Bishop, 2009; Pope & Mays, 1995). Psychology and health services research are increasingly advocating the benefits that can be gained from using the insights of both methods by combining qualitative and quantitative research, allowing the strengths of one to address some of the weaknesses of the other in order to achieve broader understanding (Dures et al., 2011; e.g. Kelle, 2006; Pope & Mays, 1995; Yardley & Bishop, 2009).

Qualitative research allows participants to express their personal experiences and opinions, rather than conforming to predetermined categories imposed on them (Walker, Holloway, & Sofaer, 1999). In contrast to quantitative methods, qualitative methods do not seek to remove sources of bias and variability. While qualitative research does not achieve generalizability and precision, it tends to have high ecological validity; preserving context and detail. It has been suggested that qualitative research methods allow access to areas not reachable to quantitative research (Pope & Mays, 1995). Qualitative research can provide insight and understanding that can help formulate hypotheses, theoretical concepts and construct measures for quantitative studies (Kelle, 2006). The weaknesses of qualitative research, such as its lack of generalisability and subjectivity can also be complemented by quantitative

methods. Observations and hypotheses drawn from qualitative research can be examined and tested in large-scale quantitative studies. This would address issues of reliability, generalisability, causality and steps can be taken to reduce bias. Furthermore, qualitative methods can be used to shed light on unexpected or incomprehensible findings from quantitative research.

It has been recommended that researchers consider the strengths of different methodologies in order to select the most appropriate method for the specific research question (Yardley & Bishop, 2009; Kelle, 2006). Combining qualitative and quantitative research methods has been specifically recommended in the development and evaluation of complex interventions as the wider perspective of qualitative methods can be crucial for understanding intervention process, acceptability and outcome (Campbell & Guy, 2007).

2.6.1 Challenges with combining qualitative and quantitative methods

Despite the advantages of combining qualitative and quantitative research, issues are raised as a result of the significant differences underlying the two research traditions. The philosophical stance of pragmatism, however, offers a framework in which qualitative and quantitative research can be combined and valued for their separate contributions. The tradition of pragmatism is centred on linking practice and theory, and believes that philosophy should take the research methods and insights of modern science into account. By adopting pragmatism, researchers are not bound by one particular epistemology and can therefore use qualitative, quantitative or mixed methods approaches to enhance understanding of human experience (Dures et al., 2011).

Effective and appropriate integration of qualitative and quantitative methods can be a challenge for researchers, and combining methods without considering the aforementioned issues and debates has been criticised (Kelle, 2006). Researchers need sufficient understanding of the paradigms to avoid inadvertently violating assumptions of failing to maximise potential of each method. An example of this is where research findings are contradictory,

qualitative evidence risks being discounted as being weaker, rather than being interpreted as being on a different level and enhancing understanding (Yardley and Bishop, 2009). Mixing methods also risks qualitative evidence being used to support quantitative findings, rather than enhancing understanding and exploring a phenomenon in its own right.

When combining qualitative and quantitative research, it is important to preserve the unique aims and characteristics of each method, and to integrate their findings in a complementary way while respecting their differences. The terminology ‘composite analysis’ has been proposed to describe the approach that will be undertaken in this study (Yardley and Bishop, 2009). A composite analysis can be described as conducting separate studies, and acknowledging their unique contributions for providing insights that are greater than the sum of each part.

3. Telephone delivered CBT-based therapy for physical health outcomes in people with chronic illness: a systematic review and meta-analysis

3.1 Introduction

Remote models of delivering health care have received an increasing amount of attention over the past few years (Mozer, Franklin, & Rose, 2008), with the telephone being validated as a useful clinical tool (Brandon, Collins, Juliano, & Lazev, 2000). Telephone administered interventions have been designed to overcome barriers to disease-related care that may previously have prevented patients with chronic illness from accessing key services (Mohr et al., 2000). They are inexpensive, time-efficient, flexible, private, non-stigmatising, and can help overcome health care barriers resulting from inaccessibility due to transport or geography (Galinsky, Schopler, & Abell, 1997; Oda, Heilbron, & Taylor, 1995).

Telephone delivered cognitive behavioural therapy (CBT) is an increasingly frequent mode of delivering care (Mohr, 2008), with a growing number of empirical studies evaluating the effectiveness of this mode of delivery in various populations. Telephone delivered CBT-based therapy has been shown to significantly reduce depressive symptoms (Maheu, Pulier, Wilhelm, McMenamin, & Brown-Connolly, 2005; Mohr et al., 2008; Simon, Ludman, Tutty, Operskalski, & Von, 2004; Tutty, Ludman, & Simon, 2005), reduce mortality and improve quality of life in patients with chronic heart failure (Clark, Inglis, McAlister, Cleland, & Stewart, 2007), provide psycho-social support for patients with cancer (Mermelstein & Holland, 1991) and provide familial support for patients with HIV / AIDS (Wiener, Spencer, Davidson, & Fair, 1993). Furthermore, telephone delivered CBT-based therapy has been shown to improve social skills and mood in people with physical disabilities (Evans,

Smith, Werkhoven, Fox, & Pritzl, 1986), aid smoking cessation (Curry, Mcbride, Grothaus, Louie, & Wagner, 1995; Lichtenstein, Glasgow, Lando, OssipKlein, & Boles, 1996; Mermelstein, Hedeker, & Wong, 2003; Zhu et al., 1996), be a cost-effective method of treating people with osteoarthritis (Weinberger, Tierney, Cowper, Katz, & Booher, 1993) and improve medication adherence in people with diabetes (Kirkman et al., 1994).

Psychological factors are known to affect various physiological processes through behaviours, hormonal changes or the central nervous system, and interventions often employ telephone delivered CBT-based therapy for patients with health problems (Cohen & Herbert, 1996). The majority of research relating to telephone delivered CBT-based therapy to date has focussed on treatment for depression (Mohr et al., 2008). However, few reviews of telephone delivered CBT-based therapy have considered health outcomes.

Existing reviews of remote interventions for people with health problems have not specifically focussed on CBT-based therapy. A systematic review by Dale et al. (2008) looked at unstructured peer support telephone calls for improving health and found benefits for a variety of health conditions, including health screening, acute and chronic illnesses. Clark et al. (2007) conducted a meta-analysis of telephone monitoring (telemonitoring) or structured telephone support for patients with chronic heart failure. While this review focussed on a population with chronic illness, the structured telephone support consisted of reporting symptoms alone, and telemonitoring consisted of eliciting symptoms and reporting physiological data. Neither type of intervention therefore consisted of therapy based on cognitive and/or behavioural principles. Similarly, a review of telehealth interventions for secondary prevention of coronary heart disease by Neubeck (2009) included any intervention aimed at modifying risk factors delivered either by telephone, internet or video, but the interventions were not specifically psychological.

There is an emerging body of literature evaluating telephone delivered CBT-based therapies for people with chronic illness, but no review has yet considered this evidence systematically. Specifically, telephone delivered CBT-based trials are starting to include physical health measures as their primary outcome measure and these need to be considered separately from mental health outcomes. Recent meta-analyses of behavioural medicine have been criticised as problematic due to combining a variety of outcomes (Coyne, Thombs, & Hagedoorn, 2010). This review therefore solely focuses on physical health outcomes, and only includes therapies that are based on cognitive and/or behavioural principles for improving health in people with chronic illness.

3.2 Research design and methods

3.2.1 Design

A systematic review and meta-analysis were conducted to investigate the role of telephone delivered therapies incorporating cognitive and behavioural techniques in the rehabilitation of people with chronic illness.

3.2.2 Search strategy

Database searches were carried out in Medline (1966 to 2010), Embase (1980 to 2010) and PsychInfo (1967 to 2010) to identify randomised controlled trials (RCTs) of telephone delivered CBT-based therapy in people with chronic illness. The searches were limited to RCTs published in the English language.

The search strategy from the Cochrane Collaboration, an international organisation preparing, maintaining and promoting access to high quality systematic reviews and meta-analyses on the effects of interventions on health care was applied. Search strategies were written for each database, under the supervision of a medical librarian. Search strategies were as follows:

1. Cognitive behavioural therapy
2. Cognitive behavioral therapy

3. Psychotherapy

4. Therapy

5. Telephone

6. Telephone systems

7. #1 OR #2 OR #3 OR #4

8. #5 OR #6

9. #7 AND #8

10. Cognitive behavioural therapy AND telephone

11. Therapy AND telephone

12. #10 OR #11

13 #9 AND #12

3.2.3 Criteria for considering studies for this review

Following the identification of 65 RCTs for potential inclusion, the methods and results sections of all identified trials were reviewed separately according to the following predetermined inclusion criteria.

3.2.3.1 Design

This review targeted RCTs comparing CBT based telephone delivered therapy with any other intervention and / or routine care. This review also included RCTs comparing different levels of telephone administered CBT based therapy intensity with each other and / or routine care.

Quasi-randomised controlled trials were also included. As described by Higgins (Higgins & Green, 2009a), quasi-randomisation was defined as trials using a randomisation method that is not truly random, such as date of birth, date of admission to the trial or alternation.

3.2.3.2 Participant characteristics

All studies of participants with a chronic illness aged 18 or over who received telephone delivered therapy at home (rather than in a hospital or residential setting) were included in this review.

3.2.3.3 Intervention characteristics

RCTs evaluating telephone delivered CBT based therapy for people with a chronic illness were included. CBT based therapy was defined as any therapy employing cognitive and / or behavioural techniques, and included formulation driven therapy and specific CBT based approaches / intervention as outline by the British Association of Behavioural and Cognitive Therapies (Grazebrook & Garland, 2005). The CBT based therapy had to be structured (i.e. either formulation driven or following a set protocol) and the intervention had to be targeted at the individual, i.e. not parent, spouse or carer. All sessions must have been telephone delivered.

3.2.3.4 Primary outcome measures

This review considered general or illness specific health outcome measures for chronic illness (as defined by each author), providing the measure is a primary outcome of the trial. Measures included quality of life scales (physical subscales only), medical symptom scales and self-rated health.

3.2.4 Data extraction

The eight trials meeting inclusion criteria were collated, and the methods and results sections used to assess trial validity and extract key data, which included author, publication year, sample size (total and by treatment group and gender), type of telephone therapy, comparison conditions, number of sessions, therapist information, primary health outcome measure, attrition rates, inclusion and exclusion criteria, mean age, and chronic illness details. Key features of the included studies are listed in Table 3.

3.2.5 Risk of bias assessment

Methodological quality was assessed in terms of the risk of bias in specific features of the study. Cochrane recommendations were followed (Higgins & Green, 2009b) and quality assessment included randomisation method, allocation concealment, blinding, incomplete outcome data and selective reporting. The judgement for each entry requires answering the question of bias with 'yes' indicating low risk of bias, 'unclear' indicating either uncertainty or lack of information and 'no' indicating high risk of bias. Inter-rater agreement was obtained for all risk of bias assessments through being reviewed and discussed during regular supervision.

3.2.5.1 Adequate randomisation

An unbiased intervention should start with having a mechanism in place to ensure that similar participants are allocated across all conditions as inadequate randomisation can be a major contributing factor towards selection bias. Simple and restricted randomisation (e.g. stratified or block randomisation) was deemed adequate when the method of group allocation was transparent and unbiased (e.g. coin tossing, throwing dice, sealed envelopes, random computer allocation).

Inadequate sequence generation included systematic methods (e.g. alternation, allocation based on date of birth or date of presentation) where it is almost impossible to conceal allocation sequence among recruiters who could introduce selection bias. Where no clear method of randomisation was given, the risk of bias was judged as unclear.

3.2.5.2 Allocation sequence concealment

Adequate randomisation alone is not sufficient to prevent bias in intervention allocation. Random, unpredictable sequences will be of little use against bias if the allocation sequence is not concealed. An appropriately concealed allocation sequence makes it impossible for researchers allocating participants to treatment conditions to predict which group will come up. For a study to be judged as having adequate allocation sequence, they had to describe a

transparent method such as central randomisation (where trial staff has no influence over group allocation) or sequentially numbered, sealed, opaque envelopes.

3.2.5.3 Adequate blinding

Blinding refers to the process by which trial participants and the research team are kept unaware of participant group allocation. Lack of blinding can be a source of bias by affecting the actual outcome of trial participants through participants in different groups having different expectations or behaving differently, or the research team treating patients differently depending on which group they were in.

This review did not consider a lack of participant blinding as inadequate as participants cannot be blinded to the interventions of interest (i.e. in many included RCTs participants either received telephone delivered therapy or they did not). When a trial included more than one active treatment group, however, attention was paid to who delivered the intervention. If the same therapists delivered both treatments, it will be assumed that some bias might be present. If assessments and follow-ups were conducted by a member of the research team, it is also important for them to have been blinded to participant group allocation to avoid introducing bias.

3.2.5.4 Incomplete outcome data

Missing outcome data, either from attrition or exclusion from the analysis, leads to the possibility that the observed effect estimate is biased. Attrition may be due to several reasons (e.g. withdrawal, failure to attend treatment, failure to complete questionnaires, experimenter cease to follow-up, lost data), while exclusions are usually due to randomised participants later found to be ineligible or an 'as-treated' analysis being performed.

This review accepted several reasons for missing outcome data as being acceptable. Firstly, if a randomised participant was later found to be ineligible, it is justifiable for them to be excluded assuming this intention was specified

before the outcome data were seen and discovery of ineligibility could not have been affected by the treatment condition. Attrition rates below 20% were deemed acceptable, but an intention-to-treat analysis, where analysis is based on initial treatment intent rather than eventual treatment delivery, was required for higher attrition rates. Attrition rates were expected to be similar across treatment groups, with reasons provided. If inadequate information was provided for the way missing data has been treated, the RCT were be judged 'unclear'.

3.2.5.5 Selective reporting

Selective outcome reporting is when a selection of recorded variables is included in the publication of trials, based on their results. The particular concern is that statistically non-significant results may be withheld from publication. In order to assess selective reporting, the author compared the trial protocol (where available) with published reports to ensure all specified data were reported. Where the protocol was not available, the methods section was compared to the results reported.

3.2.5.6 Other potential sources of bias

This review also looked at several other sources of potential bias, such as recruitment bias, adequate analysis and whether data for all time periods were available. Baseline imbalances were also considered as a potential source of bias as this can be strongly related to outcome measures. Any pre-randomisation administration of treatment given to specific participants was also considered a potential source of bias, as was inappropriate delivery of treatment.

3.2.6 Meta-analytic strategy

In order to assess efficacy of telephone delivered therapy for people with chronic illness, Cohen's d was calculated as the effect size of interest (Cohen, 1969), standardised by pooled within-groups standard deviation to make the trials comparable (Hedges & Olkin, 1985). The meta-analysis was computed using Comprehensive Meta-Analysis (CMA) software using computed effect sizes and variance. A random effects model was chosen for this analysis as

there may be different effect sizes underlying different studies.Where the required information was not reported, or not able to be calculated, the first authors were contacted to request the data. Four authors were contacted to request additional data (Sandgren & Mccaul, 2007a; Mohr, Hart, & Vella, 2007b; Maisiak, Austin, & Heck, 1996; Austin, Maisiak, Macrina, & Heck, 1996), two of whom (Mohr et al., 2007a; Sandgren & Mccaul, 2007b) provided additional information needed for the trials to be included in the meta-analysis. We were unsuccessful in our attempt to contact the remaining authors, although the missing data requested was needed to complete the risk of bias assessment and therefore did not affect the trials' inclusion in the meta-analysis.

Rosenthal's Fail-Safe N (FSN) was calculated (Rosenthal, 1984), providing an estimate of the number of unpublished studies comparable in size but containing non-significant results that would be needed to invalidate the conclusion that a relationship is statistically significant. A meta-analysis has a low risk of publication bias if FSN is greater than 5K + 10. Heterogeneity analyses were conducted using the I-square statistic (Higgins, Thompson, Deeks, & Altman, 2003) to estimate the percentage of total variation across studies due to heterogeneity rather than chance. The I-square statistic directly translates into percentage heterogeneity, with categories of low, moderate, and high heterogeneity assigned to values of 25%, 50%, and 75% respectively (Huedo-Medina, Sanchez-Meca, Marin-Martinez, & Botella, 2006).

3.3 Results

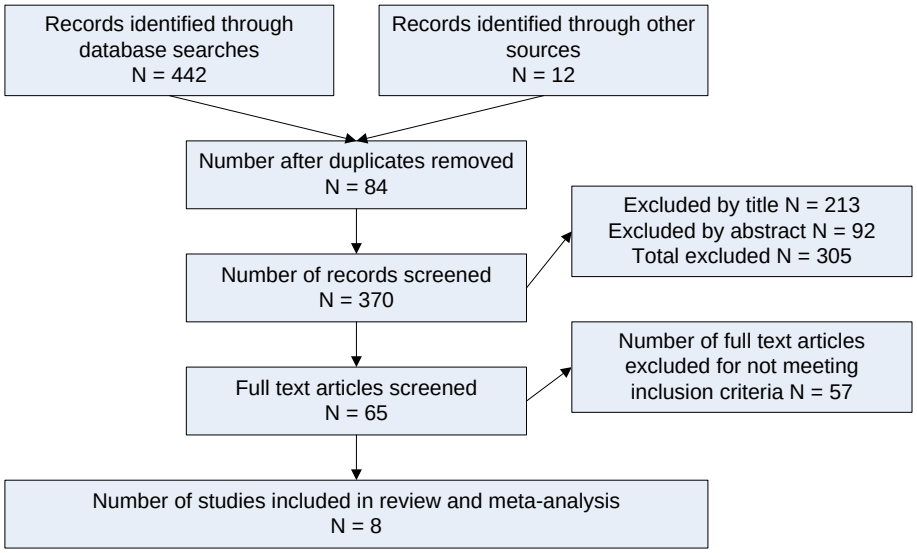
3.3.1 Overview and sample characteristics of included RCTs

The database search retrieved 442 articles; 27 from Embase, 229 from PsychInfo and 186 from Medline. 358 articles remained after the removal of duplicates. All remaining articles' relevance was evaluated through their title and abstract. 305 articles were consequently eliminated as not being relevant to this review. References of remaining papers were searched for relevance. Twelve full-text articles identified this way were obtained and screened for

inclusion. In total, 65 articles' full texts were obtained, and their relevance was assessed using the inclusion and exclusion criteria subsequently outlined. The main reasons for excluding articles from this review are not including health outcome measures (31 out of 57), not conducted the therapy over the telephone (14 out of 57), and not being a RCT (10 out of 57).

Eight RCTs delivering telephone CBT-based therapy met the inclusion criteria to be considered in this review, with a combined sample size of 1093 participants. For trial identification details, see Figure 2.

Figure 2 Stages of identifying RCTs for inclusion



Six of the eight RCTs compared the telephone intervention with routine care (Bambauer et al., 2005; Blumenthal et al., 2006; Maisiak et al., 1996; Napolitano et al., 2002; Sandgren, Mccaul, King, O'Donnell, & Foreman, 2000; Sandgren & Mccaul, 2007a). One trial employed symptom monitoring as the control condition (Austin et al., 1996), and the final trial compared telephone psychotherapy to telephone supportive emotion focussed therapy (SEFT, Mohr et al., 2007). Two trials (Maisiak et al., 1996; Sandgren and Mccaul, 2007) were

three armed. Only one treatment arm from each trial was eligible for inclusion and was compared to the control group for the purposes of this analysis.

The number of telephone therapy sessions used in the trials ranged from six to sixteen, with most trials' sessions lasting 30 minutes. Seven of the eight trials employed master or doctorate level qualified therapists to deliver the treatment, and one trial (Sandgren & McCaul, 2007) used oncology nurses to deliver the therapy.

Included RCTs involved a range of chronic illnesses, including systemic lupus erythematosus (Austin et al., 1996), heart disease (Bambauer et al., 2005), end stage respiratory disease (Blumenthal et al., 2006; Napolitano et al., 2002), rheumatoid arthritis or osteoarthritis (Maisiak et al., 1996), multiple sclerosis (Mohr et al., 2007), and breast cancer (Sandgren and McCaul, 2007; Sandgren et al., 2000). Several studies used the same outcome measures. Where different health outcome measures were used, substantial overlap was found in the constructs measured. Three of the included RCTs did not include any measure of psychological outcomes of therapy. As the focus of this review is on physical health outcomes, psychological measures were not considered where they were present.

The length of follow-up ranged from 2 to 9 months, and the mean ages of participants ranged from 45 to 61 years. Most trials included more female than male participants, with the two trials of telephone therapy for people with breast cancer only including female participants (Sandgren and Mccaul, 2007; Sandgren et al., 2000), causing the overall sample in this review to be 84% female. See Table 3 for detailed characteristics of included trials.

3.3.2 Risk of bias in included RCTs

Included studies were of varying methodological quality, with only one RCT (Mohr et al., 2007) meeting all the requirements to be considered to involve a

low risk of bias. A complete description of the extent to which methodological quality assessment was met can be found in Table 2.

Only two out of eight studies (25%) included in this review had adequate methods of randomisation and allocation concealment (Blumenthal et al., 2006; Mohr et al. 2007). The remaining six studies (75%) did not provide clear details of the methods used and were rated as unclear.

Six of the eight (75%) studies included in this review employed adequate blinding (Austin et al., 1996; Bambauer et al., 2005; Maisiak et al., 1996; Mohr et al., 2007; Napolitano et al., 2002; Sandgren et al., 2000). One study did not provide adequate details of blinding and was rated as unclear (Blumenthal et al., 2006). One trial was deemed to have a high risk of performance bias (Sandgren & McCaul, 2007). The overall sample included in this analysis was also considered to have a medium risk of attrition bias, with five out of eight trials (62.5%) adequately addressing incomplete outcome data (Bambauer et al., 2005; Blumenthal et al., 2006; Mohr et al., 2007; Napolitano et al., 2002; Sandgren et al., 2000). The remaining three trials were considered to have a high risk of attrition bias. Seven of the eight (87.5%) included trials were free of selective reporting, reporting all the outcome measures used, and were deemed to have a low risk of reporting bias (Austin et al., 1996; Bambauer et al., 2005; Blumenthal et al., 2006; Maisiak et al., 1996; Mohr et al., 2007; Napolitano et al., 2002; Sandgren et al., 2000), with the eighth trial judged as unclear. No other sources of bias were detected.

Table 2 Assessment of bias risk of included RCTs

Study	Sequence generation	Allocation concealment	Blinding	Incomplete outcome data addressed	Free of selective reporting	Overall assessment
Austin et al. 1996	Unclear	Unclear	Yes	No	Yes	Unclear
Blumenthal et al. 2006	Yes	Yes	Unclear	Yes	Yes	Unclear
Bambauer et al. 2005	Unclear	Unclear	Yes	Yes	Yes	Unclear
Maisiak et al. 1996	Unclear	Unclear	Yes	No	Yes	Unclear
Mohr et al. 2007	Yes	Yes	Yes	Yes	Yes	Yes
Napolitano et al. 2002	Unclear	Unclear	Yes	Yes	Yes	Unclear
Sandgren & McCaul. 2007	Unclear	Unclear	No	No	Unclear	Unclear
Sandgren et al. 2000	Unclear	Unclear	Yes	Yes	Yes	Unclear

Table 3 Characteristics of included studies

Author	Year	Sample Size	Telephone Treatment	Control Condition	No of Sessions	Specialist Therapists	Primary Health Outcome Measure	Other Primary Outcome Measures	Attrition Rates	Exclusions	Mean Age	Ps Gender	Chronic Illness
Austin et al.	96	58	Treatment counselling (TC)	Symptom monitoring (SM)	No data available	TC: Yes SM: No	AIMS 2	FSS	5.2%	Under 21; On kidney dialysis.	51.2	96% female	Systemic Lupus
Bambauer et al.	05	100	Telephone-counselling	Routine Care	6 x weekly	Yes	CGI-I	HADS	21%	History of substance abuse; Mental health problems; antidepressant use in 3 months prior to hospitalisation	60	67% male	Cardiac Patients
Blumenthal et al.	06	328	Coping skills training	Routine Care	12 x weekly	Yes	PQLS	GHQ; BDI	16.8%	History of substance abuse; Mental health problems	50	72% male	Patients awaiting lung transplant
Maisiak et al.	96	405	Treatment counselling (TC); Symptom monitoring (SM)	Routine care	5 x 2-weekly , 6 x monthly	Yes	AIMS2	None	6.4%	If clinician expressed doubt about the diagnosis	60.5	92.3% female	Rheumatoid arthritis or osteoarthritis
Mohr et al.	07	127	Cognitive Behavioural Therapy (CBT)	Telephone supportive emotion focussed therapy (SEFT)	16 x weekly	Yes	GNDS	BDI; FIS	5.5%	Dementia; severe psychopathology; current MS exacerbation; physical deficits that prevented participation; using medication other than anti-depressants that effect mood.	48	75.8% female	Multiple Sclerosis

Napolitano et al.	02	71	Supportive CBT-based counselling	Routine care	8 x weekly	Yes	PQLS	SF 36; GHQ	7%	None given	45.4	69% female	Patients awaiting lung transplants
Sandgren & McCaul.	07	218	Health education (HE); Emotional expression (EE)	Routine care	6 x weekly	No	FACT-G	POMS	8%	Any other serious co morbid conditions; undergoing adjuvant treatment	54.4	100% female	Breast cancer
Sangren et al	00	62	Cognitive Behavioural Therapyy (CBT)	Routine care	10 x weekly	Yes	MOS	POMS; CRI-I	14.5%	None given	51.2	100% female	Breast cancer

* *Note:* AIMS, Arthritis Impact Measurement Scale; FSS, Fatigue Symptom Scale; CHI-I, Clinical Global Impressions- Improvement; HADS, Hospital Anxiety and Depression Scale; PQLS, Pulmonary Quality of Life Scale; GHQ, General Health Questionnaire; BDI, Beck Depression Inventory; GNDS, Guy's Neurological Disability Scale; FIS, Fatigue Impact Scale; SF-36, Medical Outcomes Study Short Form; FACT-G, Functional Assessment of Cancer Therapy; POMS, Profiles of Mood States; MOS, Medical Outcome Survey; CRI, Coping Recourses Inventory.

3.3.3 Data synthesis

Meta-analysis of the eight identified data sets with a combined sample of 1093 participants revealed a statistically significant change in health status following telephone delivered CBT-based therapy. The sample-weighted pooled effect size was d = .225, 95% CI: 0.105 – 0.344, p < 0.000. These results are displayed in Table 4 and Figure 3.

Figure 3 Effect of telephone delivered CBT-based therapy on health outcomes

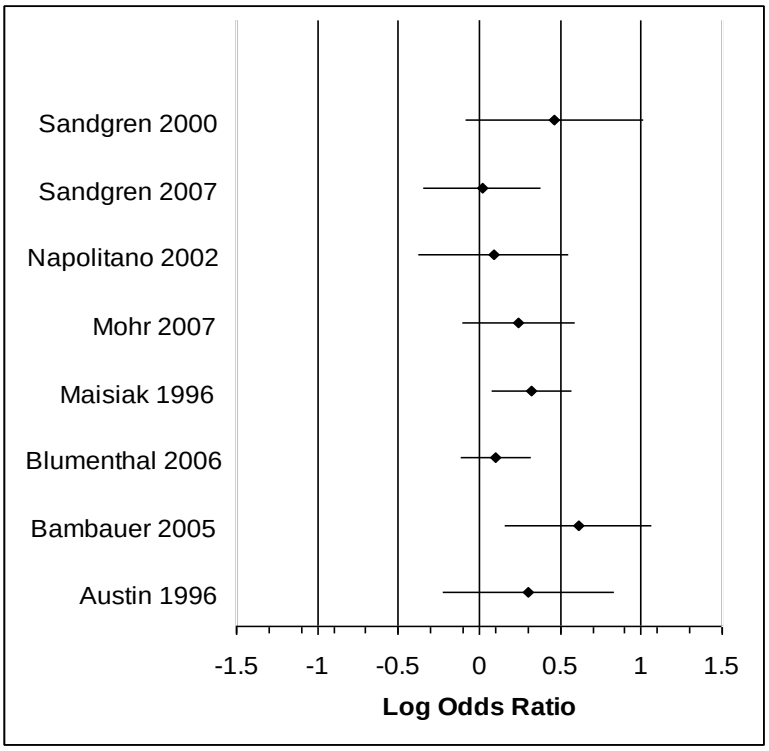


Table 4 Effect sizes for telephone-delivered therapy on health outcomes

Study	N randomised to CBT-based therapy	N randomised to control treatment	Standard mean difference (d)	95% CI	
				Lower limit	Upper limit
Austin et al. 1996	28	27	0.306	-2.255	0.838
Bambauer et al. 2005	45	34	0.613	0.157	1.068
Blumenthal et al. 2006	166	162	0.104	-0.113	0.320
Maisiak et al. 1996	128	127	0.326	0.079	0.573
Mohr et al. 2007	62	65	0.246	-0.103	0.596
Napolitano et al. 2002	36	35	0.089	-0.376	0.555
Sandgren et al. 2007	76	49	0.019	-0.340	0.378
Sandgren et al. 2000	24	29	0.464	-0.084	1.012
		Overall effect size	**0.225**	**0.105**	**0.344**
		I-squared value	**0.777**		

FSN analysis of publication bias indicated that 36 unpublished, non-significant studies of the effect of telephone delivered CBT-based therapy on physical health outcome would be needed to make the current meta-analysis non-significant. Tests of heterogeneity across trials were categorised as high (I^2 = 78%), therefore encouraging a search for moderator variables. Four of the included studies reported adjusted means (Blumenthal et al., 2006; Maisiak et al., 1996; Napolitano et al., 2002; Sandgren & McCaul, 2007), while one outcome was a change measure (Bambauer et al., 2005), and three only had raw data available (Austin et al., 1996; Mohr, 2007; Sandgren et al, 2000). Further investigation found that excluding the trials for which only raw data were available had minimal impact on the results (d = .202; 95% CI: 0.067-0.337; p = 0.003).

