TINNITUS:

Effects on the Patient and Partner

Thesis submitted to the Faculty of Medicine and Biological Sciences,
University of Leicester, in partial fulfilment of the requirements
for the award of Degree of Doctorate in Clinical Psychology

By Sarah Toft

BA (Hons), MA

School of Psychology – Clinical Section

June 2003
TINNITUS: Effects on the Patient and Partner

Sarah Toft

Abstract

Objectives: To investigate the impact of tinnitus on the patient and their partner, in terms of psychological distress. To consider the influence of tinnitus severity, gender, hearing impairment, relationship quality and coping style.

Method: Twenty-two patients and partners were recruited. A postal questionnaire was used. This included the General Health Questionnaire – 30 item, Golombok Rust Inventory of Marital State, Tinnitus Handicap Inventory and Coping Inventory for Stressful Situations. Questionnaires were also designed to ascertain information such as demographic details and consequences of tinnitus. Data were subjected to a content and statistical analysis.

Results: Low levels of psychological distress were reported both by patients and partners and no significant difference was found between their distress levels. Higher distress was unrelated to increased relationship difficulty.

Partners of those with hearing impairment reported higher distress. Hearing impaired patients and their partner reported fewer relationship problems. Gender was unrelated to psychological distress, or to tinnitus severity.

An association between severe tinnitus and increased distress was found for both patients and partners. Severe tinnitus was however, unrelated to relationship difficulty. Patients with severe tinnitus used avoidant and emotion coping more than those with mild tinnitus. Coping style and patient gender interacted; females tended to engage in emotion and avoidant coping more than males.

Partners reported that their relationship and communication with the patient were negatively influenced by tinnitus.

Conclusion: Tinnitus did not lead to increased distress in patients compared to partners; however, partners reported problems related to tinnitus. Severe tinnitus related to increased distress in patients and partners. Severe tinnitus as measured by the Tinnitus Handicap Inventory, may be useful in indicating which patients (and partners) are likely to experience psychological difficulties.

Clinical and theoretical implications of the study are discussed and suggestions for future research are proposed.
Acknowledgements

An acknowledgement to all the people who have contributed to this research feels inadequate; without their support, this research would not have been possible. To the tinnitus clinic staff: Claire Roberts, Margot Boss, Sandy Grimes, Diane Hallworth, Aileen Abbott, Dr Peter Tungland and Margaret Bradshaw, for their interest, willingness to participate and dedication in recruiting patients. To the North Derbyshire Tinnitus Support Group, for their assistance in the pilot study.

To Dr Alan Blair, for his unfailing support and ability to reassure and encourage during difficult moments. To Dr Aftab Laher for statistical advice and guidance in the write-up of the study. To Sharon Steddy and Sophie Nesbitt for sharing blood, sweat and tears in peer supervision.

To my family, without whom training would have been impossible. Thank you to my Dad, who has spent hours checking over my coursework. Thanks to friends for the emails and letters that kept me sane during the write-up of this research.

To Anthony, to whom I owe a huge debt for his support and an apology for neglecting him for the duration of this course. Now our new ‘course-free’ life begins!
# Contents

1. Introduction  
1.1. Tinnitus  
1.2. Theories of Determinants of Tinnitus Severity  
1.3. Patient Reactions to Tinnitus  
1.4. The Impact of Tinnitus on Others  
1.5. The Impact of Illness and Impairment on the Partner  
1.6. The Role of Support in Marriage  
1.7. Gaps in the Literature  
1.8. Statement of Research Aims  
1.9. Hypotheses  

2. Method  
2.1. Design  
2.2. Participants  
2.3. Procedure  
2.4. Measures  
2.5. Content analysis  

3. Results  
3.1. Overview  
3.2. Rationale for Statistical Analysis  
3.3. Return Rate  
3.4. Sample Characteristics  
3.5. Descriptive Data  
3.6. Testing the Hypotheses  
3.7. Post Hoc Analysis  
3.8. Content Analysis  

4. Discussion  
4.1. Key findings  
4.2. Results related to hypotheses and previous literature  
4.3. Content Analysis  
4.4. The Sample  
4.5. Theoretical Implications of Results  
4.6. Research Critique  
4.7. Recommendations for Future Research  
4.8. Clinical Implications of Results  
4.9. Conclusion  

Appendices:  
Appendix A: Copy of Ethical Approval from North Derbyshire Ethics Committee  
Appendix B: Copy of Ethical Approval from Doncaster Ethics Committee  
Appendix C: Copy of Ethical Approval from Sheffield Ethics Committee  
Appendix D: Introductory paragraph for ‘C’ clinic appointment letters  
Appendix E: Patient Information Leaflet  
Appendix F: Consent Form – Patient with Tinnitus Version  
Appendix G: Consent Form – Partner Version  
Appendix H: Covering letter for non-attending partners  

iv
List of Tables:
Table 1: RNID Prevalence Rates for Tinnitus in UK Adults 3
Table 2: Dimensions of Difficulty Associated with Tinnitus 20
Table 3: Overview of Measures used 46
Table 4: Study Return Rate 60
Table 5: Patient and Partner Demographic Information 61
Table 6: Characteristics of patient’s Tinnitus 62
Table 7: Patient & Partner reports of Hearing Impairments in Patients 63
Table 8: Situational Hearing Difficulties 64
Table 9: Descriptive Data for patients where partners did not participate 65
Table 10: Descriptive Data for Participants 66
Table 11: Descriptive Data for included patients in comparison to data of Included and excluded patients combined 66
Table 12: Comparison of GHQ scores and categories of psychiatric morbidity 68
Table 13: Relationship between GRIMS raw scores, transformed scores and interpretation (Rust et al., 1988) 69
Table 14: Comparison of Mean raw scores for Patients & Partners in Current Sample to those of Endler & Parker (1999) 70
Table 15: Comparison of Mean raw scores for Males & Females in Current Sample to those of Endler & Parker (1999) 71
Table 16: Patient and Partner GHQ Scores 72
Table 17: Mean GHQ scores for hearing impaired & non-hearing impaired patients 73
Table 18: Mean GHQ scores for partners of hearing impaired & non-hearing impaired patients 74
Table 19: Mean GRIMS scores for hearing impaired and non-hearing impaired patients 74
Table 20: Mean GRIMS scores for the partners of hearing impaired and non-hearing impaired tinnitus patients 75
Table 21: Mean GRIMS Scores for patients with ‘Mild’ and ‘Severe’ Tinnitus 76
Table 22: Mean GRIMS Scores for the partners of patients with ‘Mild’ and ‘Severe’ Tinnitus 77
Table 23: Mean CISS scores for patients with ‘Mild’ and ‘Severe’ Tinnitus 78
Table 24: Male & Female patient mean scores on the CISS 79
Table 25: Triggers to Tinnitus 82
Table 26: Explanations as to why appointments were helpful 83
Table 27: Areas in the Partner’s life reported to be influenced by tinnitus 86
Table 28: Overview of Hypotheses 87
List of Figures:

Figure 1: Factors involved in Tinnitus Annoyance (Tyler, Aran and Dauman, 1992) 7

Figure 2: Comparison of time since Tinnitus began and time it became problematic 63

Figure 3: Percentage of patients in each THI grading 67

Figure 4: Percentage of Participants in each Interpretive GRIMS category 70

Figure 5: Diagram of Areas reported by the Patient to be influenced by Tinnitus 85
1. Introduction

The current study investigated the experience of people with tinnitus and their partners. This introduction considers a number of salient areas. First, tinnitus is defined and described as a medical diagnosis. It is important that tinnitus is described in detail, so that its effects on the patient can be understood in an appropriate context. Then follows consideration of the prevalence of tinnitus and its relation to hearing. Models to explain the adaptation to, and the cause of, tinnitus are discussed along with theories of the implications of psychological factors, gender and coping on tinnitus severity.

A range of psychological effects of tinnitus on the patient are considered. Links are made between tinnitus and chronic pain. Literature from the areas of chronic pain and hearing impairment are used to draw attention to the potential impact of illness on the partner of a patient. The possible impact of tinnitus on others is contemplated and gaps in the literature are highlighted, indicating particular directions for the current study.

1.1. Tinnitus

The word *tinnitus* is derived from the Latin *tinnire* meaning to ring (Habets, 1995). Tinnitus is the term applied to noises that are heard in the ear(s) or head, but which do not originate from an external sound source and cannot generally be heard by others. Vernon (1998, p. 201) described tinnitus as a “phantom sound”, whilst Moller (2000a, p. 462) called the noises “meaningless sounds.” The noises that can be heard include buzzing, ringing, whistling and hissing. The noises can vary in pitch, duration and loudness. Jastreboff (1990) acknowledged that one patient could experience more than one type of tinnitus. Moller (2000a) stated that tinnitus noise intensity ranges from those that are just noticeable, to those that are a roaring noise affecting all aspects of life.
Tinnitus is not a disease or an illness but rather, is a symptom of ear disease or of another disorder. The location of the structures that generate the sounds may be in the ear, auditory nerve or auditory nervous system (Moller, 2000a). Tinnitus is a component of many diseases, with a number of possible causes, including: inflammation, age, allergy, noise exposure, head injury, stress, hearing impairment, immunology, metabolism and medication. Tinnitus can be a symptom of an acoustic tumour and is an indicator of Menieres disease. Some forms of tinnitus may be reversible, for example, tinnitus caused by medication or by noise exposure. However, this is dependent on the damage caused and the duration of the exposure to the stimulus (Moller, 2000a).

Some individuals are able to identify the exact onset and likely cause of their tinnitus, whilst for others it develops spontaneously and without a definitive trigger. Moller (2000a) stated that the most common cause of tinnitus was noise exposure but that, in most cases, the cause was unknown.

There are two main types of tinnitus: ‘objective’ and ‘subjective’. Objective tinnitus is more rare; here noises originate in the body of the individual but can be heard by others. Subjective tinnitus is more common and is experienced by the majority of people at some time. The sound is still generated within the individual, however these noises can only be heard by the individual, hence there are no objective signs and one has to rely on the individual’s description of it.

Alongside the type of tinnitus experienced, some researchers use terms to describe the location of tinnitus, for example, peripheral and central, whilst others use terms such as tonal and noise-induced to describe the frequencies heard and others consider intensity and duration (Vernon & Tabachnick Sanders, 2001). In the study described here, the
The generic term 'tinnitus' is used to explain the condition reported by participants, regardless of tinnitus frequency, duration, intensity or location.

Children can experience tinnitus. However, little research has been conducted with children, due in part to the noises not being recognised as unusual by children. Therefore, prevalence rates in children may be under-reported. The study and literature reported here refer to adults with tinnitus. Given the definition of tinnitus outlined above, the following section considers the percentage of adults affected by tinnitus in the UK.

1.1.1. Prevalence

The Medical Research Council, Institute for Hearing, conducted a National Study of Hearing in the UK from 1984 to 1995 (Davis, 1989; Davis & El Refaie, 2000; Royal National Institute for the Deaf [RNID], 1998). This was a two-tier project, involving a postal questionnaire issued to 48,000 adults in four UK cities, with further questionnaires and a physical examination of a sub-sample of participants. The research excluded tinnitus noises of a duration less than five minutes and noises that were present only after loud noise exposure. This study suggested a prevalence rate of 15.5 – 18.6% for UK adults. Using this evidence and data from the 1991 UK Census (UK population approximately 55.7 million), the RNID (1998) assumed prevalence rates for UK adults, as shown in Table 1.

Table 1. RNID Prevalence Rates for Tinnitus in UK Adults

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>% of UK adults</th>
<th>Equivalent to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have experienced tinnitus at some time</td>
<td>10%</td>
<td>4 million</td>
</tr>
<tr>
<td>Have been to see their GP about their tinnitus</td>
<td>7%</td>
<td>2.9 million</td>
</tr>
<tr>
<td>Have tinnitus causing moderate to severe annoyance</td>
<td>5%</td>
<td>2 million</td>
</tr>
<tr>
<td>Have tinnitus that disturbs their sleep</td>
<td>5%</td>
<td>2 million</td>
</tr>
<tr>
<td>Have tinnitus that severely affects their quality of life</td>
<td>1%</td>
<td>400,000</td>
</tr>
<tr>
<td>Have tinnitus that severely affects ability to lead normal life</td>
<td>0.5%</td>
<td>200,000</td>
</tr>
</tbody>
</table>
1.1.2. Hearing

Tinnitus is generally associated with hearing loss, yet approximately 15% of those with tinnitus have minimal hearing loss of unknown cause or no loss at all (Reiss & Reiss, 1999). Andersson, Vretblad, Larsen and Lyttken (2001) identified self-reported hearing loss in 87% of tinnitus patients, whilst only 33% of these used a hearing aid. Moller (2000a) acknowledged that the degree or presence of a hearing loss has no apparent relationship to tinnitus severity. Moller suggested that, as tinnitus can be heard by people with normal hearing and by those who are deaf, it might be generated in other parts of the audiology system as well as the ear.

Hearing impairments increase with age; hearing loss is the third most frequent health problem among the elderly (Shulman, 1991). Due to the association between hearing impairment and tinnitus, the prevalence of tinnitus increases with age. The National Study of Hearing (Davis & El Refaie, 2000) reported a prevalence of 4.3% in those aged 17 – 30, whilst for those aged 61- 70 years, prevalence increased to 15.8%. In a study of a specialist tinnitus clinic, Sanchez and Stephens (1997) reported that 59% of attendees were aged 50 - 70, whilst 17% were over 70 years of age.

1.1.3. Habituation to Tinnitus

Heller and Bergman (1953, cited in Erlandsson, 2000) carried out an experimental study, which involved people with normal hearing, spending time in a soundproof room. They found that after a short time in the room, 94% of participants heard noises inside their ear or head, that is, tinnitus. Heller and Bergman concluded that everyone has the potential to hear such noises, but environmental noises usually ‘mask’, or hide the noises, so that attention is not paid to them. Erlandsson (2000) discussed the relevance of this in relation to those people with severe or bothersome tinnitus. Erlandsson stated that the
brain could adapt to new noises once they became familiar and that this is easier to achieve if the noises are regular and constant, failure to adapt to these noises results in tinnitus. Hallam (1987) outlined a model of ‘habituation’ to tinnitus; this proposed that six variables might be involved in adaptation to tinnitus noises:

1. **Stimulus characteristics;** the quality and intensity of the noise may be influential with salient, irregular or variable noises taking longer to habituate to.

2. **Environmental conditions;** the intensity of other stimuli relative to the tinnitus and other demands for attention may decrease attention to the noises. The individual’s hearing system may adapt and filter out the sound, so that the person pays less attention to it.

3. **The meaning of the stimulus;** if it is seen as meaningful it will receive more attention. Vernon (1998) stated that, if noises were emotionally significant, then they would continue to provoke a reaction. House (1981) claimed that the meaning attributed to the noise could generate stress.

4. **Central state characteristics;** an increased level of cortical arousal could delay habituation.

5. **General characteristics of the individual;** for example, their information processing style and distractibility.

6. **Central nervous system organic pathology, which may affect the neural pathways involved in attention and habituation.**

This model of habituation received support from a study by Tyler and Baker (1983). Tinnitus patients were asked to complete an open-ended questionnaire ranking all the problems they associated with their tinnitus in order of importance. Those who had had tinnitus for a shorter period reported a greater range of problems, suggesting that
habituation occurs with symptom duration. In a group of tinnitus patients surveyed by Holgers, Zoger, Svedlund and Erlandsson (1999), 17% did not perceive tinnitus at a two year follow-up, whilst 39% experienced it if they were lonely or depressed, if it was quiet or if someone talked about it. This demonstrates that for some tinnitus patients, their symptoms may decrease, become less problematic or disappear with time. The following studies consider how this may occur.

Research conducted by Erlandsson, Hallberg and Axelsson (1992) looked at the role of perceived attitudes, social support and disability or handicap in determining tinnitus severity. This study involved the completion of a tinnitus severity questionnaire and the Tinnitus Handicap Support Scale. In general, tinnitus was found to have a moderately negative impact on life; participants reported a moderate degree of tinnitus severity, that is, it was hard for them not to attend to or notice their tinnitus. Half of those studied reported distressing effects two years after tinnitus onset, with increased irritation in those with non-fluctuating tinnitus. The authors proposed that difficulties in suppressing and masking this form of tinnitus made it more irritating. This study found that tinnitus severity was not influenced by social support but was significantly related to patients’ attitudes and beliefs regarding how others viewed their tinnitus complaint behaviour. How others actually viewed such behaviour, however, was not included in the study. This study contradicts a proposition of the habituation model, namely that irregular, fluctuating noises would be harder to habituate to than regular non-fluctuating noises. Tyler, Aran and Dauman (1992) offered a compromise, stating that it is easier to adapt to continuous, rather than intermittent sounds. However, this is dependent to an extent on the sound itself and the duration of periods of silence. Figure 1 (see over) highlights their model of factors involved in tinnitus annoyance.
Tromp (1999) argued that the presence of chronic tinnitus should be viewed in terms of loss and that it should be considered in existential and individual terms. The existential dimension incorporates aspects of: a loss of control over the noises; decreased self-esteem due to failed efforts to cope with tinnitus; a sense of justice, why me? and future prospects and plans, which may be in turmoil due to tinnitus. In the individual dimension, the individual's response to three processes - resistance, leave-taking and accommodation - are considered. As part of resistance, the person constantly seeks treatment for their tinnitus, in spite of being told that no medical cure is possible. Whereas in leave-taking, the individual has to come to terms with the loss of quietness and the possibility of being more tired, having less energy, or having to give up certain social activities, which aggravate the noises. In some circumstances, the individual may react by confronting the noises with hyperactivity. Accommodation means accepting the situation, learning to react differently to tinnitus. Tromp argued that certain parts of this emotional accommodation or acceptance of tinnitus must have begun before habituation can be fully achieved. Individual characteristics are therefore influential in adjustment to tinnitus. Linked to the person's search for treatment in the resistant process is the explanation or model that they hold for the cause of tinnitus. For example, if the cause is seen as resulting in irreparable damage, then no treatment is available. The following section discusses the main models of tinnitus.
1.1.4. Models of Tinnitus

Hazell (2001) outlined three possible explanatory models of tinnitus. The first is a model of ear damage; this supposes that damage to certain parts of the ear causes tinnitus and that this damage could not therefore be repaired. For example, damage to the tiny hairs in the inner ear causes an abnormality in the stream of nerve signals sent to the brain, these abnormalities are then perceived as a sound, or tinnitus. Whilst there is still widespread support for this model, Hazell stated that it could not account for deaf people with severe damage to the cochlea that do not experience tinnitus, nor those who have tinnitus and normal hearing.