Sub-group analyses were conducted by re-running the meta-analysis using a sub-sample of studies that have common characteristics to see how this affects the effect size. Sub-group analysis found that trials which included fewer than a total of five hours therapist contact had a greater impact on health outcome (d = 0.265, k = 5, CI: 0.078 – 0.453) than trials in which participants had more than five hours therapist contact (d = 0.176, k = 3, CI: 0.001 – 0.350). Interventions were categorised as the CBT elements being mainly emotion or physical illness focussed (e.g. symptom management, health education, communication with health care professionals). Sub-group analysis revealed very little difference between interventions where the CBT focussed mainly on emotions (d = 0.232, k = 4, CI: 0.069-0.395), compared to interventions where the CBT principles were mainly focused on the physical illness (d= 0.222, k = 4, CI: 0.065 – 0.380). Finally, trials focusing on improving immediately life-threatening conditions yielded a non-significant effect (d = 0.117, k = 4, CI: -0.048 – 0.281) while trials focusing on less serious illnesses remained significant (d = 0.346, k = 4, CI: 0.172 – 0.520).

3.4 Discussion

The results of this meta-analytic review support the use of telephone delivered CBT-based therapy as a potentially effective tool for improving health in

people with chronic illness. While no previous reviews have evaluated this mode of delivering CBT-based therapy specifically for people with chronic illness, the current findings are consistent with previous meta analyses (e.g. Clark et al., 2007; Lichtenstein et al., 1996; Mohr et al., 2008) reporting significant benefits of telephone delivered health interventions.

The current results indicate a high degree of heterogeneity, suggesting considerable variability amongst trials in the effectiveness of telephone delivered CBT-based therapy. Telephone delivered CBT-based therapy was more effective in populations with a non-life threatening illness. Surprisingly, less therapist contact was associated with better outcomes. No other differences were observed through sub-group analyses, although these were restricted due to the small number of trials included in this review. While the results of the sub-group analyses have potentially useful clinical applications, problems due to small sample size and methodological quality of included trials highlight the need for further research in this area.

The mean attrition rate was 9.5% across all the studies. A meta-analysis of 125 studies of face-to-face psychotherapy found a mean drop-out rate of 46.9% (Wierzbicki & Pekarik, 1993). The current results therefore support suggestions that telephone delivered CBT-based therapy may be a beneficial tool for overcoming barriers to care and lowering attrition rates (Mohr et al., 2005; Mohr et al., 2008; Simon et al., 2004). The face to face delivered psychotherapy, however, mostly targeted depression and anxiety and rarely included participants with chronic illnesses, making it difficult to draw firm conclusions regarding the relative attrition rates.

Although this review did not consider psychological outcomes of telephone delivered CBT-based therapy, the therapy may also have had benefits for the patients' mood or adjustment to their illness, indirectly leading to physical health improvement. Only five of the studies included in this review measured any psychological outcomes (such as distress, depression, anxiety or

adjustment), all of which reported significant improvements suggesting that telephone delivered CBT-based therapy may have had secondary benefits that were not the focus of this current review.

A clinical concern of this review is the nature of the illnesses focussed upon in the included trials. All the chronic illnesses the interventions focused on were highly debilitating and could be terminal. Half of the trials included in this review focussed their intervention on patients faced with an immediately life-threatening condition (two trials of patients with end-stage lung disease awaiting a transplant, and two trials of patients recently diagnosed with stage I – III breast cancer). Sub-group analyses showed that telephone delivered CBT-based therapy did not significantly affect physical health in these trials, and their inclusion in this review may have obscured the potential benefits telephone CBT could have on physical health outcomes in populations with less serious conditions.

3.4.1 Limitations

Few clinical trials have evaluated telephone delivered CBT-based therapy for physical health in people with chronic illness. Hence, only a small number of trials met eligibility criteria to be included in this meta-analysis. Additionally, the results this review generated are largely based on RCTs containing very small sample sizes and may therefore lack power. The small pooled sample size limited the scope for looking at sub-groups in more detail, which is necessary to further our understanding of the specific impact of telephone CBT, as well as helping to identify more specific populations for whom it may be most beneficial.

3.4.2 Implications for future research

The current review contributes to a growing body of literature supporting the use of telephone administered CBT-based therapy for people with chronic illness. This model of delivering therapy is already an accepted method for treating depression, and could be of great benefit in treating people with

chronic illness as it removes barriers to treatment caused by disability, geography and travel.

Further research needs to be conducted to increase understanding of the mechanisms involved in telephone delivered CBT-based therapy. It is critical that future trials are adequately powered and consider key methodological criteria such as blinding, randomisation, allocation concealment and employ appropriate statistical reporting. There is a need for future trials to evaluate cost-effectiveness as well as efficacy, as the use of the telephone has been shown to be a cost effective method of health monitoring (Louis, Turner, Gretton, Baksh, & Cleland, 2003; McAlister et al., 2004), and may well be a cost effective way of delivering therapy to patients with chronic illness who are unable to travel. This area of research would benefit from clinical trials using telephone delivered CBT-based therapy for a wider range of chronic illnesses as this may shed light on illness characteristics which might benefit from telephone delivery of CBT.

4. Understanding participant experiences of taking part in a trial of booklet-based self-management of dizziness with or without telephone support

4.1 Introduction

Chronic dizziness is a common symptom, and is believed to affect up to 25% of the community (Hannaford et al., 2005). The majority of patients with dizziness are treated and managed in primary care with reassurance and medication to relieve their symptoms (Jayarajan & Rajenderkumar, 2003; Brandt, 2000). Vestibular rehabilitation (VR) is now the recommended treatment for dizziness (Hansson, 2007; Wrisley & Pavlou, 2005). The central component of VR is a programme of graded exercises consisting of eye, head and body movements designed to stimulate the vestibular system and promote neurological adaptation. (Brandt, 2000).

Psychological and social problems are more common amongst patients with chronic dizziness than many other health conditions (Yardley, 2000). One study reported that 20% of patients with dizziness attending an otolaryngology clinic met criteria for diagnosis of panic disorder, and a further 25% had symptoms of panic compared to no patients with hearing loss meeting diagnostic criteria for panic disorder and only 8% reporting panic symptoms (Clark et al., 1994). Anxiety disorders have also been shown to be more prevalent in people with dizziness than the general population (Eagger et al., 1992; Kroenke et al., 1993; Stein et al., 1994). While anxiety and panic disorder are particularly common in people suffering from chronic dizziness, other psychiatric conditions, such as depression and somatisation, have also been found to frequently accompany vestibular disorder (Yardley, 2000; Clark et al., 1994; Stein et al., 1994).

Cognitive-behavioural therapy (CBT) is a psychological treatment approach aimed at identifying and modifying problematic thoughts and behaviours. CBT techniques have been recommended in the treatment of dizziness (Andersson & Yardley, 1998). The use of CBT has a large evidence base in the treatment of psychological problems, including depression (Beck & Young, 1979; Dobson, 1989), panic disorder (Clark et al., 1994), and generalised anxiety disorder (Butler et al., 1991). CBT-based therapy has also been successfully applied to the management of several chronic illnesses, including irritable bowel syndrome (Greene & Blanchard, 1994), chronic fatigue syndrome (Price & Cooper, 1999), chronic pain (Morley et al., 1999), cancer (Greer et al., 1992), heart disease (White, 2001), and multiple sclerosis (Mohr., 2008).

Combining CBT-based therapy with VR enables health professionals to treat symptoms of anxiety, panic and depression that frequently accompany chronic dizziness, as well as target dizziness-specific avoidance behaviours, such as avoiding behaviours that involve head movements, that can affect adherence to VR exercises and impact on quality of life. A few clinical trials have combined VR and CBT techniques in the treatment of dizziness (e.g. Johansson et al., 2001; Jacob et al., 2001; Andersson et al., 2006; Yardley and Kirby, 2006), although this is a relatively new area of research.

Yardley (2004) applied a CBT-based formulation in the development of a booklet teaching VR exercises for the self-management of dizziness. The booklet was primarily designed to promote adherence to VR, but also addresses relevant cognitions, such as beliefs about the causes of dizziness, symptom controllability and appropriate treatments. Behavioural elements are also incorporated into the booklet, and include action planning, progress monitoring, goal setting, modelling, relapse prevention, and generalisation to real-life situations. A randomised controlled trial (RCT) using this booklet found it significantly reduced dizziness symptoms, depression, handicap and unhelpful beliefs in patients with probable Ménière's disease compared to routine care or symptom control (Yardley & Kirby, 2006).

4.1.1 Study context

Recent years have seen an increasing focus on the patient experience of treatments and management of chronic illness. No research to date has assessed participants' experiences of self-management of dizziness. This study evaluates participants' experience of self-management of dizziness using booklet-based VR alone, or with expert telephone support, with the aim being to identify factors that may influence the effectiveness of remote support in the self-management of chronic dizziness.

This study was nested within a VR trial of booklet-based self-management of dizziness in primary care (Yardley et al., 2012). VR trial participants were randomised to either a routine care group, booklet only group or booklet with telephone support group. The trial used an established self-treatment VR booklet (Yardley, 2004) to evaluate the cost-effectiveness of two new methods of VR delivery: booklet only and booklet with expert telephone support. The telephone support consisted of three short sessions (one 30 minute session followed by two 15 minute sessions) and was delivered by clinical scientists who received standardised training in delivering the telephone therapy. A CBT-based treatment manual was followed during the telephone sessions, and involved ensuring that the participant understood the exercise instructions, action planning, relapse prevention, monitoring progress and adherence, and discussing barriers to adherence.

4.2 Method

4.2.1 Design

Qualitative interviews were used to explore psychosocial factors influencing the effectiveness of remote support for self-management of rehabilitation in people with chronic dizziness. The interviews were administered by telephone and used open-ended questions with a semi-structured interview design.

4.2.2 Recruitment to the study

Ethics approval for this study was obtained from the Hampshire NHS research ethics committee (ethics number 02/H0504/31) and by the University of Southampton, School of Psychology Ethics Committee. The study sample was recruited from participants taking part in the VR trial for self-management of dizziness. Information about this study was included in the information sheet participants received with their invitation pack to take part in the VR trial. Consent for the current study was presented as an optional extra on the VR consent form (for consent form and information sheets, see Appendix C and D), and it was made clear that participation was voluntary and would not affect participation in the VR trial.

287 of the 337 VR trial participants consented to participate in this study if they were randomised to one of the two active treatment groups in the VR trial – booklet only or booklet and telephone support. 188 of these participants were subsequently randomised to an active treatment group, although 13 participants withdrew before the end of their 12 week treatment period. Recruitment continued until the data reached saturation, the point at which no new themes arose from the interviews. Initially, consecutive sampling of completed patients was used. Participants were sampled at two different time points – early on in the trial and towards the end of the trial when the therapists were more experienced in delivering the treatment. Theoretical sampling was used towards the end of recruitment to explore an emerging hypothesis that male participants might be less satisfied with the telephone therapy than female participants. Men who received telephone support were specifically recruited, and as a result it came to light that this theory is not supported by the evidence. In total, 33 participants were interviewed (15 participants in the booklet only condition; 18 participants in the booklet and telephone support condition).

Participants were contacted following the return of their 12-week post therapy questionnaire. The trial administrator communicated names, contact details and randomisation details (booklet only or booklet and telephone support) to the two interviewers, who telephoned the participants to schedule a convenient time to conduct the telephone interview. None of the participants who were contacted had changed their minds about taking part in this study.

4.2.3 Participants

33 people participated in this study. The sample consisted of 10 males and 23 females between the ages of 27 and 84 (M = 59.3, SD = 14.27). Fifteen participants (6 male, 9 female) were in the booklet only condition and 18 participants (4 male, 14 female) were in the booklet and telephone support condition.

Participants were from a variety of socio-economic backgrounds, and had a variety of prior diagnoses for their dizziness. Symptom severity was measured by the Vertigo Symptom Scale – Short Form (Yardley et al., 2002) as part of the VR trial. Ten participants were high symptom severity (2 booklet only; 8 booklet and telephone support) and 23 participants were low symptom severity (13 booklet only; 10 booklet and telephone support).

4.2.4 Telephone therapy

The telephone support was carried out by three qualified vestibular therapists with varying levels of experience in treating dizziness. Participants randomised to the booklet and telephone support condition were also randomly allocated to one of the three VR therapists. Participants received with their booklet an invitation to arrange a convenient time for a telephone call from their therapist. An administrator contacted the participants a few days later to give them their therapist's details and arrange the first appointment.

Participants had three telephone sessions with their therapist. The initial session lasted up to 30 minutes, and two follow-up sessions up to 15 minutes

one week and three weeks after starting the self-treatment. The telephone therapy was standardised across the three therapists who all received a half-day training workshop and session checklist that can be used as a treatment guide during the session. The workshop and checklist have both been employed in a previous clinical trial (Yardley et al., 2004).

Based on cognitive and behavioural techniques, the initial therapy sessions involved talking through the booklet, answering questions and concerns and advising patients on how to use the booklet for their own personal needs. Therapists assessed the participant's attitude towards their condition and treatment and discussed ways of implementing the intervention. Therapists mentioned relapse prevention and discussed putting strategies in place to avoid this. The follow-up sessions were specifically aimed at monitoring adherence and either discussing barriers to adherence or reinforcing the systems in place to ensure the programme is followed. Again, any questions or concerns were addressed.

4.2.5 Procedure

Interviews were conducted by the first author and another female post-graduate health psychology student. Both researchers had limited knowledge of dizziness aetiology and treatments. Interviews and qualitative analysis were conducted before the therapeutic alliance literature in Chapter 2 was reviewed so this did not impact the interviews or interpretation of the data. The semi-structured interview schedule is displayed in Figure 4.

With consent from participants, the interviews were digitally recorded. Before commencing the interview, the researcher spent a few minutes explaining that they were interested in participants' experiences of the treatment they received, and it was emphasised that there were no correct answers and that the interviewer was not involved in designing the RCT. It was hoped that this would minimise the likelihood of participants being overly positive about their

treatment and also reduce what they might consider socially desirable responses.

Figure 4 Semi structured interview schedule with italics indicating questions for participants in telephone support group only

Interview schedule: qualitative evaluation study

1. **First of all, can you start by telling me what you were expecting from the self-treatment booklet?**
2. ***What were you expecting from the telephone support?***
3. **How did you find the self-treatment booklet overall?**
4. ***How did you find the telephone support overall?***
5. **What problems (if any) did you come across using the self-treatment booklet?**
6. ***What problems (if any) did you come across having the telephone support?***
7. **Can you tell me what you liked about the self-treatment booklet?**
8. ***Can you tell me what you liked about the telephone support?***
9. **Can you tell me what concerns you have about the self-treatment booklet?**
10. ***Can you tell me what concerns you have about the telephone support?***
11. **Tell me about anything that you feel has changed from using the self-treatment booklet?**
12. ***Tell me about anything that you feel has changed from having the telephone support sessions?***
13. **Do you have anything else you would like to tell me about your experiences of the self-treatment booklet that we haven't already covered?**
14. ***Do you have anything else you would like to tell me about your experiences of the telephone support that we haven't already covered?***

Participants were reminded of their right to withdraw at any point, and assured that their data would be stored securely and anonymously. It was also explained to participants that quotations from their interview might be published, and in that case all identifying information would be removed. The semi-structured interview schedule included a number of broad, open-ended questions with follow-up prompts. Interviews started off asking participants what they expected from the VR trial and moved towards their experiences of the treatment, such as specific elements they found particularly helpful or unhelpful.

An inductive approach was taken towards the interviews, which means the interview schedule was used to guide, rather than dictate the interviews. The course of the interview was often adapted according to participants' responses in an attempt to explore topics spontaneously raised by the participant. Open ended questions were used as cues (e.g. “why do you think that happened?”; “can you tell me more about that?”) to encourage participants to elaborate on certain points. Participants were encouraged to give full accounts of their experiences and the interviewers used verbal prompts such as “I see”, “right”, “Umm” to aid this purpose.

The interviews lasted between 9 and 47 minutes (M = 18.27 minutes, SD = 8.47). There was no significant gender difference in interview duration (male M = 18.65, SD = 9.35; female M = 17.58, SD = 8.39). Interviews were digitally recorded and transcribed verbatim. Following each interview, participants were thanked for their willingness to share their experiences and given the opportunity to ask any questions they might have. They were reminded of their rights as a participant and appropriate contact details were provided.

All interviews were transcribed verbatim by an independent transcriber, using transcribing conventions adapted from the guidelines by Potter and Wetherall (1987) for the purposes of this study (see Appendix E for transcribing conventions). After the interviews were complete participants were only referred to by numbers to ensure anonymity. All interview recordings, transcripts and documentation were stored securely and only available to the research team.

4.2.6 Coding

Qualitative analysis of interview transcripts was carried out by the first author using an inductive thematic analysis where dominant themes were identified through close examination of the data (see Boyatzis, 1998, or Joffe and Yardley, 2004, for more detail on this approach to qualitative analysis). This

method of analysis was chosen over other qualitative methods because it allows an inductive approach to be taken and is particularly well-suited to exploring patient experiences. This is the first study to consider participant experiences of booklet-based self-management of VR with or without telephone support, and framework analysis was deemed inappropriate as it is usually applied deductively in order to answer specific research questions. In depth methods such as discourse analysis was also considered inappropriate as this study only aimed to identify common themes in the data. I considered using grounded theory methodology, but decided that thematic analysis would be most appropriate as this study did not aim to develop novel theory.

Although some topics had been predetermined by the interview structure, new topics also spontaneously arose. Themes within these topics and how they relate to one another also emerged from the interviews. Transcribed interviews were imported into maxQDA software, a program that allows management and coding of data. Interview recordings were listened to several times, and interview transcripts were read and re-read to ensure a high level of familiarity with the data.

Initially, six interview transcripts were coded, identifying possible themes within them. Identified themes were discussed with another researcher highly experienced in qualitative analysis, after which the initial coding schedule was devised in order to clearly define each emerging theme. Boyatzis' (1998) recommendations were followed, and the coding manual included a label, definition, inclusion, exclusion and positive and negative examples of each code. Exclusive coding was used (i.e. each coded segment could only be applied to one code) and attention was paid to both manifest and latent content through considering context. For example, when participants discussed therapist support an example of manifest content might be “she was really supportive”. Latent content, on the other hand, is less obvious and generally identified through the context it’s in.

The coding manual was revised throughout the coding of the remaining transcripts, and the original codes were frequently merged or split into further codes depending on the emergent findings. The method of constant comparison was used to ensure that the themes were readily applied to the data by using the researcher's familiarity with the text and coding manual to frequently assess and reassess how codes were being applied to the raw data. As in Grounded Theory methodology (Glaser & Strauss, 1967), codes were labelled according to quotations from participants rather than using psychological terminology or the researcher's theoretical ideas.

The coding manual was discussed with another experienced researcher to reduce tunnel vision, and final amendments were made. The final coding manual was then applied to all transcripts. For coding manual, see Appendix F. The analysis process was carried out systematically, with category agreement (Smith, 1992) being obtained at each stage of analysis and inter-rater agreement obtained for the final coded data. To maintain anonymity, interview data was labelled by participant number, gender and treatment group (BO for booklet only and B+TS to indicate booklet and telephone support condition).

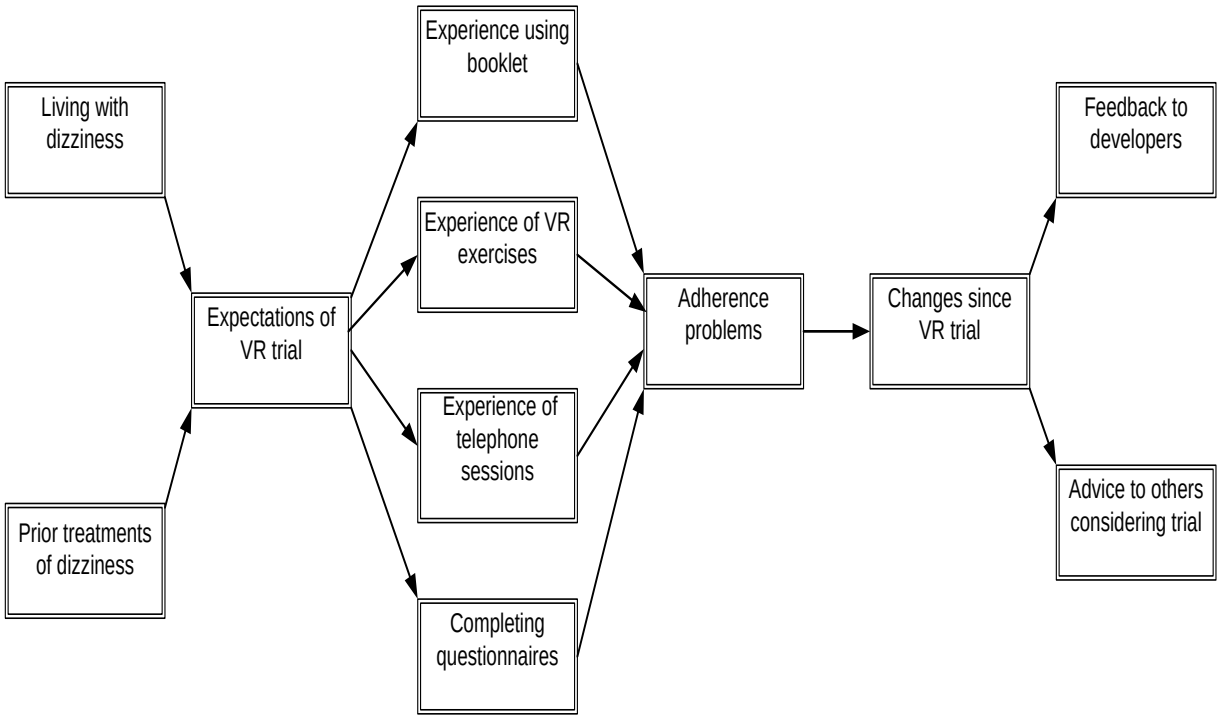
4.3 Results

Analysis of 33 interview transcripts identified 50 themes, falling within 11 higher-order categories. The theme labels and their organisations are depicted in Figure 5. Despite two populations being interviewed (booklet only and telephone support), the majority of the themes and sub-themes arose from both groups, albeit in different contexts. Specific mention will be made where themes or sub-themes arose only from a specific gender or people in one of the treatment groups.

Two themes ('feedback to developers' and 'advice to others considering trial') have been omitted from this report as they are not relevant to the current research question. All other themes are presented in the following section.

These are described in a roughly chronological order in an attempt to illustrate the psychosocial factors influencing remote support for rehabilitation of dizziness in a coherent and integrated manner. Supporting interview quotations are provided. The extracts presented here were selected either because they depicted the general essence of the theme, or because they provide a particularly insightful example of the theme.

Figure 5 Diagram of themes



4.3.1 Living with dizziness – *It's a horrible thing to live with*

Participants discussed what it is like suffering from dizziness, and how it has affected various aspects of their lives. Dizziness was described as having major and often devastating consequences on participants' lives in terms of disruption to daily tasks.

"You know, it's hard just getting out of bed in the morning. I wake up, turning over in bed can make me feel dizzy before I've even got up and then you get up and that makes you dizzy when you stand up. And then you walk into the shower and put your head back to wash your hair and you're dizzy and then you bend forward to put the towel over your head and you're dizzy. And you bend over the sink to brush your teeth and you're dizzy. And you bend over to put on your shoes and you're dizzy. And I haven't even gotten out of the bedroom at this point and I felt really dizzy and sick." (female, B+TS)

Participants also described the emotional impact suffering from dizziness has had on them. Some mentioned feeling depressed and "pulled down" by their dizziness, while others mentioned feeling anxious and frightened by attacks of dizziness.

"I can get up in the mornings and be fine and suddenly it might come on, and the minute it comes on I'm… it makes me feel miserable and depressed, you know. And I'm frightened how long it's going to last… I can't drive, I can't go to the shops, I've got to just wait and see how long. Sometimes I might have it a day; sometimes I might have it for weeks. So, yeah, it can really pull you down because you don't want to do anything, you don't want to bend over and do anything, you don't want to look up or you can't read a book, um watch telly, or do anything, knitting, computer work, you can't do anything, you've just got to sit and wait for it to sort itself out. So it really pulls you down." (female, BO)

Some participants discussed their family's attitudes towards their dizziness. The majority of these participants mentioned a lack of understanding of dizziness by the people closest to them. One participant mentioned that she feels unable to discuss her condition with her husband.

"I never ever really discuss it because although my husband is always there for me I can't say... I can't say every day I've got this problem. It would ruin our marriage." (female, B+TS)

4.3.2 Prior treatment of dizziness – *The doctors can only do so much. They're busy people*

Participants discussed prior medical treatments and consultations for dizziness. Many participants had encountered problems in gaining a diagnosis or treatment, with pharmacological treatments often described as ineffective.

"I was glad to have it because I knew that there was something out there like this [VR exercises], but like I said I went to my doctor and got no joy from him about it… I had read things and it said there was nothing they could do, you know. The tablets don't really work, when they give them to you. Just give me a headache" (female, BO)

Some participants described their belief that there are no existing treatments for dizziness, while others have been told by healthcare professionals that there are no available treatments and that they should learn to live with the condition.

"Um, well because I think when I had.. when I went to the hospital, and some checkups, this, that and the other, I'd felt a little bit, oh well that's it you know, this is what's wrong and you're going to have to live with it, sort of thing, which is not a very caring feeling." (female, B+TS)

4.3.3 Expectations of VR trial – *I was hoping it would help me feel better*

Participants discussed their expectations of the VR trial, and what they were hoping to achieve by participating. The majority of participants were reluctant

to comment on their expectations and simply implied that they had no preconceptions of what the trial would involve.

A few participants discussed expecting instructions to do the VR exercises. Participants mentioned what they expected the exercises to be like, and that they expected clear instructions so they will be able to do these exercise without any problems.

A few participants mentioned that they expected to be supported by the trial team throughout the trial. All the participants who mentioned expecting support were randomised to the booklet and telephone support group. No participants from the booklet only group mentioned an expectation of support.

"I was expecting 'you are doing well, keep going', sort of encouragement and support type thing." (female, B+TS)

Participants admitted to expecting, or at least hoping for some alleviation of their dizziness symptoms, with some mentioning specific functions they hope to improve. While more than a third of participants in the booklet and telephone support condition explicitly mentioned that they expected their symptoms to improve, only one person in the booklet only group mentioned this.

"I was hoping that it would.. from what I had read.. that it would have some sort of exercises in it that would help. If I did them, help with my dizzy problem." (female, B+TS)

A few participants from both treatment groups admitted to having no expectations of the VR booklet or telephone support, and described entering the trial with a very open mind.

"I didn't actually know what to expect from the booklet. So, whatever I got was fine. I had no expectations at all." (female, BO)

4.3.4 Experience using booklet – *It's great to discover all the things I could do to help myself*

All participants discussed their experiences of using the VR self-treatment booklet. The majority of participants described the booklet as easy to understand. The instructions were described as being clear and easy to follow, and the language as being accessible to all.

"I was very pleased with it. The booklet was very clear, very easy to understand. The instructions were very clear and…er… I could proceed through the booklet very easily." (female, B+TS)

Many participants commented on the VR self-treatment booklet as being informative and educational. Participants found the section regarding causes of dizziness and dizziness symptoms helpful in increasing understanding of their condition.

"I think it is useful to read the booklet and to actually understand that you know, it's OK to have off days, when you have like, when you are feeling run down, you may that, you know, you don't respond.. yes.. as well to the exercises. Knowing things like that is quite useful to actually you know, feel like, you have to just work through it and that you know, there is some benefit to be had from the exercises. So it is really understanding, you know, that the exercises can help but there will be other factors um.. which could affect, you

know, your response to those exercises. So I think from that perspective I found you know, the booklet very helpful." (female, B+TS)

Participants also found it helpful to have an explanation of the ways in which VR exercise work and how it can help your balance system. Some participants commented on the reassurance they felt from identifying with the descriptions of dizziness symptoms.

"I was delighted actually that er.. when I read the opening paragraphs and things, I related to them. Some of my problems, you know." (male, BO)

The information presented in the VR booklet also gave some participants a sense of relief that they are not to blame for the onset or worsening of their symptoms.

"I think it was helpful to understand that actually it wasn't anything I was doing that was causing me to have it, it was just, you know, one of those things that I just wake up and get it and I am not actually doing anything physically.. that causes it. So, you know, I learnt that about it." (female, B+TS)

Participants mentioned feeling motivated and encouraged by reading the booklet. Several participants talked about the booklet being very positive and leaving them with a feeling of optimism. While a few people from the telephone support group mentioned this, the vast majority of people who mentioned having positive experiences using the booklet were from the booklet only group.

"I felt encouraged [through reading the booklet]. I thought, I've got to take this on and er.. keep going with it." (male, BO)

A small proportion of people, the majority of whom were in the booklet only group, mentioned experiencing difficulties using the booklet. These difficulties mainly involved following the instructions to do the exercises and how to record progress.

"Um.. the sort of timed exercise scoring test. That one when you had to wait like 10 seconds and then write down how dizzy you felt on the exercise sheet. Um.. I don't.. and then the scores are a bit funny as well, um you know, there was like I, IS or 1S and OS and IST and 2S and 1S and... And a lot of S's, so um.. you know, if you are not used to doing this kind of thing it's quite complicated I think." (female, BO)

4.3.5 Experience of VR exercises – *I was surprised by how gentle they were*

Participants from both treatment groups discussed various aspects of doing the VR exercises. Participants described how they did the exercises. Descriptions mainly involved outlines of the sequence and intensity with which they did the exercises. Participants in the booklet only group were less likely to describe their progression through the exercises, and more likely to describe them in terms of problems or difficulties they faced.

"I just couldn't complete the exercises. It was hopeless, I was falling, so I had to pack those in and just went back to the ones standing up." (male, BO)

Many participants were pleasantly surprised by how gentle and easy the exercises are to carry out.

"Well, it was so easy to do. You know, there was nothing …nothing that I couldn't er.. do, or wouldn't do." (male, BO)

Several participants mentioned negative experiences they had doing the exercises. A couple of participants from the booklet only group mentioned aggravating pre-existing health conditions such as stiff necks and migraines, but the majority of these negative experiences revolved around the fact that the exercises induced dizziness symptoms. A small number of participants from the telephone support group mentioned the unpleasantness of inducing dizziness symptoms, while more than half of participants in the booklet only group mentioned it.