The second model briefly described by Hazell is a psychological model. This model reflects the distress and complaints of the tinnitus patient. However, it does not adequately accommodate the role of the auditory system within it. Hazell evaluated the third model - the Neurophysiological model of tinnitus, proposed by Jastreboff (1990) - as the current most satisfactory explanation of tinnitus.

The Neurophysiological model acknowledged that tinnitus might originate in the auditory system but that other systems must be involved in determining whether the patient suffered from, or merely experienced tinnitus. Hazell pointed to the notion that tinnitus is present in everyone, but that for some people their reaction to it leads to them becoming sufferers of severe tinnitus.

This model assumes that two non-auditory systems are involved in tinnitus: the limbic system and the autonomic nervous system (Jastreboff, 1999). These systems play an important role in the development of severe tinnitus; tinnitus annoyance is determined by these systems and their conditioned reactions. The limbic system is responsible for an
individual’s emotions and their motivations. The autonomic nervous system controls all of the functions of the body. This system is responsible for the ‘fight-or-flight’ response, which is activated by the limbic system. This model suggested that the tinnitus sounds could create certain emotions in an individual, due to the way in which the auditory pattern or sound was interpreted and that this would determine how the person responded. Hazell (2002) noted that if a sound had a special or critical meaning for an individual, then they would respond to it automatically, even if the sound were very soft. For instance, a mother may waken at the sound of her newborn baby stirring in its sleep.

The model suggested that the first noises the individual detects are alarming and provoke anxiety, which leads to increased attention. This triggers the autonomic nervous system to respond and may result in muscle tension and difficulties sleeping, as well as monitoring the noise, so that other tasks receive little comparative attention. The attention paid to the noises enhances their future detection and perception; this reaction becomes a conditioned reflex after a short period of learning, due to the noise repetition, the emotional reaction to it and plastic changes made in the nervous system. The focus of this model is the individual’s reaction to the sounds that they hear. With time, this reaction becomes part of the subconscious and the individual may no longer consciously think about the tinnitus but may react negatively, both behaviourally and emotionally in response to it.

Tinnitus annoyance varies from individual to individual and is a consequence of the factors already outlined. Like other problems, the degree of adjustment to tinnitus is not a simple function of condition severity. It seems likely that the persistence of the noise and the individual’s response to it determines severity, but what role does the loudness of the noise have in tinnitus severity? The following section examines this area.
1.1.5. Tinnitus Loudness

Contrary to expectations, tinnitus severity is not determined by noise loudness. Baskill and Coles (1999) looked at data from tinnitus patients over three years. They considered data on patients’ hearing threshold level, tinnitus loudness match and the degree to which tinnitus was said to trouble them. Hearing threshold level is the faintest sound level at which a person can hear a specific frequency, whilst tinnitus loudness match, involves matching an external sound to the tinnitus sound (Vernon & Tabachnick Sanders, 2001). No statistical relationship was found between tinnitus loudness and tinnitus distress. No statistical correlation was found between tinnitus distress and hearing threshold, although there was a weak correlation between tinnitus loudness and hearing threshold.

Jakes, Hallam, Chambers and Hinchcliffe (1985) conducted a factor analytic study of tinnitus complaint behaviour via questionnaires and an audiological examination of patients. Three specific tinnitus complaint dimensions were identified, these were: ‘use of medication’, ‘sleep disturbance’ and ‘interference with auditory entertainment’. Two general tinnitus complaint dimensions were also identified, these being: the ‘intrusiveness’ of the tinnitus and the ‘distress attributed to tinnitus’. The study proposed that it may not be the quality and loudness of the noise that makes it aversive but rather the perception of the noise as uncontrollable and persistent may make it aversive. The degree that the individual was aware of the noise, correlated significantly with self-reported loudness and noise unpleasantness. The authors suggested that beliefs about the significance of the noise might determine the perception of it as aversive, for example, concerns regarding further deterioration or its medical implications. Thus, tinnitus loudness and tinnitus severity are not necessarily related. A number of factors have been suggested as determinants of tinnitus severity including: psychological factors, coping skills and gender. Each of these will now be considered.
1.2. Theories of Determinants of Tinnitus Severity

Despite what is known about tinnitus, there is no standardised definition of tinnitus severity, which may be due to the subjective nature of the problem. There are, however, a number of questionnaires used in research to quantify the experience and severity of the condition, including the Tinnitus Questionnaire (Hallam, 1996b), the Tinnitus Handicap Inventory (Newman, Jacobson & Spitzer, 1996) and the Tinnitus Handicap Questionnaire (Kuk, Tyler, Russel & Jordan, 1990).

No study has yet identified what aspects of the tinnitus patient’s behaviour or reported symptomatology influence a General Practitioner to refer them to a specialist clinic. It may be that their level of distress and the impact of this on their quality of life are influential (Reiss & Reiss, 1999).

Billue (1998, p.73) described tinnitus as: “...a continuum of severity ranging from clinical nonsignificance to a disabling condition from which an individual may, in desperation, seek to escape by attempting or completing suicide.” Budd and Pugh (1995) found a significant association between tinnitus location and severity. Tinnitus in the right ear, or in both ears, was rated more severely than left-sided tinnitus. This analysis did not include those patients whose tinnitus was located in the head, due to the small number of participants affected in this way. As well as tinnitus location and symptom severity, the individual’s perception of this can vary. House (1981) stated that the range of disturbance experienced due to tinnitus was dependent on: differences in coping, personality defence structure, tinnitus severity, social factors and otological problems. A number of psychological factors have been proposed to explain why some people are more distressed by tinnitus and these will now be considered.
1.2.1. Psychological Factors

As tinnitus is a subjective condition, the individual's perception or beliefs regarding it will be influential in determining its severity. Indeed, more people report and experience tinnitus than the number that are distressed by it. House (1991) stated:

Personality dynamics and coping mechanisms are basic to patients' perceptions of sensations. The perception of pain, for example, is influenced by the patient's general well-being. Patient's reactions to pain are multi-farious; while many may tolerate a great deal of discomfort, others are seriously disturbed by minor pain. (House, 1991, p. 533)

Budd and Pugh (1995) looked at the relationship between locus of control, tinnitus severity and emotional distress in tinnitus patients attending an outpatient clinic. Budd and Pugh found that patients with a more internal locus of control - a belief that successful outcome is due to personal effort - experienced less severe tinnitus, less anxiety and depression than those with a more external locus of control, a belief that success is due to factors outside their own control. In a further analysis, no correlation was found between locus of control and severity when emotional distress was partialled out. Budd and Pugh therefore suggested that locus of control may directly influence the degree of emotional distress reported by tinnitus patients, yet it may no more than indirectly influence tinnitus severity, through its effects on anxiety and depression. They proposed that the perception of having some control over tinnitus might promote a positive attitude towards it and therefore decrease the likelihood of anxiety and depression. As well as locus of control, an individual's utilization of a particular coping strategy may influence tinnitus severity.
1.2.2. Coping

Lazarus (1966) stated that stress consists of the following processes: primary appraisal, secondary appraisal and coping. Primary appraisal refers to the process of perceiving a situation as threatening. Secondary appraisal involves consideration of a possible response to the perceived threat, whilst coping is the process of carrying out that response.

The concept of ‘coping’ refers to how an individual deals with an adverse situation. ‘Coping’ is not a homogeneous concept, nor does it refer to one specific management method, rather, it refers to a host of strategies, methods, cognitions and behaviours. The terms ‘coping style’ or ‘coping strategy’ are often used in the literature to refer to a typical manner of confronting and dealing with a stressful situation. There is some evidence to suggest that people use the same dispositional coping style across settings and situations (Schwarzer & Schwarzer, 1996). Based on this dispositional theory, an individual’s response to situations outlined on a questionnaire measuring coping should be consistent across situations. There are a number of questionnaires designed to measure the strategies employed by an individual in response to a stressor. Examples of such measures, which have been applied to health, include: the Ways of Coping Checklist (Folkman & Lazarus, 1980), the COPE (Carver, Scheier & Weintraub, 1989) and the Coping Inventory for Stressful Situations (Endler & Parker, 1999).

Research suggests that engaging in different types of coping strategies may have different consequences. Endler and Parker (1999) acknowledged that the coping style adopted could play a fundamental role in mediating between the stressful event and its consequences, such as, anxiety, psychological distress and depression. Coping styles therefore are an important factor in both physical and psychological well-being. Endler
and Parker (1999, p.1) stated that the: "... way people cope with illness is an important factor in their recovery and subsequent adjustment." It is proposed that the adoption of certain coping styles can lead to improved physical and psychological health or it can exacerbate illness. In the case of tinnitus, Greimel, Wipplinger, Amann and Albegger (1999, p. 468) stated: "Inadequate coping strategies are seen as one of the main reasons that tinnitus becomes chronic and patients are unable to habituate."

‘Emotional coping’, that is, attempts to decrease the emotional distress associated with a situation, rather than ‘problem-focussed’ (or task-related) coping, that is, changing the situation itself, is associated with poorer psychological adjustment in chronically ill adults (Felton, Revenson & Hinrichsen, 1984). Katz, Ritvo, Irvine and Jackson (1996) however acknowledged that the distinction between emotion focussed and problem-focussed strategies is not so clear-cut. They stated that the implementation of a problem-focussed strategy might result in a decrease in emotional distress. Attias et al. (1995) considered the psychological profile of those with tinnitus who sought help in comparison to those who did not. They studied 100 army personnel with chronic tinnitus and noise-induced hearing loss. Fifty had accessed services (help-seekers), and 50 had not (non-help seekers), these were then compared to an age-matched control group of people without tinnitus or hearing loss. All participants completed the following measures: SCL-90 Psychiatric Symptomatology Checklist, Locus of Control Scale and a Coping Strategies Questionnaire.

Attias et al. (1995) found that help-seekers made less use of effective coping strategies and used more emotion-focused strategies, than non-help-seekers and the control group. Help-seekers demonstrated significantly more severe psychiatric symptomatology and had a tendency to externalise, that is, they were more likely to believe that events were
beyond their own influence. Whilst non-help-seekers did use more effective coping strategies, their psychiatric profile when compared to the control group, showed significantly greater psychiatric symptomatology. The authors suggested that despite the non-help-seekers use of more effective coping strategies, their psychiatric profile was still influenced by tinnitus.

The generalisation of the findings of Attias et al. (1995) to the general population however is questionable. The sample consisted of young, male, army personnel with noise-induced hearing loss and tinnitus caused by exposure to continuous occupational noise. In the general population, tinnitus is reported by both sexes, primarily from the age of 50 upward, with the majority being associated with age-related hearing loss. Tinnitus experienced by army personnel may be different from that of the general population. Although this study matched non-help-seekers and help-seekers in terms of tinnitus loudness and pitch, tinnitus severity was not assessed. This study did however consider the influence of coping strategies adopted by the two tinnitus groups.

Hallberg, Erlandsson and Carlsson (1992) looked at general coping strategies in a group of middle-aged men with noise-induced hearing loss, with and without tinnitus. They found that those with severe tinnitus tended to make more use of 'escape coping', for example, wishful thinking, seeking professional help and drinking alcohol, than those with mild tinnitus or those without tinnitus.

Budd and Pugh (1996a) devised a questionnaire (The Tinnitus Coping Style Questionnaire – TCSQ) to assess the style of coping used by patients in response to their tinnitus. Budd and Pugh explored whether tinnitus patients used consistent coping styles and if the style adopted related to tinnitus severity and degree of emotional distress.
experienced. They reported that those who tended to use more ‘maladaptive’ coping strategies (for example, avoiding social situations because of tinnitus, using catastrophic thinking, fantasizing about not having it,) reported higher levels of tinnitus severity, anxiety and depression, than those who used this coping style less.

Factor analysis of the TCSQ revealed three factors or coping styles: ‘maladaptive’, ‘effective’ and ‘passive’. The authors reported that the use of ‘passive’ coping strategies did not indicate an acceptance of tinnitus, but included attempts to mask it and to ‘offload’ the emotional distress associated with it. The use of ‘passive’ strategies was associated with poorer adjustment to tinnitus. ‘Effective’ coping covered a range of active coping strategies including positive self-talk and distraction; use of these strategies had a small association with better emotional adjustment but did not correlate with tinnitus severity or lower levels of depression. Budd and Pugh proposed that adaptation to tinnitus occurred with the passage of time, due to avoidance of ‘maladaptive’ strategies, rather than due to the active use of ‘effective’ coping strategies.

In a further study, Budd and Pugh (1996b) aimed to replicate their previous study. Whilst this second study did not identify ‘passive’ coping in the factor analysis, ‘maladaptive’ and ‘effective’ coping strategies were identified. High scores on the use of ‘maladaptive’ coping were significantly associated with increased levels of tinnitus severity, anxiety and depression. The use of ‘effective’ coping strategies, however, did not correlate with decreased tinnitus severity or lower levels of anxiety or depression. Again, Budd and Pugh proposed that avoidance of ‘maladaptive’ coping styles might be more productive than the use of ‘effective’ coping strategies.
Sullivan, Katon, Russo, Dobie and Sakai (1994) assessed the role of coping and marital interaction in tinnitus-related role dysfunction. They concluded that the appraisal of tinnitus as salient, or annoying, was associated with greater role dysfunction. Social support and the perception of marital cohesion was important, suggesting that there may be an association between those who engaged in satisfying activities with their partner and those who paid less attention to the aversive stimuli, that is, the tinnitus. Avoidant coping and seeking social support was associated with less disability. This positive outcome of the use of avoidant coping is described as ‘atypical’, in comparison to this coping style in other medical conditions, where it is generally associated with increased distress. Where spouses perceived themselves as punishing, by ignoring illness behaviour or becoming irritable, greater patient disability resulted. The authors concluded that this correlation was weaker than in studies with chronic pain patients, possibly due to less dramatic illness behaviour in tinnitus. Sullivan et al’s study demonstrated the positive effect that engaging in satisfying activities with the partner can have on the patient’s tinnitus behaviour and their perception of tinnitus. The study considered the influence that the partner’s reaction and behaviour towards tinnitus could have on the patient’s tinnitus experience.

In a study of the audiological and psychological characteristics of tinnitus patients, Dineen, Doyle and Bench (1997) reported that there was no relationship between the symptoms reported - for example, noise exposure, pain, balance problems - and the patient’s perception of their ability to cope or their level of distress. Patients who reported more symptoms, however, were more distressed. Those with more annoying, constant, loud or multiple tinnitus sounds had an increased reaction to it and found it more difficult to cope with. Those patients, who reported difficulty getting to sleep, reported their tinnitus as louder, more difficult to cope with and more annoying.
It would seem that the coping style adopted by tinnitus patients might contribute, as in other health conditions, to the level of distress experienced. Budd and Pugh (1996a) and Hallberg et al. (1992) noted that the use of maladaptive coping, for example avoidance of social situations and using wishful thinking, was associated with depression and increased tinnitus severity. This was contrary to the findings of Sullivan et al. (1994). It may be that the type of avoidant strategies adopted might play a role in the emotional response to tinnitus. For example, Sullivan et al. described ‘avoidance’ as not paying attention to tinnitus, whilst Budd and Pugh defined wishful thinking as a negative form of attention and type of avoidance. Further research is required to establish whether certain styles of coping, for example, ‘avoidant’, relate to increased tinnitus severity.

1.2.3. Gender

Erlandsson and Holgers (1999) considered the relationship between gender, quality of life and tinnitus severity. The results obtained from tinnitus patients attending an audiological clinic were compared to a normative population sample. Hearing level was not found to be significant in tinnitus-related distress. However, a severe hearing loss had a more negative impact on daily living: leisure, work and relationships. Women reported more severe problems, especially in relation to sleep, pain, mobility and lack of energy; with younger and middle-aged women showing the most negative health signs when matched to an age matched normal sample. Men reported significantly more problems related to occupational life. No gender differences were found in four domains: social life, hobbies, relationships and sex life. Men with tinnitus reported significantly more emotional reactions and sleep problems than their age-matched control group.

Dineen et al. (1997) considered gender differences in the coping styles, audiological characteristics and psychological characteristics of tinnitus patients, before they attended
tinnitus management training. They concluded that females were more likely to report problems in getting to sleep and balance problems due to tinnitus and that their tinnitus was aggravated by noise. They also perceived tinnitus as louder and more annoying. Females reported a higher level of emotional reaction to tinnitus and reported using more problem-focussed coping. Men were less emotionally distressed by the tinnitus. No gender differences were reported in coping ability, nor in the level of use of emotional-focussed coping and social support seeking. Both sexes reported similar anxiety and stress levels, however, females reported more depression than males. Regardless of gender, Dineen et al. noted that those who perceived tinnitus, as something that could be changed tended to use more problem-focussed coping, whereas those who perceived it as something they had to accept used more emotion-focussed coping.

Zoger, Svedlund and Holgers (2001) acknowledged that, unlike many other health problems, more men than women seek help for tinnitus. Zoger et al. looked at the prevalence of psychiatric disorders in tinnitus patients and concluded that the lifetime prevalence for depression in tinnitus patients in Sweden (62% males; 63% females) was higher than in the normal population (43% lifetime prevalence), but that the number of those actually seeking help for depression and tinnitus was very low. Zoger et al. noted a higher prevalence rate for depression in women, despite the majority of those seeking help being male. (Men may seek help more frequently than women, as hearing impairment is more common in men.) Zoger et al. suggested that it might be easier for men to access help for a somatic problem rather than a psychological one. They proposed that using tinnitus as a clinical marker of depression may lead to the increased detection of depression in men. Tinnitus may have a different impact or different consequences for males and females and further investigation of this is required.
The literature reviewed so far has considered how psychological factors may influence tinnitus severity and a decision to access help and has noted some differences in terms of gender. The psychological effects of tinnitus on the patient will now be discussed.

1.3. Patient Reactions to Tinnitus

House (1991, p. 533) stated: “Persons with severe tinnitus experience excessive stress. This has debilitating effects on their defenses, and coping can become very difficult. As a result, patients may demonstrate a cluster of hysterical defenses or a serious degree of depression.” Tromp (1999, pg. 364) stated: “Chronic tinnitus might be perceived as the loss of silence. The intrusiveness of the unwanted sound(s) can be threatening and can more generally be felt as the loss of physical integrity.”

Erlandsson (2000, p. 26) considered three dimensions of difficulty related to tinnitus, which are outlined in Table 2.

Table 2: Dimensions of Difficulty Associated with Tinnitus

<table>
<thead>
<tr>
<th>Emotional Distress</th>
<th>Interpersonal Complications</th>
<th>Somatic Distress Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irritation</td>
<td>Lack of understanding</td>
<td>Headache</td>
</tr>
<tr>
<td>Annoyance</td>
<td>Negative impact on</td>
<td>Neck pain</td>
</tr>
<tr>
<td>Concentration/sleep difficulties</td>
<td>relationships (relatives, friends, colleagues).</td>
<td>Pain/tension in jaw muscles</td>
</tr>
<tr>
<td>Depression, despair</td>
<td></td>
<td>Dizziness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hypersensitivity to sounds.</td>
</tr>
</tbody>
</table>

The consequences of the emotional distress and interpersonal complications dimensions will be the focus of the next section.

1.3.1. Psychiatric Morbidity and Psychological Distress

Singerman, Riedner and Folstein (1980) conducted a study of patients attending a hearing clinic. Participants completed the 30-item General Health Questionnaire (GHQ-
in order to detect levels of psychiatric morbidity. An audiological examination was undertaken to allocate participants to one of four groups: normal hearing, unilateral hearing loss, bilateral hearing loss and low or high tone deficits. Singerman et al. reported that 20% of participants’ GHQ scores indicated ‘definite psychiatric morbidity’, whilst 14% were described as ‘probably psychiatric’. The group with no hearing loss experienced the highest overall level of psychiatric morbidity. Furthermore, those with bilateral hearing loss had higher GHQ scores than those with unilateral loss. The study also considered tinnitus and vestibular symptoms (dizziness and vertigo) and found that the presence of both tinnitus and vestibular problems significantly related to high GHQ scores. Singerman et al. concluded that the presence of tinnitus and vestibular problems led to an increased risk of psychiatric morbidity, even when an objective hearing impairment was absent.

Berrios, Ryley, Garvey and Moffat (1988) surveyed patients attending a clinic for inner ear disorders. Disorders were categorised as: Menieres, noise injury, tinnitus, presbyacusicus (age-related hearing impairment) and other forms of sensorineural deafness. (‘Sensorineural deafness’ refers to hearing loss caused by damage to hair cells of the inner ear.) Patients completed the GHQ60 and two visual analogue scales; one to rate the severity of their problem when first seen at the Ear, Nose and Throat department (ENT) and the second when they completed the GHQ. From the GHQ scores, participants were divided into ‘cases’, those with scores above the cut-off point for psychiatric disorder and ‘controls’, or ‘non-cases’. Further information was collected in relation to previous psychiatric history. Overall, there was a much higher psychiatric morbidity rate for clinic patients (29%) than in the normal population (10%). No evidence of a correlation between present and pre-morbid psychiatric disorder was found. There was a tendency for tinnitus patients to have higher GHQ scores than in the other categories of disorder,
although this was not statistically significant. Tinnitus patients were the least affected by their hearing impairment, but experienced the highest level of psychiatric morbidity.

McKenna, Hallam and Hinchcliffe (1991) used the GHQ60 and a structured interview to identify auditory complaints, a history of previous psychiatric problems and the degree to which areas of life were disturbed by their problem. The interview revealed that 27% of patients whose main complaint was hearing loss were considered psychologically disturbed, compared to 45% of tinnitus patients and 64% of patients with dizziness. Scores on the GHQ corresponded well with the interview results. In relation to those with tinnitus, McKenna et al. (1991, p. 455) concluded: “... that in those patients with tinnitus who persist in seeking medical help beyond the GP level, 40 - 45% are psychologically disturbed.”

Scott and Lindberg (2000) issued a questionnaire pack to a randomly selected sample of the Swedish population. From this a tinnitus ‘non-help-seekers’ group was established, as well as a control group. An identical questionnaire pack was sent to tinnitus patients who had sought help at an audiological clinic, that is, ‘help-seekers’. The questionnaire pack included measures of tinnitus incidence, somatic complaint, negative affect, dispositional style, anxiety, reaction to stress and depression.

The help-seekers showed increased scores on all psychological measures (anxiety, depression, negative mood and reaction to stress) and met the criteria for depression. The increased scores on measures of anxiety, depression and reaction to stress remained when hearing impairment was controlled; therefore, the scores were not due to differences in hearing impairment. Help-seekers reported more frequent somatic complaints, for
example, sleep and concentration difficulties and reported lower expectancies regarding outcomes.

Non-help-seekers only differed in terms of severity and frequency of daily hassles (or stressors) in comparison to the control group. No significant differences were reported on other aspects of the psychological profile. The non-help-seekers group however reported more somatic complaints, especially muscle tension and headaches, although they did not report sleep and concentration difficulties as frequently as help-seekers. Scott and Lindberg concluded that the psychological and somatic profile of help-seekers is different to that of other groups, whilst that of non-help-seekers is more similar to a control group.

What is often unclear in the literature is whether psychological distress pre-dates, is a consequence of or merely coincides with tinnitus development. The following studies attempted to identify when psychological distress symptoms developed.

O’Connor, Hawthorn, Britten and Webber (1987) conducted a study at an outpatient tinnitus clinic. Patients completed the GHQ28, the Eysenck Personality Questionnaire, the Life Events Schedule and a clinical interview. ‘Definite psychiatric morbidity’ was determined by the results of a clinical interview in 41% of cases, whilst 9.5% of the total group experienced ‘moderate to severe psychiatric illness’. ‘Cases’ had a higher rate of pre-morbid psychiatric morbidity and a family history of psychiatric illness, which pre-dated the tinnitus. Significant relationships were also found between ‘caseness’, subjective tinnitus annoyance and neuroticism.

Rizzardo, Savastano, Maron, Mangialaio and Salvadori (1998) considered anxiety, depression and illness behaviour in tinnitus patients. Tinnitus patients scored significantly
higher on state anxiety than norm scores for the anxiety measure used, whilst their
depression scores were below the cut-off for depression. Neuroticism scores tended to be
higher and extraversion scores significantly lower than the norm scores for the personality
measure. Rizzardo et al. considered the presence of psychological symptoms pre and post
tinnitus onset and found that 50% of cases had psychological symptoms predating their
tinnitus and 71% post-dating it. They concluded that psychological symptoms present
after tinnitus onset had greater effects on depression and anxiety scores than pre-existing
symptoms. They also concluded that there was a clear link between tinnitus intensity and
the extent of psychological distress.

Holgers et al. (1999) looked at the psychiatric profile of tinnitus patients referred to an
audiological clinic. Of these, 90% had experienced depression and or anxiety before, or at
the same time as, tinnitus onset. The authors concluded that this indicated that, contrary to
the assumption that depression is often secondary to tinnitus, it might be that tinnitus is
secondary to, or co-occurs with, depression.

From the review of these studies, tinnitus patients may experience pre-morbid
psychiatric morbidity and/or psychological problems subsequent to tinnitus onset.
Whatever the link between tinnitus onset and psychological problems, there seems an
increased likelihood that tinnitus patients may experience psychological problems at some
time. Indeed, literature has identified that tinnitus can have a detrimental impact on an
individual’s cognitive functioning, this possibility is briefly summarised below.

1.3.2. Cognitive Functioning

Questionnaire’ to new tinnitus patients to determine what problems they associated with
tinnitus. In their original study, Tyler and Baker reported that 33% of respondents complained of concentration difficulties, compared to 22% in the replication by Sanchez and Stephens. McKenna and Hallam (1999) described the type of cognitive difficulties reported by tinnitus patients. These included concentration difficulties, problems following television programmes and reading difficulties. McKenna and Hallam suggested that these problems might be due to changes in neuropsychological functioning due to an organic cause, as opposed to them being a consequence of emotional distress associated with tinnitus. McKenna and Hallam conducted a study, which compared a group of patients with a hearing loss to a group with tinnitus on a number of cognitive tests. They concluded that the tinnitus group had greater difficulty manipulating and attending to verbal information, although both groups had difficulties on this task. They also stated that tinnitus was associated with cognitive functioning difficulties, but that this could be masked by the effects of a hearing loss. Difficulties in attending to and manipulating verbal information, may have a negative impact on an individual’s communication skills, for example, making it difficult for them to interact in a noisy or crowded environment. Aside from cognitive difficulties associated with the condition, difficulties in getting asleep also occur and are often reported by tinnitus patients.

1.3.3. Impact on Sleep

The impact of tinnitus on sleep may influence tinnitus severity. Fatigue and stress play an instrumental part in the severity of tinnitus complaint, with stress probably adversely affecting tinnitus perception (Schleuning, 1998). Respondents to the Tyler and Baker (1983) questionnaire were asked to list all of the problems they associated with their tinnitus. The most frequently listed problem reported by 56.9% of respondents was difficulty “getting to sleep.” In the Sanchez and Stephens (1997) replication of this study,
sleep problems were the second most common complaint after hearing difficulties and were reported by 25% of respondents.

The effects of insomnia were studied in 26 people with tinnitus attending a neuro-otology department (Hallam, 1996a). Sleep disturbance was rated as 'absent', 'present, but not a significant problem' and 'significantly troubled by insomnia'. Sleep disturbance was not found to be related to measures of anxiety or depression; a general annoyance and loudness rating of the tinnitus; self-reported emotional distress; irrational beliefs or to auditory perceptual difficulties. However, sleep disturbance in the severely disturbed group was related to a rating of tinnitus annoyance recorded in the evenings. A proposal was made that sleep disturbance was related to impaired hearing. It was suggested that decreased hearing and reduced ambient noise at night might make tinnitus more salient and therefore more arousing and annoying. This study screened out those patients with symptoms of depression requiring a psychiatric diagnosis; therefore, the relationship between tinnitus, insomnia and clinical depression is unclear. It is evident however that a rating of tinnitus as annoying before sleep was linked to sleep disturbance, more so than the rated loudness of the noise.

Folmer and Griest (1999) posted sleep-related questionnaires to new patients before their first appointment at a tinnitus clinic. At the first appointment, they were interviewed and underwent audiological and tinnitus evaluations and one to four years later they were issued a follow-up questionnaire. Folmer and Griest concluded that patients with tinnitus of less than two years duration were more likely to experience sleep problems than those with duration of three to four years. Again, this finding would support the habituation model discussed earlier, that is, that symptom severity often decreases with duration. Those who reported frequent sleep disturbance rated their tinnitus as significantly louder
than those who ‘never’ or only ‘sometimes’ experienced sleep disturbance. To conclude, Folmer and Griest found that greater sleep disturbance correlated with greater tinnitus severity, subjective loudness and symptom duration.

McKenna (2000), in a review of the literature on insomnia and tinnitus concluded that insomnia is often a symptom of an underlying medical state or is related to a depressive or mood disorder. McKenna proposed that insomnia can be secondary to tinnitus or may be a consequence of emotional or cognitive arousal, which may relate to tinnitus.

Much has been written about the psychological effects of, and the somatic complaints associated with tinnitus, but what of the effects of tinnitus on others? Are those people with significant relationships to the patient affected psychologically by tinnitus? The impact of tinnitus on others is considered in the next section.

1.4. The Impact of Tinnitus on Others

The quality of family life of patients awaiting a tinnitus clinic appointment was compared to those who had been discharged from the clinic and a random general population sample (El Refaie et al., 1999). Discharged patients had a significantly better quality of family life score on two factors, namely effects of tinnitus on the patient (for example, embarrassment, worry) and on greater understanding of tinnitus. The authors suggested that attendance at the tinnitus clinic had not enhanced the family’s day-to-day activities. However, a significant difference was reported in quality of family life, with discharged patients having an improved quality of life, compared to those on the waiting list. Those with severe tinnitus annoyance had a significantly worse overall score of quality of family life. In addition, after hearing impairment and demographic factors had been controlled for, two factors varied with tinnitus severity. These were: coping with day
today life and the extent to which they felt restricted in their choice of activities. Therefore, those with more severe tinnitus experienced greater coping difficulties.

Although this study considered the effects on quality of family life, only the patients themselves were included, family members were not included. Thus, it is not clear to what extent the perceived views of the family were true. Nevertheless, this study highlights the possible impact of tinnitus on other family members and the functioning of the family.

Erlandsson and Hallberg (2000) used a Tinnitus Severity Grading questionnaire and a Tinnitus Handicap Support Scale to determine the quality of life of 122 tinnitus patients. They found that psychological factors accounted for 61% of variance, with 46% of this being predicted by impaired concentration. Feeling depressed and the perceived negative attitude of other people contributed 15%. Hearing impairment, tinnitus duration and hypersensitivity to sound only accounted for 4% of variance. Erlandsson and Hallberg concluded that the psychological effects of tinnitus could determine a patient’s perceived quality of life. Despite the reporting of the perceived negative attitude of others, significant others were not included in this study; again, it is not clear if such attitudes actually exist.

In considering the effects of tinnitus on the partner, research is scarce, but anecdotes are common. Nagler (2000, p. 14) described her response to her husband’s tinnitus: “...I found myself becoming impatient, weary and annoyed with the incessant questions, our redundant conversation and his constant need for reassurance.” The RNID (2000) reported one man’s reactions to his wife’s tinnitus:
During January and February she became really hard to live with. She was awake all night, she’d call The Samaritans at around 2 am or 3 am so neither of us was getting any rest (...) There is no doubt we were both going downhill. Jean was convinced she was cracking up and I was suffering too, watching her distress.

(RNID, 2000, p. 17)

Vernon and Tabachnick Sanders (2001) printed a question from the wife of a tinnitus patient. She asked whether her husband’s tinnitus could affect his libido, as he had not wanted a physical relationship with her since his tinnitus began. Vernon and Tabachnick Sanders stated that other tinnitus patients had reported a similar effect. They went on to liken this effect to that of other physical conditions, which were linked to sexual dysfunction and proposed that this was due to depression and anxiety associated with the physical condition. Thus, if a tinnitus patient experiences a mood disorder in connection with tinnitus, this may affect their intimate relationship with their partner.

Despite such indications of the potential impact of tinnitus on others, including partners, this is clearly an under-researched area. Indications from research into other types of chronic health problems suggest, however, that the impact could be considerable.

1.5. The Impact of Illness and Impairment on the Partner

Burman and Margolin (1992, p. 40) considered the impact of an illness in terms of a systems framework and stated that: “… an illness in one spouse changes a couple’s homeostasis and forces the couple to re-negotiate the structure of their relationship.” Burman and Margolin suggested that the quality of the relationship was important too. Being married to an ill spouse may increase stress; in addition, the presence of an illness may mean that the ill spouse’s ability to provide support is diminished. A troubled relationship could be a source of stress, which may pre-exist, trigger or be a by-product of
a physical health problem; therefore, marital problems could be a significant source of stress themselves.

Turk, Flor and Rudy (1987) argued that how the family adapts to a chronic illness is dependent on the state of the family when the problem occurs and its consequences for each individual and their relationships. Taking a similar family systems theory approach, Skevington (1995, p. 198) argued that: “Because no man is an island, the well-being of significant others is likely to be affected by the constant and regular care they provide to those with pain and disability.” The dynamics of a couple’s relationship is therefore an important consideration in work with couples where one person is ill.

One area in which the effect on the partner has been researched frequently, is the field of chronic pain. As chronic pain and tinnitus are similar in many ways, something may be learnt from what we know about the impact of chronic pain on partners. Similarities between the two conditions are reviewed, before focussing on research on the effects of pain on partners.

1.5.1. Similarity between Chronic Pain and Tinnitus

The perception of sound without any physical sound stimulation in tinnitus is comparable to the perception of somatic sensation or pain that can occur without physical stimulation in chronic pain (Moller, 1999). Both can have no detectable structural change and no objective signs. Both occur due to functional variations because of changes in synaptic efficacy, which is not always due to injury (Moller, 2000b). However, it should be noted that chronic pain often occurs due to injury, or in response to an objective stimulus. Tonndorf (1987) proposed that both chronic pain and tinnitus could be masked, so that their quality and character varied. To summarise, tinnitus and chronic pain are
similar as they are rarely observable, they are both subjective in nature and can lead to psychological distress and emotional difficulties in the patient.

1.5.2. Impact of Chronic Pain on Partners

Flor, Turk and Scholz (1987) considered the effects of chronic pain on the marital relationship of male chronic pain patients and their spouses. In addition, they looked at the emotional and physical consequences for the healthy spouse. Chronic pain had a negative effect on the marital relationship of 66% of patients. Patient marital satisfaction was best predicted by spouse solicitousness (concern and attention) and the spouses’ own marital satisfaction, as well as the patient’s pain levels. Spouse marital satisfaction was not related to patient’s pain, but related to the patient’s marital satisfaction and the spouse’s own mood. Spouses were significantly less depressed than patients were; 49% of patients were significantly depressed, compared to 26% of spouses. Spouse mood was unrelated to the patient’s pain, mood or marital satisfaction. The authors suggested that the manner in which the patient and their spouse reacted cognitively and emotionally to the pain and their marital quality was more important than the pain itself. One of the limits of this study is that it did not consider female pain patients and the impact of their pain on male spouses.