"Well that's it. I was giddy, you know, my head would be swimmy and drifty afterwards you know, like you are just not quite there if you know what I mean, you know you're not.. you are fuzzy." (female, BO)

Participants in the telephone support condition discussed their experiences of doing the exercises after having a telephone support session. Participants from all three VR therapists mentioned benefiting from receiving clarification on certain points regarding the exercises. Participants also felt that the exercises were more tailored to their individual needs following the telephone support session.

"Well if she had gone through something with me then it would be a little bit more um.. refined to suit my particular needs, should I say." (female, B+TS)

Following the telephone support session, some participants felt encouraged to increase the intensity of the exercises, thereby increasing their effectiveness.

"But if I didn't do them that quickly, then the telephone support lady was explaining to me that .. that if they are not making you dizzy then there is no point in doing them. So I had to do them fast enough to make myself feel dizzy and to have this effect." (female, B+TS)

4.3.6 Experience of telephone sessions – *I found it gave me an extra little impetus to keep going*

Participants in the telephone support condition discussed their experience of the telephone support sessions. A large proportion of participants, from all three therapists, mentioned their progress being monitored and receiving advice and health information during the telephone session. Health information largely related to causes of dizziness and explanations of the way in which VR exercises retrain the balance system, which the participants found helpful.

"*What she could tell me was a little bit about why people lose their balance in that respect. You know how... I think it is on the front page of the pamphlet, isn't it. It breaks down how our body works and what the three parts of your body that work together to provide you with balance, yes. And it's a bit more background information." (female, B+TS)*

Participants discussed having their progress monitored as a function of the telephone support. This was often described as resulting in the way they do the exercises being altered, either to suit their individual needs or to facilitate faster progress.

"They were brilliant. Excellent. Because as I said they weren't pushy but they were trying to find out exactly if I was doing it right and if I wanted help to... to do the exercises properly, because sometimes obviously if you are reading a book it might not be clear as to how the exercises are to be done, or what period or whatever. So the telephone therapy sort of helped me in that sense, because obviously when I was spending too much time sitting down thinking

that I shouldn't stand, I was actually pushed to stand, which was nice." (male, B+TS)

Participants mentioned the therapists providing advice. This was discussed as a supportive element of the telephone sessions as it generally provided reassurance that what the participant was feeling is normal and that they are doing the exercises correctly.

"It was useful to talk through some of the sensations that I was feeling and to be able to talk to somebody about them. You know I'm feeling this, or I'm not feeling this versus yesterday or a week ago, and so I'm doing this know. So in terms of actually stepping up the exercises and so on, it was useful to talk through how I was going about um.. stepping up things, um.. and was that the right thing to do, or was it premature, or was it not the right thing to do. So I think from that point of view it was useful just to know that what I was doing was right." (female, B+TS)

Several participants mentioned the telephone support sessions having a motivational effect on them and helping them adhere to the exercises. Participants mentioned feeling more focussed and determined to follow the exercise regime properly following the support session. Motivation to adhere to the exercises was also discussed in terms of changes in symptoms. One participant mentioned that she was having difficulty coping with inducing dizziness, and might have stopped doing the exercises had it not been for her telephone support session. Another participant, however, mentioned that his dizziness symptoms were much improved quite early on in the programme, and that he might also have been tempted not to complete the programme had it not been for his telephone support session.

"I was finding that the problems that I experienced day to day were diminishing, and I guess there might have been a tendency not to sort of finish the thing properly, if I hadn't had the phone calls." (male, B+TS)

A couple of participants commented on the fact that they felt the telephone support was unnecessary. Both these participants felt that the booklet was sufficient and the telephone support did not significantly add to the value of the treatment. The majority of participants who commented on the amount of personal contact they received through the telephone support, however, agreed that the telephone support was very helpful and they would have benefited from having more than three sessions.

"I think for me, I would have benefited from [laughs] just having telephone support for a longer period of time. I think I had telephone support for.. I can't remember I think it was umm.. once a week for three weeks, or something like that. I could have personally done with it being longer." (female, B+TS)

Overall, the majority of participants who received the telephone support were very positive about the experience. Participants mentioned looking forward to receiving the telephone calls. Reasons for this were explained either in terms of the therapist's personality traits or needing that extra support.

"I remember I looked forward to them [telephone calls] coming. And um.. I remember I would sit down at the table here and look at the phone, and it was one minute to go and bing it would go, and you know, that was it." (male, B+TS)

A few participants mentioned having difficulty fitting the telephone sessions in with their lives. In contrast to the booklet, which can be used any time, these participants found it difficult to schedule telephone appointments. Participants across all three therapists reported similar negative experiences.

"No, only scheduling them I think. Yeah. I mean it wasn't a real problem but I, you know, lead a fairly busy life so it had to be carefully scheduled, a bit like this one really." (male, B+TS)

4.3.7 Relationship with therapist - *It was like a friend phoning each time*

All participants in the telephone support condition discussed the relationship with their therapist. No therapist effects were observed, with participants from all three therapists discussing all themes. Participants described their therapists as being easy to talk to, which made them feel at ease and contributed to their enjoyment of the telephone sessions.

"I think you know, she warmed to me and I warmed to her and I think we could relate to each other quite well, communication was free and easy and you know there was no… there wasn't like I found it difficult to talk to her or say anything to her. I would tell her like I am telling you." (female, B+TS)

One participant specifically mentioned that she felt like an equal, that her therapist didn't patronise her or use overly medical terminology.

"I liked the manner of the people concerned and the fact that they didn't talk down. They weren't overly officious and medical in any way, so you didn't feel you were ..um.. talking to someone who knew a lot more then you did. But they put you at ease. It was very nice." (female, B+TS)

Many participants across all three therapists felt supported in their rehabilitation through the relationship with their therapist. Participants felt that having extra support was critical to their rehabilitation. Some participants talked about difficulties involved with following such a rehabilitation

programme on their own, and mentioned the value of receiving extra personal support.

"I personally needed an awful lot of emotional support through somebody who was sympathetic on the other end of the phone, and understands the problem and can give advice, which I got." (female, B+TS)

Having a good relationship with the therapist was discussed as a key element to feeling supported. One participant described how the extra support, encouragement and monitoring helped her adhere to the exercise programme when she considered giving up.

"I think that just the fact that there was some support when I was sort of thinking, oh you know, I don't know if I want to do this. Just having somebody ring just to say you are doing really well, just carry on and I'll speak to you again in a couple of weeks." (female, B+TS)

Female participants discussed feeling encouraged to follow the exercise programme as an important element of the relationship with their therapist. Participants mentioned that this encouragement helped them to continue doing the exercises when they otherwise might have given up, and it helped them focus on their improvement.

"I think for me the main benefit of the telephone support was really to have that source of encouragement and feeling that somebody is interested in, you know, some of challenges that you face if you do these exercises, and to be able to explain to you that this is normal, you can work through this, if you have a bad day then you know, maybe do the exercises only once rather than twice a day. You know, step down the intensity, do it for less time, and those

sort of things. And I think that's what I really felt I needed was that sort of encouragement to keep persevering really." (female, B+TS)

A few participants mentioned feeling reassured by their therapist. The main reassurances participants felt was about how they did the exercises, how they felt about their dizziness, how they felt about the VR trial. Some participants found it reassuring to simply know the session has been scheduled and there will be someone to talk to. All the participants who mentioned feeling reassured were female.

"I think it was just having someone at the end of the phone, um.. to know that somebody was going to phone me if I had a problem, and they were always right on time, when they said they were going to phone, they always phoned, and I think that was a great help to know that if I really had a difficulty I knew this interviewer was going to phone me up and I could talk it through with her if I had a difficulty. I think that was a reassurance." (female, B+TS)

Some participants discussed feeling like their therapist cares about them and their well-being. Participants mentioned their therapist being someone they could laugh with, someone who is willing to listen to them and understands their problems.

"Well, yes it was quite nice. It was almost like a friend calling each time, you know, to see how I was getting on, and she was very pleased and I was very pleased." (female, B+TS)

A couple of participants mentioned feeling more confident as a result of the relationship with their therapist. This confidence was mainly explained in terms

of doing the exercises; feeling confident that they are being done correctly, but participants also felt more confident in themselves through this relationship.

"I felt much more confident overall. Much more confident to do the exercises and.. and knowing there was somebody there for me to speak to." (female, B+TS)

4.3.8 Adherence problems – *I couldn't cope with feeling so terrible*

Participants discussed the factors affecting their adherence to the VR exercise programme. The main reason participants gave for not adhering to the programme was that the exercises induced dizziness and often worsened their symptoms to start with. The vast majority of participants who reported adherence problems due to induced symptoms were in the booklet only condition.

"And maybe.. maybe I'm just a bit of a wuss and I just gave up after 6-8 weeks. And maybe if I could keep going it would have helped me. It was just me personally it was making me feel so nauseous for the rest of the day, I couldn't. And I did try the exercises at different times of day to see if I could work out a better time to do it, and that, you know, wasn't really any good." (female, BO)

Some participants also discussed their problems adhering to the exercises in relation to how the exercises affected their lifestyle.

"I am a foster carer, so sometimes I've got one or two babies, you know, and that's the last thing I can afford is to be giddy. I mean I have had to cope with them when I have had these giddy spells, you know, but to make myself giddy is yuck, I don't want to do that, you know?" (female, BO)

A few participants explained their lack of adherence to the exercises in terms of improved symptoms. All of these participants were in the booklet only condition, and they explained that they didn't see the need to continue with the exercise programme once their symptoms improved.

A few participants discussed how other health problems influenced their ability to comply with the exercise programme. All but one of these participants were in the booklet only condition. Reported health factors included migraines, neck problems, back problems and having surgery.

"The unfortunate part, as I made in my first report back, that after a week I had to stop doing the exercises because they were having a detrimental effect on my neck, so I didn't.. after the first week, I ceased doing the exercises." (male, BO)

4.3.9 Completing questionnaires – *At least I'm not as bad as some people*

All participants completed post-treatment questionnaires as part of the VR trial. A few participants discussed the effects completing the questionnaire had on them. This was described in terms of feeling important, cared about and listened to. One participant also mentioned that reading through the questionnaire made him realise that there are people who suffer from dizziness far more severely than himself. He described how this made him feel positive and motivated to comply with the exercises as he was determined not to let his illness deteriorate and profoundly impact on his life.

"I think maybe a lot to do with it was some of the questionnaires that you sent out as well, in that it was, you know does it stop you doing this, does it curtail your sort of lifestyle. And I thought well, no, no this isn't going to stop me doing it, this isn't going to drive me not to go out of doors, do you know what I mean? I was sort if thinking, I am going to do this, I'm going to make sure that

I am OK and whenever it is... and as long as, fingers crossed I've never had a problem when I have been driving or anything really, because it isn't that bad." (male, BO)

4.3.10 Changes since VR trial – *It's amazing how much it actually affects your general life*

Participants discussed the changes they had experienced within themselves and their lives since taking part in the VR trial. These include changes to their emotional states, physical states and social lives.

Many participants mentioned that their dizziness symptoms have improved since undertaking the VR exercises. While a few of these participants were in the booklet only treatment group, the vast majority used the VR booklet with telephone support.

"Well, it's changed my life. I couldn't believe that such simple exercises could make such a difference to my balance, and the dizzy feeling, because I used to have them during the week, and I don't have them anymore. Having done the exercises, It doesn't happen. So.. you know, for me it's wonderful." (female, B+TS)

Participants described how this improvement in dizziness symptoms has affected their everyday lives. Participants described physical activities they were now able to undertake, which previously would have been either physically impossible or frightening.

"I was going down the town on my own, where I wasn't thinking 'oh should I do that'. I wasn't hesitant about... where I was always going down on the bus, going to the shop and coming back on the bus in case I feel dizzy again. Where now I think you know, I feel actually a little bit different, this might be really

sad but I feel a bit different when I am walking. I feel as if my brain is in touch with my feet a little bit more." (female, BO)

A couple of participants experienced worsening of dizziness symptoms since doing the VR exercises. Both these participants were in the booklet only treatment group.

"I had no problems with the three types of exercises, in terms of shaking, nodding, eyes closed and then staring at your finger. I did it for about three weeks, religiously, every day, twice a day. But my symptoms were getting worse, but whether that was anything to do with the exercises I don't know because I've gone downhill since then." (male, BO)

Participants who didn't notice a significant change in symptoms or failed to adhere to the exercise programme mentioned feeling more hopeful as a result of the VR trial. Many participants previously felt there were no solutions to their dizziness symptoms, and receiving the booklet outlining exercises which could help them gave them hope that their symptoms could improve.

"I feel really hopeful about it all, yes, and I needed something that was a bit more specific because the dizziness course that you provided really gave me a lot of hope, because there is not a lot out there, it seemed for people." (female, B+TS)

Some participants mentioned feeling empowered by the realisation that they could help themselves by following the exercise programme. This was mentioned in relation to the despair and helplessness participants felt before the trial as existing treatments were often ineffective.

"Well I think that now I have got the book, I've got that feeling that there is a way out of this, you know, if I persevere with the book, so I've got that bit of hope that maybe, you know, once I am free and I can just do the exercises, um, that maybe I will get rid of it for good. So I've got that hope now, whereas before that book came through the post I hadn't, you know." (female, BO)

Participants discussed feeling more confident since following the VR exercise programme. The majority of participants who mentioned an increase in confidence were from the telephone support group and were equally divided between the three therapists. Participants also mentioned feeling more confident doing physical activities, which previously they would have avoided.

Increased understanding of dizziness and its causes was discussed in relation to feeling more confident. One participant explained how her confidence has increased as she now understands that her lifestyle and behaviour does not induce attacks of dizziness.

"I think because now I have done the exercises and they are still there for me to continue if I wish when I think about it and I am not too busy. I feel that I am not going to bring on an attack whereas it's something within me which will bring an attack on, not something I do, so I feel that it has given me more confidence, and I am not afraid of having a Ménière's attack again, anymore." (female, B+TS)

Another participant explained that she feels more confident as a result of the trial because she now feels supported by other people who understand her condition.

"In terms of my own sort of confidence, I think it's helped me because I feel that I am you know, surrounded by people who actually understand what's the matter with me." (female, B+TS)

Participants discussed how the VR trial affected their emotional well-being. They mentioned feeling less stressed in their everyday lives, and this was linked to other health benefits, such as suffering fewer headaches. Participants also reported feeling less anxious about their dizziness, attributing this to an effect of increased understanding about their condition. Participants mentioned feeling less nervous of having a dizzy spell as they feel more capable of managing the symptoms. They also mentioned suffering less anxiety in their everyday lives as they now understand that it is not their behaviour that causes dizziness. All but one of the participants who reported improved emotional well-being were in the booklet with telephone support treatment group.

"I'm not so frightened by it I suppose, actually in a way. Much calmer about the whole thing." (female, B+TS)

Participants from both groups discussed how the trial helped them to realise they're not alone in suffering from dizziness. Participants talked about the reassurance and confidence they got from realising that there are many other sufferers of dizziness. A couple of younger participants described the relief they felt when they realised it is not uncommon for people their age to suffer from dizziness, despite the condition often being thought of as only affecting older people. Participants also mentioned feeling reassured and comforted in the knowledge that there are researchers and healthcare professionals looking for more effective treatment for dizziness.

"But to know that there are people out there trying to help us get rid of this gives you a boost, really gives you a boost, you know, you don't feel so alone, because there is nobody else around me that suffers with this. So you know, oh mum's got one of her giddy heads, you know? And it just makes you feel absolutely crap." (female, BO)

Participants talked about feeling more supported by the people close to them, and believe this is a result of their loved ones having and increased awareness and understanding of dizziness after reading the trial materials. It was reported that this support and understanding gave participants more confidence in undertaking activities that they normally would have avoided.

"So you know, some of my responses to things, for example things I would have avoided doing because I would have felt I'm going to fall over or something,. I am not so risk adverse to some things because I know I've got people that understand what I suffer from and are going to be able to help me and not allow me to fall, so overall I guess what I'm trying to say is that. I don't tend to avoid doing some of the things that I think I would have done, because I would have been too afraid that I might have fallen over or something. I'm not allowing the dizziness to really impact you know, my quality of life and things that, I think I have to be more careful about because um.. I suffer from dizziness." (female, B+TS)

4.4 Discussion

The majority of participants reported a positive experience of VR therapy, whether it involved using the booklet alone or accompanied by telephone support. Compared to using the booklet alone, participants who received the telephone support possessed a clearer understanding of their dizziness and how the exercises could improve their symptoms. Participants in the telephone support group liked having their progress monitored by a VR therapist, and found the therapist's comments and suggestions reassuring, encouraging and motivational. For the most part, participants in the telephone support group enjoyed their sessions and would have liked to have them

more frequently throughout their rehabilitation. Many participants felt that a genuine relationship developed between them and their therapist over the three sessions. This is consistent with previous therapeutic alliance research which suggests the therapeutic relationship is established within the first three sessions (Eaton, Abeles, & Gutfreund, 1988; Horvath & Symonds, 1991). Participants believed their therapist cared about them and their rehabilitation, which was regarded as a major element of feeling supported.

Perhaps the largest impact that telephone support had on participants' rehabilitation was in terms of adherence to the VR programme. Participants felt empowered and motivated to perform the exercises following each session, perhaps as a result of reassurance from the VR therapist. Lack of adherence in the booklet only group was most commonly explained by fear of inducing dizziness symptoms. In contrast to the booklet only group, participants who had the telephone support were given the opportunity to discuss their concerns with a VR therapist who was able to provide advice and allay fears that the exercises were damaging their balance system. Enhanced adherence to the VR programme also appears to be linked to the encouragement and support participants in the telephone support group described. Many participants described the support of their therapist and her positive attitude towards their progress as being a key element in their perseverance with the exercises. Similar experiences were reported by participants taking part in a trial using the Alexander Technique for back pain management (Yardley et al., 2010). Participants valued the expert contact, advice, support and encouragement provided by the teachers in this study, highlighting the value of expert contact in self-management of a chronic health condition.

Compared to the booklet only group, participants who had the telephone support spent more time discussing improvements in their dizziness symptoms following the VR trial. This may be due to better adherence to the exercise programme, in which the additional telephone support, reassurance and encouragement may have been a factor. Participants who received the telephone support reported feeling confident, empowered and less anxious following the VR therapy compared to participants who used the booklet only. Participants from both treatment groups, however, reported

feeling more supported by family and friends, and that their condition is better understood by those close to them following the VR therapy, suggesting that the content of the booklet may have had an impact on family members' attitudes towards dizziness. Participants needed to have their condition recognised and validated by those close to them. This is consistent with qualitative research findings of participant experiences of therapy for Chronic Fatigue Syndrome (CFS), where illness recognition and validation arose as key themes (Dennison, Stanbrook, Moss-Morris, Yardley, & Chalder, 2010). Like dizziness, CFS sufferers often struggle to get a diagnosis, highlighting the importance of illness recognition and support as part of a rehabilitation programme.

These results relate to the literature on non-specific factors reviewed in Chapter 2, which finds the therapeutic relationship to be a critical factor in the effectiveness of most therapies. Research by Frank et al. (1991) proposed four non-specific elements present in all forms of therapy which are responsible for therapeutic change. These include an emotionally charged trusting relationship with a helping person; a safe healing setting; a rational conceptual scheme to provide a plausible explanation for the client's symptoms; and a ritual or procedure that both client and therapist participate in and believe will restore the client's health. Themes from this qualitative analysis found that participants discussed these four elements, suggesting that non-specific effects may play a role in this therapy for patients with chronic dizziness.

Past research has also found that simply being in a RCT may produce non-specific effects, and may influence participants' motivation and therapeutic outcome (Kleinjen et al., 1994). While firm conclusions cannot be drawn from the current results, it is important to bear in mind that being enrolled in an RCT may have affected participants' experiences of therapy. Being enrolled in an RCT may also have affected participants' expectations of therapy, which may have influenced participants' experiences of therapy (Kirsch, Wickless, & Moffitt, 1999).

4.4.1 Strengths and limitations

Several aspects of this research give confidence that the results are an accurate and valid reflection of factors influencing the effectiveness of remote support for rehabilitation within this particular sample. Thematic analysis is a rigorous systematic approach to qualitative analysis, and the process is transparent and systematically described in this paper. The inductive approach taken allows the findings of this study to be grounded in the data rather than being drawn from previous theories. The consecutive sampling methodology, managed by an independent administrator, allowed this study to include participants receiving telephone support from therapists at different stages in the RCT, and therefore varying degrees of experience in this particular setting. Recruitment continued until the data reached saturation after which emerging themes were thoroughly explored through theoretical sampling allowing a varied sample to be included in this study.

Interviewing took place within a couple of months of participants completing the 12 week treatment programme to ensure the experience of therapy was recent and fresh in participants' minds. While this approach was preferable, a longer delay between therapy and interviewing might have yielded an insight into long-term effects and lasting changes following telephone support for people with chronic dizziness.

4.4.2 Clinical and research implications

This study may be of particular interest to healthcare professionals involved in designing, developing or delivering interventions for self-management of chronic dizziness. The suggestion that participants liked regular monitoring of their progress might be of interest in both clinical and remote delivery settings, and could be applied to future interventions. Feeling supported is also a major theme that emerged from this research. Participants needed the support of their therapist, the research team and family members to give them the best possible chance of successfully completing the VR exercise program. Future interventions might benefit from giving family members a greater role in the patient's rehabilitation, or by providing health information specifically aimed at those close to the patient.

This research also highlights the major impact telephone support could have on adherence to a self-management programme for chronic illness. Participants felt that a genuine relationship developed between them and their therapist in three short sessions. This highlights the potential benefit minimal remote contact can have on participants' motivation and adherence in self-management programmes, particularly those where poor adherence might be an anticipated problem. The telephone based method of delivering therapy did not appear to negatively impact the popularity of the treatment, and may in fact be preferred by many patients with dizziness as previous research has found this patient group to be reluctant to travel for treatment (Yardley et al., 1980). Telephone delivered therapy is a fast-growing, cost-effective method of delivering therapy and might be particularly beneficial for use in elderly, rural or disabled patients as it helps overcome issues raised by healthcare barriers resulting from inaccessibility due to transport or geography (Galinsky et al., 1997).

5. The therapeutic relationship as a predictor of outcome in patients with chronic dizziness receiving booklet-based vestibular rehabilitation with telephone support

5.1 Introduction

The qualitative research described in Chapter 4 showed that booklet-based vestibular rehabilitation was an acceptable and positive experience for the vast majority of participants. Participants who received additional telephone support discussed having a clearer understanding of why the exercises are important and how to perform them correctly. Participants in the qualitative study who received the booklet with telephone support were also more likely to discuss improvement in their dizziness symptoms, feeling more confident and more able to perform everyday activities since the therapy, compared to those who received the booklet on its own. The qualitative results showed that the intervention was very well received by participants, although it would be useful to know if successful outcomes can be predicted, and whether or not the therapeutic relationship during telephone support affects outcome.

The purpose of this study was to investigate predictors of outcome in patients with chronic dizziness who received booklet-based VR with telephone support. The telephone support in the current study was aimed at promoting adherence and increasing patients' confidence in their ability to self-manage their dizziness. Chronic dizziness is often accompanied by high levels of depression and anxiety (Yardley, 2000), making telephone support a potentially important part of empowering patients to self-manage their condition.

The next two sections explain why outcomes and predictors were chosen for this study, and why specific measures were chosen where relevant. Specific details of measures will be given in the method section.

5.1.1 Rationale for choice of outcome variables

Outcome variables of interest in this study were dizziness symptoms, handicap and patient enablement. Dizziness symptoms and handicap are common outcomes measured in research investigating other models of delivering VR (described in Chapter 1; e.g. Andersson et al., 2004; Yardley et al., 1998; Yardley and Kirby, 2006). Dizziness symptoms and handicap also correspond with themes identified in the qualitative study in Chapter 4. The main outcomes participants hoped to achieve from the therapy were improved dizziness symptoms and less handicap due to dizziness.

Patient enablement was chosen as the third outcome of interest. The concept of patient enablement represents the extent to which a patient feels empowered and their ability to understand and cope with their health and illness after a medical consultation. As described in Chapter 2, patient enablement has been linked to health improvement and behaviour change by promoting coping and self-efficacy. Feeling enabled as a result of the therapy also arose as a theme from the qualitative study in Chapter 4. Patients who received telephone support were more likely to report having a better understanding of their condition and treatment, feeling more confident, reassured, empowered and motivated. Furthermore, control of dizziness symptoms cannot be guaranteed following VR, nor can the course of dizziness symptoms be predicted. For this reason, patient enablement was included as an outcome measure in this study, as subjective control over symptoms may be an important element of coping with dizziness.

5.1.2 Rationale for choice of predictor variables

Potential predictor variables include therapeutic alliance, demographic variables, anxiety and depression, adherence, adherence problems, therapist and session content.

As discussed in Chapter 2, previous research has shown therapeutic alliance to be a strong predictor of outcome across a range of therapeutic settings. No previous research has investigated the role of therapeutic alliance in dizziness patients receiving telephone support while self-managing their symptoms, so it would be interesting to see if alliance predicts outcome in this context. Participants were randomly allocated to one of three VR therapists who varied in experience. Therefore, to check whether therapeutic alliance was related to the therapist delivering the VR support, the therapist that participants were randomised to was also included as a potential predictor of outcome.

Therapeutic alliance was measured using the Working Alliance Inventory – Short Form (Tracey & Kokotovic, 1989). The WAI-S is a 12 item self-report measure of therapeutic alliance. It consists of three subscales: Goals, Tasks and Bond, each of which is based on Bordin's (1976) theoretical conceptualisation of therapeutic alliance. The Goals subscale measures the extent to which the participant feels that they and the therapist agree on the targeted outcome of the intervention. The Tasks subscale measures the extent of perceived agreement on the substance of therapy and tasks involved in the therapy. Finally, the Bond subscale measures the extent to which the participant feels that they and the therapist share mutual trust, acceptance and confidence.

The WAI-S is one of the most commonly used measures of therapeutic alliance. It was chosen for use in the current study because it is a self-report instrument that can easily be incorporated into an existing questionnaire pack and completed rapidly. As previously mentioned, the measure is based on Bordin's

(1979) theoretical perspective of therapeutic alliance which gave it an added advantage over other measures of alliance, such as the California Psychotherapy Alliance Scale (CALPAS, Marmar et al., 1987) and the Vanderbilt Therapeutic Alliance Scale (VTAS, Hartley and Strupp, 1983). Previous research found that the WAI scale scores share a significant amount of common variance with other measures of therapeutic alliance (Tichenor & Hill, 1989), and reliability estimates of the scale scores are robust (Hanson, Curry, & Bandalos, 2002) making it a suitable instrument for measuring therapeutic alliance in the current study.

The CALPAS measure consists of 24 items grouped into four subscales: Patient working capacity, patient commitment, patient-therapist agreement and therapist understanding. This measure is frequently used in traditional psychotherapy research, but the scale places a lot of emphasis on the therapist's role as an empathetic listener which does not comply with the structure of the telephone support treatment manual in the current study, where the therapist takes a more active role in the treatment. The VTAS measure considers participant anxiety, resistance, motivation and therapist intrusiveness, but it is only designed for use by observer ratings and not self-report so the decision was made to use the WAI-S.

Age may affect outcome as older people may have worse outcomes if they find it harder to adhere to the exercise programme due to physical limitations, or simply forgetting to carry out the exercises as was suggested in the qualitative results described in Chapter 4. No gender differences emerged from the qualitative study, but a larger sample may provide insight into whether or not there are gender differences in outcome in this model of delivering VR.

Anxiety and depression are often found in people suffering from chronic dizziness. Previous trials of home-based vestibular rehabilitation for chronic

dizziness have included measures of anxiety and depression (e.g. Anderson et al., 2005; Yardley et al., 2004; Yardley and Kirby, 2006), although this is the first research investigating the impact of anxiety and depression in this particular model of delivering VR.

The role of anxiety in the maintenance of dizziness symptoms has been well documented (Yardley & Redfern, 2001; Mendel et al., 1997). People who are more anxious about their dizziness symptoms may deliberately avoid disorientating environments or behaviours that can induce dizziness, such as head movements that stimulate the vestibular system. This can lead to a vicious cycle of self-imposed inactivity to avoid triggering dizziness symptoms, which in turn prevents the individual's balance system from adapting to these provocative movements and environments, thus prolonging dizziness (Yardley et al., 1992). VR requires the individual to perform repeated head movements that provoke dizziness in order to promote neurological adaptation. Individuals with high levels of anxiety may therefore be less likely to benefit from booklet- based VR if they have problems adhering to the exercises due to anxiety about provoked symptoms.

The role of depression in chronic dizziness is less well documented. There is some evidence that physical depression symptoms (such as fatigue and poor concentration) reported by people with chronic dizziness may result from mental overload caused by conflict between daily demands for mental activity and the extra central processing needed to compensate for dizziness symptoms and relearn orientation skills after a change in balance system function (Yardley & Higgins, 1998). Depressed thoughts and mood are, however, still a reliable indication of depression in people with chronic dizziness (Yardley, 2000). Depressed cognitions may include believing that dizziness symptoms cannot be controlled which can have a long-term negative impact on quality of life. Such beliefs may lead people with chronic dizziness to view any attempt at active coping as futile, which can induce learned helplessness (Yardley, 2000). In the context of this study, depression may inhibit participants from engaging in telephone support, forming a relationship

with their therapist or adhering to the exercise programme, which would affect outcome.

Adherence to the exercises, problems with adherence, and the number of telephone sessions received were also included as potential predictor variables. Adherence to the exercises was measured by the self-reported number of weeks participants adhered to the programme. Adherence was assumed if participants reported carrying out the exercises for the recommended period (9-12 weeks) or until asymptomatic.

Adherence problems were measured using the Problematic Experiences of Therapy Scale (PETS). This scale is specifically designed to minimise social desirability. Participants are asked to what extent they were prevented from adhering to the intervention by socially acceptable reasons: symptoms too severe or aggravated by therapy, doubts about treatment efficacy, uncertainty about how to carry out the treatment, practical problems such as lack of opportunity, time or forgetting. These subscales measure similar reasons for non-adherence to those described by participants in the qualitative study, making it a very suitable measure for providing insight into non-adherence and its potential effect on outcome. The analysis plan was to also look at the different dimensions of delivered telephone support as the specific elements of telephone support may vary in their effect on outcome.