Romano, Turner and Clancy (1989) looked at the role of gender in mediating the effects of chronic pain on spouse adjustment. They studied patients with chronic low back pain and their spouse and considered depression, pain behaviour, marital satisfaction and physical disability. Female spouses reported significantly lower marital satisfaction than male patients; this decrease in marital satisfaction was associated with increased patient depression. Male spouses were significantly less depressed than female patients. Gender differences were not found for patients on measures of depression, marital satisfaction,
pain history or disability. Romano et al. proposed that a stronger relationship existed for the perception of patient dysfunction and their own emotional and marital adjustment by female spouses. The authors concluded that female spouses might be influenced negatively by exposure to pain behaviours, or to those behaviours, which were distressing or dysfunctional.

Schwartz, Slater, Birchler and Atkinson (1991) studied 29 married couples, where the husband had chronic benign low back pain. They looked at the contribution of five dimensions that research had suggested were important in explaining depression in the spouse of chronic pain patients: the patient’s pain experience; their emotional distress; relationship satisfaction; the cognitive style of the spouse and their external resources (for example, the availability of social support). At least mild depressive symptoms were reported by 29% of spouses; the strongest predictors of spouse depression were patient anger and pain. The depressed mood of the patient was not associated with spouse emotional distress. Spouse marital satisfaction significantly predicted depressed mood, suggesting that marital satisfaction may mediate patient anger and spouse depression. This study suggested that depressed spouses could create problems for patients if they attended to and reinforced salient negative aspects of the pain. The study concluded that similar research could predict which spouses are at risk of depression, that is, those married to patients with high levels of pain and anger. In this study, 38% of spouses were employed, however, one could assume that if the population studied had included female patients and therefore male spouses, more might have been employed. Spouses who are not in employment may have fewer outside sources of social interaction; therefore, any dysfunction of the patient could have a greater impact on the spouse. This study acknowledged its focus on male patients and spouses as a way to control for the
confounding effects of gender. Again, however, it is not known whether similar results would be obtained for female patients and their spouses.

1.5.3. Impact of Hearing Impairment on the Partner

Aside from the impact of chronic pain on a spouse, a hearing impairment may have a negative impact too. Backenroth and Ahlner (2000) stated that hearing loss influences communication and all interactions, including those in interpersonal relationships and working life. In their literature review Hetu, Jones and Getty (1993) considered the effects of progressive hearing loss on the patient and their partner, they concluded:

The closer the relationship, the stronger is the impact of hearing difficulties. This implies that both intimate partners may experience severe consequences if one of them has a hearing impairment and that both may need help, individually and/or as a couple, for optimal adjustment. (Hetu, Jones & Getty, 1993, p. 363)

Hetu et al. (1993) reported that the spouse could experience: irritation at having to repeat themselves or at having to act as interpreter for their partner; sorrow due to increased isolation; restricted social life and decreased intimate communication. They concluded that, although a hearing loss may not cause a relationship breakdown, it might influence relationship quality. The authors advised that the needs of both partners be addressed in rehabilitation. The RNID (2002) outlined some of the effects that a hearing impairment may have on the partner; for example, avoidance of noisy environments may lead to social isolation for the patient and partner. There may also be a reduction in the time available to the patient to relax, due to them having to concentrate and attend to communication.
Newman and Weinstein (1986) looked at the perception of hearing impairment as a handicap in 30 hearing impaired men and their spouses. They found that in social situations, the spouse and the patient’s perception of the difficulties encountered were more similar than their perception of the emotional impact of the impairment. The emotional impact of the impairment included areas such as feeling left out of a group and feeling handicapped because of their hearing difficulty. Patients tended to judge the impairment as more handicapping; the authors suggested that this was because it was easier for the spouse to witness the consequences of a social situation, rather than to consider the emotional effects of the impairment. Although this study did not consider the impact of the impairment on the partner, it did look at the discrepancy in their perception of the impairment in comparison to the patient. If this discrepancy were large, one might presume that this may lead to relationship problems, such as anger or resentment.

1.5.4. Impact of Depression on Partners

Coyne et al. (1987) compared the partners of people experiencing current depression to those of inactive or formerly depressed people. Measures of burden and psychological distress were undertaken. Coyne et al. concluded that the partner of a person with current depression experienced more burden and significantly higher distress than the partner of someone with former depression. The groups of partners of those with active depression were particularly upset by the depressive symptomatology, such as, lack of interest in social life, hopelessness, fatigue. Forty percent of the partners of actively depressed people met the criteria for psychological intervention themselves.

1.6. The Role of Support in Marriage

In considering the effects of marital status, Burman and Margolin (1992) reviewed the literature on the influence of social relationships on health. They concluded that there
were two key models of social support, the ‘main-effect’ model and the ‘stress-buffering’ model. The ‘main-effect’ model supposed that high support levels would promote well-being in spite of stress. Therefore, in this model being married is seen as proof of social support. The ‘stress-buffering’ model however suggested that positive social support decreased the effects of stress, hence a negative marriage might not offer the necessary support to diminish stress. Rook (1990, cited in Burman & Margolin, 1992) proposed a ‘Social Strain’ model, which considered the quality of the relationship and its influence on well-being, this suggested that negative relationships could negatively influence well-being by increasing stress.

Applying these three models to marriage implies that under the ‘main-effect’ model, married people are healthier than those who are not married. Alternatively, the ‘stress-buffering’ and ‘social-strain’ models appear to suggest that people in distressed marriages are in poorer health than those in non-distressed marriages.

1.7. Gaps in the Literature

From the reviewed literature, it is clear that the presence of an illness or impairment (psychological, sensory or physical) in one partner can have an effect on the other. The extent of this effect, however, will depend on a number of factors, including relationship quality, the patient’s symptomatology and their interpretation of the problem. The effect of tinnitus on the patient has already been discussed, but can tinnitus impact on significant others? Given this review, this section highlights gaps in the literature.

- There is a general paucity of information which considers whether tinnitus has a detrimental effect on the partner of the patient.
- The influence of gender in tinnitus has been researched infrequently. Erlandsson and Holgers (1999) considered gender differences in key areas of life reported to be
affected by tinnitus. There is, however, a shortage of information regarding whether the degree of distress experienced differs between the sexes.

- In many studies, it is not clear if the psychological distress reported by tinnitus patients developed before or after tinnitus. It is therefore not apparent if tinnitus influenced the development of psychological distress.

- Coping styles are known to be influential in determining the severity of an illness and whether a situation is interpreted as stressful. Research in tinnitus, has proved inconclusive as to which coping styles lead to better outcomes. Use of 'avoidant' coping strategies has been reported to lead to increased tinnitus severity (Budd and Pugh, 1996a) and less disability (Sullivan et al., 1994).

- Despite the potential influence that the couple’s relationship has on psychological well-being, relationship quality has often been disregarded in previous research.

1.8. Statement of Research Aims

Previous research has highlighted the effect tinnitus can have on the patient’s psychological health. Previous studies have looked at the impact of chronic pain, hearing impairment and depression on partners and have highlighted negative consequences, which may also occur in the partner of a tinnitus patient. No study has yet been published, which considered the impact of tinnitus on the partner; do the patient’s experiences affect the partner? Anecdotal evidence and case studies such as Nagler (2000) hint that tinnitus may have a psychological impact on the partner.

If partners do experience high levels of psychological distress, the question might be asked ‘How can the partner help the patient if they are unwell themselves?’ Answers to this question may highlight whether clinical interventions should focus on helping both the patient and their partner to cope with difficulties associated with tinnitus. Thus,
research may help to identify or predict which partners are at risk of psychological distress. As no previous research has been conducted in this area, this study was exploratory in nature.

The aims of the study were:

- To investigate levels of, and relationships between, psychological distress, tinnitus severity, hearing impairment, coping style and marital satisfaction in tinnitus patients.
- To increase understanding of the impact of tinnitus on the partner. To determine whether partners were adversely affected by the tinnitus in terms of their report of psychological distress.
- To explore by use of standardized questionnaires what factors related to any detected psychological distress in partners. These factors can broadly be divided into:
  a. Patient characteristics, for example, tinnitus severity, gender, hearing impairment and their psychological distress.
  b. The quality of relationship between partner and patient.

1.9. Hypotheses

1.9.1. Hypothesis 1. Psychological Distress

Previous research noted high levels of depression and anxiety in patients with tinnitus and chronic pain; research on chronic pain has demonstrated that this can affect the partner.

a) It is hypothesised that tinnitus patients will experience higher levels of psychological distress than their partners as measured on the General Health Questionnaire - (GHQ) - Goldberg (1978).

b) In addition, it is hypothesised that there will be a positive correlation between tinnitus patients’ psychological distress and that of partners.
c) It is hypothesised that tinnitus patients with high levels of psychological distress will experience more severe relationship problems as measured by the Golombok Rust Inventory of Marital State (GRIMS).

1.9.2. Hypothesis 2. Hearing Impairment

Hearing loss or impairment, can lead to increased psychological distress in the patient (McKenna, Hallam & Hinchcliffe, 1991).

a) Tinnitus patients with a hearing impairment, it is hypothesised, will experience higher levels of psychological distress than those without impairment, as measured by the GHQ.

b) It is hypothesised that the partners of those tinnitus patients with a hearing impairment will experience higher levels of psychological distress as measured by the GHQ, in comparison to the partners of those without a hearing impairment.

c) In addition, it is hypothesised that tinnitus patients with a hearing impairment will experience more severe relationship problems than those without impairment as measured by the GRIMS.

d) It is also hypothesised that the partners of those tinnitus patients with a hearing impairment will experience more severe relationship problems than those without impairment, as measured by the GRIMS.

1.9.3. Hypothesis 3. Concurrence in Perception of the Relationship

There will be a positive correlation between tinnitus patient and partner scores on the GRIMS.
1.9.4. Hypothesis 4. Tinnitus Severity

It has been suggested that perceiving tinnitus as problematic is related to a person’s psychological response to it. Alterations in mood, anxiety and depression are often associated with tinnitus distress.

a) It is hypothesised that there will be a positive correlation between patient rating of tinnitus severity on the Tinnitus Handicap Inventory (THI) and patient psychological distress as measured by the GHQ.

b) In addition, it is hypothesised that there will be a positive correlation between tinnitus severity and the psychological distress of partners.

c) Patients with severe tinnitus, it is hypothesised, will experience more severe relationship problems than patients with mild tinnitus, as measured by the GRIMS.

d) The partners of patients with a high tinnitus severity rating will experience more severe relationship problems than partners of patients with a low tinnitus severity rating, as measured by the GRIMS.

1.9.5. Hypothesis 5. Gender

Zoger et al. (2001) noted that the rate of depression in tinnitus patients was higher than the general population. They reported that men were more likely to access help for tinnitus rather than depression and that the prevalence of depression in females was higher. Dineen et al. (1997) noted similar levels of anxiety and stress reported by the sexes but female tinnitus patients reported more depression than males.

a) Female tinnitus patients will report a higher level of psychological distress than male tinnitus patients, as measured by the GHQ.

b) In addition, female partners of tinnitus patients will report a higher level of psychological distress than male partners of tinnitus patients.
c) Female patients will report more severe tinnitus than male tinnitus patients, as measured by the THI.

1.9.6. Hypothesis 6. Coping

Research on the coping styles of tinnitus patients and their association with tinnitus severity is inconclusive. Sullivan et al. (1994) highlighted the favourable use of avoidant strategies in association with less role dysfunction, whilst Budd and Pugh (1996a) and Hallberg et al. (1992) noted that maladaptive coping, for example, avoidance of social situations, was associated with depression and increased tinnitus severity. Dineen et al. (1997) concluded that females had a more emotional reaction to tinnitus and used problem-focussed coping more than males. No gender differences were found in the use of emotion-focussed coping.

a) It is hypothesised that patients with severe tinnitus will make use of avoidant coping strategies more than those with mild tinnitus, as measured by the Coping Inventory for Stressful Situations.

b) There will be significant differences in the coping styles adopted by male and female tinnitus patients, with female patients using task-oriented coping more than male patients.
2. Method

2.1. Design

The study was primarily correlational in design. The main relationship to be explored was whether a measure of psychological distress in partners of patients with tinnitus, related to a variety of variables, including: tinnitus severity, gender, patient’s psychological distress, presence of hearing impairment, coping style and relationship quality.

2.2. Participants

The research was conducted at tinnitus clinics based in three National Health Service (NHS) Trusts. For the purposes of patient anonymity, the clinics are referred to as: ‘C’, ‘D’ and ‘E’. Patients were approached to participate by clinic staff, if they met the following eligibility criteria:

1. A patient referred to the clinic for the first time, that is, a new referral. New patients were included on the basis that most would not have experienced or undergone any previous tinnitus treatments.

2. A diagnosis of tinnitus in the absence of other confounding diagnoses, such as, Menieres disease. Clinic staff confirmed a patient’s diagnosis of tinnitus during their assessment.

3. Aged over sixteen years. Much of the literature on tinnitus considers adults; therefore, children were excluded from the study in order that comparisons could be made. In addition, most referrals to the involved clinics comprised of adults.

4. Participants must cohabit with a partner. A partner was defined as a person with whom the patient currently lived. The patient and their partner did not have to be married to meet the criteria and could be of the same sex.
Tinnitus patients with a hearing impairment were included in recruitment to the current study. As previously stated, the presence of a hearing impairment alongside tinnitus is common in the majority of tinnitus patients. Therefore, to exclude tinnitus patients with a hearing impairment would greatly reduce the target population, which would have been impractical, given the time constraints already imposed on the study. It was also felt that the presence of a hearing impairment, in addition to tinnitus, might have more of an impact on the partners of such patients, than tinnitus alone. Although a comprehensive analysis of the impact of hearing impairment was beyond the scope of this study, the inclusion of such patients would allow some consideration of this.

The restrictions imposed by the study’s eligibility criteria created what Clark-Carter (2001, p. 169) described as a “purposive sample”; participants were taken from a clearly defined sample and particular characteristics were sought.

2.3. Procedure

As the research was conducted in three NHS Trusts, ethical approval was obtained from each local research ethics committee (Appendices A, B and C). This meant that the research procedure for each clinic differed slightly to meet the requirements of the relevant committee. Data was collected over a six month period.

Both clinics ‘C’ and ‘D’ received referrals of new patients via the Ear, Nose and Throat (ENT) Department. General Practitioners (GPs) referred patients to the ENT department and from there, they were referred to the tinnitus clinic. Clinic ‘E’, however, also took referrals directly from GPs.
The research used a postal questionnaire format, this method was chosen due to difficulties anticipated in gaining direct contact with partners, who do not always attend the clinic appointment with the patient. A brief description of the salient procedural points for each clinic follows.

2.3.1. ‘C’ Clinic

A paragraph introducing the research to all new tinnitus patients referred to the clinic was included in their first appointment letter (Appendix D). Clinic staff verbally introduced the research to the patient and their partner at their first appointment. Those interested in participating were provided with the patient information leaflet (Appendix E), relevant consent forms (Appendices F and G), questionnaire booklets and a stamped addressed envelope to return packs directly to the researcher.

If the partner did not accompany the patient to the appointment, permission was obtained from the patient for the clinic to contact the partner in writing. Clinic staff then forwarded to the partner: consent forms, a questionnaire booklet, a patient information leaflet, return stamped addressed envelope and a covering letter (Appendix H).

The content of the patient information leaflet and consent forms for the three clinics were broadly similar. The only variations arose out of requests from the relevant ethics committees and were in the format of differences in the layout or ordering of the sections and some minor word changes. For example, the ethics committee for clinic ‘D’ requested that a contact telephone number for the researcher be added in case of difficulty. Whilst the ethics committee of clinic ‘E’ required that the consent forms include a contact telephone number for the Consultant at the tinnitus clinic.
2.3.2. 'D' Clinic

Clinic staff introduced the research to patients at their first clinic appointment and provided the relevant documentation - questionnaire booklets, consent forms, patient information leaflet, return stamped addressed envelopes - to participants. If the partner did not accompany the patient to the appointment, interested patients were provided with the relevant paperwork to take home for their partner.

2.3.3. 'E' Clinic

Clinic staff introduced the research to patients at their first clinic appointment. Again, if the partner did not attend the appointment, clinic staff obtained the patient’s permission to post to the partner: a covering letter, consent forms, questionnaire booklet, patient information leaflet and return stamped addressed envelope.

2.3.4. Procedural commonalities

Despite slight procedural differences, there were a number of common procedures across the clinics. For example, distributed questionnaire packs - patient and partner - were identical across the clinics. All participants were encouraged to complete the questionnaire packs independently; not to discuss their answers with their partner until they had both completed the measures.

The procedure for issuing a follow-up letter was the same across all clinics. Yammarino, Skinner and Childers (1991) stated that the use of a reminder expressing appreciation to responders and reminding non-responders to return outstanding questionnaires could significantly increase response rates. A standard follow-up letter (Appendix I), which thanked respondents and encouraged the return of out-standing questionnaires, was forwarded to all participants directly from the clinic approximately
four weeks after the first appointment. As clinic staff issued the follow-up letters, participant anonymity and confidentiality was retained.

All patient and partner questionnaire packs were given an identification number and clinic staff provided couples with 'number matched' questionnaire packs. This meant that returned packs could be matched into 'couples' before data analysis.

Each clinic was provided with two reminder posters (Appendix J), which were displayed in their waiting or clinic room. The purpose of these was to inform new patients of the research and to remind any participants attending a follow-up appointment to return out-standing questionnaire packs. Clark-Carter (2001) found that using a poster to remind participants to return a survey increased the response rate from 50% to 70%.

2.4. Measures

Participants were provided with a questionnaire pack (one for the patient and one for their partner). Both packs included the Golombok Rust Inventory of Marital State (GRIMS; Rust, Bennun, Crowe & Golombok, 1988), General Health Questionnaire 30 item (GHQ30; Goldberg, 1978) and the Coping Inventory for Stressful Situations (CISS; Endler & Parker, 1990). In addition, the patient pack included the Tinnitus Handicap Inventory (THI; Newman et al., 1996) and a Brief Patient Questionnaire, whereas the partner pack included a Brief Partner Questionnaire.