5.1.3 Aims

The primary aim of this study was to evaluate the effect of the therapeutic relationship on outcome in patients with chronic dizziness receiving telephone support while using a self-management booklet-based programme of vestibular rehabilitation (VR). It was hypothesised that therapeutic alliance will be linked to outcome, with stronger therapeutic alliance being related to higher levels of patient enablement, less dizziness symptoms and lower levels of handicap.

This study also aimed to evaluate other quantitative predictors of outcome in this treatment group. It was hypothesised that adherence to the VR exercises will affect dizziness symptoms and handicap, with better adherence leading to improved symptoms and less handicap. Younger age was expected to be related to less dizziness symptoms and handicap. It was also hypothesised that higher levels of baseline anxiety and depression will be related to more post-treatment symptoms and handicap.

5.2 Methods

5.2.1 Design

This study is a longitudinal questionnaire study nested within a single-blind three arm parallel group randomized controlled trial of booklet based VR with or without telephone support for patients with chronic dizziness (Yardley et al., 2012).

5.2.2 Participants and procedure

Participants were recruited from 35 general practices across Southern England between October 2008 and July 2009. GP databases were searched for patients who have reported dizziness or been prescribed medication to treat symptoms of dizziness within the past two years. Exclusion criteria included dizziness due to non-vestibular causes and contraindications to performing vestibular rehabilitation exercises. GPs screened the lists identified through the database searches, and potential participants were sent invitation packs from their GP practice. Potential participants were asked to respond directly to the research team if they were interested in participating. Consented patients were sent a baseline questionnaire to complete which was screened for eligibility by the research team. Participants were excluded if they were not currently dizzy or if their dizziness was not aggravated by quick head movements as vestibular rehabilitation is designed primarily to treat movement-provoked dizziness.

VR trial participants were randomised to one of three treatment arms – routine care, booklet only, and booklet with telephone support. Only the 112 participants randomised to the booklet with telephone support arm are the focus of this study. Participants in this treatment arm were also randomised to one of three therapists.

Participants were sent a balance retraining booklet to use twice a day for 12 weeks. Therapists delivered up to three telephone support sessions over the 12 week treatment period. An administrator arranged the first telephone support session, which was usually delivered within two weeks of starting the trial. Follow-up telephone support sessions were then delivered 1 week and 3 weeks later.

Outcomes were assessed by self-report questionnaire after the 12 week treatment period. Questionnaire packs were sent to participants' home addresses with a freepost envelope to return the questionnaire to the research team. Participants who failed to return the questionnaire were sent a reminder after two weeks, followed by a reminder telephone call another two weeks later.

5.2.3 Telephone support

The telephone support was delivered by two qualified vestibular therapists with experience of treating dizziness, and a trainee vestibular therapist. The first session involved therapists guiding participants through the booklet, answering questions and concerns and advising participants how to use the booklet for their particular problems and needs. The first session lasted 30 minutes and was followed up by two 15 minute phone calls one week and three weeks after starting the booklet-based treatment. Follow-up sessions involved monitoring adherence and progress, and advising participants on overcoming any problems they may have encountered. Therapists also advised participants on how to make the exercises more challenging as their symptoms

improve. Therapists were asked to record the elements of therapy they delivered using a structured checklist. The telephone support was standardised across the three therapists using a half-day training workshop and a session checklist as a treatment manual.

5.2.4 Measures

Participants completed a self-report questionnaire at baseline and 12 week follow-up. Questionnaire packs included the following validated scales to measure the outcome measures and predictors. Demographic information was also measured at baseline.

5.2.4.1 Outcome measures

Dizziness symptoms were assessed at baseline and again at 12 weeks using the Vertigo Symptom Scale-Short Form (VSS-SF; Yardley et al, 1992). This scale comprises of 15 items measuring dizziness-related symptoms during the past month on a scale from zero (no symptoms) to four (symptoms most days) with higher scores indicating more severe symptoms. This measure showed good reliability with a Cronbach's alpha of .88.

Handicap due to dizziness symptoms was measured at baseline, and again at 12 weeks using the Dizziness Handicap Inventory (DHI; (Jacobson & Newman, 1990). This scale consists of 25 items measuring the functional, physical and emotional impact of dizziness and is measured on a three-point scale (no = 0, sometimes = 2, yes = 4) with higher scores indicating more handicap. The DHI had excellent reliability with a Cronbach's alpha of .94.

Patient enablement was measured post-treatment using the Patient Enablement Instrument (PEI; (Howie, Heaney, Maxwell, & Walker, 1998). This scale's wording is retrospective and therefore not suitable for use at baseline. The measure consists of six questions measuring the patient's ability to cope and their understanding of their condition, with higher scores indicating better enablement. This scale is holistic and patient centred, which makes it an

appropriate measure to apply to patients with chronic dizziness as dizziness can impact on all aspects of the person and all areas of their life. The PEI showed excellent internal consistency with a Cronbach's alpha of .94.

5.2.4.2 Predictor variables

The therapeutic relationship was measured using the Working Alliance Inventory – short form (WAI-S; Tracey and Kokotovic, 1989). The WAI-S is one of the most commonly used measures of working alliance. The instrument consists of three subscales: Goal, Task and Bond. Each subscale consists of four non-overlapping items and is scored on a seven-point scale ranging from zero (never) to six (always) with higher scores indicating a better working alliance. Measures of internal consistency showed acceptable and good reliability with Cronbach's alphas of .7 (Goal subscale), .84 (Task subscale), and .88 (Bond subscale).

Single items were used to record age and gender information at baseline. The therapist that participants were randomly allocated to and the total number of telephone support sessions received was also recorded to assess its impact on outcome. Anxiety and depression were assessed using the two subscales of the Hospital Anxiety and Depression Scale (HADS; (Zigmond & Snaith, 1983). The HADS measures the level of anxiety and depression experienced in relation to physical illness. It does not measure somatic symptoms of anxiety, making this a particularly well-suited measure for the current study as somatic symptoms of anxiety are similar to secondary symptoms of dizziness. Both anxiety and depression subscales consist of seven items and are scored by summing the items on a scale from zero (no symptoms) to three, with higher scores indicating more severe anxiety or depression. Both HADS subscales showed good reliability with a Cronbach's alpha of .86 for the anxiety subscale and .81 for the depression subscale.

Adherence was measured using a single item asking how many weeks the exercise programme was followed. Adherence was assumed if the programme was followed for the recommended period (9-12 weeks) or until asymptomatic. Treatment adherence problems were measured using the Problematic Experiences of Therapy Scale (PETS; Yardley and Kirby, 2006). The PETS consist of four subscales: Symptoms, Uncertainty, Doubt, and Practical problems that measure the extent to which people believe they were prevented from adhering to the therapy by socially acceptable reasons. All items are scored on a five-point scale from one (disagree strongly) to five (agree strongly) with higher scores indicating more problems adhering to the treatment. Cronbach's alpha for the Symptoms, Uncertainty, Doubt and Practical problems subscales were .9, .99, .88, and .88 respectively.

Therapists delivering the telephone support were asked to use the structured therapy manual as a checklist to indicate specific elements of therapy delivered during each session. Dimensions of delivered therapy were then grouped as 'understanding and attitudes', 'implementation' or 'relapse prevention'.

5.2.5 Statistical analysis

Analyses were conducted using SPSS version 19. All variables' range, minimum and maximum scores were checked, and 10% of data were double entered to reveal an accuracy of 99.2%. Missing data were replaced with the participants' average score for that scale or subscale where less than half the items were missing (Ware et al., 2000). All participants who returned questionnaires had answered more than half the items on any scale or subscale.

Data were assessed to ensure parametric assumptions were met before analysis commenced. Scatter plots and histograms were checked to ensure the data were normally distributed and there were no outliers. Descriptive statistics (range and frequency) were also checked.

Partial correlations controlling for baseline were carried out between each of the dependent variables (dizziness symptoms and handicap) with all possible predictor variables. Bivariate correlations were carried out between patient enablement and all possible predictor variables. These correlations were carried out in order to establish whether or not a relationship between the variables exists. The predictor variable “therapist” was recoded into two dummy variables.

Inter-correlations between variables were examined to explore the relationships between all variables. Hierarchical regressions were carried out between dependent variables and those predictor variables that were significantly correlated with the dependent variable. Where possible, the baseline measure of the dependent variable was entered into the first level of the regression model, with other baseline measures entered into the second level, and 12 week outcome measures into the third level. Collinearity diagnostics were checked to ensure that tolerance levels were above 0.2, and variance factors were below 10, indicating a low risk of multicollinearity (Field, 2005).

A significance level of $p<0.05$ was adopted when reporting results as this is the standard margin of error recognised in psychological research, meaning that the probability of error is 5%. Results significant at $p<.01$ and $p<.001$ are also highlighted in the tables for interest.

Mediation analysis was conducted to explore any potential mediating variables. Current best practice in mediation analysis is the Preacher and Hayes (2008) method of using bootstrapping to estimate the indirect effect. Bootstrapping is a nonparametric resampling procedure that involves repeatedly resampling from the data set and estimating the indirect effect in each resampled data set. An estimate of the sampling distribution of the indirect effect is built and used

to construct Confidence Intervals (CIs). Mediation analysis using bootstrapping can be achieved using either regression or structural equation modelling. The regression method was used in this study as the sample size did not allow for structural equation modelling (Frazier, Tix, & Barron, 2004).

The INDIRECT macro developed by Preacher and Hayes (2008) was used to perform the mediation analysis in SPSS. For the current analysis, post-treatment dizziness symptoms were entered as the DV. The IV was baseline anxiety. Baseline depression and PETS symptoms were investigated as potential mediators as they were the only other variables significantly correlated with post-treatment symptoms. The observed dataset was randomly resampled 5000 times as recommended by Hayes (2009). The mean of the indirect effects was used as the population parameter. When the 95% confidence interval around this parameter did not include a zero, a significant mediating relationship was indicated.

Therapist adherence to the treatment manual was checked by listening to 10% of the recorded therapy sessions and rating which areas of therapy were covered during the session using the checklist that therapists used as a treatment manual. Cohen's kappa was used to measure inter-rater agreement between therapist checklist and researcher ratings.

5.3 Results

All participants were sent a follow-up questionnaire at 12 weeks and non-responders were sent a second follow-up questionnaire four weeks later. 92 of the 112 (87.5%) participants returned completed or partially completed follow-up questionnaires. The sample consisted of 27% (n = 25) male participants. Participants had a mean age of 59.5 years, this ranged from 25 to 87 years. 47.3% (n = 44) of participants exceeded the HADS threshold for clinically significant anxiety, and 18.8% (n = 17) exceeded the threshold for clinically significant depression. 49.9% (n = 38) of participants adhered to the exercise programme.

Data checks revealed that parametric assumptions were met on all data and collinearity diagnostics revealed low risk of multi-collinearity in all regression models. Means and standard deviations of all variables measured at baseline and 12 weeks post treatment are shown in Table 5. Great variability was observed in baseline handicap scores. This may have impacted on the current findings as participants with higher levels of baseline handicap may experience different benefits from the therapy than people with lower levels of baseline handicap. It may also be that the therapy was particularly effective in reducing handicap in people who have higher levels of baseline handicap, which may mask the possibility that the therapy was less effective in lowering handicap in people who had lower levels of handicap at baseline.

The WAI subscales yielded a particularly low response rate. This may be because this scale was printed at the back of the follow-up questionnaire causing some participants to either accidentally or deliberately omit this data. The PETS subscales consist of a varying number of items, making the means and standard deviations not directly comparable in Table 5. PETS uncertainty consist of two items, while the other subscales consist of three items.

Table 5 Means and standard deviations of all variables

	Number	*Mean*	*Standard deviation*
Baseline			
Baseline vertigo symptoms (VSS)	112	13.6	9.6
Baseline handicap	112	34.3	20.2

(DHI)			
Baseline Anxiety (HADS)	112	7.2	4.3
Baseline Depression (HADS)	112	4.6	3.8
Post -treatment			
Post-treatment vertigo symptoms (VSS)	85	8.4	8.1
Post-treatment handicap (DHI)	85	26.3	21.5
Patient enablement	70	8.7	4.8
WAI task	63	19.1	4.6
WAI bond	63	20.1	4.6
WAI goal	63	19.8	4.6
Post-treatment anxiety (HADS)	85	5.8	4.3
Post-treatment depression (HADS)	85	3.9	3.6
PETS symptoms	71	4.1	2.6
PETS uncertainty	71	1.7	0.8
PETS doubts	71	3.4	2.1
PETS practical	71	6.0	3.8

The first telephone support session was delivered to 82 (73%) participants, and 66 (59%) participants received all three support sessions. There was very high

agreement between therapist checklist ratings of delivery of target intervention components and independent ratings based on recorded sessions (kappa = .82). No therapist difference was found in terms of session content, with all therapists delivering over 85% of the target intervention components. Session content was therefore excluded from this analysis as a potential predictor variable.

Inter-correlations between all baseline variables are shown in Table 6. Among baseline variables, greater anxiety was associated with younger age, being female and fewer telephone sessions. Anxiety and depression were both associated with higher levels of post treatment dizziness symptoms and handicap. Inter-correlations between all post-treatment variables are shown in Table 7.

Among post-treatment variables, post-treatment symptoms and post treatment handicap were highly associated with each other. PETS uncertainty was associated with higher post-treatment anxiety. PETS doubts was associated with all the alliance subscales, but most strongly with the WAI task subscale, indicating that adherence problems due to doubt about the therapy was linked to how much participants believed their therapist shared their treatment beliefs.

Table 6 Inter-correlations (Pearson's r) between all baseline variables

	1	2	3	4	5	6	7	8
1. Age	-							
2. Gender	-.17	-						
3. Total sessions	-.07	.07	-					
4. Therapist 1	-.17	-.04	-.12	-				
5. Therapist 2	.13	-.02	-.01	-.49***	-			
6. Baseline vertigo symptoms	-.20*	.16	-.04	.04	.05	-		
7. Baseline handicap	-10	.22*	-.05	.05	.04	.65***	-	
8. Baseline anxiety	-.29**	.23*	-.19*	.15	.07	.36***	.12***	-
9. Baseline depression	-.10	.09	-.14	.01	.17	.46***	.56***	.67***

* p<0.05, ** p<.01, *** p<.001

Table 7 Inter-correlations (Pearson's r) between all post-treatment variables

	1	2	3	4	5	6	7	8	9	10	11	12
1. Post-treatment vertigo symptoms	-											
2. Post-treatment handicap	.62***	-										
3. Post-treatment anxiety	.45***	.32**	-									
4. Post-treatment depression	.48***	.52***	.68***	-								
5. WAI task	-.20	-.33**	.05	-.08	-							

6. WAI bond	-.19	-.27*	.08	-.07	.84***	-						
7. WAI goal	-.18	-.21	-.06	-.11	.12***	.81***	-					
8. PETS symptoms	.32**	.12	.23	.07	-.29*	-.31*	-.45***	-				
9. PETS uncertainty	.08	-.01	.27*	.10	-.13	-.07	-.02	-.02	-			
10. PETS doubts	-.11	.02	.03	-.11	-.50***	-.38**	-.27*	-.27*	.31**	-		
11. PETS practical	.04	-.07	-.11	.14	-.21	-.11	-.15	.18	.26*	.55***	-	
12. Adherence	-.07	.00	.14	.03	.26*	.18	.14	-.25*	-.20	-.36**	-.19	-
13. Patient enablement	.11	.26*	.08	.01	-.51***	-.38**	-.34**	.22	.23	.26*	.22	-.09

* p<0.05, ** p<.01, *** p<.001

Bivariate and partial correlations controlling for baseline were carried out between all potential predictor variables and the outcome variables vertigo symptoms, handicap and enablement. See Table 8 for details.

As shown in Table 8, gender did not predict any of the outcomes, but being older predicted less change in handicap. Adherence to exercises, number of telephone sessions and therapist were not significantly related to any of the outcomes. Baseline anxiety and depression both predicted less change in vertigo symptoms, but not handicap or enablement.

Post-treatment anxiety was not related to any of the outcome variables, while post-treatment depression was related to less change in handicap. All three alliance subscales were related to greater change in handicap and enablement, but not vertigo symptoms. The PETS symptoms subscale was related to less change in vertigo symptoms and the PETS doubts subscale was related to lower enablement.

Table 8 Relationship between vertigo symptoms, handicap and patient enablement and all potential predictor variables

	Vertigo symptoms (*r*) controlling for baseline	Handicap (*r*) controlling for baseline	Patient enablement (*r*)
WAI task	-.20	-.40**	-.51***
WAI bond	-.22	-.38**	-.38**
WAI goal	-.22	-.34**	-.34**
Age	.11	.22**	-.03
Gender	.12	.04	-.01
Total sessions	-.14	.06	-.16
Therapist 1	.07	.12	.01
Therapist 2	.02	.13	.01
Adherence to exercises	-.16	-.15	-.09
Baseline anxiety (HADS)	.34**	-.14	-.10
Baseline Depression (HADS)	.38***	.06	-.05
[1]Outcome anxiety (HADS)	.18	.17	.11
[2]Outcome depression (HADS)	.20	.35**	.20
PETS symptoms	.25*	.07	.22
PETS uncertainty	.01	.06	.23
PETS doubts	-.10	.05	.26*
PETS practical	.01	-.03	.22

* p<0.05, ** p<.01, *** p<.001 [1] Partial correlation of anxiety at 12 weeks controlling for baseline anxiety [2] Partial correlation of depression at 12 weeks controlling for baseline depression

5.3.1 Predictors of vertigo symptoms

As shown in Table 8, baseline anxiety, baseline depression and PETS symptoms were significant predictors of change in vertigo symptoms. These variables were entered into a hierarchical regression to assess predictors of post-treatment vertigo symptoms, controlling for baseline vertigo symptoms. Post-treatment vertigo symptoms measure was the dependent variable, and baseline symptoms was entered into the first step. Baseline anxiety and baseline depression were entered into the second step, and PETS symptoms were entered into the third step.

Results of this regression analysis are shown in Table 9. 52.9% of the variance was accounted for by the final model. Baseline vertigo symptoms accounted for 29.3% of this variance, baseline anxiety and baseline depression accounted for a further 14.2%, and PETS symptoms accounted for a further 5.1% of variance. Baseline vertigo symptoms, baseline depression and PETS symptoms were significant predictors of greater post-treatment vertigo symptoms in the final model. Baseline anxiety and baseline depression had similar sized partial correlations to vertigo symptoms, but in the final regression model, baseline depression followed by PETS symptoms made the largest contribution to post-treatment symptoms. Although baseline anxiety was strongly correlated with post-treatment symptoms, its significance was lost when other variables were added to the regression model. Therefore, mediation analyses were used to explore whether or not any of the significant predictor variables acted as a mediator between baseline anxiety and post-treatment vertigo symptoms.

Data analysis did not find a significant mediation effect of PETS symptoms between baseline anxiety and post-treatment symptoms (CI: -.0098 to .2720). Baseline depression did, however, significantly mediate the relationship between baseline anxiety and post-treatment symptoms (CI: .1359 to .8503).

Table 9 Hierarchical regression of predictors of vertigo symptoms

	B	Std. error	β
Step 1			
Constant	*2.38*	*1.28*	
Baseline vertigo symptoms	.42	.08	.53***
Step 2			
Constant	*-.60*	*1.46*	
Baseline vertigo symptoms	.32	.08	.41***
Baseline anxiety	.26	.20	.15
Baseline depression	.62	.26	.29*
Step 3			
Constant	*-2.50*	*1.58*	
Baseline vertigo symptoms	.27	.08	.35**
Baseline anxiety	.14	.20	.08
Baseline depression	.77	.25	.36**
PETS symptoms	.66	.26	.24*

*p<.05, **p<.01, ***p<.001

R^2= .293 for step 1: ΔR^2 =.142 for step 2, ΔR^2 =.051 for step 3.

5.3.2 Predictors of handicap

As shown in Table 8, WAI task, WAI bond and WAI goal, age and post-treatment depression were significantly related to change in post-treatment handicap. These variables were entered into a hierarchical regression. Baseline handicap was entered into the first step of this regression, baseline depression

and age into the second step, and WAI task, WAI bond and WAI goal, and post-treatment depression were entered into the third step. Post-treatment handicap was the dependent variable in this hierarchical regression.

Results of this regression are shown in Table 10. The final model accounted for 63.8% of variance. Baseline handicap accounted for 50.6% of this variance. Age and baseline depression accounted for a further 2%, and post-treatment depression, WAI task, WAI bond and WAI goal accounted for a further 11.2% of variance. Baseline handicap and post-treatment depression were the only significant predictors of post-treatment handicap in the final model. As all three WAI subscales were significantly correlated with post-treatment handicap but were not significant predictors in the regression, mediation analysis was used to explore whether post-treatment depression mediated the relationship between therapeutic alliance (all subscales) and post-treatment handicap. The Preacher and Hayes (2008) method previously described was used and found no significant mediating effect (CI: -.3327 to .0936).

Table 10 Hierarchical regression of predictors of handicap

	B	Std. error	β
Step 1			
Constant	*-.02*	*3.65*	
Baseline handicap	.76	.10	.71***
Step 2			
Constant	*-11.33*	*8.85*	
Baseline handicap	.73	.12	.68***
Baseline depression	.53	.64	.09
Age	.18	.13	.12
Step 3			
Constant	*30.61*	*13.62*	
Baseline handicap	.69	.11	.64***
Baseline depression	-1.50	1.03	-.25
Alliance – task	-.75	.67	-.17
Alliance – bond	-.20	.78	-.05
Alliance – goal	-.32	.66	-.07
Age	-.10	.14	-.07
Post-treatment depression	2.38	.94	.41*

*p<.05, **p<.01, ***p<.001

R^2= .51 for step 1: ΔR^2 =.02 for step 2, ΔR^2 =.11 for step 3.

5.3.3 Predictors of patient enablement

WAI task, WAI bond, WAI goal and PETS doubts were found to be significantly correlated with patient enablement. Regression analysis was carried out using the significantly correlated variables with patient enablement as the dependent variable.

Results of this regression are shown in Table 11. The model accounted for 26.5% of variance, and found WAI task to be the only significant predictor of patient enablement.

Table 11 Regression of predictors of enablement

	B	Std. error	β
Model constant	*18.32*	*3.56*	
Alliance – task	-.69	.24	-.67**
Alliance – bond	.12	.26	.11
Alliance – goal	.05	.21	.05
PETS doubts	-.16	.35	-.06

*p<.05, **p<.01, ***p<.001

5.4 Discussion

The primary aim of this study was to examine whether or not the therapeutic relationship predicted outcomes in patients following a booklet-based programme of VR with telephone support. The results indicated that patient enablement was predicted by all three subscales of the WAI. Patient enablement was higher when participants believed their therapist was taking the correct approach to their rehabilitation, and participants agreed with the focus of their therapy. This corresponds with Stewart et al. (1995) core components of patient centeredness, which includes agreeing on method of

illness management, being realistic about personal limitations, exploring the disease and illness experience and understanding the person as a whole.

While elements of the therapeutic relationship predicted patient enablement and handicap, the therapeutic relationship did not affect dizziness symptoms. Inter-correlations show that adherence to the exercises was related to the extent to which participants believed their therapist had the same treatment beliefs as them. This suggests that the therapeutic relationship may directly affect adherence to the therapy, rather than post-treatment symptoms.

These results only partly support other therapeutic alliance literature where alliance is usually robustly correlated to outcome (Horvath & Symonds, 1991). This may have occurred in the current study for two possible reasons. Firstly, current therapeutic alliance research is mainly carried out in mental health populations where the interventions are usually delivered by psychotherapists or clinical psychologists. Very few studies have considered therapeutic alliance in therapy for a chronic illness, and it may be that different therapeutic dynamics are present in this population. Secondly, research has shown that the relationship between therapeutic alliance and outcome are established within the first three sessions (Horvath and Symonds, 1991). Therapeutic alliance research has also established that a successful therapeutic relationship can be established and maintained during telephone delivered therapy (Beckner, Vella, Howard, & Mohr, 2007). While both brief therapy and telephone delivered therapy may enable a therapeutic relationship, no previous research has looked at the effect that brief therapy delivered over the telephone has on therapeutic alliance.

The results of this study also identified several other predictors of outcome in patients with chronic dizziness following booklet-based self-management of dizziness symptoms with telephone support. Higher levels of post-treatment

dizziness were predicted by higher baseline depression, higher baseline anxiety and adherence problems due to severe symptoms. This suggests that people who have higher levels of anxiety or depression before they start treatment, or people who have adherence problems due to their dizziness symptoms are likely to show less improvement in their dizziness symptoms following booklet based VR with telephone support. Anxiety is the psychological variable most commonly associated with chronic dizziness (e.g. Kroenke et al., 1993; Stein et al., 1994; Yardley, 2000) making it particularly interesting that baseline depression was a stronger predictor of less change in vertigo symptoms in the final regression model.

Similarly, post-treatment depression predicted handicap while baseline and post-treatment anxiety did not. Mediation analysis suggested that baseline depression mediated the relationship between baseline anxiety and post-treatment symptoms. This is not surprising and is likely to be because anxiety and depression items are closely related and the overlapping constructs are measuring distress rather than pure anxiety or depression. The main VR trial found that, compared to routine care, booklet-based VR with telephone support showed a trend towards being more successful at relieving anxiety than depression. While this finding did not reach significance, it suggests that the therapy may be targeting anxiety symptoms more than depression.

Adherence problems were also linked to dizziness symptoms, with more problems adhering to the exercises predicting more post-treatment dizziness symptoms. It is interesting that adherence problems due to symptom severity predicted dizziness symptoms, while adherence problems due to uncertainty, doubt or practical problems did not. This finding is similar to previous research by Yardley and Kirby (2006) that found symptom severity to be the primary reason for non-adherence in patients receiving booklet based VR. Inter-correlations showed that adherence was related to problems due to symptoms, suggesting that participants who had problems following the VR exercise programme due to their dizziness symptoms had worse adherence to

the exercises. Specifically targeted support may be needed for patients who struggle to cope with aggravated dizziness symptoms caused by the therapy.

Adherence to the VR exercise programme was not related to any of the outcome measures. Adherence to the programme was assumed if people reported that they followed the programme for nine to twelve weeks or was asymptomatic. The possibility that this may have been an insensitive measure of adherence was considered. Post-hoc analyses were carried out using different criteria for adherence, such as the frequency at which participants carried out the exercises, and the pace at which they progressed through the graded exercise programme. Both of these measurements of adherence yielded the same non-significant results and supports the finding that adherence was in fact not related to change in symptoms, change in handicap or enablement.

5.4.1 Clinical implications

This research suggests that demographic variables are not important in predicting outcome in patients with chronic dizziness receiving booklet-based vestibular rehabilitation with telephone support. This supports the notion that booklet based VR can be used to treat any adults with movement provoked dizziness. Anxiety and depression do, however, appear to affect outcome. Patients may therefore benefit from being screened for depression so that at risk patients can be identified and given additional psychological support, targeted specifically at depression.

Patients may also benefit from additional support in coping with the dizziness symptoms VR exercises provoke. Reassuring patients that provoked symptoms are harmless and will improve as they progress through the therapy may enhance adherence and ultimately improve outcome. This study also suggests that the therapeutic relationship can affect patient enablement. Patients may benefit from sharing their therapist's view about what needs to be done to

treat their dizziness. Therapy manuals may need to address this at the start of treatment to enhance the therapeutic relationship and improve enablement.

Interestingly there were no therapist effects when following the treatment manual, despite the range of experience between the three therapists. This suggests that vestibular therapists of any level can be trained using a half-day workshop to deliver the therapy.

5.4.2 Strengths and limitations

Booklet-based vestibular rehabilitation with telephone support has recently been advocated as an acceptable and cost effective method of managing chronic dizziness in primary care (Yardley et al., 2012). This study is the first to look at predictors of outcome in this method of treatment delivery.

The RCT was not specifically powered to look at effects and differences within the booklet with telephone support arm of the trial. The sample size did not allow for structural equation modelling to be carried out in order to evaluate a potential model of predictors of patient outcome. The sample size per therapist was also too small to thoroughly explore any potential therapist effects in this study. Because this study was nested within a larger project, it was not possible to test or control for other potential prognostic factors, such as illness perceptions and fear avoidance beliefs. The cross-sectional nature of the therapeutic alliance, patient enablement and adherence problems measures could also be considered a limitation in this study, but the nature of these constructs makes it impossible to measure at baseline. Outcome measures were collected immediately post-treatment, making it unlikely that recall bias was a factor.

5.4.3 Recommendations for future research

Future research would benefit from recruiting larger samples to enable therapist affects and the therapeutic relationship to be explored. The current study sample included only 21 participants per therapist for the therapeutic

alliance variable, and 24 participants per therapist for the problems adhering to the therapy measure. This small sample may explain why no therapist or therapeutic alliance effects were observed. Having a larger sample would not only shed further light on the impact that telephone support has with booklet based self-management of dizziness, but it would also help clinicians understand the role of telephone support and telephone therapy in the management of chronic illness.

6. Understanding the therapeutic relationship during telephone delivered therapy for patients with chronic dizziness: a mixed methods interaction analysis

6.1 Introduction

As discussed in the qualitative study in chapter 4, patients with chronic dizziness following a programme of booklet-based vestibular rehabilitation (VR) described telephone support as reassuring, encouraging and motivational, and felt that a genuine relationship developed between them and their therapist over three sessions. This is consistent with previous therapeutic alliance research which suggests the therapeutic relationship is established within the first three sessions (Eaton et al., 1988; Horvath & Symonds, 1991). Participants in this qualitative study believed their therapist cared about them and their rehabilitation, which was regarded as a major element of feeling supported.

An analysis of predictors of patient outcome (described in Chapter 5) suggested that higher levels of therapeutic alliance after telephone support sessions were linked to better adherence to the exercises and participants feeling more enabled to manage their dizziness symptoms. Lower levels of therapeutic alliance were associated with higher levels of dizziness related handicap, and more adherence problems with following the VR programme. These results highlight the impact telephone support can have on patients' self-management of chronic dizziness and the importance of the therapeutic relationship that can develop within these telephone sessions.

Little is known about the development of therapeutic alliance during telephone therapy, and no studies have investigated therapeutic alliance in patients with

chronic dizziness receiving telephone support. We do not know which factors are important for developing a good therapeutic relationship during telephone support for patients with chronic dizziness, or what the differences are between therapy sessions that lead to high or low therapeutic alliance. This chapter reports a study that further evaluates the therapeutic relationship between audiological therapists and patients with chronic dizziness receiving telephone support while self-managing their dizziness symptoms. The specific focus of this study is to understand the development of the therapeutic relationship by looking at the interaction between therapist and patient during telephone support sessions using both quantitative and qualitative research methodology. Patient-therapist interactions were evaluated using the Roter Interaction Analysis System (RIAS; (Roter & Hall, 1991)) to evaluate the type of dialogue that took place. Qualitative thematic analysis was then used to explore the content of the telephone support sessions.

6.1.1 RIAS analysis system

The relationship between health professionals and patients has been described since ancient times, although the systematic study of medical communication is a relatively modern area of research (Roter & Larson, 2002). The number of studies evaluating doctor-patient communication has grown rapidly over the past 20 years, and in this time RIAS has emerged as the most widely used system of medical interaction assessment (Sandvik et al., 2002).

RIAS was chosen to be used in this current study because of its theoretical basis that many systems for analysing interactions lack. It is rooted in Social Exchange theory (Emerson, 1976) and Interaction Process Analysis (IPA, (Bales, 1950). Social exchange theory explains the development of human relationships through negotiations and subjective costs and benefits between individuals, while IPA is a system to record the nature of acts within a group interaction. RIAS is specifically designed for the analysis of dialogue within medical encounters. This social exchange focus is consistent with the perspectives of health education and patient empowerment literature that

views the function of dialogue during medical encounters as shaping the therapeutic relationship and reflecting the roles and responsibilities of the patient and health care provider (Roter, Hall, & Katz, 1987; Roter & Hall, 1987; Roter, 2000). This perspective of social exchange enables RIAS to measure aspects of the dialogue during telephone support sessions for patients with chronic dizziness that may shape therapeutic alliance.

The RIAS coding system consists of 43 mutually exclusive communication categories reflecting task-focused and socio-emotional elements of medical encounter dialogue (see Appendix G for details). RIAS is coded directly from audio-recordings and each communication unit is defined as the smallest distinguishable speech fragment to which a classification can be assigned. Each communication unit is called an utterance, and may vary from a single word to a lengthy sentence as long as only one thought or one item of interest is conveyed per utterance.

The health care provider's task-focused behaviours are those reflecting their technical skills acquired during their medical training. These behaviours are usually what make them an expert in their field, and the reason that they are being consulted by the patient. In terms of communication, the health care provider's task-focussed behaviours generally relate to medical history taking, physical symptoms, medical tests, physical examinations, and patient education. Socio-emotional behaviours of the health care provider include communication linked to building a social or emotional rapport such as the use of social amenities, reassurance, empathy or concern. Patient task-focused communication is mainly reflected in their information giving and question asking, while patient socio-emotional communication includes behaviours such as social chat, laughing, joking, concern, optimism or empathy.

RIAS has been used to analyse communication in a wide range of health care settings, including primary care, paediatrics, obstetrics, emergency medicine, gynaecology, oncology, palliative care, surgery, dentistry, podiatry, nursing,

genetic counselling, family planning services and veterinary medicine. Interaction analysis in an audiological setting has not been conducted, although the flexibility and ability to adapt to different health care contexts makes RIAS highly suitable for use in the current study.

RIAS has been shown to be highly reliable when applied by trained coders, with an average agreement of 85% being reported for both patient and physician categories (Roter & Larson, 2002). RIAS studies have also found high levels of predictive and concurrent validity, and studies have used RIAS to translate aspects of communication to patient satisfaction, relationship building, patient centeredness and physician dominance (Bertakis, Roter, & Putnam, 1991; Hall, Irish, Roter, Ehrlich, & Miller, 1994; Mead & Bower, 2000; Roter et al., 1987; Roter et al., 1987; Lazare, Putnam, & Lipkin, 1995). This, again, adds to the suitability of applying this method of interaction analysis to evaluate the role of communication in the therapeutic relationship between audiologists and patients with chronic dizziness.

The RIAS system has been criticised for largely producing exploratory and descriptive work in this field with little conceptual framing of results. Roter and Larson (2001) addressed this criticism by urging researchers to go beyond what has been comfortably done in the past in order to deepen enquiry and develop greater insight. They suggested bridging the gap between qualitative and quantitative research methods in order to achieve real innovation in measurement and appreciation in meaning. This current study aims to do this by combining research methods to evaluate the therapeutic relationship during telephone support sessions delivered by audiologists for patients with chronic dizziness following a programme of booklet-based VR. Quantitative and qualitative methods were used to evaluate telephone support sessions, allowing the strengths of one method to compensate for the weaknesses of the other in order to gain deeper insight. A quantitative analysis was conducted to evaluate the type of dialogue that took place, while qualitative analysis

explored the content of this dialogue. See Chapter 2 for more detail on combining quantitative and qualitative research.

6.2 Study 1: quantitative study

6.2.1 Aims

This study aimed to evaluate the therapist-patient interactions in telephone delivered therapy for patients with chronic dizziness, with specific focus on the effect of relationship building, therapist dominance and patient centeredness on the development of the therapeutic relationship.

6.2.2 Methods

6.2.2.1 Participants and procedure

80 participants were included in this study. Participants were recruited from 35 general practices to take part in the aforementioned RCT for self-management of dizziness. 112 participants were randomly allocated to the booklet plus telephone support treatment arm, of which 26 participants declined telephone therapy, 4 participants dropped out prior to the therapy sessions and a further two participants' therapy recordings were unavailable due to technical errors. Participants were sent a balance retraining booklet and asked to perform vestibular rehabilitation exercises twice a day for 12 weeks. An administrator arranged the first telephone session, which was usually delivered within two weeks of receiving the booklet. Telephone therapy sessions were recorded and outcomes were measured at 12 week follow-up.

6.2.2.2 Therapists and telephone therapy

Participants were randomly allocated to one of three therapists. All three therapists were female and all had experience of treating patients with dizziness. Two of the therapists were qualified clinical audiologists and one therapist was a trainee clinical audiologist. Therapists received half a day's training in delivering the telephone therapy. Participants received three telephone therapy sessions. The first session lasted 30 minutes, followed by two 15 minute follow-up sessions. Therapists were asked to follow a treatment

manual in the form of a checklist to indicate which areas of the manual were delivered.

The treatment manual for the first session consisted of three main sections based on CBT principles to elicit patients' perspectives and encourage them to find solutions. The first section covered patients' understanding of and attitudes towards dizziness and VR. Therapists were asked to explore participants' beliefs relating to dizziness symptoms, why dizziness occurs, appropriate treatments for dizziness, and expectations of following the VR exercise programme. This section was aimed at addressing unhelpful beliefs and managing expectations.

The second section related to implementation of the VR exercise programme where therapists discussed how to perform the exercises safely and appropriately, and helped participants choose exercises relevant to their symptoms and lifestyle. Therapists were asked to encourage action planning where participants decided on times and places where they will carry out the exercises. Therapists were also asked to encourage self-monitoring of symptoms using the chart provided in the booklet, and graded goal setting was encouraged to reinforce that improvement will be gradual. The third section of the treatment manual targeted relapse prevention, where participants were encouraged to discussed adherence problems they may anticipate. Therapists helped patients generate solutions to problems and develop coping strategies for dealing with setbacks. See Appendix B for therapy checklist.

Follow-up sessions only lasted 15 minutes and were aimed at encouraging adherence and relapse prevention. As the focus of this study was to explore the effect of therapist-patient interaction on the development of the

therapeutic relationship, only the first telephone session was included in this analysis.

The half-day therapist training involved explanations of the treatment rationale, explaining implementation of basic exercises, encouraging adherence, and training on psychological aspects of therapy. Therapists took part in role playing exercises where they practiced delivering different aspects of telephone support. This included explaining key points, eliciting patient perspective, dealing with unhelpful beliefs or concerns, using clear and simple language, provision of good examples, praising and encouraging adherence, and delivering relapse prevention. Therapists reported the experience of delivering telephone support in this study as novel and very different from their usual way of treating patients.

Treatment fidelity was assessed by listening to 10% of the recorded therapy sessions and rating which areas of therapy were covered during the session using the checklist that therapists used as a treatment manual. There was very high agreement between therapist checklist ratings of delivery of target intervention components and independent ratings based on recorded sessions (kappa = .82). No therapist difference was found in terms of session content, with all therapists delivering on average over 85% of the target intervention components.

6.2.2.3 Outcome measures

Working alliance, measured using the Working Alliance Inventory – short form (WAI-S; Tracey & Kokotovic, 1989), was used as the outcome measure in this study. The WAI-S is one of the most commonly used measures of working alliance. The instrument consists of three subscales: Goal, Task and Bond. The Goal subscale relates to the level of agreement of treatment goals between the therapist and patient. Task subscale measures the extent to which the patient feels they share their therapist's beliefs about the tasks involved with the therapy, and the Bond subscale measures the bond between the patient and their therapist. Each subscale consists of four non-overlapping items and is

scored on a seven-point scale ranging from zero (never) to six (always) with higher scores indicating a better working alliance. Participants were sent a questionnaire pack after 12 weeks which included the WAI-S.

6.2.2.4 Interaction analysis

Telephone therapy session were analysed for communicative behaviour using the Roter Interaction Analysis System (RIAS; Roter and Larson, 2002). The author attended a three day RIAS training course and conducted all the analysis herself. RIAS requires coding to be done directly from audio recordings rather than transcripts. The unit of analysis is the smallest meaningful string of words. All statements were assigned to one of the 43 mutually exclusive and exhaustive categories that make up the RIAS coding system. Coded RIAS categories were then used to construct three composite variables: relationship building, therapist dominance and patient centeredness, as described in previous research (Roter, 2003; Roter et al., 1987; Mead & Bower, 2000).

Relationship building refers to the development of the patient-therapist relationship. It was calculated through adding all instances of emotionally responsive exchange (empathy, concern, approval, reassurance and optimism, personal statements, therapist self-disclosure and laughs).

Therapist dominance quantifies how dominant the therapist was during the therapy session and was calculated by dividing the number of therapist statements by the number of patient statements.

Patient centeredness is the degree to which patients are at the centre of their care and refers to how responsive the therapy is to patients' needs and preferences. It was calculated as the ratio of all codes relating to socio-emotional and psychosocial elements of the exchange (psychosocial information, all relationship building statements, therapist open-ended questions, all patient questions) divided by codes that further the bio-medical agenda (biomedical information, therapist closed questions, orienting statements). See Appendix G for examples of utterances relating to each code.

6.2.2.5 Statistical analysis

Statistical analyses were conducted using SPSS version 19. The outcome variable's range, minimum and maximum scores were checked, and 10% of data were double entered to reveal an accuracy of 99.2%. Data were assessed to ensure parametric assumptions were met before analysis commenced. Scatter plots and histograms were checked to ensure the data were normally distributed and there were no outliers. Descriptive statistics (range and frequency) were also checked.

Previous research has shown that communication style can affect alliance in healthcare settings (Moore, Wright, & Bernard, 2009), although there is limited evidence about the range of communication behaviours and how they affect therapeutic alliance. Bivariate correlations were carried out between the WAI-S subscales (goal, task and bond) and the RIAS composite categories (relationship building, therapist dominance and patient centeredness) to establish whether or not a relationship between these variables exists. Composite variables that were significantly correlated with the WAI-S subscales were then explored by correlating the individual types of dialogue that make up the composite variable in order to identify specific elements of communication that may be most important in developing a strong therapeutic relationship.

6.2.3 Results

Participant demographic information was collected at baseline. Participants were predominantly female (n = 59; 74%), and had a mean age of 59.1 years. The average age of leaving full-time education was 16.1 years and participants reported an average duration of dizziness symptoms as 57.6 months.

Table 12 Means and Standard deviations of measure

	N	Mean	SD
Relationship building	80	39.00	20.36
Therapist dominance	80	1.52	0.54
Patient Centeredness	80	1.60	0.55
Working alliance – Task	61	19.16	4.71
Working alliance – Bond	61	20.13	4.66
Working alliance – Goal	61	19.79	4.69

Means and standard deviations for the outcome and predictor variables are shown in Table 12. Relationship building scores ranged from 5.00 to 86.00, while therapist dominance scores ranged from 0.62 to 3.30, and patient centeredness ranged from 0.70 to 3.43. The WAI subscales yielded a low response rate, with only 61 participants completing this outcome measure. This may be because this scale was printed at the back of the follow-up questionnaire pack causing some participants to omit this data. All three WAI subscales have a possible range of 12 to 84. Task subscale scores ranged from 7 to 24, the bond subscale scores ranged from 8 to 24 and the goal subscale scores ranged from 9 to 24.

Bivariate correlations were carried out between the WAI subscales and RIAS composite variables relationship building, therapist dominance and patient centeredness. Details are given in Table 13.

Table 13 Bivariate correlations (Pearson's r) between WAI subscales and RIAS composite categories

	WAI task (*r*)	WAI goal (*r*)	WAI bond (*r*)
Relationship building	.11	.06	.08
Therapist dominance	-.18	-.05	-.15
Patient centeredness	.25	.31*	.30*

* p<0.05, ** p<.01, *** p<.001

As shown in Table 13, patient centeredness was significantly correlated with the WAI goal and WAI bond subscales. In other words, therapy sessions that included more patient centred features (such as laughing, approval, concern, empathy, reassurance and optimism), and less medical information, closed questions and orienting statements were linked to participants feeling a stronger bond with their therapist and believing they share the same goals in terms of their treatment outcome. While not reaching significance, the WAI task subscale showed a correlation of .25 with patient centeredness, suggesting that more patient centred therapy may also be related to participants feeling that they share the same beliefs about the tasks needed for the VR therapy to succeed. Further analyses were carried out to explore the individual RIAS categories that were used to calculate the patient centeredness composite variable in order to establish if any individual characteristic of patient centred therapy may be more important in terms of establishing therapeutic alliance. Means and standard deviations of these exploratory variables are shown in Table 14.

Table 14 Means and standard deviations of exploratory variables (N = 80)

	Mean	Standard deviation
Participant gives psychosocial information	3.28	3.64
Therapist empathy	0.69	1.45
Concern	0.79	1.42
Approval	0.15	0.51
Reassurance and optimism	8.00	6.88
Personal statements	9.35	4.24
Therapist self-disclosure	0.63	1.22
Laughs	2.36	3.20
Therapist open questions	2.48	2.27
Participant questions	1.09	0.84
Therapist gives medical information	2.41	3.28
Therapist gives therapeutic information	13.43	10.20
Therapist closed questions	7.23	3.74
Therapist orientation statements	6.06	3.19

Histograms of exploratory variables empathy, concern and approval showed a skewed distribution of data with the majority of therapy sessions containing very few instances of those variables. As shown in Table 14, hardly any therapy sessions included therapist or participant approval. This means that both therapists and participants were unlikely to express approval such as compliments, rewards or admiration directed at the other. Similarly, empathy, concern and therapist self-disclosure occurred very rarely during therapy. Therapists giving therapeutic information was the most frequently observed

element during the therapy sessions, and followed by personal statements by the participant, reassurance and optimism by the therapist, and orienting statements.

Bivariate correlations were carried out between the WAI subscales and the exploratory variables that patient centeredness comprises. Results of these correlations are shown in Table 15 and will be considered in terms of their effect size rather than significance level due to the exploratory nature of the variables.

Effect sizes of .1 or greater were considered according to Cohen's (Cohen, 1994) guidelines for interpreting effect size that suggest an effect size of .1 to be small, .3 to be medium and .5 to be large. Bivariate correlations show that several of the exploratory variables have an effect size of .1 or greater, suggesting they may be related to therapeutic alliance. Therapist empathy and total laughing (both therapist and participant) appears related to higher levels of WAI task goal and bond. In other words, participants whose therapy sessions contained more empathy and laughing felt they developed a stronger bond of trust and respect with their therapist, and also felt their therapist shared their beliefs about what tasks are needed for therapy to succeed. Approval appears related to higher goal and bond related alliance, suggesting participants whose therapy sessions contained more approving statements by either themselves or their therapist felt that a stronger bond developed between them and their therapist, and that their therapist shared their goals for therapy outcome. Personal statements also appear related to higher goal related alliance, suggesting that participants whose therapy sessions included more personal conversation between themselves and their therapist were more likely to feel like their therapist shares their goals in terms of treatment outcome.

Table 15 Bivariate correlations (Pearson's r) between WAI subscales and exploratory RIAS categories

	WAI task (*r*)	WAI goal (*r*)	WAI bond (*r*)
Participant gives psychosocial information	.10	.08	.11
Empathy	.18	.11	.16
Concern	−.10	−.12	−.22
Approval	−.02	.16	.11
Reassurance and optimism	.01	−.02	−.01
Personal statements	.06	.13	.07
Therapist self-disclosure	.02	.05	.02
Laughs	.14	.14	.14
Therapist open questions	.03	−.07	−.11
Therapist closed questions	−.21	−.25	−.26
Participant questions	.06	−.01	.05
Therapist gives medical information	−.13	−.07	−.29
Therapist gives therapeutic information	.11	.04	−.02
Therapist orientation statements	−.20	−.28	−.33

These results also suggest several variables that may be related to lower levels of therapeutic alliance. Effect sizes linked to lower therapeutic alliance are

larger than those linked to higher therapeutic alliance, suggesting these variables have a bigger impact on the development of the therapeutic relationship. Closed therapist questions and orienting statements appear related to lower scores on all three WAI subscales. This suggests that participants whose therapist asked more closed questions or were directive by using many orienting statements to direct the therapy (e.g. "let's talk about…" or "If you look at page 10…") reported feeling a weaker bond with their therapist, and were less likely to feel that their therapist shares their goals for treatment outcome and beliefs regarding what tasks are needed during therapy.

Interestingly, a therapist giving medical information was related to lower bond alliance, but therapist giving information about the VR exercise therapy was related to higher task alliance. In other words, participants were more likely to report feeling a weaker bond with their therapist if their session included a large amount of medical information. If their therapist gave them more information about VR therapy, however, participants were more likely to report their therapist sharing their beliefs about the tasks necessary during therapy.

This exploratory analysis suggests that empathy, laughing, approval, personal statements and information about the therapy were related to higher levels of therapeutic alliance. Closed therapist questions, orienting statements and giving medical information, however, appear to be related to lower therapeutic alliance.

6.3 Study 2: qualitative study

6.3.1 Rationale

Study 1 detailed the importance of the various RIAS categories in the development of therapeutic alliance, but it is also important to know the context and content of these interactions. Qualitative analysis was used to complement the quantitative work described in study 1 in order to deepen

insight and gain greater understanding of the development of the therapeutic relationship during telephone therapy sessions for patients with chronic dizziness.

6.3.2 Aims

This study aimed to use qualitative thematic analysis to explore the dialogue between therapists and patients with chronic dizziness receiving telephone support. Study 1 found patient centeredness to be significantly correlated to therapeutic alliance. This study therefore focussed on the content in high patient centred therapy sessions and low patient centeredness sessions to gain an understanding of their differences and similarities.

6.3.3 Methods

6.3.3.1 Design

Qualitative thematic analysis was carried out on transcribed telephone therapy sessions delivered as part of the VR trial of booklet-based self-management of dizziness with or without telephone support.

6.3.3.2 Participants and procedure

Audio recorded telephone therapy sessions were rated as being either high or low in patient centeredness using the RIAS coding method described in Study 1. In order to explore differences between high and low patient centred therapy sessions, transcripts of 10 low patient centeredness sessions, and 10 high patient centeredness sessions were selected for comparison for this study. Data reached saturation after 16 participants. This is when no new themes are emerging from the data. A further four participants were included to ensure no new themes would emerge. Participants were predominantly female (60%) and had a mean age of 61.1 years. In order to maintain anonymity, interview data was labelled by participant number and gender. All therapy recordings, transcripts and documentation were stored securely and only available to the research team.

6.3.3.3 Analysis

Qualitative analysis of transcribed therapy sessions was carried out using inductive thematic analysis, allowing the research to be exploratory and not constrained by the researcher's pre-conceptions. Transcribed therapy sessions were imported into NVivo software, a programme that allows management and coding of data. Audio recordings of therapy sessions were listened to several times, and interview transcripts were read and re-read to ensure a high level of familiarity with the data before analysis commenced. Dominant themes were identified through familiarisation and close examination of the data.

Initially, 10 therapy session transcripts (consisting of 5 low and 5 high patient centeredness sessions) were coded, identifying emerging themes within them. Themes were discussed within the supervisory team, after which the initial coding schedule was devised in order to clearly define each emerging theme. Boyatzis' (1998) recommendations were followed, and the coding manual included a label, definition, inclusion, exclusion and positive and negative examples of each code. Inclusive coding was used (i.e. each coded segment could be applied to more than one code) and attention was paid to both manifest and latent content through considering context.

The coding manual was updated and revised throughout coding of the remaining transcripts, and the original codes were merged or split into further codes depending on the emergent findings. Constant comparison of themes ensured that the themes were readily applied to the data by using the researcher's familiarity with the text and coding manual to frequently assess and reassess how codes were being applied to the raw data. The coding manual was discussed within the supervisory team to reduce tunnel vision, and final amendments were made. The final coding manual was then applied to all transcripts. For coding manual, see Appendix H. The analysis process was carried out systematically, with category agreement (Smith, 1992) being obtained at each stage of analysis through detailed discussions within the

research team. Inter-rater agreement between IM and SK was obtained for the final coded data.

6.3.4 Results

The analysis identified 17 themes, falling within 11 higher order categories. Many of the topics were predetermined by the therapy manual, which was closely adhered to by the therapists. The themes are detailed in Table 16.

Table 16 Themes identified by qualitative analysis

Theme name
Observed in both high and low patient centeredness sessions
Introduction to telephone sessions
Going through VR booklet
Experiences of dizziness
Experiences of VR exercises
Previous treatments for dizziness
Observed in high patient centeredness sessions
Unrelated friendly chat
Therapist encouragement
Therapist reassurance of no harm
Therapist reacting to participant cues
Observed in low patient centeredness sessions
Participant concerns
Therapist not reacting to participant cues

Identified themes that related to introducing the telephone sessions and going through the booklet arose as a direct result of the therapy manual used by therapists during the sessions. No variation between high and low patient centeredness sessions was observed within these themes and they are consequently not discussed here. Themes relating to experiences of dizziness, experiences of exercises, and previous treatments for dizziness also arose as primary themes in the qualitative interview study in Chapter 4. No differences were observed between high and low patient centeredness within these themes, and so they are not discussed here. Themes that will be discussed in this chapter are unrelated friendly chat, therapist encouragement, therapist reassurance, participants concerns, and therapist reacting or not reacting to participant cues. These themes are considered key in this study as they highlight potentially important differences between high and low patient centeredness sessions.

6.3.4.1 Unrelated friendly chat

Casual conversation unrelated to the VR trial, dizziness or vestibular rehabilitation was observed in almost all high patient centeredness therapy sessions, and in none of the low patient centeredness sessions. Participants talked about their hobbies, families and shared details of their life.

"The builders are here at the moment…normally my husband is here as well and it's no problem but he has left me in the lurch tonight."

Participant 8, Male, High patient centeredness session

"I usually sneeze up to about six times. And my daughter sits there going, come on you have got one more to go. [Both laugh.] Don't get blessed till the last one either. You only get blessed once every six sneezes. [Both laugh.]"

Participant 3, Male, High patient centeredness session

6.3.4.2 Therapist encouragement

Participants in all high patient centeredness sessions were encouraged by their therapist to carry out the exercises and follow the balance retraining booklet. Explicit encouragement was included in this theme, as well as positive responses from therapists regarding any aspect of the trial, exercises or booklet. Therapists frequently made encouraging statements when participants reported that they have looked through the booklet or have started doing the exercises. While all participants confirmed that they had looked at the booklet prior to the telephone therapy session, less than half of participants in the low patient centeredness sessions received encouragement to continue or approval for doing this, compared to everyone in high patient centeredness sessions.

"Wonderful, that's really good, OK."

Participant 16's therapist, Low patient centeredness session

"Marvellous, that's very organised. That's how I like it."

Participant 3's therapist, High patient centeredness session

Therapist encouragement was also given to participants in high patient centeredness sessions when they mentioned that they can relate to sections of the booklet, or when they described their belief that VR exercises will benefit them.

"OK, good so you can see how it relates to your pattern of symptoms. Excellent."

Participant 5's therapist, High patient centeredness session

"That's really good, and that's the sort of attitude we need for these exercises."

Participant 9's therapist, High patient centeredness session

One participant described how her husband supports her and helps her carry out the exercises. Another participant mentioned that she regularly practices yoga. Both these participants were in high patient centeredness sessions, and both participants' therapists responded positively and with encouragement.

"Good, excellent, always good to get the family involved [both laugh]."

Participant 6's therapist, High patient centeredness session

"You are obviously quite a fit lady if you are doing yoga and things as well. And that it is all really positive, you should definitely maintain that, umm... and keep doing the yoga, because anything that you can do that is movement related will help your overall balance and make sure that your balance system remains as finely tuned as it could possibly be."

Participant 2's therapist, High patient centeredness session

The most common topic that elicited therapist encouragement related to adhering to the VR exercise programme. Therapists in both high and low patient centeredness sessions encouraged participants to carry out the exercises regularly over a 12 week period.

"It is really good for you to keep, keep continuing with them and give you a good go."

Participant 16's therapist, Low patient centeredness session

"But the more you practice, the more that you can stick at it and really work at it, that's when we will start to notice a difference. And that's when it all starts coming together… So we really need you to practice doing these things to train your brain to understand these different movements so it doesn't feel so dizzy when you make them in the future. It does just take quite a bit of perseverance though to work through it."

Participant 4's therapist, High patient centeredness session

Therapists encouraged participant adherence by emphasising that VR is appropriate and effective for treating their dizziness.

"There is no reason that we can't practice to try and make it better. So that's good. Well it sounds from what you have been saying that the exercises will really be quite beneficial for you."

Participant 7's therapist, High patient centeredness session

Participants were also encouraged to practice the exercises by therapists explaining or addressing the issue that the exercises might induce dizziness to begin with.

"It is important to get through that at first. So that might happen [induced dizziness] the first few time, maybe even for the first week that you are doing them. The important thing to remember is that it is a long term programme."

Participant 4's therapist, High patient centeredness session

6.3.4.3 Therapist reassurance of no harm

Therapists reassured participants that the VR exercises were safe and would not cause them any harm. The vast majority of high patient centeredness sessions included reassurance of no harm from the therapist, while only a very small minority of the low patient centeredness therapy sessions did. Reassurance was given to participants in terms of the general safety of VR exercises. This reassurance was spontaneously offered by therapists and was only observed in high patient centeredness therapy sessions.

"The exercises certainly won't do you any harm. Whether or not they make any difference to the dizziness we'll see."

Participant 3's therapist, High patient centeredness session

Reassurance that the exercises would not cause any harm was also given in response to difficulties participants experienced while carrying out the exercises, such as induced dizziness. These reassurances of no harm were always given in response to a participant mentioning that they found elements of the exercises challenging. One low patient centeredness therapy session included an example of this, but it was largely observed in high patient centeredness sessions.

"So although it is structured and safe, umm... of course it will make you feel dizzy for that time, and that can... have an effect on making you feel dizzy more generally for a little while."

Participant 13's therapist, Low patient centeredness session

"So you may have noticed something afterwards. And that's quite understandable, if you have you just been shaking your head around obviously you can feel quite dizzy after that. It sounds quite normal and quite accurate."

Participant 4's therapist, High patient centeredness session

A section of the treatment manual required therapists to ensure that participants had read and understood contraindications involved with VR exercises. These include a severe or prolonged pain in the neck, head or ear; a feeling of fullness in the ear; fainting or blacking out; double vision; and numbness or tingling in the arms or legs. While these are extremely rare, they are potentially serious and participants are advised to stop doing the exercises immediately if they experience any of those symptoms. Therapists sometimes offered reassurances that the exercises are generally safe and contraindications are rare. This was observed in one low patient centeredness session, but the majority of observations were in high patient centeredness sessions.

"Good. It's very, very rare and it probably won't happen, but just so you are aware of it."

Participant 16's therapist, Low patient centeredness session

"I mean it is extremely rare that anybody gets these things, but just…there are a couple of very, very unusual conditions that by moving your head in this way it may aggravate things. If you get any of these symptoms stop, but it is extremely unusual. I just need to check for your safety that you have read that really."

Participant 10's therapist, High patient centeredness session

6.3.4.4 Participant concerns

The majority of participants in low patient centeredness sessions, and a couple of participants from high patient centeredness sessions raised concerns they had related to carrying out the VR exercises. These concerns included practical

problems, lifestyle related issues, induced dizziness symptoms and concerns about the relevance of the exercises.

Participant concerns about practical aspects of carrying out VR exercises were only raised by one participant in a low patient centeredness session. This participant was unsure whether or not they were performing the exercises correctly and if they had to start self-monitoring.

"Oh I've been trying; I have been going through the exercises, but I didn't know when I had to start putting it in the book, or if I'm doing it right?"

Participant 20, Male, Low patient centeredness session

Participants from low patient centeredness sessions expressed their concern about whether or not the exercises are appropriate for them.

"My medication works for me, so I very rarely have an attack or get dizzy. So I am not sure if I should be doing these or not?"

Participant 12, Female, Low patient centeredness session

"I... I sort of feel like... at the moment I feel like a bit of a fraud because touch wood I haven't had anything for ages. I... I have bouts of it and then I don't have anything. Do you know what I mean? So I started thinking oh maybe I shouldn't be on this, because I didn't seem to fit if you know what I mean."