Table 3 (over the page) provides an overview of the measures used and their purpose in the study.
Table 3: Overview of Measures Used

<table>
<thead>
<tr>
<th>Measure</th>
<th>Used to ascertain:</th>
<th>Range of Scores</th>
<th>High score indicates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief Questionnaire</td>
<td>Demographic details, perception of tinnitus, etc.</td>
<td>N / A</td>
<td>N / A</td>
</tr>
<tr>
<td>GRIMS</td>
<td>Quality of relationship</td>
<td>0 – 84</td>
<td>Severe relationship difficulties</td>
</tr>
<tr>
<td>GHQ30</td>
<td>Level of psychological distress</td>
<td>0 – 30</td>
<td>High level of distress</td>
</tr>
<tr>
<td>CISS</td>
<td>Typical coping strategies engaged in</td>
<td></td>
<td>Greater use of a coping strategy</td>
</tr>
<tr>
<td>THI</td>
<td>Subjective rating of tinnitus severity</td>
<td>0 – 100</td>
<td>Severe tinnitus</td>
</tr>
</tbody>
</table>

Missing data, that is items that were unanswered by participants, were treated consistently. In the Coping Inventory for Stressful Situations, the median score of three was used for missing items as outlined in the manual (Endler & Parker, 1999). The publishers of the GHQ30 advocate that missing items are counted as low scores, in the current study, missing items were therefore scored as zero (Nfer-Nelson, n.d.). For the remaining standardized measures, a best approximation of the participant’s response was used, based on the pattern of their previous responses on a particular measure.

2.4.1. The Brief Questionnaires (Patient & Partner)

The ‘Brief Questionnaires’ were developed for the current study. Two versions were developed: one for completion by the tinnitus patient (Appendix K) and the other for completion by their partner (Appendix L). Both questionnaires covered a range of topics relevant to areas of interest in the study and which previous research had identified as important in tinnitus clinic assessments (Hiller, Goebel & Schindelmann, 1999; Jastreboff & Jastreboff, 1999). Among the aims of the questionnaires were to ascertain:

demographic factors, tinnitus-specific factors (severity, duration, location), perceived
effects of the tinnitus from the partner's perspective and partner views on appointments attended.

The 'Patient Questionnaire' included questions to determine whether the patient felt they had a hearing difficulty. A question also asked whether they had been fitted with, and used a hearing aid. The first of these questions ascertained a subjective view of the presence of impairment. The latter question was included to provide an approximate measure of those with an objective hearing impairment; those that had been prescribed aids as a result of an audiological examination. In the current study, a participant was classed as 'hearing impaired' if they reported hearing difficulties, regardless of the use or presence of hearing aids. This categorisation allowed for any participant who felt they had hearing difficulties, but which did not warrant the use of a hearing aid.

Staff at two of the research clinics reviewed the 'Brief Questionnaires' and proposed further questions for inclusion. Their suggestions included the questions on the presence of other ear disorders, as well as the inclusion of a question to determine whether the tinnitus was a long-standing condition that had recently become a problem, or if it was a new problem. These revised questionnaires were then discussed with Jonathan Hazell, Clinical Director of the Tinnitus and Hyperacusis Centre, UK (J. W. P. Hazell, personal communication, December 6, 2001). The following areas were included in the study as a result of this discussion: the presence of a current life event or stressor which may have an impact on participant's psychological well-being, whether any stressful life event occurred at the time the tinnitus started and whether they had received any previous help for it. In addition, the wording of items concerning hearing loss and the presence of any other medical conditions were changed to aid clarification.
Both versions of the questionnaire were given to five members of the general public to complete. Participants were asked to comment on: the length of time needed to complete the questionnaires, question ambiguity, the layout and wording of questions. This feedback led to minor changes in the wording and changes to the instructions to improve clarity.

The revised questionnaires were piloted with eight members of the North Derbyshire Tinnitus Support Group. Members volunteered to complete the questionnaires, or to read and comment on their layout and topic content, in order to determine their content validity. From this it was clear that respondents required between 5 and 10 minutes to complete the questionnaire. No additional questions or topics were suggested for inclusion. Feedback was received regarding ways to improve the layout and this was amended accordingly.

2.4.2. Quality of the Couple’s Relationship

In considering the impact of a physical health problem in one partner on the other, it is important to take into account their relationship quality. There are a number of measures available to determine this, for example, the Dyadic Adjustment Scale (DAS; Spanier, 1976), the Relationship Assessment Scale (RAS; Hendrick, 1988) and the Golombok Rust Inventory of Marital State (GRIMS; Rust et al., 1988).

The DAS is a 32 item measure with four subscales: dyadic consensus, dyadic satisfaction, dyadic cohesion and affectional expression. Rust, Bennun, Crowe and Golombok (1986) criticised this measure stating that its development in the United States, meant it may be culturally biased and therefore unsuitable for use in the UK.
The RAS is a measure of global or generic relationship satisfaction. It consists of seven items using a five point Likert scale and measures problems in, and general satisfaction with the relationship. The RAS can be used with both married and non-married couples. Vaughn and Baier (1999) compared the RAS to the DAS with a clinical population and found they were highly correlated. Vaughn and Baier concluded that although the RAS was short in length, it had no clear cut-off by which to distinguish dissatisfied from satisfied relationships. They suggested the need for a comparison of a clinical and non-clinical sample to determine this.

Golombok Rust Inventory of Marital State

Due to the limitations of the two measures described above, participant’s satisfaction with their relationship was measured using the GRIMS (Rust et al., 1988). This measure was developed in the UK. It is used to assess marital state and marital discord, through measurement of the overall quality of the relationship. The GRIMS has 28 items and consists of a single scale of marital quality. Items are rated on a four-point scale, with responses ranging from ‘strongly agree’ to ‘strongly disagree’. Areas considered by items on the questionnaire, include: satisfaction, communication, shared interests, respect and trust (Appendix M).

The GRIMS was standardized with a sample of couples who presented for treatment at marriage guidance clinics and with GP patients (Rust, Bennun, Crowe and Golombok, 1990). In this study, reliability coefficients were reported to be in the range 0.81 to 0.93; indicating a high degree of consistency, or reliability, between items on the questionnaire. Diagnostic validity, or the degree of agreement between scores on the GRIMS and a marital therapist’s rating of relationship quality, was also reported to be high. The
reliability and validity of the GRIMS is therefore good. The GRIMS also provides evidence of the degree of any relationship difficulties.

2.4.3. Psychological Distress

Many self-report inventories exist to measure anxiety and depression levels, for example, the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983), the State Trait Anxiety Inventory (STAI; Spielberger, 1983), the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock & Erbaugh, 1961) and the General Health Questionnaire (GHQ; Goldberg, 1978).

The HADS is a self-report measure of anxiety and depression; it was designed so that responses would not be affected by somatic complaints such as insomnia. The HADS has been widely used in a variety of settings and is used to screen for clinically significant anxiety and depression and to measure the severity of these disorders.

The STAI is a self-administered measure, used to distinguish between dispositional and transient or state anxiety. It consists of 40 items, 20 to assess state anxiety and 20 to assess trait anxiety. The BDI is a 21-item inventory that can be self-administered and was designed to measure depression. It considers cognitive elements of depression including; guilt, pessimism, suicidal ideation, insomnia and social withdrawal. The BDI however includes a number of somatic items, which may lead to scoring difficulties in patients with physical health problems.

As neither the STAI, nor the BDI provide a measure of overall level of psychological distress, neither were suitable for the study described here. The HADS was not used in the study, as the 30-item General Health Questionnaire (GHQ30) was used in a previous
study of outpatients, including tinnitus patients, attending an audiological clinic
(Singerman et al., 1980). Use of the GHQ30 in the current study would allow some
comparisons to be made to the Singerman et al. study.

**General Health Questionnaire**

The GHQ is a self-administered measure, used to detect psychiatric disorders. It
focuses on broad areas of psychiatric morbidity, especially anxiety and depression
(Bowling, 1991). The GHQ30 was used in this study as a dimensional measure of
psychological distress, to look at the size of total scores obtained. The GHQ30 contains
30 statements, with four possible responses per statement, it produces an overall score,
the higher the score, the more severe the difficulties.

There are four methods available to score the GHQ. Each method works from left to
right across the four possible responses to each item. The different methods are: GHQ
scoring (0, 0, 1, 1), Likert scoring (0, 1, 2, 3), Modified Likert scoring (0, 0, 1, 2) and
CGHQ scoring. In CGHQ scoring, positive items, those that indicate health are scored 0,
0, 1, 2 and negative items indicative of illness are scored 0, 1, 1, 1. Goldberg and
Williams (1988) advocated use of the GHQ scoring method, which was used in the
current study.

Bowling (1991) reported test-retest reliability correlations in the range 0.51 to 0.9,
internal consistency ranged from 0.77 to -0.93. Vieweg and Hedlund (1983) in a review
of studies of the GHQ versions 28, 30 and 60, reported a median correct identification, or
sensitivity of psychiatric disorders ranging from 71 – 88% and the median correct
identification of non-psychiatric cases, or specificity in the range 80 – 93%.
2.4.4. Coping

There are many general measures of coping styles available, including: the Ways of Coping Questionnaire (Folkman & Lazarus, 1988), the COPE (Carver et al., 1989) and the Coping Inventory for Stressful Situations (CISS; Endler & Parker, 1990). The Ways of Coping Questionnaire (WCQ) was developed on the theoretical basis that coping has two main purposes; problem solving and emotional regulation, that is, the management of emotional distress. The WCQ comprises of 66 items and is therefore rather lengthy.

There are two versions of the COPE available, one with 52 items and 13 subscales, the other with 28 items and 14 subscales. One of the developers of the COPE noted that in his use of the COPE, he does not combine scales into ‘problem focused’ and ‘emotion focused’ coping. Carver (n.d.) stated that the COPE does not produce an overall score and therefore he does not recommend a method by which to measure a person’s dominant coping style using it. One of the aims of the current research was to identify whether patients with severe tinnitus typically made use of a particular style of coping, therefore it was felt that the COPE would not meet this purpose.

In addition to the general measures of coping that are available, Budd and Pugh (1996a) developed the ‘Tinnitus Coping Style Questionnaire’ (TCSQ). This was designed to consider specific coping strategies used by patients in response to tinnitus. This is a 40-item questionnaire, which includes items that cover areas such as diverting attention, catastrophising, increasing tinnitus behaviour and ignoring tinnitus. Despite the tinnitus-specific nature of this measure, it has not been widely used in the tinnitus literature and due to its specificity; it would not be appropriate for completion by partners of tinnitus patients. Consequently, a general coping measure was used in the current study, so that the coping styles of both tinnitus patients and their partners could be considered.
Coping Inventory for Stressful Situations

The CISS was used in the study. It is a 48-item self-report inventory, developed to assess preferred or typical coping strategies used in stressful situations (Appendix N). Individuals rate how much they engage in different activities when they encounter a stressful situation on a five-point Likert scale from 'not at all' to 'very much'. Items chosen in the development of the CISS fitted into the two main styles of coping, emotional and problem-solving. The CISS consists of three coping dimensions: 'emotion-oriented', becoming upset or angry; 'avoidance-oriented', trying to avoid the problem; and 'task-oriented', dealing with the problem at hand. The 'avoidance-oriented' scale divides into two subscales: distraction and social diversion. Psychometric analysis of the CISS by Cosway, Endler, Sadler and Deary (2000) confirmed the presence of the three main factors and the subdivision of the avoidance factor.

A high score on any subscale indicates a greater tendency for an individual to utilise that particular coping style. The raw scores of participants were compared to the normative data for adult males and females as outlined in the CISS manual (Endler & Parker, 1999).

In terms of the psychometric properties of the CISS, the internal consistency of each scale was measured using a coefficient alpha calculation, to assess the extent to which each item measured the same construct. These ranged from 0.72 to 0.9 for males and females on the adult norms quoted in the CISS manual and indicated satisfactory levels (Endler & Parker, 1999). Cosway et al. (2000) studied Scottish consultant doctors and farmers and reported alpha reliabilities for the three main factors in the range 0.82 to 0.9, with the distraction and social diversion sub-factors ranging from 0.75 to 0.81. Test-retest
reliability correlations of the five scales ranged from 0.51 to 0.73, indicating moderate levels of reliability.

The CISS was included to ascertain whether participants adopted a typical coping style. Previous research with tinnitus patients has identified the use of avoidant coping strategies and their associated outcome with less disability (Sullivan et al., 1994). Budd and Pugh (1996a) noted that the use of ‘effective’ coping strategies, for example, distraction had a small association with better emotional adjustment. This measure was included to determine whether the hypothesis was upheld, that those with severe tinnitus made more use of avoidant strategies.

Permission was sought to reproduce and include the CISS in the questionnaire pack from its publishers, Multi-Health Systems. Permission was granted, based on an agreed number of copies being made and with the copyright and publisher details being printed on the measure. A licence agreement was signed and the appropriate fee paid for the purposes of this research.

2.4.5. Tinnitus Severity

There are no objective signs present in tinnitus, thus there are no objective tests of tinnitus and one must rely on the individual’s perception of their symptoms (Moller, 2000a). As yet there is no universal classification system to measure the distress caused by tinnitus (Andersson, Lytkkens & Larsen, 1999). In terms of the assessment of psychological complaints and self-perceived tinnitus handicap, there are a number of measures available, for example, the Tinnitus Questionnaire (TQ; Hallam, 1996b), Tinnitus Cognitions Questionnaire (Wilson & Henry, 1998), Tinnitus Handicap
Questionnaire (Kuk et al., 1990) and the Tinnitus Handicap Inventory (THI; Newman et al., 1996).

Goebel and Hiller (1999) compared nine such measures and concluded that the TQ was the most valid, broad spectrum complaint questionnaire. Goebel and Hiller expressed reservations in relation to the THI, as they deemed the original author’s tests of reliability insufficient. Baguley, Humphriss and Hodgson (2000) however looked at the correlation between the TQ and the THI and their convergent and discriminant validity. They concluded that the TQ and THI total scores were highly correlated. High convergent validity was also noted between the questionnaire scores and the underlying construct of ‘tinnitus handicap’. To conclude, the authors proposed that both the THI and the TQ would be suited to quantifying self perceived tinnitus handicap.

**Tinnitus Handicap Inventory**

The THI was used in the current study due to its size; it contains 25 items, in comparison to 52 items in the TQ. Given the total number of measures that participants were asked to complete, this lower number made it a more favourable tool (Appendix O).

The THI quantifies the impact of tinnitus on daily living and consists of three subscales: functional, emotional and catastrophic. The functional subscale considers the impact of tinnitus on: mental, social, occupational and physical functioning. The emotional subscale assesses a range of affective responses to tinnitus, such as depression or anger. The catastrophic subscale considers an individual’s interpretation of the tinnitus, for example as intrusive, as a grave disease, or as loss of control.
Newman et al. (1996) reported that the total scale had excellent internal consistency reliability (alpha reliability = 0.93). Newman, Sandridge and Jacobson (1998) reported high test-retest reliability for the total score and subscales, which ranged from 0.84 to 0.94.

The THI has been recommended for use in research as a method to grade tinnitus severity (McCombe et al., 2001). This grading system is based on the respondent’s overall THI score and leads to five grades of severity (slight, mild, moderate, severe and catastrophic). This system was used in the current study to consider whether tinnitus severity related to psychiatric morbidity, individual subscale scores were not used.

2.5. Content analysis

Answers to the open ended questions in the ‘Brief Questionnaires’ were subject to a content analysis in relation to mutually exclusive categories or themes in the responses. The initial stage in this process identified all key themes in the data, whilst further analysis was undertaken to determine how these related to data obtained from the standardised measures.
3. Results

3.1. Overview

The results are divided into sections, the first considers the: rationale for statistical analysis, data distribution, statistical power of the study and explains the significance levels adopted. The next section highlights the response rate obtained and describes characteristics of the sample. A section on the descriptive data of the measures used, precedes the statistical analysis of the hypotheses. This section concludes with a content analysis of responses obtained in the ‘Brief Questionnaires’.

3.2. Rationale for Statistical Analysis

3.2.1. Parametric Assumptions

Before analysis, data was examined to see if it met criteria for parametric analysis, which requires interval or ratio data, that data is normally distributed and that the distribution has equality of variance.

The data was mainly ordinal. Clark-Carter (2001), however, proposed that parametric analysis could be used with ordinal data, providing there were sufficient levels within the data, that is, 20 or more and providing that the remaining parametric criteria were met. Clark-Carter described how questionnaires with Likert scales could produce a range of scores to fulfil this, as the questionnaires used here were of a Likert type, this principle was upheld.

To clarify whether data obtained on the: GHQ30, THI, CISS and GRIMS were normally distributed; the One Sample Kolmogorov-Smirnov Test was used. Each achieved a Z score $p > .05$, indicating that data were normally distributed. The Levene’s
test was also used to verify equality of variance in t-tests. Equality of variance means the variability of scores in each condition is similar. As the data were normally distributed and were of Likert format, parametric procedures were used. The Statistics Package for Social Sciences (SPSS) for Windows, Version 10, was used for analysis.

3.2.2. Significance Level

The conventional significance level of $p < .05$ was adopted throughout the analysis, where significance is at a different level, this is reported in the text. Conducting a number of statistical analyses on a data set, increases the chance of making a type one error, that is, the chance of rejecting the null hypothesis even though it is true, or reporting a significant result when it is not true. Adopting a more stringent level of significance such as $p < .01$, however, increases the possibility of type two errors, that is, rejecting the hypothesis when it is true. Given that this area had not been studied before and as the impact of different variables was under investigation, adopting a significance level of $p < .05$ may lead to more interesting findings, which could be probed further in future research.