Participant 19, Female, Low patient centeredness session

One participant from a high patient centeredness session, and several from low patient centeredness sessions discussed concerns they have about the VR

exercises inducing dizziness. Participants worried that they would trigger a long-lasting attack of dizziness, or that they would be unable to perform their daily tasks as a result of induced symptoms.

"I didn't get on very well to begin with…well I did the first one and umm… I felt sick and giddy. And umm… I was like that all morning, so I left it and didn't do it anymore."

Participant 11, Female, Low patient centeredness session

"I know it did say that it can make you giddy, but it seems to have started off my vertigo off again."

Participant 4, Female, High patient centeredness session

Participant concerns were also related to physical symptoms they experienced while doing VR exercises. These included neck problems, headaches, blurred vision and tinnitus.

"I have picked up some tinnitus and I am obviously…. I am going deaf in one ear and I have always got a noise there, it is always in there, there is nothing I can do about that. But when I am doing the exercises the noise does increase. I mean it does… once I have stopped… it goes back to the level I am used to. So is that alright to carry on?"

Participant 12, Female, Low patient centeredness session

6.3.4.5 Therapist reacting to participant cue

Therapists were observed to pick up on verbal cues from participants and follow them up during the therapy session. As defined in the coding manual,

this included when the therapist responded to a topic that a participant addressed indirectly by prompting further discussion about the topic, or acknowledging the topic that the participant addressed indirectly. This theme did not include the therapist responding to a direct question from a participant. Examples of the therapist reacting to participant cues were found in all high patient centeredness sessions, but only in a small minority of low patient centeredness sessions.

A specific example of the therapist reacting to participant includes paraphrasing what the participant said. This ensured that the therapist understood what the participant was saying correctly, and it showed the participant that they were listening to them. While paraphrasing was not observed in any of the low patient centeredness sessions, it was observed in the majority of high patient centeredness sessions.

"OK, so you feel that might be a helpful thing for you to do. OK, that's good. That's really positive."

Participant 2's therapist, High patient centeredness session

*"Oh right. So you were having a reaction without doing the exercises you mean you were generally feeling a bit disorientated without having doing the exercises anyway." "**Yes, Yes**." "I see."*

Participant 7's therapist, High patient centeredness session

Therapists also reacted to participant cues by asking specific questions in order to further explore issues being raised by participants. Therapists sometimes asked open questions to further explore a topic raised by participants. This was the only example of a therapist reacting to participant cues observed in some low patient centeredness sessions. Asking open

questions to further explore topics was also observed in many high patient centeredness sessions.

"OK. Well do you want to tell me about that?"

Participant 11's therapist, Low patient centeredness session

Therapists in high patient centeredness sessions also asked specific questions in response to issues raised by participants. These issues included experiences of dizziness symptoms, uncertainty about carrying out the exercises, relating to aspects of the VR booklet, and difficulties coping with induced dizziness.

*"I weaned off and everything was great." "**Oh good**." "For about a week, and then it crept back in. One morning I thought oh no I don't believe it." "**Oh no. So when it came back then, so after you had been weaned off the tablets, and it came back, what sort of thing were you experiencing then, when it comes back?**"*

Participant 9, Male, High patient centeredness session

*"Some of it sort of I can associate with." "**Oh wonderful" "**Some of it isn't relevant, but yes I've been through it and I've done the exercises as per week one exercises, the shake, the nod etc., so, yes, and I've scored those." "**Good, OK. So which bits did you think related to you?"***

Participant 1, Female, High patient centeredness session

6.3.4.6 Therapist not reacting to participant cues

Data analysis revealed that therapists did not always respond to indirect verbal cues from the participant. This was not observed in any high patient

centeredness sessions, but was found in half of the low patient centeredness sessions. The topics participants attempted to raise included practical issues carrying out the exercises and uncertainties about benefits of VR exercises, but the most common topic that therapists did not react to was participant concerns and experiences of induced dizziness symptoms while carrying out the exercises.

*"I done Monday up till yesterday, OK. It's taking me forty five minutes to get over the dizziness. I done it at 4pm in the afternoon." "**Right**" "OK, so it is taking me quite a little bit of time really to get over it." "**So, have you**... **have you set two times in the day when you are going to do the exercises?"***

Participant 13, Male, Low patient centeredness session

*"I haven't had any, I would kinda hoped that, I mean I say that, I don't particularly want to get dizzy, but I was hoping that I would maybe have an attack but it didn't… umm… it didn't happen, no." "**Umm…OK umm**… **but you are quite happy to carry on with them, you think they might make a difference?"***

Participant 14, Female, Low patient centeredness session

In summary, high patient centeredness therapy sessions typically included therapist encouragement and reassurance that the VR programme will not cause them any harm. Furthermore, therapists were more responsive to verbal cues from participants by prompting further discussion on the topic and sessions almost always included an element of friendly conversation unrelated to dizziness or VR. In contrast, low patient centeredness sessions did not include any friendly conversation unrelated to dizziness, and typically included participants voicing concerns. Despite this, low patient centeredness sessions included less therapist encouragement and virtually no reassurance that the

exercises are safe and therapists were likely to be unresponsive to participant verbal cues.

6.4 Discussion

Study 1 found patient centeredness during telephone support sessions to be related to therapeutic alliance. Participants who received telephone support sessions that contained more socio-emotional elements such as empathy, laughing and personal statements, and fewer elements that further the bio-medical agenda such as medical information and closed questions, were more likely to report a stronger relationship with their therapist. This supports previous research that views the development of a therapeutic relationship as a fundamental requirement for medical therapy to be considered as truly patient-centred (Mead and Bower, 2000), and highlights the importance of patient-centred communication from as early as the first appointment. Few studies of patient-centred communication have included self-reported measures of therapeutic alliance, making the current results a valuable addition to this existing body of research.

Exploratory analyses of the individual variables that formed the composite variable patient-centeredness indicate specific aspects of therapist-patient communication that may influence the therapeutic relationship. Empathy and laughing were most strongly associated with better therapeutic alliance. This supports Rogers' (1967) notion of therapeutic alliance that proposes the core elements of successful therapy to be empathy, congruence and unconditional positive regard. Previous research has suggested that patient-centeredness is a key determinant of patient satisfaction (Mead and Bower, 2000), and studies have identified warmth, empathy and being treated like an individual as the most highly valued attributes of medical consultations (Hall & Dornan, 1988; Wensing, Jung, Mainz, Olesen, & Grol, 1998).

This study also identified variables that were associated with worse therapeutic alliance. These include orienting statements, closed therapist questions and biomedical information. This is consistent with Rogers' (1976) theory of the therapeutic relationship and the concept of patient-centeredness that does not include behaviours that support the traditional biomedical view of health professional dominance, such as closed questions, giving medical information and orienting statements. Interestingly, while giving medical information was related to lower therapeutic alliance, giving information about the therapy was related to higher therapeutic alliance. This finding is inconsistent with patient centeredness literature that views any behaviour that further the biomedical agenda as not being patient centred. These findings can, however, be explained by psychotherapy literature that considers shared treatment goals and belief about the potency and efficacy of the therapy to be important elements of therapeutic alliance (Bordin, 1980; Squier, 1990). A therapist giving information about VR therapy would therefore increase therapeutic alliance by strengthening shared treatment goals and enhancing the patient's belief in the benefits of VR, while giving medical information would not.

Study 2 compared high patient centeredness therapy sessions to low patient centred therapy sessions and identified thematic differences between these groups. The main differences that emerged were that high patient centeredness sessions typically included friendly chatting unrelated to dizziness or VR, therapist encouragement, and reassurance that the VR exercises are safe and will not cause harm, while low patient centeredness sessions typically did not include these reassurances, encouragement or friendly chat. Low patient centeredness sessions, on the other hand, were more likely to include participants voicing concerns about the relevance and safety of carrying out the VR exercises, practical problems carrying out the exercises, and coping with induced dizziness symptoms caused by VR.

The qualitative study in Chapter 4 suggested induced dizziness symptoms could be a major barrier to participants' adherence to VR exercises. Participants also described valuing their therapist's encouragement and

reassurance, and described this as a major element of feeling supported. Study 2's qualitative analysis of the telephone therapy sessions appears to support these findings, as participants who were in high patient centeredness therapy sessions were more likely to receive encouragement and reassurance that the exercises were safe, despite not raising concerns. This finding is in line with Byrne and Long's (1976) definition of patient centeredness consultations as being characterised by the health professional recognising patient needs and preferences. Dizziness is often associated with high levels of anxiety and panic (Yardley, 2000), which may explain why extra encouragement and reassurances that the exercises are safe lead to a better therapeutic relationship.

Another key finding from Study 2 is that low patient centeredness sessions often included occasions where the therapist did not respond to participant cues, while this was not the case in high patient centeredness sessions. This suggests that low patient centeredness sessions did not include the same sensitivity and insight as high patient centeredness sessions, which may have resulted in lower therapeutic alliance. Winefield et al. (1996) described a key element of patient centeredness in medical consultations as the health professional's attention to patient cues.

Previous research has emphasised the importance of considering context when evaluating patient-centeredness and the therapeutic relationship (Howie, 1996). It is therefore necessary to consider the impact of delivering the therapy in this study over the telephone. Not many studies have evaluated the quality of medical consultations via the telephone, but those that have reported lower patient-centeredness compared to face-to-face consultations (Innes, Skelton, & Greenfield, 2006).

Innes, Skeleton and Greenfield (2006) conducted a RIAS analysis of telephone consultations in primary care, and found that telephone consultations were more likely to include biomedical information than psychosocial or affective communication. This finding was not supported by the current results, with therapy sessions typically including far more therapeutic information than biomedical information. This may be a result of the therapy in this study being manualised not to include biomedical information compared to the primary care consultations that were not. This highlights the importance of using therapy manuals and standardising therapy in line with research evidence where possible. Another interesting finding from Innes et al.'s analysis of primary care consultations was that male health professionals' behaviour was more patient centred than female health professionals. The current study only included female therapists so it was not possible to evaluate gender effects.

6.4.1 Clinical implications

The results of this study have several implications for clinical practice as they suggest various aspects of telephone therapy that may have an impact on the therapeutic relationship. The development of a therapeutic relationship during telephone therapy for patients with chronic dizziness may benefit from minimising the amount of biomedical information given, closed questions and orienting statements and increasing information about the therapy and socio-emotional elements such as empathy, laughing and personal statements. The results of this research also suggest that high patient centred therapy includes more personal chat and therapist encouragement. These are all elements of therapy that could be incorporated into treatment manuals.

High patient centeredness sessions typically included therapist reassurances that VR exercises are safe and will not cause any harm while low patient centeredness sessions typically included participant concerns about the safety and practicality of carrying out the VR exercises. This suggests that reassuring participants of the safety of VR may be an important factor in the development of the therapeutic relationship. Therapist training may also benefit from incorporating listening skills training as low patient centeredness sessions

often included therapists not responding to participant cues, which is likely to have an impact on the therapeutic relationship and participant engagement in therapy.

6.4.2 Strengths and limitations

Booklet-based vestibular rehabilitation with telephone support has recently been advocated as an acceptable and cost effective method of managing chronic dizziness in primary care (Yardley et al., 2012). This study is the first to examine the telephone therapy delivered in this model as well as the first study to examine any telephone therapy for patients with chronic dizziness. While some of the results are specific to patients with chronic dizziness, many of the findings may be applicable to therapy for people with other chronic health conditions to enhance therapeutic alliance.

RIAS has been used to evaluate health provider-patient interactions across many settings and populations, but this is the first study known to the author to combine RIAS with qualitative thematic analysis. This mixture of content and interaction analysis provides insight beyond the individual RIAS units or composite variables, offering greater insight into health provider-patient interaction.

The RCT was not specifically powered to examine effects and differences within the booklet with telephone support arm of the trial. Several correlations in the RIAS analysis narrowly missed significance, and a greater sample size may have indicated more exploratory variables' relationship with therapeutic alliance.

6.4.3 Future research

Future studies of interaction analysis would benefit from using a mixed methods approach to deepen insight by examining the content of interactions.

Researchers need to consider using a greater number of therapists to enable therapist effects to be examined, as well as including male therapists to examine gender effects on the development of therapeutic alliance.

This model of VR support was delivered by audiologists, although the results suggest that many of the key elements that affected the therapeutic relationship could be provided by trained lay people. It may be that participants in this current study have greater trust in their therapist because of their audiological background, but future research would benefit from examining the effectiveness of training lay people to deliver VR therapy as this has the potential to be a cost-effective model that could be rolled out on a large scale to support sufferers of chronic dizziness.

This study highlights various aspects of telephone-delivered therapy that may affect the therapeutic relationship. Future studies could benefit from building on this research and exploring further factors that could affect therapeutic alliance, such as participant and therapist traits. Key findings from this research could also be incorporated into future therapy manuals and therapist training.

7. Discussion

7.1 Chapter overview

This final chapter concludes the thesis by considering the contributions of the research programme as a whole. The chapter will start with a summary of the work described in this thesis, followed by an evaluation of key findings and contributions to existing research. Clinical implications and limitations of the work will be discussed, and finally this chapter will consider implications for future research.

7.2 Key findings from the thesis

Various findings arose from the empirical work in this thesis. A summary of the key findings from each empirical study is provided below, followed by a discussion of this body of work as a whole.

7.2.1 Key findings from Chapter 3: meta-analysis of telephone delivered CBT-based therapy for people with chronic illness

This meta-analysis was conducted to investigate whether or not telephone delivered CBT-based therapy affected physical health outcomes in people with a chronic illness. The results supported the use of telephoned delivered CBT-based therapy as a potentially effective tool for improving health in people with long-term conditions. Subgroup analyses found that telephone delivered therapy was more effective for people with non-life threatening conditions, and less therapist contact was associated with better outcomes. Less therapist contact was defined as a total of 5 hours of therapy or less, which is shorter that the average course of psychotherapy. This study also found attrition rates to be much lower than traditional face-to-face psychotherapy (9.5% compared to 46.9%) suggesting telephone-delivered therapy may be beneficial for overcoming barriers to care and low attrition rates. However, this is the first review of psychotherapy for improving health outcomes in people with chronic illness, so comparisons have to be drawn from reviews of psychotherapy for

mental health outcomes, making it difficult to draw firm conclusions regarding attrition rates.

The findings from this study provided the basis for the empirical work in this thesis as it demonstrated the telephone to be a potentially useful tool for delivering therapy to patients with chronic dizziness. People with dizziness may find it difficult or be unable to travel, or past experiences with health professionals may have led them to believe that there are no suitable treatments for their symptoms making them unwilling to travel for treatment (Yardley, 1980). Offering treatment over the telephone may therefore be a simple and accessible way of delivering therapy to this population as it removes barriers to treatment caused by disability, geography and travel.

7.2.2 Key findings from Chapter 4: Understanding participant experiences of booklet-based self-management of dizziness with or without telephone support

This study used qualitative interviews to explore psychosocial factors influencing the experience of remote support for self-management of rehabilitation in people with chronic dizziness. Qualitative analysis revealed that the majority of participants in both treatment groups reported a positive experience of using the self-management booklet. All participants found the booklet easy to use, and the instructions to do the exercises easy to follow. Compared to those using the booklet on its own, participants who received the telephone support were more likely to discuss having a better understanding of their dizziness symptoms and how VR exercises could benefit them. Many participants in the telephone support group reported that a genuine relationship developed between them and their therapist. Participants who received telephone support talked about how their therapist cared about them and their rehabilitation, which was regarded as a major element of feeling supported.

Participants in the telephone support group described their therapist's comments and suggestions as reassuring, encouraging and motivational, and the majority of participants in the telephone support group mentioned that they would have liked to have more sessions during their rehabilitation. Participants who received telephone support also mentioned that they felt they benefited from having their progress monitored, and reported that telephone support had an impact on their performance of the VR exercises. Participants who received telephone support reported feeling empowered and motivated to perform the exercises following each session, while participants in the booklet only group discussed problems adhering to the programme due to induced dizziness. Participants who received telephone support reported feeling confident, empowered and less anxious following the VR therapy compared to participants who used the booklet only. Participants from both treatment groups, however, reported feeling more supported by family and friends, and that their condition is better understood by those close to them following VR therapy, suggesting that the content of the booklet may have had an impact on family members' attitudes towards dizziness. The results from this study suggested that participants appreciated having telephone therapy, particularly because it helped them feel supported by someone who understands what they are going through.

7.2.3 Key findings from Chapter 5: Predictors of outcome in patients receiving booklet-based VR with telephone support

The qualitative results in Chapter 4 showed that booklet-based VR with telephone support was very well received by participants, although it would be useful to know if successful outcome can predicted. The main VR trial results suggested that adding telephone support to booklet-based VR may lead to slightly better outcomes, although the difference between groups did not reach significance (Yardley et al., 2012). The purpose of this study was therefore to investigate predictors of outcome in patients with chronic dizziness who received booklet-based VR with telephone support, with the main focus being on the impact of the therapeutic relationship on outcome.

A key finding from this study was that stronger therapeutic alliance predicted greater patient enablement and a greater change in dizziness handicap. Therapeutic alliance did not predict an improvement in dizziness symptoms, but the results of this study suggested that the therapeutic relationship may directly affect adherence to the therapy, rather than post-treatment symptoms. The results of this study only partly supported current therapeutic alliance literature where alliance is generally strongly correlated to outcome. This may be because the majority of therapeutic alliance research is carried out in mental health populations and it may be that different therapeutic dynamics are present in chronic illness populations.

Other predictors of outcome included anxiety and depression. People who had higher levels of anxiety or depression before they started treatment, were likely to show less improvement in dizziness symptoms following booklet based VR with telephone support. People who had higher levels of post-treatment depression were also more likely to report higher levels of post-treatment handicap. The main VR trial found that, compared to routine care, booklet-based VR with telephone support showed a trend towards being more successful at relieving anxiety than depression. While this finding did not reach significance, it suggests that the therapy may be targeting anxiety symptoms more than depression. This body of research is the first to consider the therapeutic relationship in brief therapy by telephone for patients self-managing a chronic health condition, and examining the impact of this relationship provides useful insight into the role of therapeutic alliance for this population.

7.2.4 Key findings from Chapter 6: Understanding the therapeutic relationship during telephone delivered therapy for patients with chronic dizziness: a mixed methods interaction analysis

Qualitative results from Chapter 4 and quantitative results from Chapter 5 highlighted the impact telephone support and the therapeutic relationship can have on patients' self-management of chronic dizziness. This study aimed to

further explore the development of the therapeutic relationship between patients receiving telephone support while following a booklet-based programme of VR and their therapist. Specifically, this study evaluated the interaction between therapist and patient during telephone support sessions using both quantitative and qualitative research methodology. Quantitative analysis using RIAS found that participants reported higher therapeutic alliance in more patient centred sessions. This study then considered specific features of patient centeredness, and found that empathy and laughing were most strongly linked to better therapeutic alliance. Therapists' use of closed questions, giving biomedical information and orienting statements were linked to worse therapeutic alliance.

A qualitative analysis of the telephone therapy sessions identified key differences between high and low patient centeredness sessions. High patient centeredness sessions typically included friendly chatting unrelated to dizziness or VR, therapist encouragement, and reassurance that the VR exercises are safe and will not cause harm. Low patient centeredness session, on the other hand, typically did not include these reassurances, encouragement or friendly chat. Low patient centeredness sessions were more likely to include participants voicing concerns about the relevance and safety of carrying out the VR exercises, practical problems carrying out the exercises, and coping with induced dizziness symptoms caused by VR. Another key finding was that low patient centeredness sessions often included occasions where the therapist did not respond to participant cues, while this was not the case in high patient centeredness sessions. This study identified key features of patient-centred therapy that may be important for the development of a good therapeutic relationship. It also suggests that low patient centeredness sessions may not have the same sensitivity and insight as high patient centeredness sessions, which may have resulted in lower therapeutic alliance.

7.3 Major findings arising from this programme of research

This thesis aimed to understand the role of psychological factors in the effectiveness of remote support for self-managing chronic dizziness. Several overriding themes arose from this body of research as a whole. These will be discussed below.

7.3.1 The benefits of telephone support for people self-managing chronic dizziness

One of the consistent messages arising from this body of research is that telephone support has various potential benefits for people with chronic dizziness self-managing their condition. The meta-analysis carried out as part of this thesis suggested that telephone delivered therapy can help improve physical health outcomes, and results from the qualitative study in Chapter 4 suggested that participants valued and enjoyed additional support while following a programme of booklet-based VR. Telephone support appeared to complement the educational component of the VR treatment booklet, with participants reporting that they possessed a clearer understanding of the causes of dizziness and how VR therapy can help them. This is consistent with the self-management of chronic illness literature, which identifies health education as one of the most important elements for successful self-management of a long-term condition (Lorig and Holman, 2003). Studies have consistently found health education to be linked to better outcomes such as adherence to treatment regimes, symptom management, disability and doctor patient communication across a range of long-term conditions including arthritis (Barlow, Williams and Wright, 2000), heart disease (Clark, Janz, Dodge et al., 1997), chronic pain (LeFort, Grey-Donald, Rowat, and Jeans, 1998), diabetes (Mazzuca, Moorman, Wheeler et al., 1986) and dizziness (Hillier and McDonnell, 2011).

Participants described the telephone therapy as supportive and encouraging, suggesting that the benefits of telephone support reaches beyond health education. A Cochrane review of seven RCTs for peer support telephone calls for improving health (Dale et al., 2009) found that supportive telephone calls were associated with increased mammography screening, positive dietary changes for post myocardial infarction patients, greater continuation of breast feeding three months post-partum, and reduced post-natal depression. The authors did not, however, find a significant effect in patients with poorly controlled diabetes. This study provides evidence that the benefits of telephone support may also apply to other health conditions, although the authors highlight that the studies involved include various methodological limitations thus limiting the generalisability of these results.

Post-treatment depression was also linked to higher levels of post-treatment handicap, while anxiety was not. This is a particularly interesting finding as the main VR trial results suggested a trend towards the telephone support being more successful at relieving anxiety than depression. This suggests that the VR booklet and telephone support may be targeting anxiety more than depression and patients with depression could benefit from additional targeted support.

7.3.2 Adherence to booklet-based VR therapy

Treatment adherence arose as a theme from all four empirical chapters in this thesis. The meta-analysis in Chapter 3 suggested that telephone delivered therapy may yield better adherence rates in people with a chronic illness, possibly because it helps overcome barriers to treatment caused by disability, geography and travel. Treatment adherence was also discussed in the qualitative analysis of patient experiences of VR therapy described in Chapter 4, where participants who received the telephone support explicitly mentioned that it encouraged adherence to the exercises. Participants in the telephone support group mentioned that they like having their progress monitored, and they found the therapy sessions reassuring, motivational and encouraging. They reported feeling empowered to perform the exercises after each telephone session. This is supported by the main VR trial results, which found

that people in the telephone support group reported greater treatment adherence and performing the exercises with greater intensity than people in the booklet only group.

This notion that telephone support may be linked to treatment adherence is also supported in the wider literature. A Cochrane review of 70 RCTs of interventions to improve medication adherence found that telephone calls can improve both adherence and treatment outcomes (Haynes, Ackloo, Sahota, McDonald, Yao, 2008). In a more recent RCT, researchers found that telephone support significantly improved adherence to a physical activity programme in cardiac patients (Guiraud et al., 2012). The model of telephone support used in this trial was similar to the telephone support used in the research described in this thesis. Participants received four brief telephone calls from a kinesiologist. The telephone calls were also manualised and contained relapse prevention, goal setting and motivational elements. This suggests that the benefits of manualised telephone support may reach beyond chronic dizziness and that this treatment model could improve adherence in other patient groups self-managing long-term health problems.

Previous research has identified induced dizziness symptoms to be the main barrier to adhering to home-based VR (Yardley and Kirby, 2006). The aim of VR exercises is to stimulate the balance system, which means it is essential for the exercises to provoke dizziness symptoms. Therefore performing VR exercises often makes people feel worse to start with, and it is only with repeated practice that the balance system recalibrates and symptoms improve. The empirical research in this thesis supports previous findings that induced dizziness is a major barrier to treatment adherence, and suggests that telephone support may help to address this.

Results from this thesis found that people with adherence problems due to induced dizziness symptoms were likely to report lower adherence to the exercises and more post-treatment dizziness symptoms. This further highlight

the difficulty people have coping with induced dizziness, and identifies induced dizziness symptoms as the main barrier to adherence in patients with chronic dizziness following home-based VR. Reported adherence problems because of induced symptoms were not related to baseline symptom severity. Adherence problems because of symptoms were, however, related to all aspects of the therapeutic relationship, suggesting that a worse therapeutic relationship may be linked to more adherence problems because of dizziness symptoms. It appears important for therapy to address the problem of induced dizziness and specifically targeted support may be needed for patients who struggle to cope with aggravated dizziness symptoms caused by VR, although more research is needed to identify ways of best supporting patients struggling to cope with induced symptoms.

This issue of induced dizziness was also highlighted by findings from the qualitative study (Chapter 4) where participants who did not receive telephone support explained a lack of adherence to be because of their fear of inducing symptoms. In contrast, participants who received the telephone support discussed sharing these fears with their therapist who was able to remind them of the benefits of VR and reassure them that the treatment was not harming their balance system. This suggests that telephone support may have a role in promoting adherence to booklet-based VR exercises as participants appear to value and benefit from that extra level of reassurance that inducing symptoms is a normal and necessary part of their treatment. This notion was also supported by the qualitative analysis of the telephone support sessions described in Chapter 6. This study identified reassurance from therapists that VR exercises are safe and will not cause any harm to be typically present in high patient-centred sessions, but not in low patient-centred sessions.

This finding is in line with Byrne and Long's (1976) definition of patient centeredness consultations as being characterised by the health professional recognising patient needs and preferences. Dizziness is often associated with high levels of anxiety and panic (Yardley, 2000), and coping with induced dizziness symptoms appears to be a major barrier to treatment adherence in

this patient group. Therapist recognition of this need for reassurance that the exercises are safe and encouragement to carry them out regularly may be an important part of promoting adherence to the treatment.

7.3.3 The therapeutic relationship

The empirical work in this thesis focussed largely on the relationship between patients with chronic dizziness and their VR therapist providing telephone support while they followed a programme of booklet-based VR. This therapeutic relationship appeared to have various benefits for patients. Predictors of patient outcomes in Chapter 5 found that a better therapeutic relationship led to greater patient enablement. Patients felt more enabled to manage their dizziness when they agreed with the focus of their therapy, and they believed their therapist was taking the correct approach to their rehabilitation. These findings support previous research that identifies these elements of the therapeutic relationship as being a key element of patient centred therapy (Stewart et al., 1995). A stronger therapeutic alliance also predicted a greater change in handicap, further highlighting the importance of a good therapeutic relationship for patients with dizziness self-managing their symptoms.

Previous research has consistently identified therapeutic alliance as a robust predictor of outcome (Horvath and Symonds, 1991). The work reported in this thesis only partly supports this as therapeutic alliance was not found to be a predictor of post-treatment dizziness symptoms. Results from Chapter 5 did, however, find a relationship between one of the therapeutic alliance subscales and adherence to the VR exercises. Adherence was linked to the extent to which participants believed their therapist had the same treatment beliefs as them, suggesting that the therapeutic relationship may be related to treatment adherence rather than dizziness symptoms directly.

Existing literature generally focusses on the therapeutic relationship in mental health populations, where the therapist is often a trained mental health professional. Few studies have evaluated therapeutic alliance in patients with chronic illness receiving therapy, and no studies have considered therapeutic alliance in patients with chronic dizziness. It may therefore be that the therapeutic dynamics are different in this population. A review of internet-delivered CBT for traumatised patients (Knauvelsrud and Maercker, 2006) found that high levels of therapeutic alliance were reported by participants, yet they only found a small association between alliance and outcome. The authors concluded that a strong therapeutic alliance can be developed remotely, although this relationship may be a less relevant predictor of outcome than in face-to-face therapy. More research is needed to draw conclusions about the role of the therapeutic relationship in remotely delivered therapy, and it may be that therapeutic alliance does not predict outcome in telephone or internet delivered therapy in the same way as traditional face-to-face therapy.

While past research has shown that the therapeutic relationship can be established in three sessions (Horvath and Symmonds, 1991), and that a successful therapeutic relationship can indeed be maintained through telephone delivered therapy (Beckner et al., 2007). No previous research has looked at the effect that brief therapy delivered over the telephone has on therapeutic alliance. It may well be that more sessions are needed for the therapeutic relationship to affect dizziness symptoms.

This thesis also evaluated the development of the therapeutic relationship as little is known about this process during telephone delivered therapy, and no studies have investigated the development of therapeutic alliance in patients with chronic dizziness. Several factors that may be important for the development of therapeutic alliance have been identified. Patient centeredness during telephone support sessions appears to be related to therapeutic alliance, with a more patient-centred approach being linked to stronger alliance. Previous research has highlighted the importance of the therapeutic relationship in patient-centred medical care (Mead and Bower, 2000), and

findings from this thesis highlight the importance of patient-centred therapy from as early as the first appointment.

Patient centeredness in this thesis was calculated as a ratio encompassing many elements of therapy that previous research have deemed important in the definition of this construct. This included features of therapist-patient interactions such as empathy, concern, approval, reassurance and optimism, laughing, self-disclosure and open or closed questions. This thesis aimed to delineate the importance of these individual elements of the therapeutic interaction in order to identify which parts of patient centeredness may be more important for the development of a strong therapeutic relationship.

The results from Chapter 6 found empathy and laughing to be most strongly associated with better therapeutic alliance. This corresponds with existing theories of therapeutic alliance that considers factors such as empathy, congruence and unconditional positive regard to be key features of a good therapeutic relationship (Rogers, 1967). The current findings also support past research into medical consultations that have identified warmth, empathy and being treated as an individual to be features of a consultation most highly valued by patients (Hall and Dorman, 1988; Baker, 1990; Wensing et al., 1998).