3.2.3. Power

Previous studies found significant psychological distress levels in chronic pain patients (Flor et al., 1987) and tinnitus patients (Rizzardo et al., 1998; Scott & Lindberg, 2000). Research has also found significant depression levels in the spouse of physically ill (Schwartz et al., 1991) or psychologically distressed patients (Coyne et al., 1987). Based on this, a large effect size was considered appropriate for this study. A priori statistical power analyses were conducted to determine the number of participants required for the sample to be large enough to avoid Type II errors, or, the probability of not finding a relationship that is there. Power was calculated for a one-tailed Pearson’s Product
Moment Correlation Coefficient. The main correlation to be explored was the association between partner psychological distress and patient tinnitus severity. Holding alpha ($\alpha$) at .05, with a large effect size ($r$) of 0.5 and power of 0.8, a sample of 20 to 25 was needed. Power was also calculated for a one-tailed Independent T-test, to consider the hypothesis that tinnitus patients would experience more psychological distress than partners. With alpha ($\alpha$) at .05 and a large effect size ($r$) of 0.8 and power of 0.8, 42 participants (21 in each group) were required. As questionnaires were returned from 22 couples, sample size was just sufficient.

3.2.4. Justification for Tests Used

Considering the impact of tinnitus on partners is a new research area, hence most hypotheses focused on whether there was a relationship between two variables. Hypotheses such as whether high levels of psychological distress in partners related to tinnitus severity, were investigated using the Pearson’s Product Moment Correlation. To determine whether the psychological distress levels of patients and partners were significantly different, a between groups t-test was used. To consider whether gender influenced coping style, a two-way, 2 X 3 (Gender X Coping Style) mixed ANOVA was used, where ‘gender’ was a between-subjects factor and ‘coping style’ (task, emotion and avoidant) the within-subjects factor.

3.3. Return rate

Clinics were not asked to record the number of patients approached to participate, versus the number who consented to participate, it was therefore not possible to calculate an opt-in rate. It was possible to calculate an overall return rate and a rate for each clinic, based on the number of questionnaire packs distributed and the number returned (Table 4, over page).
Table 4: Study Return Rate

<table>
<thead>
<tr>
<th></th>
<th>Clinic ‘C’</th>
<th>Clinic ‘D’</th>
<th>Clinic ‘E’</th>
<th>Overall total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questionnaire packs</td>
<td>14</td>
<td>7</td>
<td>22</td>
<td>43</td>
</tr>
<tr>
<td>distributed to patients</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and partners</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Questionnaire packs</td>
<td>8</td>
<td>2</td>
<td>12*</td>
<td>22</td>
</tr>
<tr>
<td>returned from patient &amp;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>partner</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Questionnaire packs</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>returned from patient</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>only</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return rate for patient</td>
<td>57%</td>
<td>29%</td>
<td>55%</td>
<td>51%</td>
</tr>
<tr>
<td>&amp; partner packs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* = A thirteenth questionnaire set was returned. However, this was excluded from the analysis, due to the partner being registered blind, which meant the patient had completed the questionnaire by reading each item to them. Therefore, the pack had not been completed independently as requested.

Clinic ‘D’ started data collection a little after the other two clinics, which may account for their lower distribution and return rate.

The overall response rate was 51%; this refers to a whole data set, that is, questionnaires returned by the patient and their partner. Five patient questionnaires were returned, but the partner pack was not, this data has not been used in this study.

3.4. Sample Characteristics

3.4.1. Demographic Information

Twenty-two tinnitus patients and partners participated; all were married. Table 5 (over page) illustrates demographic information for participants.
Table 5: Patient & Partner Demographic Information

<table>
<thead>
<tr>
<th></th>
<th>Patient</th>
<th>Partner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender: Male</td>
<td>64%</td>
<td>36%</td>
</tr>
<tr>
<td>Gender: Female</td>
<td>36%</td>
<td>64%</td>
</tr>
<tr>
<td>Age: Mean</td>
<td>55.23</td>
<td>54.35</td>
</tr>
<tr>
<td></td>
<td>11.50</td>
<td>13.04</td>
</tr>
<tr>
<td>Range</td>
<td>34 - 74</td>
<td>30 - 78</td>
</tr>
<tr>
<td>Employment: Full time</td>
<td>27%</td>
<td>36%</td>
</tr>
<tr>
<td>Employment: Part time</td>
<td>14%</td>
<td>23%</td>
</tr>
<tr>
<td>Employment: Self employed</td>
<td>9%</td>
<td>0</td>
</tr>
<tr>
<td>Employment: Retired</td>
<td>41%</td>
<td>32%</td>
</tr>
<tr>
<td>Employment: Disabled</td>
<td>5%*</td>
<td>0</td>
</tr>
<tr>
<td>Employment: Carer</td>
<td>0</td>
<td>5%</td>
</tr>
</tbody>
</table>

The majority of patients (73%) reported a coexisting physical health problem, 24% did not. One patient did not answer this item. Health problems included: angina, hernia, gout, lupus, hypothyroidism, diabetes, irritable bowel syndrome, asthma, arthritis, kidney problems, hypertension, myalgic encephalomyelitis, bile salt malabsorption, mobility problems, visual difficulties and back problems. Half of partners (50%) reported a physical problem, 46% did not, complaints included: angina, asthma, arthritis, psoriasis, diabetes, ulcer, back pain, blood disorder, hypertension, thyroid problems, degenerative spine disorder and wearing glasses. One partner did not answer this question.

3.4.2. Emotional Problems

All patients reported having experienced an emotional problem, 59% had accessed professional help for it, 41% had not. In terms of the impact of the problem: 5% reported it had ‘no impact’, 32% described it as having ‘some impact’, 18% as a ‘moderate impact’ and 45% as a ‘large impact.’ Most patients (73%; \( n = 16 \)) were not experiencing a stressful life event at the time of questionnaire completion, 23% (\( n = 5 \)) were, one patient did not answer this item.

* Discrepancies in the percentages quoted - that is, where percentages do not equate to 100 - are due to missing data.
Most partners (68%) reported having experienced an emotional problem, 32% did not. Of those who reported an emotional problem (n = 15), 53% had sought professional help. In rating the impact the problem had on their life: 7% rated it as ‘no impact’, 27% as ‘some impact’, 33% as a ‘moderate impact’ and 33% as a ‘large impact’. Most (68%; n = 15) were not currently experiencing a stressful life event, 28% (n = 6) were, one partner did not answer this item.

3.4.3. Patients – Tinnitus Information

Table 6, highlights that tinnitus in both ears, or the left ear, was reported most commonly. The majority experienced high pitch noises (59%) and for most onset was gradual. Tinnitus noises that lasted in excess of five minutes were reported by 95% of patients, noises were experienced constantly by 82% (n = 18) and intermittently by 5%.

Table 6: Characteristics of patient’s Tinnitus

<table>
<thead>
<tr>
<th>Description of Tinnitus</th>
<th>% of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>Left ear</td>
<td>27%</td>
</tr>
<tr>
<td>Right ear</td>
<td>9%</td>
</tr>
<tr>
<td>Both ears</td>
<td>41%</td>
</tr>
<tr>
<td>Within head</td>
<td>18%</td>
</tr>
<tr>
<td>Both ears and head</td>
<td>5%</td>
</tr>
<tr>
<td>Pitch</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>59%</td>
</tr>
<tr>
<td>Medium</td>
<td>14%</td>
</tr>
<tr>
<td>Low</td>
<td>5%</td>
</tr>
<tr>
<td>All pitches</td>
<td>5%</td>
</tr>
<tr>
<td>Not reported</td>
<td>17%</td>
</tr>
<tr>
<td>Onset</td>
<td></td>
</tr>
<tr>
<td>Sudden</td>
<td>41%</td>
</tr>
<tr>
<td>Gradual</td>
<td>59%</td>
</tr>
<tr>
<td>Tinnitus volume changes</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>86%</td>
</tr>
<tr>
<td>No</td>
<td>14%</td>
</tr>
</tbody>
</table>

Figure 2 (over page) highlights how long patients had experienced tinnitus and the length of time it had been problematic. For most patients their tinnitus had been problematic for a shorter period, than the time since it had begun.
3.4.4. Hearing Difficulties

Table 7 considers the presence of a hearing impairment, it also identifies differences and similarities in patient and partner views on the presence of such difficulties.

Table 7: Patient & Partner reports of Hearing Impairments in Patients

<table>
<thead>
<tr>
<th>Presence of a Hearing Impairment (N = 22)</th>
<th>% of Patients</th>
<th>% of Partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>86%</td>
<td>86%</td>
</tr>
<tr>
<td>No</td>
<td>14%</td>
<td>14%</td>
</tr>
<tr>
<td>Fitted with a Hearing Aid (N = 22)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>23%</td>
<td>~</td>
</tr>
<tr>
<td>No</td>
<td>63%</td>
<td>~</td>
</tr>
<tr>
<td>Awaiting one</td>
<td>14%</td>
<td>~</td>
</tr>
<tr>
<td>Hearing Impairment reported to be related to tinnitus (n = 17)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>47%</td>
<td>58%</td>
</tr>
<tr>
<td>No</td>
<td>41%</td>
<td>30%</td>
</tr>
<tr>
<td>Don’t know</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Possibly</td>
<td>6%</td>
<td>6%</td>
</tr>
</tbody>
</table>

NOTE: ~ = Partners were not asked this question.

Whilst patients and partners reported the presence of impairment equally, partners attributed the impairment to tinnitus more than patients. Of those with a hearing aid (n = 5), only four used it, two used it at specific times and two used it constantly.

Other ear problems were described by six patients, these were: a perforated ear, a noise like a radio ‘off’ its station, difficulties with wax, a ‘popping’ sound in the Eustachian tube and the experience of some noises as uncomfortable, which was reported by two patients.
Most patients reported that they experienced difficulty with their hearing in specific situations. Most partners (86%) acknowledged the patient had a hearing impairment, but only 53% reported that the patient experienced situational difficulties. Table 8 highlights in which situations difficulties were experienced and the percentage of patients and partners who reported this difficulty.

Table 8: Situational Hearing Difficulties

<table>
<thead>
<tr>
<th>Situational Difficulty</th>
<th>% of patients who reported difficulty</th>
<th>% of partners reporting situational hearing difficulties in the patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watching TV, need volume loud</td>
<td>26%</td>
<td>5%</td>
</tr>
<tr>
<td>Group conversations or in crowds</td>
<td>21%</td>
<td>5%</td>
</tr>
<tr>
<td>Noisy environments</td>
<td>16%</td>
<td>5%</td>
</tr>
<tr>
<td>Hearing conversations in background noise</td>
<td>11%</td>
<td>5%</td>
</tr>
<tr>
<td>Quietly spoken people</td>
<td>11%</td>
<td>5%</td>
</tr>
<tr>
<td>Cinema, concerts, theatre, pubs</td>
<td>11%</td>
<td>5%</td>
</tr>
<tr>
<td>When tinnitus takes over</td>
<td>11%</td>
<td>0</td>
</tr>
<tr>
<td>During meetings or lectures</td>
<td>5%</td>
<td>0</td>
</tr>
<tr>
<td>If have a heavy cold</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Trying to sleep</td>
<td>0</td>
<td>5%</td>
</tr>
<tr>
<td>Talking in bed</td>
<td>0</td>
<td>5%</td>
</tr>
</tbody>
</table>

From Table 8, it is clear that partners conveyed less of the situational hearing difficulties that patients reported.

3.4.5. Previous Treatments

Four patients (18%) had received previous treatment for tinnitus, these were: a hearing test, anti-depressants, medication and information from a tinnitus self-help group.

3.4.6. Information regarding Non-responders

Questionnaires were not received from the partner of five patients. Of these patients, 80% were male, 20% female, their ages ranged from 52 to 67 years (mean = 57.6 years,
$SD = 5.94$). Tinnitus was located in both ears in 60% of the sample, within the head (20%) and in both ears and the head (20%).

### 3.5. Descriptive Data

Table 9 illustrates the mean scores achieved on each measure, of patients where partners did not return packs.

**Table 9: Descriptive Data for patients where partners did not participate**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean score</th>
<th>Standard Deviation</th>
<th>Minimum to Maximum Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>THI</td>
<td>40.4</td>
<td>27.51</td>
<td>8 – 70</td>
</tr>
<tr>
<td>GHQ30</td>
<td>10.8</td>
<td>9.39</td>
<td>1 – 26</td>
</tr>
<tr>
<td>GRIMS</td>
<td>29.6</td>
<td>18.47</td>
<td>8 – 56</td>
</tr>
<tr>
<td>CISS – TASK</td>
<td>63.2</td>
<td>18.41</td>
<td>39 – 84</td>
</tr>
<tr>
<td>EMOTION</td>
<td>37</td>
<td>10.93</td>
<td>29 – 56</td>
</tr>
<tr>
<td>AVOIDANT</td>
<td>37</td>
<td>12.14</td>
<td>21 – 54</td>
</tr>
<tr>
<td>DISTRACTION</td>
<td>16.8</td>
<td>6.87</td>
<td>9 – 26</td>
</tr>
<tr>
<td>SOCIAL DIVERSION</td>
<td>12.2</td>
<td>4.54</td>
<td>6 – 17</td>
</tr>
</tbody>
</table>

*NOTE: THI = Tinnitus Handicap Inventory, GHQ30 – General Health Questionnaire, GRIMS = Golombok Rust Inventory of Marital State, CISS = Coping Inventory for Stressful Situations.*

Compared to patients whose partners did complete measures and were included in the analysis (Table 10 over page), excluded patients had higher scores on the: THI, GRIMS and GHQ30. They reported more severe tinnitus, higher distress and more relationship problems. Similar scores were attained on: avoidant, distraction and social diversion CISS factors, excluded patients used task coping slightly more and emotion coping less than included patients.
### Table 10: Descriptive Data for Participants

<table>
<thead>
<tr>
<th>Measure</th>
<th>Participant</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum to Maximum Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>THI</td>
<td>Patient</td>
<td>38.73</td>
<td>20.44</td>
<td>2 - 84</td>
</tr>
<tr>
<td>GHQ30</td>
<td>Patient</td>
<td>4.55</td>
<td>4.33</td>
<td>0 - 13</td>
</tr>
<tr>
<td></td>
<td>Partner</td>
<td>4.23</td>
<td>5.23</td>
<td>0 - 15</td>
</tr>
<tr>
<td>GRIMS</td>
<td>Patient</td>
<td>21.00</td>
<td>11.62</td>
<td>2 - 58</td>
</tr>
<tr>
<td></td>
<td>Partner</td>
<td>22.82</td>
<td>9.14</td>
<td>9 - 51</td>
</tr>
<tr>
<td>CISS - TASK</td>
<td>Patient</td>
<td>59.68</td>
<td>10.23</td>
<td>38 - 76</td>
</tr>
<tr>
<td></td>
<td>Partner</td>
<td>52.41</td>
<td>7.69</td>
<td>37 - 63</td>
</tr>
<tr>
<td>EMOTION</td>
<td>Patient</td>
<td>41.95</td>
<td>9.50</td>
<td>26 - 61</td>
</tr>
<tr>
<td></td>
<td>Partner</td>
<td>38.82</td>
<td>8.62</td>
<td>23 - 54</td>
</tr>
<tr>
<td>AVOIDANT</td>
<td>Patient</td>
<td>37.68</td>
<td>9.94</td>
<td>22 - 65</td>
</tr>
<tr>
<td></td>
<td>Partner</td>
<td>39.91</td>
<td>6.66</td>
<td>26 - 51</td>
</tr>
<tr>
<td>DISTRACTION</td>
<td>Patient</td>
<td>15.91</td>
<td>5.71</td>
<td>8 - 28</td>
</tr>
<tr>
<td></td>
<td>Partner</td>
<td>17.73</td>
<td>4.84</td>
<td>9 - 27</td>
</tr>
<tr>
<td>SOCIAL</td>
<td>Patient</td>
<td>13.91</td>
<td>4.09</td>
<td>6 - 25</td>
</tr>
<tr>
<td></td>
<td>Partner</td>
<td>14.73</td>
<td>4.34</td>
<td>8 - 26</td>
</tr>
</tbody>
</table>

**NOTE:** THI = Tinnitus Handicap Inventory, GHQ30 = General Health Questionnaire, GRIMS = Golombok Rust Inventory of Marital State, CISS = Coping Inventory for Stressful Situations.

Table 11 illustrates the descriptive data for the included patients (N = 22) and for data from the included patients combined with data from the five excluded patients (N = 27).

### Table 11: Descriptive Data for included patients in comparison to data of included and excluded patients combined

<table>
<thead>
<tr>
<th>Measure</th>
<th>Patient Group</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum to Maximum Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>THI</td>
<td>Patients (N = 22)</td>
<td>38.73</td>
<td>20.44</td>
<td>2 - 84</td>
</tr>
<tr>
<td></td>
<td>In/excluded Patients</td>
<td>39.04</td>
<td>21.31</td>
<td>2 - 84</td>
</tr>
<tr>
<td>GHQ30</td>
<td>Patients (N = 22)</td>
<td>4.55</td>
<td>4.33</td>
<td>0 - 13</td>
</tr>
<tr>
<td></td>
<td>In/excluded Patients</td>
<td>5.56</td>
<td>5.85</td>
<td>0 - 26</td>
</tr>
<tr>
<td>GRIMS</td>
<td>Patients (N = 22)</td>
<td>21.00</td>
<td>11.62</td>
<td>2 - 58</td>
</tr>
<tr>
<td></td>
<td>In/excluded Patients</td>
<td>22.04</td>
<td>13.71</td>
<td>2 - 58</td>
</tr>
<tr>
<td>CISS - TASK</td>
<td>Patients (N = 22)</td>
<td>59.68</td>
<td>10.23</td>
<td>38 - 76</td>
</tr>
<tr>
<td></td>
<td>In/excluded Patients</td>
<td>60.33</td>
<td>11.78</td>
<td>38 - 83</td>
</tr>
<tr>
<td>EMOTION</td>
<td>Patients (N = 22)</td>
<td>41.95</td>
<td>9.50</td>
<td>26 - 61</td>
</tr>
<tr>
<td></td>
<td>In/excluded Patients</td>
<td>41.04</td>
<td>9.76</td>
<td>26 - 61</td>
</tr>
<tr>
<td>AVOIDANT</td>
<td>Patients (N = 22)</td>
<td>37.68</td>
<td>9.94</td>
<td>22 - 65</td>
</tr>
<tr>
<td></td>
<td>In/excluded Patients</td>
<td>37.56</td>
<td>10.13</td>
<td>21 - 65</td>
</tr>
<tr>
<td>DISTRACTION</td>
<td>Patients (N = 22)</td>
<td>15.91</td>
<td>5.71</td>
<td>8 - 28</td>
</tr>
<tr>
<td></td>
<td>In/excluded Patients</td>
<td>16.07</td>
<td>5.80</td>
<td>8 - 28</td>
</tr>
<tr>
<td>SOCIAL</td>
<td>Patients (N = 22)</td>
<td>13.91</td>
<td>4.09</td>
<td>6 - 25</td>
</tr>
<tr>
<td></td>
<td>In/excluded Patients</td>
<td>13.59</td>
<td>4.14</td>
<td>6 - 25</td>
</tr>
</tbody>
</table>

**NOTE:** THI = Tinnitus Handicap Inventory, GHQ30 = General Health Questionnaire, GRIMS = Golombok Rust Inventory of Marital State, CISS = Coping Inventory for Stressful Situations.
From Table 11, it is clear that inclusion of data from the five excluded patients slightly raises the mean scores for the GHQ30, the THI, the GRIMS and the task and distraction factors of the CISS. Inclusion of these excluded patients provides a more representative picture of the psychological profile of new tinnitus patients presenting at a tinnitus outpatient clinic. The remaining discussions of descriptive data illustrate data from the 22 patients and partners included in the current study.

3.5.1. Tininnitus Handicap Inventory (THI)

In their standardization of the THI, Newman et al. (1998) reported a mean score of 37.1; $SD = 24.7$. Baguley et al. (2000) reported a mean THI score of 42.5; $SD = 22.1$ in their validity study of the THI. The mean scores obtained in this study (see Table 10) are similar to those reported in published studies of the THI.

Figure 3 displays tinnitus severity by THI grades; 18% rated it severe or catastrophic.

Figure 3: Percentage of patients in each THI grading

![Bar chart showing percentage of patients in each THI grading]

3.5.2. General Health Questionnaire

The GHQ30 was used as a dimensional measure, to consider the sum of psychological distress experienced. A small number of studies have used the GHQ with tinnitus patients, however, they do not report which scoring method was adopted.
Singerman et al. (1980) used the GHQ30 with 156 audiological outpatients (including tinnitus patients). They do not report which scoring method was used, however, they refer to thresholds for caseness, which appear to fit the thresholds outlined by Goldberg and Williams (1988) and are presumed to use GHQ scoring as this method is advocated by Goldberg and Williams. Singerman et al. used the following system: GHQ score < 4 ‘doubtful psychiatric morbidity’; ≥ 4 < 10 ‘probable psychiatric morbidity’ and ≥10 as ‘definite psychiatric morbidity’. Although this study used the GHQ as a dimensional measure, the scores obtained were categorised according to the format outlined in Singerman et al. to determine whether the samples were similar. Table 12 compares the percentage of patients and partners, to the overall sample of outpatients in the Singerman et al. study in each of the described categories.

Table 12: Comparison of GHQ scores and categories of psychiatric morbidity

<table>
<thead>
<tr>
<th>GHQ Score</th>
<th>GHQ Category</th>
<th>Sample</th>
<th>% of sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 4</td>
<td>Doubtful psychiatric morbidity</td>
<td>Singerman et al.</td>
<td>66%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patients</td>
<td>59%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Partners</td>
<td>68%</td>
</tr>
<tr>
<td>≥ 4 &lt; 10</td>
<td>Probable psychiatric morbidity</td>
<td>Singerman et al.</td>
<td>14%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patients</td>
<td>27%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Partners</td>
<td>9%</td>
</tr>
<tr>
<td>≥ 10</td>
<td>Definite psychiatric morbidity</td>
<td>Singerman et al.</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patients</td>
<td>14%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Partners</td>
<td>23%</td>
</tr>
</tbody>
</table>

Note: GHQ = General Health Questionnaire.
Reference = Singerman et al. (1980)

Despite slight differences, the GHQ scores of partners were more similar to those of the audiological outpatients, than the patients in the current study. This indicates that more partners in the current study could be categorised as ‘cases’ than patients, as more could be categorised within the ‘definite psychiatric morbidity’ classification. More patients were categorised ‘probable psychiatric morbidity’ and less as ‘definite’, than in the Singerman et al. study. Singerman et al. reported that the presence of tinnitus and vestibular symptoms was significantly related to high GHQ scores and increased risk of
psychiatric morbidity, unfortunately they do not report the results for tinnitus patients separately.

3.5.3. Golombok Rust Inventory of Marital State

The mean GRIMS score obtained by patients was 21.00 and for partners 22.82. These scores are lower than those of GP patient scores in the GRIMS standardization study, where mean scores for male patients was 28.37 and 27.21 for female patients (Rust, Bennun, Crowe & Golombok, 1990).

In the GRIMS manual, raw scores are transformed into interpretive categories to describe relationship quality (Table 13). The mean score obtained by patients on the GRIMS, fell into the ‘very good’ category and the ‘good’ category for partners.

Table 13: Relationship between GRIMS raw scores, transformed scores and interpretation (Rust et al., 1988)

<table>
<thead>
<tr>
<th>Raw score</th>
<th>Transformed score</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>47 or more</td>
<td>9</td>
<td>Very severe problems</td>
</tr>
<tr>
<td>42 to 46</td>
<td>8</td>
<td>Severe problems</td>
</tr>
<tr>
<td>38 to 41</td>
<td>7</td>
<td>Bad</td>
</tr>
<tr>
<td>34 to 37</td>
<td>6</td>
<td>Poor</td>
</tr>
<tr>
<td>30 to 33</td>
<td>5</td>
<td>Average</td>
</tr>
<tr>
<td>26 to 29</td>
<td>4</td>
<td>Above average</td>
</tr>
<tr>
<td>22 to 25</td>
<td>3</td>
<td>Good</td>
</tr>
<tr>
<td>17 to 21</td>
<td>2</td>
<td>Very good</td>
</tr>
<tr>
<td>16 or less</td>
<td>1</td>
<td>Undefined</td>
</tr>
</tbody>
</table>

Rust et al. (1990, p.52) argued that scores in the undefined category should be treated cautiously, as respondents were either untruthful in their response, or were at such an early or tender stage of their relationship, that its future outcome or course could not be predicted. Figure 4 (over page), shows the percentage of participants in each GRIMS interpretive category, most reported a satisfactory relationship.
3.5.4. Coping Inventory for Stressful Situations

The CISS manual (Endler & Parker, 1999) lists the mean scores (or normative data) obtained by males and females on each factor. The following tables highlight the normative data in comparison to that of this study’s participants. Table 14 looks at the scores of patients and partners in comparison to the normative data.

Table 14: Comparison of Mean raw scores for Patients & Partners in Current Sample to those of Endler & Parker (1999)

<table>
<thead>
<tr>
<th>CISS FACTORS</th>
<th>CURRENT STUDY</th>
<th>NORMS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PATIENT</td>
<td>PARTNER</td>
</tr>
<tr>
<td>TASK</td>
<td>59.68</td>
<td>52.41</td>
</tr>
<tr>
<td>EMOTION</td>
<td>41.95</td>
<td>38.82</td>
</tr>
<tr>
<td>AVOIDANCE</td>
<td>37.68</td>
<td>39.91</td>
</tr>
<tr>
<td>DISTRACTION</td>
<td>15.91</td>
<td>17.73</td>
</tr>
<tr>
<td>SOCIAL DIVERSION</td>
<td>13.91</td>
<td>14.73</td>
</tr>
</tbody>
</table>

NOTE: CISS = Coping Inventory for Stressful Situations.

From Table 14, it is clear that participants (patients and partners) scored similarly to the published norms for males on the CISS.
Table 15: Comparison of Mean raw scores for Males & Females in Current Sample to those of Endler & Parker (1999)

<table>
<thead>
<tr>
<th>CISS FACTORS</th>
<th>MALE PATIENT</th>
<th>FEMALE PATIENT</th>
<th>MALE PARTNER</th>
<th>FEMALE PARTNER</th>
<th>MALE NORM</th>
<th>FEMALE NORM</th>
</tr>
</thead>
<tbody>
<tr>
<td>TASK</td>
<td>60.64</td>
<td>58.00</td>
<td>54.63</td>
<td>51.14</td>
<td>58.56</td>
<td>58.60</td>
</tr>
<tr>
<td>EMOTION</td>
<td>39.36</td>
<td>46.50</td>
<td>36.38</td>
<td>40.21</td>
<td>39.21</td>
<td>42.57</td>
</tr>
<tr>
<td>AVOIDANCE</td>
<td>34.21</td>
<td>43.75</td>
<td>36.50</td>
<td>41.86</td>
<td>38.10</td>
<td>44.71</td>
</tr>
<tr>
<td>DISTRACTION</td>
<td>14.50</td>
<td>18.38</td>
<td>16.00</td>
<td>18.71</td>
<td>17.53</td>
<td>20.49</td>
</tr>
<tr>
<td>SOCIAL</td>
<td>12.29</td>
<td>16.75</td>
<td>12.88</td>
<td>15.79</td>
<td>13.31</td>
<td>16.63</td>
</tr>
</tbody>
</table>

NOTE: CISS = Coping Inventory for Stressful Situations.

Table 15, illustrates some slight differences in the scores obtained by male and female participants, in comparison to the normative data. Male participants (patients and partners) tended to use task-oriented coping more than females, yet in the normative data, such differences were not evident. Females used avoidant coping more than males, but at a similar level to female norms. As in the normative data, female participants tended to use all forms of coping (except task) more than their male counterparts.

3.6. Testing the hypotheses

3.6.1. Hypothesis 1: Psychological Distress

1a) It was hypothesised that tinnitus patients would experience higher levels of distress than their partners as measured on the General Health Questionnaire – (GHQ) – Goldberg (1978).

- No significant difference between patient and partner scores on the GHQ was found ($t = 0.22$, $df = 42$, $p = .413$, one-tailed). Patient GHQ scores were only slightly higher, mean = 4.55, than partner scores, mean = 4.23.

- Table 16 (over page) illustrates the mean and standard deviation scores for patients and partners on the GHQ.
Table 16: Patient and Partner GHQ Scores

<table>
<thead>
<tr>
<th>Participant</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum to Maximum Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient</td>
<td>4.55</td>
<td>4.33</td>
<td>0 – 13</td>
</tr>
<tr>
<td>Partner</td>
<td>4.23</td>
<td>5.23</td>
<td>0 – 15</td>
</tr>
</tbody>
</table>

Note: GHQ = General Health Questionnaire

1b) In addition, it was hypothesised that there would be a positive correlation between tinnitus patients' psychological distress and that of partners.

- No significant correlation was found between patient and partner psychological distress levels ($r = .064$, $N = 22$, $p = .389$, one-tailed).

1c) It was hypothesised that tinnitus patients with high levels of psychological distress would experience more severe relationship problems as measured by the Golombok Rust Inventory of Marital State (GRIMS).

- No significant correlation was found between patient psychological distress levels and degree of relationship problems ($r = .291$, $N = 22$, $p = .095$, one-tailed).

3.6.2. Hypothesis 2: Hearing Impairment

Using the subjective definition of hearing loss as discussed in the Method section, 19 patients reported a hearing impairment compared to 3 without. The planned analysis for the hypotheses in this section was independent t-tests, to compare mean scores of the two groups in terms of psychological distress and relationship satisfaction. It is recognised that the difference in group size is large. It is also accepted that a group of three is low and may not be representative of the population from which the sample is taken.

Greene and D’Oliveira (1990) stated that as long as there were equal numbers of participants in each group, then any variability in scores made little difference. Given the
unequal sizes, this condition was violated. Variability (extremely high or low scores) in any of the scores in the small group would make more impact, than in the case of one score in the larger sample. Kinnear and Gray (2000) similarly argued that t-tests could proceed, if the samples were of equal, or nearly equal size and if the samples were not too small.

Given that the groups were dissimilar in size and that the non-impaired group was small, a t-test was not conducted. Instead, for each hypothesis on hearing impairment, the mean scores of the groups are reported and commented on. The use of mean scores, whilst useful in demonstrating possible trends, should be treated with caution and no firm conclusions should be drawn.

2a) Tinnitus patients with a hearing impairment, it was hypothesised, would experience higher levels of psychological distress than those without impairment, as measured by the GHQ.

Table 17: Mean GHQ scores for hearing impaired & non-hearing impaired patients

<table>
<thead>
<tr>
<th></th>
<th>GHQ Score</th>
<th></th>
<th>Minimum to Maximum Range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>Hearing impaired</td>
<td>19</td>
<td>4.47</td>
<td>4.64</td>
</tr>
<tr>
<td>Non-hearing impaired</td>
<td>3</td>
<td>5.00</td>
<td>1.73</td>
</tr>
</tbody>
</table>

NOTE: GHQ = General Health Questionnaire

- The mean scores of hearing-impaired and non-hearing impaired patients on the GHQ were similar. The mean score for patients without a hearing impairment was slightly higher (mean = 5.00) than those with impairment (mean = 4.47). If the conditions for the t-test had been appropriate, such slight differences are unlikely to have been statistically significant.
2b) It was hypothesised that the partners of those tinnitus patients with a hearing impairment would experience higher levels of psychological distress as measured by the GHQ, in comparison to the partners of those without a hearing impairment.

Table 18: Mean GHQ scores for partners of hearing impaired & non-hearing impaired patients

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum to Maximum Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hearing impaired</td>
<td>19</td>
<td>4.63</td>
<td>5.49</td>
<td>0 – 15</td>
</tr>
<tr>
<td>Non-hearing impaired</td>
<td>3</td>
<td>1.67</td>
<td>2.08</td>
<td>0 – 4</td>
</tr>
</tbody>
</table>

NOTE: GHQ = General Health Questionnaire

- The partners of tinnitus patients with a hearing impairment had higher GHQ scores (mean = 4.63) than the partners of those without impairment (mean = 1.67). This is in line with the hypothesis that partners of hearing impaired tinnitus patients would report higher GHQ scores.

2c) In addition, it was hypothesised that tinnitus patients with a hearing impairment would experience more severe relationship problems than those without impairment as measured by the GRIMS.

Table 19: Mean GRIMS scores for hearing impaired and non-hearing impaired patients

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum to Maximum Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hearing impaired</td>
<td>19</td>
<td>17.95</td>
<td>7.66</td>
<td>2 – 34</td>
</tr>
<tr>
<td>Non-hearing impaired</td>
<td>3</td>
<td>40.33</td>
<td>15.50</td>
<td>29 – 58</td>
</tr>
</tbody>
</table>

NOTE: GRIMS = Golombok Rust Inventory of Marital State

- Contrary to the hypothesis, patients with a hearing impairment scored much lower on the GRIMS (mean = 17.95) in comparison to patients without impairment (mean =
40.33). The mean score for those without impairment, was more than double the impaired group.

2d) It was also hypothesised that the partners of those tinnitus patients with a hearing impairment would experience more severe relationship problems than those without impairment as measured by the GRIMS.

**Table 20: Mean GRIMS scores for the partners of hearing impaired and non-hearing impaired tinnitus patients**

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum to Maximum Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hearing impaired</td>
<td>19</td>
<td>21.63</td>
<td>7.14</td>
<td>9 - 36</td>
</tr>
<tr>
<td>Non-hearing impaired</td>
<td>3</td>
<td>30.33</td>
<td>17.90</td>
<td>20 - 51</td>
</tr>
</tbody>
</table>

NOTE: GRIMS = Golombok Rust Inventory of Marital State

- Partners of those tinnitus patients with a hearing impairment scored lower on the GRIMS (mean = 21.63) in comparison to those without a hearing impairment (mean = 30.33).

3.6.3. Hypothesis 3: Concurrence in Perception of the Relationship

3) It was hypothesised, that there would be a positive correlation between patient and partner scores on the GRIMS.

- There was a significant positive correlation between patient and partner GRIMS scores ($r = .643, N = 22, p = .001$, one-tailed).

3.6.4. Hypothesis 4: Tinnitus Severity

4a) It was hypothesised that there would be a positive correlation between patient rating of tinnitus severity on the THI and patient psychological distress, measured by the GHQ.
There was a significant positive correlation between tinnitus severity score and patient psychological distress levels ($r = .524$, $N = 22$, $p = .006$, one-tailed).

4b) In addition, it was hypothesised that there would be a positive correlation between tinnitus severity and the psychological distress of partners.

There was a significant positive correlation between tinnitus severity and partner levels of psychological distress ($r = .433$, $N = 22$, $p = .022$, one-tailed).

4c) Patients with severe tinnitus, it was hypothesised, would experience more severe relationship problems than patients with mild tinnitus, as measured by the GRIMS.

Patients were divided into ‘severe’ and ‘mild’ using THI scores. Those with a THI score of $\geq 58$ were classed as ‘severe’, this equates to THI grades severe and catastrophic or tinnitus that is always heard and rarely masked. Those with a THI score $\leq 56$ were classed as ‘mild’; THI grades slight, mild and moderate, in the case of moderate tinnitus, it does not usually hinder daily activity. On this basis, 18 patients were categorised as ‘mild’ and 4 as ‘severe’. Again uneven group sizes and the possibility of variability in scores, meant that the decision was made not to conduct the planned t-tests on this data, mean scores for the two groups are instead reported.

Table 21: Mean GRIMS Scores for patients with ‘Mild’ and ‘Severe’ Tinnitus

<table>
<thead>
<tr>
<th></th>
<th>$n$</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum to Maximum Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild tinnitus</td>
<td>18</td>
<td>21.17</td>
<td>12.86</td>
<td>2 – 58</td>
</tr>
<tr>
<td>Severe tinnitus</td>
<td>4</td>
<td>20.25</td>
<td>2.75</td>
<td>17 - 23</td>
</tr>
</tbody>
</table>

NOTE: GRIMS = Golombok Rust Inventory of Marital State

Table 21, highlights that those with ‘mild’ tinnitus, had a mean GRIMS score of 21.17, which was only marginally higher than those with ‘severe’ tinnitus, mean = 20.25.
4d) It was hypothesised that the partners of patients with a high tinnitus severity rating would experience more severe relationship problems than partners of patients with a low tinnitus severity rating, as measured by the GRIMS.