These findings can be further interpreted when considered in conjunction with results from the qualitative study in Chapter 4, which described how many participants felt that a genuine relationship developed between them and their therapist. Participants described how their therapist cared about them, understood what they were going through, and described their therapist as a friend and someone they could laugh with. Participants who received telephone support attributed their relationship with their therapist as a key element of being supported in their rehabilitation, and as a key factor for adherence to the VR exercises. The therapeutic relationship appears to be an influential factor

for patients self-managing dizziness with telephone support, and patient centeredness, particularly laughing and empathy seems key to establishing a good relationship.

The results of this thesis also identified elements of therapist-patient interaction that may damage the therapeutic relationship. In line with Rogers' (1976) theory of therapeutic alliance, these were orienting statements, closed therapist questions and biomedical information – features that promote the traditional biomedical view of health professional dominance. A particularly interesting result from this study was that giving biomedical information had an adverse effect on the therapeutic relationship, while giving information about VR therapy was related to stronger alliance. While this finding is inconsistent with patient-centeredness literature that considers any promotion of the biomedical agenda as not being patient-centred, it can be explained by psychotherapy literature. This literature considers shared treatment goals and beliefs about the efficacy of the therapy to be key elements of therapeutic alliance (Bordin, 1979; Squier, 1990). The current findings can be explained in this context, as giving information about VR therapy increases therapeutic alliance by strengthening shared treatment goals and enhancing the patient's belief in the benefits of VR, while giving medical information lowers therapeutic alliance by promoting the biomedical agenda.

Qualitative analysis in Chapter 6 aimed to explore the content of the telephone sessions to understand differences between high and low patient centred sessions. This provided deeper insight into the development of the therapeutic relationship and highlighted the importance of reassurance that the exercises are safe and appropriate and encouragement to perform them regularly. Patient centeredness literature emphasises the importance of recognising patient needs, and these reassurances and encouragement may therefore be important in the development of a good therapeutic relationship. Winefield et al. (1996) described close attention to patient cues as a key element of patient centred sessions. This notion is supported by the work in this thesis as low patient centred sessions often included occasions where the therapist did not

respond to participant cues, while this was not the case in high patient centeredness sessions. This suggests that low patient centeredness sessions may not have included the same sensitivity and insight as high patient centeredness sessions, which may have resulted in lower therapeutic alliance.

7.4 Strengths and limitations

Few studies have evaluated telephone-delivered therapy for patients self-managing a chronic illness, and no research to date has investigated this model of delivering support for patients with chronic dizziness following booklet-based VR. While the key findings of this thesis are specific to patients with chronic dizziness, many can be applied to telephone therapy for patients self-managing other long-term conditions. This thesis use both qualitative and quantitative research methods to enhance understanding of telephone support for patients self-managing chronic dizziness. Qualitative and quantitative research allowed for different perspectives, and allowed slightly different research questions to be addressed in this thesis. The aim of combining research methods in this thesis has been to preserve the unique aims and characteristics of each method and integrate key findings in a complementary way while respecting the strengths and limitations of the different approaches.

7.4.1 Statistical power

The quantitative studies in this thesis were all limited by low statistical power. The meta-analysis only included 8 studies as very few clinical trials have evaluated telephone delivered CBT-based therapy for physical health outcomes. Furthermore, many of the trials included in this analysis were of limited methodological quality and included small samples themselves resulting in a small pooled sample size available for this analysis. This limited the scope for subgroup analyses and identifying particular groups which may benefit most from telephone delivered CBT-based therapy. CBT-based therapy was defined as any therapy that involves cognitive and or behavioural elements, although a lack of clear description about the therapy led to some RCTs being excluded. In retrospect, it may have been better to be more

inclusive regarding therapy content for this meta-analysis as a greater sample size may have yielded more insight into the benefits of telephone therapy for patients with chronic illness. However, this would also have restricted the relevance of the findings to the current research context so the decision was made to only include CBT-based therapy.

Other quantitative work in this thesis was also limited by statistical power, which should ideally be calculated based on research design and expected effect sizes. This was not possible as the research included in this thesis was nested within a RCT of booklet-based self-management for dizziness. The trial was not specifically powered to investigate effects and differences within the telephone support arm of the trial, which prevented the use of structural equation modelling to evaluate a potential model of predictors of patient outcomes. Several correlations in the RIAS analysis narrowly missed significance, and a greater sample size may have provided further insight into factors that may affect the therapeutic relationship. Because of these issues related to power and sample size, results from this thesis have to be interpreted with caution and ideally these results would have to be replicated in adequately powered studies.

7.4.2 Sampling

Participants for the empirical research in this thesis were recruited from general practices in the South of England and were varied in terms of demographics, symptom severity and duration of symptoms. All participants were, however, self-selected and may therefore differ from non-volunteers and even community samples which may not consult their GP for dizziness. A potential solution to this may be to approach people with dizziness based on national survey data as well as patients at general practices to investigate differences between these populations. The inclusion criteria for this research were very broad, which means the findings can be generalised to a wide range of patients with dizziness in primary care.

The empirical research in this thesis approached patients via their GP surgery. Patients were sent a letter from their GP, a participant information sheet and consent form to return to the research team. While this method of recruitment was the most efficient and cost-effective, people with low motivation or low health literacy may have chosen not to take part in the research due to the volume of written material. Asking GPs to recruit patients opportunistically during consultations may have helped to overcome this problem as GPs may have been able to spend a few minutes discussing the research with patients, although this method has been tried in past research and failed due to the low incidence of new diagnoses of dizziness (Yardley 2012, personal communication).

7.4.3 Self-reported dizziness symptoms

A potential limitation is that this research relied on self-reported symptom severity. Ideally, participants would have undergone objective balance testing to measure symptom severity and possibly a diagnosis for their dizziness symptoms. Due to time and financial constraints, plus the additional burden on participants, this was not possible. It is also argued that independent measures of balance were not necessary as the focus of this research was on patient reported benefit. Furthermore, previous trials of booklet-based VR confirmed that subjective improvement was accompanied by objective measures (Jayarajan and Rajenderkumar, 2003; Yardley et al., 1998) and balance testing was therefore not deemed necessary for this research.

7.5 Clinical implications and future research

Research findings from this thesis have several implications for future interventions. Telephone-delivered therapy accompanying booklet-based VR appears to be an effective and acceptable method for delivering this treatment to a hard to reach population. The main trial results also found this model of VR delivery to be highly cost-effective (Yardley et al., 2012). Some of the results in this thesis, and results from the main VR trial (Yardley et al., 2012) indicate that many participants are capable of successfully following booklet-

based VR without any additional support. Some participants, however, may need the extra level of support that telephone therapy offers to give them the best possible chance of successfully engaging in the VR exercise programme and minimise adherence problems.

This programme of research identified various subgroups of patients with chronic dizziness that may benefit from additional support while self-managing their symptoms using booklet-based VR. Patients may benefit from being screened for depression so that at risk patients can be identified and given additional support targeted specifically at depression. Patients may also benefit from additional support for coping with provoked symptoms while carrying out VR exercises, as this was identified as the main barrier to adherence. The therapeutic relationship appeared to benefit from therapists spontaneously discussing induced dizziness symptoms, rather than waiting for participant to raise concerns. This can easily be incorporated in therapy manuals to place more emphasis on reassurance that provoked symptoms are normal and will not cause them any harm.

Various interactional elements of telephone-delivered therapy have been identified that future interventions may incorporate into treatment. Firstly, patient-centred communication appears to be an important factor in the development of a good therapeutic relationship from as early as the first appointment or session. High patient centred sessions appear to include more personal chat and therapist encouragement, elements which could be incorporated into treatment manuals and therapist training. Therapist training may also benefit from incorporating listening skills training as low patient centeredness sessions often included therapists not responding to participant cues, which may have an impact on the therapeutic relationship and participant engagement in therapy.

Various recommendations for future research have arisen from the work in this thesis. Where possible, future research should aim to address the

methodological limitations highlighted in section 7.4. More high quality research is needed to evaluate the factors that may influence telephone therapy for patients self-managing chronic dizziness, and particularly in relation to the development of the therapeutic relationship for this patient group. The empirical work in this thesis was not powered to investigate therapist effects, which may be critical for understanding the therapist-patient relationship in brief telephone-delivered therapy. Future research would not only benefit from including larger samples, but also from including more therapists to enable an evaluation of the impact of therapist characteristics such as gender or communication style on the effectiveness of telephone delivered therapy for self-managing chronic dizziness.

The telephone therapy in this model of delivering VR was provided by audiologists, but the findings from this research suggest that lay people could potentially be trained to deliver support for this this therapy. The medical information about dizziness that audiologists possess was not sought by participants, and therapists giving medical information damaged the therapeutic relationship. It may be that participants trusted their therapist more as a result of having an audiological background, but future research would benefit from exploring this as trained lay people may provide an equally effective and more cost effective model for delivering VR that could be rolled out on a large scale to support people with chronic dizziness.

Future research should continue to combine qualitative and quantitative research methods to deepen insight into psychological factors affecting the role of telephone support for self-managing dizziness and the role of therapeutic alliance in telephone delivered therapy. This thesis identified various features of telephone delivered therapy that may be important for the development of therapeutic alliance in this patient group. Future research could incorporate these features into therapy manuals to further explore their impact on the development of a strong therapist-patient relationship. This

thesis also identified sub-groups of patients with chronic dizziness that could potentially benefit from receiving specific targeted support while self-managing their symptoms. This includes patients with high levels of anxiety or depression, and people struggling to cope with induced dizziness symptoms. Further research is needed to identify how to best meet the needs of these populations, and how to identify patients with chronic dizziness at risk of struggling with induced dizziness symptoms. Furthermore, existing literature would benefit from investigating telephone delivered therapy for a range of other chronic health conditions in order to identify other illness populations that may benefit from this potentially cost-effective treatment. This research highlights the impact that minimal remote support may have on patients' motivation and adherence in self-management programmes, particularly for those where poor adherence may be an anticipated problem.

7.6 Conclusion

This programme of research identified several psychological factors that could influence the effectiveness of telephone-delivered therapy for patients with chronic dizziness. Using the telephone to deliver therapy for patients self-managing dizziness symptoms appear to be an acceptable, practical and effective model of treatment delivery. The fact that therapy was brief and delivered by telephone did not prevent the development of a therapeutic relationship.

The therapeutic relationship appears to be an important factor for patients' adherence and engagement in booklet-based VR and having a better therapeutic relationship appears to improve some patient outcomes. Developing this therapeutic alliance appears to be important from as early as the first session. The research in this thesis pinpointed a number of variables in therapist-patient interaction that could potentially impact on the therapeutic relationship which could provide insight into the development of future therapy manuals and interventions for patients with chronic dizziness. It also provided insights into how future interventions or treatments could be developed to maximise the benefits for patients with chronic dizziness

following a programme of booklet-based VR. Continued research aimed at understanding the psychological factors involved in the effectiveness of remote support for people with dizziness should lead to improved treatment plans and psychological interventions for patients self-managing dizziness.

Appendices

Appendix A – Therapist training materials

Workshop structure

1.30–1.50 Explanation of standardised approach and section giving rationale for therapy

1.50–2.30 Exercise 1. Fostering appropriate attitudes and expectations.

2.30–2.50 Explanation of section on implementation of basic exercises.

2.50–3.10 TEA BREAK (20 minutes) and general discussion

3.10–3.30 Explanation of section on special exercises and 'general activities'.

3.30–3.45 Discussion of psychological aspects of therapy and encouraging adherence.

3.45–4.15 Exercise 2. Encouraging adherence.

4.15–4.30 General discussion and questions.

Exercise 1.

Form groups of three. Each in turn should take 10 minutes to act as:

a) therapist, checking for understanding/agreement with rationale for therapy

b) patient (with misconceptions/concerns the therapist must uncover)

c) observer, timing explanation , and checking:

- explanation of key points
- use of clear and simple language
- provision of good examples
- elicitation of patient perspective
- addressing patient concerns

Constructive feedback should then be provided briefly to 'therapist'.

Exercise 2.

In groups of three, take turns as above. The role of the therapist this time is to undertake the relapse prevention part of the therapy session.

Patient A, Exercise 1.

You are a 60 year old woman who has had head movement provoked dizziness for ten years. The dizziness is mildly unpleasant -- bad enough to stop you making quick movements -- and you have given up the active pastimes you previously enjoyed with your partner (rambling and dancing). You do not work and no essential activities are prevented by the dizziness. You have simply accepted the dizziness as just an inevitable part of the slowing down process of getting older. Therefore, you are not sure that it is worth the time and discomfort of doing the exercises, or whether they will work at your age and after being dizzy for so long.

Patient B, Exercise 1.

You are a 40 year old woman who has been dizzy for two years. You are extremely afraid of the dizzy attacks, which can be brought on or made worse by bending or raising your head. Your father died recently of a stroke, and he used to become dizzy when he tipped his head back, so you think your dizziness may be a sign of being about to have a stroke. Therefore, you think the exercises are not appropriate for your problem, and could be dangerous, and you are frightened of the sensations they provoke.

Patient C, Exercise 1.

You are an 80 year old man who has had intermittent attacks of severe vertigo for the past year -- cause unknown but Meniere's disease not ruled out. In between attacks you have become very unsteady on your feet, especially when turning or bending down. You are extremely frustrated as you were previously very active, and have had to give up riding your bicycle, helping with the Boy's Brigade, and playing in the church brass band. This has led you to become somewhat depressed, and angry with the doctors you have seen, who have been unable to cure the dizziness and have suggested that you need to accept that you should slow down. You are hoping that by carrying out these exercises

very vigorously you will be able to completely get rid of all your symptoms in a few weeks, and can then resume the activities you have given up.

Patient A, Exercise 2.

You are a 45 year old man with his own business, suffering from occasional attacks of dizziness for the past year, with mildly unpleasant dizziness in between, especially when working on the computer for long periods. You travel a great deal (driving), and think it will be hard to find a time and place to carry out the exercises regularly, especially as they are not a high priority for you (since the dizziness is fairly mild and you are not entirely convinced that it is due to balance system dysfunction rather than fatigue and stress).

Patient B, Exercise 2.

You are a woman of 73 living alone, in good health apart from the dizziness caused by labyrinthitis six months ago. You are anxious and depressed, having lost your husband recently, and the dizziness makes you more so, especially as you are afraid of falling over and hurting yourself while dizzy at home alone. You are worried about the exercises making the dizziness worse, and not being able to do them safely.

Patient C, Exercise 2.

You are a woman of 50 who has had fluctuating dizziness for two years since an episode of 'flu'. The dizziness makes it difficult to work as a teacher sometimes, as it interferes with your concentration, and gets worse when you have to bend over the children. You are worried about suddenly getting very dizzy when driving to work or when caring for young children. You are delighted and reassured that someone has finally been able to explain to you why bending makes it worse and suggest a remedy, and are fully intending to follow the therapy programme to the letter.

Appendix B – Therapy session checklist

SCHEDULE FOR PHONE-BASED VESTIBULAR REHABILITATION SESSIONS

This sheet is intended to help you to ensure that the most important points (in bold) are covered, and to remind you of other useful issues to cover. There is unlikely to be sufficient time to cover all these issues, so which of these you cover will depend on your assessment of the patient's needs. **It is important that you place a tick in the box next to each point that you do have time to cover.** Arrange mutually convenient appointment, allowing 30 minutes. Tell patient to read booklet carefully before session, and to have booklet with them during session.

Tick boxes

Session structure

☐... Tell patient you will be going through the booklet section by section, checking with them that they have understood each part and whether they have any questions or concerns.

Understanding and attitudes (10-15 minutes)

Ask whether patient:

☐... Understands how *their* dizziness may relate to balance system functioning?

☐... Believes that exercises can improve *their* balance functioning?

☐... Believes that exercise therapy is necessary/beneficial for *them*?

☐... **Has realistic expectations for short and longer-term consequences of exercises?**

☐... Believes that therapy will not harm *them?*

☐... **Understands contraindications to exercising?**

Implementation (15-25 minutes)

☐... Tell patient you will now check they know how to carry out the exercises correctly.

Then ask whether patient:

☐... Has made written commitment to specific (safe) place and

☐ (appropriate) time which suits *them* for carrying out exercises?

... **Understands how to use the scoring test to choose appropriate exercises for *them*?**

☐... **Understands how to carry out the exercises safely and appropriately (particularly pacing)?**

☐... **Has agreed on exercises to be practised (including special exercises and general activities if time)? (record on monitoring sheet attached)**

☐... Feels they have adequate access to social/professional support?

☐... Understands the purpose and timing of monitoring and follow-up of their progress?

<u>Relapse prevention</u> (5-10 minutes)

☐... Ask patient what problems *they* anticipate.

☐... Do not dismiss these – but discuss ways to minimise costs of therapy, encouraging *patient* to generate solutions, and weigh up relative costs and benefits of options for action.

☐... Alert patient that symptoms may temporarily increase with over-vigorous exercising, physical or emotional stress, fatigue, illness.

☐... Re-emphasise strategy to cope with this of: a) decreasing exercise intensity but NOT regularity, b) seeking social support and professional advice.

Then ask whether patient:

☐... Can foresee setbacks that may occur specific to *their* circumstances?

☐... Knows what to do if these setbacks occur, to prevent serious disruption of therapy?

☐... Has any other questions?

☐... **Agree/record date and time for first follow-up – remind patients to do timed exercises before the follow-up.**

Follow-up phone calls / therapy session

Follow-up phone-calls should take place one week and three weeks after therapy session, and last 15 minutes.

1st follow-up

Tick boxes

☐... **Check general adherence first (i.e. discourage symptom focus)**

☐... **Congratulate on any adherence (i.e. praise adherence rather than criticise non-adherence).**

☐... **Ask about any barriers to adherence**

☐... **Help patient to generate solutions to these (see previous sections)**

☐... Get patient to make new *specific* commitment to new solutions (what/when/where)

☐... Congratulate patient on creating and committing to these solutions.

☐... Check and record patient monitoring and updating of exercise programme, including special exercises and general activities.

☐... Ask if any other questions/concerns, and respond positively.

☐... **Agree/record date/time for next follow-up.**

2nd follow-up

☐... **Check general adherence first (i.e. discourage symptom focus)**

☐... **Congratulate on any adherence (i.e. praise adherence rather than criticise non-adherence).**

☐... **Ask about any barriers to adherence**

☐... **Help patient to generate solutions to these (see previous sections)**

☐... Get patient to make new *specific* commitment to new solutions (what/when/where)

☐... Congratulate patient on creating and committing to these solutions.

☐... Check and record patient monitoring and updating of exercise programme, including special exercises and general activities.

☐... Ask if any other questions/concerns, and respond positively.

Appendix C – Consent form for VR trial

A trial of self-treatment booklets with and without therapist support

for people with dizziness

1	I confirm that I have read and understand the information sheet dated _____ (version ___) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
2	I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected.	☐
3	I understand that relevant sections of my medical notes and data collected during the study may be looked at by individuals from the research team, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.	☐
4	I give permission for the sessions I take part in to be tape-recorded.	☐
5	I give permission for quotes from the sessions to be used anonymously for research reports and presentations, and clinical and educational purposes.	☐
6	I agree to my GP being informed of my participation in the study.	☐
7	I agree to take part in the above study.	☐
OPTIONAL EXTRA INTERVIEW (You can do the rest of the project without doing this)		
8	I agree to take part in an interview about my experiences of self-treatment at the end of my treatment.	☐
9	I give permission for the interview I take part in to be tape-recorded.	☐
10	I give permission for quotes from my interview to be used anonymously for research reports and presentations, and for clinical and educational purposes.	☐

_____	_____	_____
Name of Patient	Date	Signature
_____	_____	_____
Name of Researcher	Date	Signature

When completed, 1 for patient; 1 for researcher site file; 1 (original) to be kept in medical notes

Appendix D – Information sheet for VR trial

Participant Information Sheet

A trial of self-treatment booklets with and without therapist support for people with dizziness

You are being invited to take part in a research study. Before you decide whether you wish to take part or not, it is important for you to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully and discuss it with others if you wish.

What is the purpose of the study?

Dizziness is a very common symptom that can reduce quality of life. Research has shown that chronic dizziness can be treated effectively using a self-treatment booklet to teach patients exercises that help the brain to overcome dizziness and improve balance.

The purpose of this study is to compare whether using the self-treatment booklet with up to one hour of support from a qualified therapist with experience of treating dizziness is more effective than routine care in reducing symptoms and improving quality of life in dizzy patients in primary care. We will also study whether people can benefit from receiving the self-treatment booklet without the extra support.

Why have I been invited?

We will be recruiting 330 participants with dizziness who are registered with 30 doctors' surgeries around Southampton and Berkshire. You have been chosen as you are registered with one of the doctors' surgeries that is taking part in this study and you have seen your doctor for dizziness sometime in the past two years.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you should keep this information sheet and sign and return the consent form to show you have agreed to take part. If you do decide to take part, you are still free to change your mind and withdraw at any time without giving a reason. This will not affect the medical care you receive in any way.

If you do **not** want to take part you do not need to do anything, as we will not contact you again.

However, because we hope our results will be used to review current primary care services for people with dizziness, it would be helpful for us to know if you are not taking part because you are a) no longer dizzy, b) dizzy but feel that the treatment would not be suitable for you, or c) dizzy but do not want to take part in the trial. If you do not want to take part in the trial, but would be willing to place a tick next to one of these reasons, we would be most grateful if you could complete and return the trial refusal slip in the free post envelope provided. This is not obligatory, and does not affect your right not to take part without giving a reason.

What will happen to me if I take part and what do I have to do?

- You will need to return your signed consent form in the free post envelope provided.
- You will be sent a questionnaire pack to complete and return to us. This should take no more than 20 minutes to complete If we do not hear back from you, we will send you a reminder letter, after which you will receive a telephone call from us as a second reminder.
- You will then be randomly (by chance) put into one of three treatment groups. Neither you, your doctor, or the researchers will be able to choose which group you are in. You will have an equal 1 in 3 chance of being put in any one of the three groups.
- You will be asked to follow the treatment instructions for your group for 12 weeks:

Group 1: Self-treatment booklet with therapist support

If you are in the self-treatment booklet with therapist support group, you will receive the self-treatment booklet by post and be invited to arrange a convenient time for a 30 minute telephone call from a qualified therapist with experience of treating dizziness.

The exercises in the self-treatment booklet should be carried out for 10 minutes, twice a day, every day for up to 12 weeks. They involve practicing head and body movements which may make you a little dizzy at first. After practicing them regularly you should find they no longer make you dizzy.

The therapist will talk you through the booklet, answer your questions and concerns and advise you on how to use the booklet for your particular problems and needs. This session will be followed up by two 15 minute phone calls one week and three weeks after starting self-treatment. The therapist will ask you how treatment has been progressing and advise you on how to overcome any problems. We will tape-record the telephone sessions so that we can check that the therapists are carrying out the phone calls in the way that was planned.

During these 12 weeks of self-treatment you are not limited to only this form of treatment. You can seek advice from your doctor as normal and continue with any other treatment that you may need for your dizziness whilst still taking part in this trial.

Group 2: Self-treatment booklet with no extra support

If you are in the self-treatment booklet with no extra support group, you will receive the self-treatment booklet by post to read and carry out on your own for 10 minutes, twice a day, every day for up to 12 weeks.

During these 12 weeks of self-treatment you are not limited to only this form of treatment. You can seek advice from your doctor as normal and continue with any other treatment that you may need for your dizziness whilst still taking part in this trial.

Group 3: Routine care

If you are in the routine care group, you will receive a letter explaining that your dizziness will be treated as normal by your doctor. You will have the opportunity to receive the self-treatment booklet after the one year final follow up of the trial has been completed.

- At the end of the 12 weeks, people in all groups will be sent a questionnaire pack to complete and return. This should take no more than 25 minutes to complete. If we do not hear back from you, we will send you a reminder letter, after which you will receive a telephone call from us as a second reminder

- One year after being assigned to a treatment group, all participants will be sent a final follow up questionnaire pack to complete and return. This should take no more than 20 minutes to complete. If we do not hear back from you, we will send you a reminder letter, after which you will receive a telephone call from us as our final reminder.

- At the end of the 12 weeks, we will interview a selection of participants who received the booklets about their experiences and views about the self-treatment booklet and telephone support. If you agree to take part a member of the research team will contact you. They will arrange with you a convenient time to conduct an informal interview on the telephone lasting between 30 minutes and one hour. The interviewer will not be a member of the team involved in your treatment. The interview will be tape-recorded so that the researchers can write it up and study it at a later date. If you want to take part in the treatment trial but do not want to do this interview

you do not have to. You can also change your mind if you agree to do the interview but decide you no longer want to at a later date.

What are the possible side effects of the treatment?

The self-treatment exercises require you to deliberately make yourself dizzy at first, but in a controlled manner. Although some people find this unpleasant, the exercises cannot cause any damage to your balance system.

If the exercises seem to bring on any of the symptoms listed below (which is **very** unlikely), you should not carry on with the exercises until your doctor has said it is safe for you to continue with them.

- A sharp, severe or prolonged pain in your neck, head or ear
- A feeling of fullness in the ear
- Deafness or noises in the ear
- Fainting with loss of consciousness or blacking out
- Double vision
- Numbness, weakness or tingling in your arms or legs

What are the other possible disadvantages of taking part?

The main disadvantage of taking part in the trial is the time and effort required to carry out the self-treatment exercises and complete the questionnaires.

What are the possible benefits of taking part?

Previous research has shown that chronic dizziness can be treated effectively using the self-treatment booklet, although we cannot guarantee that the self-treatment will be effective for you. You may also feel that you would like to help a medical research project. We hope our results will be used to review current primary care services for people with dizziness and this may result in improved services though there is no guarantee of this.

What happens when the research study stops?

After the research study has stopped, those in the self-treatment booklet groups can keep the self-treatment booklet they have been given. A self-treatment booklet will be sent to those in the routine care group if they wish to receive one. As this study is a trial, the telephone advice and support from the qualified therapists will not be available beyond the 12 week treatment time outlined above for those in the self-treatment booklet with telephone support group, and will not be available for those in the other groups. All groups will continue to receive normal medical care for the treatment of their dizziness.

What if relevant new information becomes available?

Sometimes during research studies, new information becomes available about the treatment being studied. If this happens, we will tell you and discuss whether you want to or should continue in the study. If you decide not to carry on, this will not influence the medical care you receive. If you decide to carry on, we will ask you to sign an updated consent form. If the study is stopped for any other reason, we will tell you why, and you will return to receiving only normal medical care.

What will happen if I don't want to carry on with the study?

If you choose to take part in the study you are free to change your mind and withdraw at any time without giving a reason. This will not affect the medical care you receive in any way. You may wish to withdraw entirely, or you may choose to withdraw from carrying out the exercises in the self-treatment booklet but still be willing to continue completing the follow up questionnaires. If you do withdraw entirely, we will need to use the data that has already been collected, so that we can analyse the results from the study accurately.

What if there is a problem?

If you wish to complain, or have any concerns about any aspect of this study please contact Professor Lucy Yardley, School of Psychology, Southampton University (Phone: 0238 059 4581, email: L.Yardley@soton.ac.uk). If you are still unhappy and wish to complain more formally, please contact Caroline Allee, Manager of the School of Psychology (Phone: 023 8059 3995, email: C.Allee@soton.ac.uk), or through the NHS complaints procedure (details are available from your doctors surgery). It is highly unlikely that you will be harmed by carrying out the self-treatment exercises, however, if you are harmed by taking part in this study, you may have grounds for legal action for compensation against the University of Southampton and the NHS.

Will my taking part in this study be kept confidential?

All information which is collected about you during the course of the research will be kept strictly confidential. Any information taken from your medical records about your dizziness will have your name and address removed when it leaves the doctors surgery, so that you cannot be recognised. You will not be identifiable in any report or publication. We will handle, process, store and destroy data following procedures in keeping with the Data Protection Act 1998. Data from this study will be kept for 10 years and will then be disposed of securely.

Involvement of the General Practitioner/Family doctor (GP)

With your permission, we will advise your doctor that you have agreed to take part in this study and a note will be made on your medical file. However, your doctor will not see any of the answers you give on the questionnaires for this study, so if you become more concerned about your dizziness, you should tell your GP.

What will happen to the results of the research study?

At the end of the study we will submit our results to be published in medical journals. Some results from the study will also be written up and submitted to the University of Southampton as part of a submission for a PhD degree. A

simplified version of the results will be made available to anyone who wishes to receive it. If you would like to receive a copy of this then please let us know.

Who is organising and funding the research?

The National Institute for Health Research (Research for Patient Benefit Programme) has funded this project and is paying the costs of undertaking the study and its analysis. It is organised and being carried out carried out by researchers at the Department of Audiology at King Edward VII Hospital in Berkshire and the University of Southampton.

Who has reviewed the study?

The study has been reviewed and given approval by Southampton and South West Hampshire Research Ethics Committee, reference number 08/H0504/31.

Further information and contact details

If you have any further questions or queries then please contact:

Ingrid Muller

School of Psychology, University of Southampton

Southampton, SO17 1BJ

Tel: 023 80592581

Email: I.Muller@soton.ac.uk

THANK YOU FOR YOUR TIME IN READING THIS INFORMATION SHEET

Appendix E – Transcribing conventions

Bold	**Bold text indicates the interviewer's speech**
Normal text	Normal text indicates the participant's speech
underlining	underlined words were spoken with emphasis
CAPITALS	words in capitals were uttered loudly
…	pause (up to 2 seconds)
……	long pause (more than 2 seconds)
.word	a full stop before word indicates an audible intake of breath
I see::::	one or more colons indicates extension of vowel sound
[]	empty square brackets means material has been deliberately omitted
[*information*]	italicised text within square brackets is researcher's comments or clarifications
[????? 5 secs]	Question marks and numbers within square brackets indicates that speech is inaudible/indiscernible, and gives approx length of missed information
[? Blah blah blah ?]	Text surrounded by question marks within square brackets means that the accuracy of the transcription is in doubt

Appendix F – Chapter 4 coding manual

Theme No	Theme / sub-theme name	Definition	Description (how to decide when theme occurs)	Exclusions	Positive example	Example of exclusion
1	**Living with Dizziness**	This theme is concerned with people's experience of living with dizziness				
1.1	Daily experiences and effects of dizziness symptoms	Practical and physical ways in which dizziness symptoms regularly impact on participant's life.	When the practical ways in which symptoms affect participant's life on a regular basis are mentioned	This will exclude emotional effects.	"You can't tell your brain to stop feeling dizzy. You know when you are really hung over? Just imagine feeling like that all the time. That's what it's like."	"I was reaching quite an element of despair with it all."
1.2	Emotional effects of	Emotional ways in which dizziness	When the emotional ways in which symptoms effect	This will exclude practical	"I was reaching quite an element of despair	"You can't tell your brain to stop feeling

	dizziness	regularly impacts on participant's life	participant's life on a regular basis is mentioned	impacts of dizziness.	with it all."	dizzy. You know when you are really hung over? Just imagine feeling like that all the time. That's what it's like."
1.3	Others' attitude towards dizziness	The attitudes of other people towards the participant's dizziness	Where references are made to the way others respond to; feel about ; react towards; or talk about participant's dizziness	This will exclude attitudes of health care professionals or members of the VR trial team.	"I never ever discuss it really. My husband is always there for me, but I can't say every day I've got this problem. It would ruin our marriage."	"I went to my doctor and got no joy from him."
2	**Prior treatment of Dizziness**	Previous medical or alternative treatments the participant has undergone for	When previous treatments or consultations with healthcare professionals are mentioned. This will also include situations where not visiting the doctor is	This will exclude everything that doesn't explicitly mention prior treatments for dizziness or visiting healthcare	"My doctor had given me some exercises to do, but these were different exercises and more in depth."	

		dizziness	explicitly mentioned.	professionals.		
3	**Expectations of VR trial**	This theme explores people's expectations of the VR trial				
3.1	Expecting instructions to do exercises	Participants' expectation of a set of instructions for how to do VR exercises	Where participants mention that they expected to receive instruction on how to do VR exercises	Where participants discuss their experience of doing VR exercises	"I expected that the exercises would be describe properly, and that I would be able to them and that the instructions would be easy to follow."	"It was quite simple really. Very easy to follow."
3.2	Expecting support	Participants expecting an element of support involved with the trial	Where participants mention expecting an element of support, whether it be in terms of the telephone support condition, a supportive trial team or feeling supported through the trial materials.	Where participants mention support they received during the trial without linking this to expectation	"I expected what I had, which was support…how I was managing, if I was understanding everything okay, any questions."	"The support I was getting I thought was very helpful."

3.3	Expecting to alleviate symptoms	Participant's expectations that VR trial will alleviate dizziness symptoms	Where the participant directly mentions that they expected the trial to improve their dizziness symptoms or physical problems they have due to dizziness before they started the exercises.	Where participants mention improved symptoms due to VR exercises	"I was hoping that it would alleviate me from getting the symptoms anymore"	"I stopped feeling dizzy after two weeks. It was great."
3.4	No expectations	Having no expectations of VR trial before starting	Where participants mention that they had no preconceived ideas about what the trial would involve	Where participants mention that the trial met their expectations, or mention any other specific expectation they had	"I didn't have any pre-conceited ideas of what it might have been like."	"I expected what I had, which was support…how I was managing, if I was understanding everything okay, any questions."
4	**Experience of using booklet**	This theme explores people's experience of using the VR booklet				

4.1	Easy to understand	Finding the VR booklet easy to understand	Where participants mention the booklet being simple, easy to understand or easy to follow	This will exclude the mention of asking VR therapists to explain exercises or issues raised by the booklet	"It was easy to understand and read and follow."	"She could answer every question I had."
4.2	Informative	Finding the content of the booklet informative	Where participants mention finding the content of the booklet interesting, educational or informative.	This will exclude the mention of physical aspects of the booklet such as the layout rather than the content	"The information it gave you was very good and it was very informative."	"I really liked the paper it was printed on, but then that's personal."
4.3	Recording progress	Using the booklet to record one's progress through the stages of exercises	Where specific mention is made of recording the results of your exercises as suggested by the VR booklet	This will exclude people's perceptions of improved symptoms or descriptions of progressing through the exercises.	"I found the little tabs where you can write down what you did each week quite good."	"After a few weeks I stopped having symptoms."
4.4	Positive experience of booklet	A positive experience of using the VR booklet	Where participants mention positive experiences related to using the VR booklet by describing them using positive term (e.g. good, nice, pleasant)	This will exclude positive experiences related to information provision, ease of using the booklet or recording progress. It will	"I think the booklet is very helpful."	"It was easy to understand and read and follow."

			or describing a positive emotional response they had to using the booklet. A positive function of the booklet will also be included here.	also exclude positive experiences of doing exercises, improved symptoms or telephone support sessions.		
4.5	Difficulty using booklet	Problems or difficulties that arose from using the booklet	Where specific mention is made of difficulties encountered in using the booklet	This will exclude problems relating to doing exercises or adherence problems. It will also exclude problems with recording progress, but only if it isn't related to the booklet's instructions or template form.	"I must admit I had to read it about 5 or 6 times before I knew what the heck I was meant to be doing."	"I stopped doing them after 3 weeks because I was getting worse."
5	**Experience of VR exercises**	This theme explores people's experience of doing VR exercises				
5.1	Progression through exercises	Experience of moving on from one exercise	Where participants mention the way they progressed through	This will exclude problems experiences using	"It was great to see where at first when I	"Oh they definitely do help because

		to another, or increasing the intensity of an existing exercise.	the exercises or increased the intensity of doing some exercises.	exercises and mention of progression through exercises with specific reference to telephone support sessions	did one of the exercises I was staggering all over the place, after a while I wasn't."	you know where you stand. You know what you've done and you know what they expect you to do next time they ring."
5.2	General activity exercises	Experience of using the general activity exercises as described in the VR booklet	Where specific mention is made of doing the general activity exercises	This will exclude experience of doing other VR exercises	"Playing a ball game, or something like that I thought was quite useful so I could also do things which would be more natural for me."	"It was great to see where at first when I did one of the exercises I was staggering all over the place, after a while I wasn't."
5.3	Positive experience of exercises	Positive experience of doing VR exercises	Where specific mention is made of positive experiences of exercises by referring to them in a positive light (e.g. good, pleasant, great) or by describing positive emotional responses regarding the	This will exclude descriptions of VR exercises where no positive references are made. It will also exclude specific references to general activity exercises,	"They were easy to do. There was nothing I couldn't or wouldn't do."	"Playing a ball game, or something like that I thought was quite useful so I could also do things which would be more natural for

			exercises	progression through exercises, exercises after telephone session and positive references to using the booklet		me."
5.4	Negative experience of exercises	Negative experiences of doing VR exercises	Where experiences of VR exercises are described in a negative light, or as causing negative reactions.	This will exclude negative comments about using the booklet, specific references to general activity exercises or negative experiences of exercises after telephone session. This will also exclude adherence problems due to negative experience	"Now I didn't know whether to blame the exercises or whether it would have happened any case, but I started having migraines again."	"I just couldn't carry on with them, they made me too dizzy."
5.5	Exercises after telephone session	Experience of doing VR exercises following a telephone session with one of	Where participants discuss their experience of doing the exercises specifically in relation to a VR therapy session	This will exclude experiences of doing exercises where this isn't mentioned in relation to	"Oh they definitely do help because you know where you stand. You know	"It was great to see where at first when I did one of the exercises I was

		our VR therapists		having a telephone session. This will also exclude all comments from participants in the booklet only condition.	what you've done and you know what they expect you to do next time they ring."	staggering all over the place, after a while I wasn't."
6	**Experience of telephone sessions**	This theme explores people's experience of having the additional telephone support				
6.1	Advice, monitoring and information	Experiencing advice, monitoring and information provision from the VR therapist	Where the telephone sessions are discussed in relation to being monitored or receiving advice and information from the VR therapist	This will exclude references to motivational effects of advice and information given. References to experience of exercises after telephone sessions will also be excluded.	"Most of my questions were answered so that was good."	"They were easy to do. There was nothing I couldn't or wouldn't do."
6.2	Motivation to do exercises	Telephone sessions motivating	Where participants mention feeling motivated to adhere to	This will exclude descriptions of exercises	"I liked the telephone support. I found it	"Oh they definitely do help because

		participants to do exercises	exercises after telephone session or mention feeling like they would not have adhered if it weren't for the sessions	after the telephone session, or mention of how the exercises were changed / varied or adapted as a result of the session.	gave me that little extra impetus to keep going."	you know where you stand. You know what you've done and you know what they expect you to do next time they ring."
6.3	Amount of personal contact	The amount of contact the participant receives from VR therapist	Where specific reference is made to the number of telephone sessions they received from the VR therapist, or the length of the sessions	This will exclude references to the quality of the sessions, or specific elements of the therapeutic relationship. It will also exclude specific references that telephone support is unnecessary.	"It would have been nice to have had that for longer."	"The booklet was sufficient. I didn't really need the telephone support."
6.4	Telephone support unnecessary	The telephone support was not necessary in order to successfully use the	Where specific references are made that the telephone support was not needed to successfully complete the self-	This will excluded references that fewer sessions would have been fine. It will also exclude	"The booklet was sufficient. I didn't really need the telephone support."	"I got some benefit from the telephone calls but not as much as I would've

		booklet	treatment.	negative experiences of telephone sessions.		likes."
6.5	Positive experience	Positive experiences of having telephone support sessions	Where specific mention is made to positive experiences of telephone support, i.e. describing having the telephone support or the therapist personally in a positive light.	This will exclude positive references to the therapeutic relationship (such as support, encouragement, reassurance etc.). Advice and information provision described in a positive light will also be excluded as will feeling motivated or experience doing exercises after telephone sessions.	"They [telephone calls] were wonderful and very necessary"	"Oh they definitely do help because you know where you stand. You know what you've done and you know what they expect you to do next time they ring."
6.6	Negative experience	Negative experiences of having telephone support sessions	Where specific mention is made of negative experiences of telephone support, i.e. describing having the sessions or the therapist personally in negative light.	This will exclude negative experiences of using the booklet or doing the exercises. It will also exclude feeling that telephone support is unnecessary or	"I got some benefit from the telephone calls but not as much as I would've likes."	"The booklet was sufficient. I didn't really need the telephone support."

				commenting on the number of telephone session provided.		
6.7	Relationship with therapist	This sub-theme explores the therapeutic relationship in those who had the additional telephone support				
6.7.1	• Easy to talk to	Finding the VR therapist easy to talk to	Specific mention that the therapist is easy to talk to or that conversation was relaxed	This will exclude feeling reassured, encouraged, supported, cared about or more confident as a result of the relationship with therapist.	"They were very pleasant on the phone, very easy to talk to."	"I think it makes me feel as if there is somebody who actually cares, quite honestly."
6.7.2	• Support	Feeling supported through the	Mentioning feeling morally or psychologically supported by	This will exclude feeling encouraged, reassured, or	"The support I was getting I thought was	"They [telephone calls] were

		relationship with VR therapist	VR therapist.	more confident as a result of the therapeutic relationship. This will also exclude feeling relaxed and at ease or cared about.	very helpful."	wonderful and very necessary"
6.7.3	• Encouragement	Feeling encouraged through the relationship with VR therapist	Specific mention of encouragement or feeling encouraged by VR therapist.	This will exclude feeling reassured, supported, cared about or more confident as a result of the relationship with therapist.	"She was very encouraging and I think that's the best any of the telephone supports can be."	"The support I was getting I thought was very helpful."
6.7.4	• Reassurance	Feeling reassured through the relationship with VR therapist	Specific mention of reassurance or feeling reassured by VR therapist.	This will exclude feeling encouraged, supported, cared about or more confident as a result of the relationship with therapist.	"Knowing in that time frame that I was going to speak to her a week later was really reassuring."	"She was very encouraging and I think that's the best any of the telephone supports can be."
6.7.5	• Somebody who cares	Feeling like somebody cares through the relationship with VR	Specific mention the VR therapist cares, or feeling like the therapist cares about participant.	This will exclude feeling reassured, supported, encouraged or more confident as a result of the	"I think it makes me feel as if there is somebody who actually cares, quite	"Knowing in that time frame that I was going to speak to her a week later

		therapist		relationship with therapist.	honestly."	was really reassuring."
6.7.6	• Increased confidence	Feeling increased confidence through the relationship with VR therapist	Specific mention of feeling more confident as a result of the relationship with VR therapist.	This will exclude feeling reassured, supported, cared about or encouraged as a result of the relationship with therapist.	"At the time the telephone calls gave me more confidence."	"They were very pleasant on the phone, very easy to talk to."
7	**Adherence problems**	This theme explores adherence problems people had to the VR exercises				
7.1	Induced dizziness	Not adhering to exercises due to inducing dizziness or making dizziness worse	Specific mention that exercises weren't followed as they should be due to the exercises making the dizziness symptoms worse	This will exclude problems doing VR exercises due to worsening symptoms where specific problems with adherence aren't mentioned.	"Every time you try it makes you feel terrible, which is why in the end I didn't complete the whole thing because I was having such a	"Doing the exercises made me feel very dizzy."

					negative effect."	
7.2	Improved dizzy symptoms	No adhering to exercises due to an improvement in dizziness symptoms	Specific mention that exercises weren't followed as they should have been due to an improvement in dizziness symptoms	This will exclude general discussion of improved symptoms where adherence problems aren't mentioned	"You know the trouble is when you think you are feeling better you don't always do the exercises regularly."	"It was fantastic. I felt so much better."
7.3	Lack of motivation	Not adhering to VR exercises due to a lack of motivation to continue with daily exercises	Specific mention that exercises weren't adhered to due to lack of motivation to do them daily	This will exclude mentions of feeling motivated by VR therapist if not adhering to the exercises aren't specifically mentioned.	"The study was 12 weeks, but it's hard to stay motivated, particularly when you have conflicting priorities."	"Having the telephone calls were a great way to stay motivated."
7.4	Lifestyle restrictions	Not adhering to VR exercises due to lifestyle restrictions	Specific mention that exercises weren't adhered to as a result of other lifestyle choices or life events	This will exclude lack of motivation or negative experiences of telephone sessions where lifestyle restrictions might play a role (e.g. in arranging an appointment)	"I was only doing once a day. I did say before I don't have time to do twice a day. I'm working and I do shift work so it wasn't practical to do	"The study was 12 weeks, but it's hard to stay motivated, particularly when you have conflicting priorities."

					it twice."	
7.5	Other health problems	Not adhering to VR exercises due to other health problems	Where participants mention being unable to adhere to the treatment exercises due to other health problems	This will exclude lifestyle restrictions and induced dizziness	"I believe that they helped me, because I did them for over 9 weeks, and then I had to stop because I had an operation on a cyst on my neck."	"I was only doing once a day. I did say before I don't have time to do twice a day. I'm working and I do shift work so it wasn't practical to do it twice."
8	**Completing questionnaires**	Completing questionnaires as part of the VR trial	Where completing questionnaires as part of the trial is explicitly mentioned	This will exclude anything that doesn't explicitly mention completing questionnaires as part of the trial	"I completed a questionnaire as well, which I though was very useful."	
9	**Changes since VR trial**	This theme explores changes since taking part in VR trial				

9.1	No change in symptoms	Having no change in dizziness symptoms since starting the VR trial	Where specific references are made to experiencing no change in symptoms	This will exclude explanations of adherence problems and experience of doing the exercises	"The exercises haven't really made any difference."	"I got some benefit from the telephone calls but not as much as I would've likes."
9.2	Improved dizziness symptoms	Experiencing improved dizziness symptoms since VR trial	Where specific reference is made to improved symptoms since the trial	This will exclude hope for improvement and advice for others thinking of taking part in similar self-treatment. It will also exclude improved symptoms in relation to adherence problems	"Since I was doing them I must admit I haven't had any dizziness."	"It is great to know there is a way you can help yourself if you persevere."
9.3	Worsening symptoms	Experiencing worsening dizziness symptoms since VR trial	Where specific reference is made to symptoms that have worsened since trial	This will exclude negative experience doing exercises, adherence problems or experience using booklet	"It hasn't had much difference at all, in fact, if anything I'm more likely to loose my balance now."	"Shake-stare, nod-stare, none of these I could complete… they always made me feel giddy."
9.4	Hope for improvement	Feeling hopeful that improvement is	Where specific mention is made to feeling hopeful that	This will exclude adherence problems, prior	"It is great to know there is a way you	"At the time the telephone calls gave

		possible since taking part in VR trial	improvement in symptoms is possible	treatment of dizziness and all references to the therapeutic relationship rather than personal changes since the trial	can help yourself if you persevere."	me more confidence."
9.5	Other health benefits	Experiencing health benefits other than improved dizziness symptoms since VR trial	Where specific mention is made of non-dizzy health improvements since VR trial	This will exclude improved dizziness symptoms, adherence problems and advice to others thinking of doing a similar self-treatment.	"I can be specific that it certainly helped my neck muscles."	"Since I was doing them I must admit I haven't had any dizziness."
9.6	Increased self-awareness	Being more self aware since VR trial	Where specific reference is made to increased self-awareness (either regarding physical symptoms or emotional change or responses) since the trial	This will exclude any other changes since VR trial, and will exclude all references to the therapeutic relationship rather than personal changes since trial	"It just made me think a little bit more before I got up and things like that."	"It just made me realise that there are a lot of people like me, suffering from it, and a lot of people that suffer a lot, lot worse."

9.7	Confidence	Experiencing a change of confidence since VR trial	Where a change of confidence level is specifically mentioned in relation the VR trial as a whole	This will exclude references to confidence in relation to living with dizziness or prior treatment of dizziness. It will also exclude increased confidence as a result of the therapeutic relationship	"Well I have got more confidence now."	"At the time the telephone calls gave me more confidence."
9.8	Emotional well being	Experiencing a change in emotional well-being since VR trial	Where a change in emotional well-being is specifically mentioned in relation to the VR trial as a whole. Emotional well being will be identified through reference to a lack of negative emotion (such as anxiety, depression, feeling nervous) or references to positive emotions such as feel calmer, at peace with self, better within self, happier etc.	This will exclude references to increased confidence, increased self-awareness, emotional effects of living with dizziness and all references to the therapeutic relationship rather than personal changes since the trial	"I'm not so frightened by it I suppose, actually in a way much calmer about the whole thing."	"Well I have got more confidence now."

9.9	Knowing you're not alone	Experiencing the feeling that there are many other people with dizziness and / or people who understand and is trying to help people with dizziness	Where specific reference is made to realising (since VR trial) that there are many others who suffer from it, and/or there are people who understand and are trying to help reduce the symptoms	This will exclude advice to other thinking of taking part in similar self-treatment and references to prior treatment of dizziness. It will also exclude all references to the therapeutic relationship surrounding "knowing you're not alone" rather than personal changes since the trial	"It just made me realise that there are a lot of people like me, suffering from it, and a lot of people that suffer a lot, lot worse."	"My doctor had given me some exercises to do, but these were different exercises and more in depth."
10	**Advice to others considering self-treatment**	This theme concerns advice to other people considering a similar form of self-treatment.				
10.1	Advice about telephone support	Advice to other people with dizziness	Responses to directly being asked if they have any advice	This will exclude responses where the reference is to	"Do it with the telephone support	"Personally give it a go, because I'm

		thinking of doing a similar self-treatment program with specific focus on telephone support	for others.	the booklet rather than the telephone support	rather than without if you get the choice."	sure it helps people."
10.2	Advice about VR trial and booklet	Advice to other people with dizziness thinking of doing a similar self-treatment program with specific focus on using the VR booklet	Responses to directly being asked if they have any advice for others.	This will exclude responses where the reference is to the telephone support rather than the booklet	"Personally give it a go, because I'm sure it helps people."	"Do it with the telephone support rather than without if you get the choice."
11	**Feedback to developers**	This theme concerns feedback to the developers of the VR booklet and telephone support				
11.1	General feedback	Feedback to the developers of the VR booklet	Responses to directly being asked if they have any feedback to the people who	This will exclude responses where the reference is to the telephone support	"I would say it was a good job done. It was well thought out."	"It might be worthwhile if you had somebody

			designed the booklet	rather than the booklet		who's been through the experience … then they know what they're asking the person to do."
11.2	Feedback about telephone support	Feedback to the developers of the VR telephone support	Responses to directly being asked if they have any feedback to the people who designed the telephone support	This will exclude responses where the reference is to the booklet rather than the telephone support	"It might be worthwhile if you had somebody who's been through the experience … then they know what they're asking the person to do."	"I would say it was a good job done. It was well thought out."

Appendix G – RIAS codes

RIAS code	Description	Example
Personal	Personal remarks, social conversation	"Nice to meet you"
Laughs	Laughing or telling jokes	
Concern	Shows concern or worry	"I'm worried about my dizziness"
Reassurance /optimism	Reassures, shows encouragement or optimism	"I really think this will help"
Approve	Shows direct approval	"I really appreciate your help"
Compliment	Gives a general complement	"My GP is really helpful"
Disagree	Shows direct disapproval	"No, I don't believe that"
Criticism	Shows general criticism	"I can't believe he said that to you"
Empathy	Any empathetic statements	"That must've been very hard for you"
Legitimise	Statements that legitimise feelings, thoughts or behaviours	"It's natural to be worried about that"
Partnership (physician)	Statement to convey the physician's alliance with	"I'd like us to work together to resolve this"

	patient	
Self-disclosure	Statements that reveals personal information	“I’ve also tried doing that”
?Reassure	Asking for reassurance	“Do you think I will recover?”
Agree	Showing agreement or understanding	“Yes, that’s right”
Back-channel	Indicator of interest or attentive listening	“Mmm-huh”
Transition	Indicating moving to another topic	“Ok, so…”
Orienting	Statements indicating what’s about to happen, instructions	“If you could turn to page 5”
Checks	Paraphrase / checks understanding or accuracy	“So what you’re saying is…”
? Understand	Checks if the other person understands	“Does that all make sense to you?”
? Bid	Requesting repetition	“Could you say that again?”
? Opinion (physician)	Asking for patient opinion	“What do you think about that?”
? Permission (physician)	Permission to give information or proceed	“Would it be OK if I made a suggestion?”

Gives-medical	Statements of fact about medical condition	"I was diagnosed 2 years ago"
Gives-therapy	Statements about therapy	"I started doing the exercises last week"
Gives-lifestyle	Statements about lifestyle	"I work shifts"
Gives-psychosocial	Statements relating to psychosocial states, concerns or problems	"I get very panicky when the symptoms start"
Gives-other	Statements of fact not relating to any of the above categories	"Today is the 15th"
[?] Medical	Closed question about medical condition	"Are you having any symptoms?"
[?] Therapy	Closed question about therapy	"How often do you do the exercises?"
[?] Lifestyle	Closed question about Lifestyle	"Who do you live with at the moment?"
[?] Psychosocial	Closed questions about psychosocial or emotional state	"Are you anxious about this?"
[?] Other	Closed questions not relating to the above categories	"Do you want to take part in this study?"
? Medical	Open questions about medical condition	"What did your GP say?"

? Therapy	Open questions about therapy	"How are you finding the exercises?"
? Lifestyle	Open question about lifestyle	"How do you spend most of your days?"
? Psychosocial	Open questions about psychosocial or emotional state	"How are you dealing with that?"
? Other	Open questions not relating to the above categories	"Why are you tape recording this?"
C – Medical (physician)	Statements about the medical problem	"See your GP if this isn't better in 2 weeks"
C – Therapy (physician)	Statements about the therapy	"Do the exercises twice a day"
C – Lifestyle (physician)	Statements about lifestyle	"You could try going for a short walk to start with"
C – Psychosocial (physician)	Statements about psychosocial or emotional state	"Breathing exercises may help when you feel panicky"
? Service	Request for service or medication	"Can you recommend a good audiologist in London?"
Unintelligible	Where you cannot make out what is being said	

Appendix H – Chapter 6 coding manual

Theme No	Theme / subtheme name	Definition	Description	Exclusions	Positive example	Example of exclusion
1	**Introduction to telephone session**	Therapists' introduction of the purpose and structure of the support session.	Usually very early in session when therapists explain the purpose of the session and what will happen.	This will exclude later orientations when therapists direct the session.	"The purpose this phone call is to go through the booklet and double check you understand how to do the exercises"	"If you go to the section called 'will this do me any harm' you'll see some symptoms to look out for"
1.1	Hope for improvement	Feeling hopeful that improvement is possible if following the VR exercise	Where specific mention is made to feeling hopeful that improvement in symptoms is	This will exclude adherence problems, prior treatment of dizziness and therapist	"I just really hope this can help me, maybe, feel less dizzy."	"You're doing great. If you keep going like this you could see a big improvement over the coming

		programme.	possible	reassurance.		weeks”
2	**Going through booklet**	Therapist talking about specific sections in the booklet.	Where therapists specifically mention a section in the booklet as per therapy manual	Where patients discuss a section in the booklet, where therapists check understanding of a section.	“So at the back of the booklet, did you see the bit where you can decide on two times to do the exercises?”	“Did you understand the bit about how the balance system works?”
2.1	Explanation of VR	Therapists’ explanation of how vestibular rehabilitation works.	When therapists describe physiological effect of VR and the balance system and factors than my influence recovery.	Experiences of dizziness, reference to sections in the booklet.	“It is how your brain uses information from several different sources in order for you to keep your balance. So if you get dizzy it might be any part of the	“Did you read the section where it explains how the exercises work?”

					system, or it might be that something has changed in the system and your brain needs to re-learn how to interpret that information."	
2.2	Checking participant understanding	Therapists checking whether participants understood sections of the booklet or elements of VR	Where therapists specifically asks if participants understood.	Talking about the booklet or explanations of VR	"Did that all make sense?"	"This section explains how the balance system works."
2.3	Therapist explain other aspect of trial	Therapist talking about the VR trial.	Where therapists talk about the research rather	Discussing the merit for VR, or discussing	"Previous research has found it to be	"It sounds like these exercises could really help

			than delivering therapy.	specific elements of the booklet in relation to treatment rather than research.	effective for the type of dizziness you're describing."	you."
3	**Experiencing dizziness**	Participants describing their experiences of dizziness	Describing sensations of dizziness or effect of symptoms.	Induced dizziness as a result of VR, therapist questions about dizziness.	"I'm suffering with this I can also have attacks of a feeling of overwhelming dizzy, like I'm going to faint."	"They [VR exercises] make me feel just awful."
3.1	Therapist questions about dizziness	Therapists asking participants about their dizziness.	Specific questions about dizziness symptoms, experiences, beliefs or past	Questions about understanding of the booklet.	"Are there specific things that make you feel dizzy?"	"Do you understand how the exercises can help you"?

			treatments.			
4	**Previous treatment for dizziness**	Participants' discussion of previous medical encounters relating to dizziness.	Description of previous treatments and experiences.	Description of symptoms and experience of present VR exercises.	"I went to see the osteopath and I was getting better."	"It's like the world just starts spinning."
4.1	Therapist medical advice	Therapists discussing medical issues	Discussions about medications, seeing a doctor, dangerous symptoms to look out for	Checking understanding of contraindications, participant discussions of medical issues.	"I can't advise you on your medication, that's something you need to talk to your doctor about."	"Did you understand the section on symptoms to look out for?"
5	**Experience of carrying out exercises**	Participants' discussions of carrying out VR exercises	Descriptions of carrying out exercises, issues with specific	Experience of dizziness, concerns regarding	"Of the exercises the side to side one, provokes a very much	"I just worry that it'll make me feel worse so I've been doing it

			exercises.	exercises.	stronger reaction."	slowly."
6	**Participant concerns**	Participants raising concerns about any element of VR.	Where participants express that they are worried about anything relating to the booklet, exercises or trial.	Experience of dizziness, any therapist talk.	"I have bouts of it and then I don't have anything. Do you know what I mean? So I started thinking oh maybe I shouldn't be on this, because I didn't seem to fit."	"It's awful feeling dizzy."
7	**Therapist encouragement**	Therapists being positive or	Where therapists encourage participants, or	Participants being positive, general	"[Therapist] That's great, excellent. Always	"[Participant] The booklet is great, really easy to

		encouraging.	positively respond regarding any aspect of the trial, booklet or exercises.	discussion about the booklet or exercises.	good to get the family involved."	read and understand."
8	**Therapist reassurance of no harm**	Reassurance from therapist that the exercises are safe and won't cause harm.	Mention that contraindications are rare and very unlikely, inducing dizziness won't damage the balance system, or addressing any other safety concerns with reassurance.	Therapist encouragement, participant concerns.	"As long as you don't get any severe neck pain it is absolutely fine to carry on and it probably is good for your neck, just to move things about a bit."	"It sounds like you're doing really well"

9	**Therapist responding to participant**	Therapist picking up on a verbal cue from participant and following it up during the session.	Where the therapist picks up on a topic the participant is trying to address, or exploring issues further with follow-up questions or paraphrasing to show understanding.	Unrelated friendly chat, responding to an explicit question or issue raised by the participant. Talking through booklet or about contraindications.	"Some of it sort of I can associate with, **oh wonderful**, some of it isn't relevant, but yes I've been through it and I've done the exercises as per umm… week… week one exercises, **yes**, the shake, the nod etc, so, yes, and I've scored those. **Good, OK.** **So which bits**	"Do you think the exercises will work for me? **Your type of dizziness is exactly what the exercises were designed for, so if you keep it up you might see a difference in a few weeks.**"

					did you think related to you?"	
10	**Therapist not responding to participant concerns**	Therapist not picking up on verbal cues from participant.	Where the therapist does not respond to specific topics that a participant is trying to address or does not answer a specific question.	Unrelated friendly chat, responding to participant questions or verbal cues.	"I tried the exercises and felt sick and giddy. And umm... I was like that all morning, so I left it and didn't do it anymore. **So you've only tried it once?"**	"oh blimey, sorry my mobile's ringing. **That's alright, don't worry**. Can you hold on a second? **Don't worry."**

11	**Unrelated friendly chat**	Conversation unrelated to dizziness, the trial or VR,	Where therapists and participants casually chat about anything outside the study.	Any relation to dizziness, VR, booklet or the study.	**"You don't want be to sneezing all the time though, do you.** Probably not in these current circumstances! **No.** [*Both laugh*.] **Absolutely not. People would probably back away from you, don't they?"**	"Sorry I missed your call earlier. **That's alright, no problem at all. Umm… at least we are speaking now, so that's good."**

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