Table 22: Mean GRIMS Scores for the partners of patients with ‘Mild’ and ‘Severe’ Tinnitus

<table>
<thead>
<tr>
<th>Tinnitus</th>
<th>GRIMS Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
</tr>
<tr>
<td>Mild tinnitus</td>
<td>18</td>
</tr>
<tr>
<td>Severe tinnitus</td>
<td>4</td>
</tr>
</tbody>
</table>

NOTE: GRIMS = Golombok Rust Inventory of Marital State

- Mean GRIMS scores were slightly raised for those partners of patients with ‘severe’ tinnitus (mean = 25.25) in comparison to those with ‘mild’ tinnitus (mean = 22.28).

3.6.5. Hypothesis 5: Gender

To investigate the following three hypotheses, the point-biserial correlation ($r_{pb}$) was used. This is a form of the Pearson’s Product Moment correlation which can be applied when one variable is dichotomous, e.g., gender and the other is continuous and assumed to be normally distributed in the population (Clark-Carter, 2001, p.319; Kinnear and Gray, 2000, p. 286). The point-biserial correlation therefore allows one to consider the relationship between gender and the level of distress reported by patients.

5a) It was hypothesised that female tinnitus patients would report higher levels of psychological distress than male tinnitus patients.

- No significant correlation was found between patient gender and levels of psychological distress ($r_{pb} = -.053, N = 22, p = .408$, one-tailed).
5b) In addition, it was hypothesised that female partners of tinnitus patients would report a higher level of psychological distress than male partners of tinnitus patients.

- No significant correlation was found between partner gender and levels of psychological distress ($r_{pb} = .126, N = 22, p = .288$, one-tailed).

5c) It was hypothesised that female patients would report more severe tinnitus than male tinnitus patients as measured by the THI.

- No significant correlation was found between patient gender and levels of tinnitus severity ($r_{pb} = .200, N = 22, p = .187$, one-tailed).

3.6.6. Hypothesis 6: Coping

6a) It was hypothesised that patients with severe tinnitus would use avoidant coping strategies more than those with mild tinnitus, as measured by the CISS.

- Again, given the uneven group sizes (severe tinnitus group, $n = 4$, mild tinnitus, $n = 18$) mean scores are reported in Table 23, therefore, the results here should be treated with caution. With groups of a more similar size, an analysis of variance (ANOVA) could have been used to test this hypothesis. A mixed ANOVA, with ‘severity’ as a between-subjects factor and ‘coping style’ (task, emotion and avoidant) as the within-subjects factor could have been used.

<table>
<thead>
<tr>
<th>CISS Factor</th>
<th>Tinnitus severity</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Minimum to maximum range</th>
</tr>
</thead>
<tbody>
<tr>
<td>TASK</td>
<td>Mild</td>
<td>60.39</td>
<td>10.34</td>
<td>38 – 76</td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>56.50</td>
<td>10.50</td>
<td>47 – 71</td>
</tr>
<tr>
<td>EMOTION</td>
<td>Mild</td>
<td>40.78</td>
<td>8.70</td>
<td>26 – 58</td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>47.25</td>
<td>12.55</td>
<td>32 – 61</td>
</tr>
<tr>
<td>AVOIDANT</td>
<td>Mild</td>
<td>35.72</td>
<td>7.92</td>
<td>22 – 48</td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>46.50</td>
<td>14.48</td>
<td>34 – 65</td>
</tr>
</tbody>
</table>

NOTE: CISS = Coping Inventory for Stressful Situations
From Table 23 (on previous page), patients with severe tinnitus tended to use avoidant-oriented coping more than patients with mild tinnitus. This trend is in line with the prediction. Patients with severe tinnitus also tended to use emotion-oriented coping more than those with mild tinnitus and used task-oriented coping less.

6b) It was hypothesised that there would be differences in the coping styles adopted by male and female patients, with female patients using task-oriented coping more than male patients.

- The main effect of coping styles was significant ($F(2,40) = 37.41, p < .01$), there were significant differences in usage of the three coping styles (task, emotion and avoidance).
- The main effect of gender was not significant ($F(1,20) = 2.32, p = .143$) that is there were no significant differences between male and female patients in their style of coping.
- The interaction between coping styles and gender was significant ($F(2,40) = 3.35, p < .05$). Therefore, the combined effect of coping style and gender was significant.

Table 24 illustrates the mean scores of male and female patients on the CISS factors.

**Table 24: Male & Female patient mean scores on the CISS**

<table>
<thead>
<tr>
<th>CISS Factors</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task</td>
<td>60.64</td>
<td>58.00</td>
</tr>
<tr>
<td>Emotion</td>
<td>39.36</td>
<td>46.50</td>
</tr>
<tr>
<td>Avoidance</td>
<td>34.21</td>
<td>43.75</td>
</tr>
</tbody>
</table>

**NOTE:** CISS = Coping Inventory for Stressful Situations

- It is clear that there was a significant difference in the pattern of coping styles used. All patients engaged in task-oriented coping more than emotion and avoidant. For both sexes, task coping was used the most, followed by emotion and then avoidant. Female patients did not use task coping more than males as had been predicted; however, they used emotion and avoidant coping at a higher rate. Gender differences were not significant.
3.7. Post Hoc Analysis

As previously stated five patients who returned questionnaires were excluded from the analysis, as their partners did not return questionnaires. The psychological distress scores of these five patients were slightly higher than for those patients included in the study. Further statistical analysis of two hypotheses was undertaken to consider what impact the inclusion of the excluded patients would have had on the results obtained.

Hypothesis 1c stated that tinnitus patients with high levels of psychological distress would experience more severe relationship problems than those with low levels of distress, as measured by the GRIMS. In the main analysis, no significant correlation was found between the psychological distress of the tinnitus patient and their degree of relationship problems. In the post hoc analysis with the excluded patients, a significant positive correlation between patient psychological distress and degree of relationship problems was found ($r = .445, N = 27, p = .01$, one-tailed).

Hypothesis 4a stated that there would be a positive correlation between patient rating of tinnitus severity on the THI and patient psychological distress, measured by the GHQ. Previously a significant positive correlation between tinnitus severity score and patient psychological distress was found ($r = .524, N = 22, p = .006$, one-tailed). With the inclusion of the five excluded patients, again a significant positive correlation between tinnitus severity score and patient psychological distress was found ($r = .556, N = 27, p = .001$, one-tailed).

Further analysis was not undertaken with the hypothesis that patients with severe tinnitus would experience more severe relationship problems, as unequal group sizes remained ('severe' tinnitus group $n = 6$, 'mild' tinnitus group $n = 21$). This further
analysis illustrates the impact of tinnitus on the psychological well-being of the patient and the potential impact of this on their relationship.

3.8. Content Analysis

3.8.1. Tinnitus Development

At the time tinnitus first developed, 46% of patients \((n = 10)\) reported experiencing a stressor, 54% did not. Most of these were stressful life events, including: redundancy, retirement, marriage, change of job and a house move. One patient reported that their tinnitus developed whilst working in an armed forces gun crew, perhaps indicating a causal role for implosive noises. Two participants reported the presence of an illness, that is, an ear infection and influenza. The remaining patient reported that a family member had been diagnosed with autism around the same time.

3.8.2. Tinnitus Awareness

Certain items on the ‘Brief Questionnaire’ considered tinnitus awareness, when the patient was aware of it and if there were times they were more aware. Concerning general awareness: constant awareness was reported by 36% of patients, 18% were aware of it at night and 18% during quiet times. Being reminded of the tinnitus made 9% aware of it, whilst individual patients reported the following as influential in awareness: stress, long periods of driving, when not fully occupied, concentrating and the presence of loud high pitched noise.

Patients reported they were more aware of tinnitus in the following situations: in bed or at night (38%), at quiet times (29%), during stressful times (19%) and on waking (14%). Other situations reported by individual patients included: being alone; when other illnesses were acute; resting; exercising; having ear injections; concentrating; with loud
high pitched noises; in the presence of little background noise; after a long drive and randomly.

3.8.3. Triggers to Tinnitus

Half (50%; n = 11) of patients reported specific triggers to tinnitus. Table 25, highlights the triggers and the frequency patients recognised the role in triggering tinnitus.

**Table 25: Triggers to Tinnitus**

<table>
<thead>
<tr>
<th>Trigger</th>
<th>Frequency of patients reporting trigger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress / tension</td>
<td>6</td>
</tr>
<tr>
<td>Loud noise</td>
<td>4</td>
</tr>
<tr>
<td>Illness</td>
<td>2</td>
</tr>
<tr>
<td>Alcohol</td>
<td>1</td>
</tr>
<tr>
<td>Salty foods</td>
<td>1</td>
</tr>
<tr>
<td>Quiet</td>
<td>1</td>
</tr>
<tr>
<td>Tension in the head</td>
<td>1</td>
</tr>
<tr>
<td>Cycling down hill</td>
<td>1</td>
</tr>
<tr>
<td>Motorway driving for long periods</td>
<td>1</td>
</tr>
<tr>
<td>Ear injections</td>
<td>1</td>
</tr>
<tr>
<td>Being overtired</td>
<td>1</td>
</tr>
</tbody>
</table>

Patients reported ‘stress’ and ‘loud noise’ as key triggers, with idiosyncratic triggers such as ‘salty foods’ and ‘cycling downhill’ reported by individual patients.

3.8.4. Experience of Appointments for Tinnitus

Over half (55%) of partners had attended an appointment with the patient, 45% (n = 10) had not. Of those who had: 8% had attended a GP appointment, 8% a ‘BUPA’ appointment, 34% the tinnitus clinic, 25% ENT and 25% had attended appointments with the GP, the tinnitus clinic and ENT.

*Patients’ Experiences of Appointments*

Most patients (86%) commented on helpful appointments, those who did not had only attended one and felt unable to comment. Patients were asked to report which was most
helpful and why, most only responded to the ‘why’ part of the question. Table 26 describes why appointments were helpful and the percentage who recognised this reason.

Table 26: Explanations as to why appointments were helpful

<table>
<thead>
<tr>
<th>Reason</th>
<th>% of patients who reported this</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPLANATIONS:</td>
<td></td>
</tr>
<tr>
<td>■ Explained what tinnitus was and what could be done about it</td>
<td>58%</td>
</tr>
<tr>
<td>REFERRALS:</td>
<td></td>
</tr>
<tr>
<td>■ GP referral to ENT / experts</td>
<td>5%</td>
</tr>
<tr>
<td>■ Referred for MRI scan to prove nothing was wrong</td>
<td>5%</td>
</tr>
<tr>
<td>■ To group session, made felt listened to</td>
<td>5%</td>
</tr>
<tr>
<td>ASSESSMENT:</td>
<td></td>
</tr>
<tr>
<td>■ Assessed for a hearing aid</td>
<td>11%</td>
</tr>
<tr>
<td>SUPPORT:</td>
<td></td>
</tr>
<tr>
<td>■ Gained support from Hearing Therapist</td>
<td>5%</td>
</tr>
<tr>
<td>TREATMENT:</td>
<td></td>
</tr>
<tr>
<td>■ Prescribed anti-depressants</td>
<td>5%</td>
</tr>
</tbody>
</table>

Over half of patients (58%) reported that getting an explanation of tinnitus and methods to overcome it had been the most helpful appointment for them.

Only five patients (23%) reported unhelpful appointments, whilst 23% explicitly stated that no appointment had been unhelpful. Of those who had had unhelpful appointments, two were GP appointments; at one, no action was taken, whilst the other was told the condition was unrelated to their wearing glasses. Two other unhelpful appointments were hospital-based, one patient was misdiagnosed with a stroke, whilst the second was told they would have to live with it. One patient found a group session unhelpful, as other members had wanted to discuss their problems, as opposed to discussing issues for the group’s benefit.

Partners’ Experiences of Appointments

Partners who had attended appointments, reported that the following had been useful:

GP appointment (11%), both the ENT department and the tinnitus clinic (11%), the ENT
department (33%) and the tinnitus clinic (44%). There were two reasons offered as to why these were helpful, the first, that the patient was referred to the tinnitus clinic (9%). Secondly, that an explanation of tinnitus - in terms of what it is and what the patient may experience - and methods to overcome it were provided (91%).

Two partners reported unhelpful appointments, these were a hospital and GP appointment. They were unhelpful because the patient was told “no-one had ever died of tinnitus” and the partner was uninvolved in the appointment. None of the partners received support of any kind, from any source, in response to the tinnitus.

3.8.5. Other ways in which Tinnitus affected the patient

The Patient’s Perspective

Figure 5 (over page) shows the topics listed in response to being asked to describe other ways in which tinnitus affected themselves, their relationship or family life. The numbers in brackets represent the number of patients making similar comments. Two patients did not answer this item, whilst two others remarked that over time they had understood their condition and realised there were others with more severe tinnitus. One stated they did not inform their family, as they had done so previously and received a disinterested response.

Figure 5 demonstrates six areas, which the patient reported to be influenced by tinnitus. Difficulties with sleep and impact on mood were reported most frequently, both of these were also reported to have an impact by the partner.
Figure 5: Diagram of Areas reported by the Patient to be influenced by Tinnitus

**Tinnitus**

- **Sleep**
  - Difficulties getting and remaining asleep (3)
  - Lethargy causes problems at work (1)
  - Disrupted sleep pattern affects partner (2)

- **Mood**
  - Causes depression (3)
  - Leads to irritation / annoyance (4)
  - Mood affects relationship with partner (1)

- **Appetite**
  - Lost appetite (1)

- **Concentration**
  - Makes reading difficult (1)
  - Revision is made difficult (1)

- **Leisure**
  - Unable to engage in hobby (1)

- **Need Speech Repeated**
  - Family become annoyed by this (2)
  - Leads to own frustration (1)
The Partner’s Perspective

Table 27, illustrates areas, reported by partners to be influenced by tinnitus. The areas of relationships, communication and emotional health were reported most frequently, with more miscellaneous difficulties also being offered.

Table 27: Areas in the Partner’s life reported to be influenced by tinnitus

<table>
<thead>
<tr>
<th>AREA</th>
<th>% reporting area (N = 22)</th>
<th>Specific problem in this area</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>68%</td>
<td>Need to speak clearly</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Need for repetition</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mishears some words, can be</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>annoying</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Some family forget about hearing problems, get annoyed with patient</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient doesn’t listen</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient shouts to communicate</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Partner leaves them alone</td>
<td>1</td>
</tr>
<tr>
<td>Emotional Health</td>
<td>45%</td>
<td>Upset patient has tinnitus and can’t ease it for them</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Feel stressed sometimes</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient temperamental</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Get love / attention elsewhere</td>
<td>1</td>
</tr>
<tr>
<td>Relationship</td>
<td>45%</td>
<td>Affects patients mood; selfish, moan, shout, irritable, etc</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Disturbs sleep</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient’s mood makes partner uptight</td>
<td>1</td>
</tr>
<tr>
<td>Social life</td>
<td>27%</td>
<td>Reluctant to go out in crowds / busy places</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Conversation difficult in company</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Loud noises make hearing worse</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Some people avoid patient</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>because of it</td>
<td></td>
</tr>
<tr>
<td>Physical Health</td>
<td>5%</td>
<td>Patient depressed; partner has to do more tasks, so tired</td>
<td>1</td>
</tr>
<tr>
<td>Other Consequences of Tinnitus</td>
<td>9%</td>
<td>Patient had TV volume loud, which can be annoying</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient’s concentration is affected</td>
<td>1</td>
</tr>
</tbody>
</table>
4. Discussion

4.1. Key findings

Table 28 shows the study’s key findings and highlights which hypotheses were upheld.

Table 28: Overview of Hypotheses

<table>
<thead>
<tr>
<th>AREA</th>
<th>HYPOTHESIS</th>
<th>HYPOTHESIS CONFIRMED?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological</td>
<td>1a) Tinnitus patients would experience higher levels of psychological</td>
<td>No</td>
</tr>
<tr>
<td>distress</td>
<td>distress than partners</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1b) There would be a positive correlation between patient and partner</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>distress</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1c) Tinnitus patients with high psychological distress would experience</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>more severe relationship problems</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2a) Tinnitus patients with hearing impairment would report higher</td>
<td>No *</td>
</tr>
<tr>
<td></td>
<td>psychological distress than those without impairment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2b) Partners of tinnitus patients with hearing impairment would report</td>
<td>Yes *</td>
</tr>
<tr>
<td></td>
<td>higher psychological distress than those without impairment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2c) Tinnitus patients with hearing impairment would report more severe</td>
<td>No *</td>
</tr>
<tr>
<td></td>
<td>relationship problems than those without impairment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2d) Partners of tinnitus patients with hearing impairment would report</td>
<td>No *</td>
</tr>
<tr>
<td></td>
<td>more severe relationship problems than those without impairment</td>
<td></td>
</tr>
<tr>
<td>Hearing</td>
<td>3) There would be a positive correlation between patient and partner ratings</td>
<td>Yes</td>
</tr>
<tr>
<td>Impairment</td>
<td>of their relationship</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4a) There would be a positive correlation between tinnitus severity and</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>patient psychological distress</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4b) There would be a positive correlation between tinnitus severity and</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>partner psychological distress</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4c) Patients with severe tinnitus would report more severe relationship</td>
<td>No *</td>
</tr>
<tr>
<td></td>
<td>problems than those with mild tinnitus</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4d) The partners of patients with severe tinnitus would experience</td>
<td>No *</td>
</tr>
<tr>
<td></td>
<td>more severe relationship problems than partners of those with mild</td>
<td></td>
</tr>
<tr>
<td></td>
<td>tinnitus</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td>5a) Female tinnitus patients would report higher psychological</td>
<td>No</td>
</tr>
<tr>
<td>perception</td>
<td>distress than male tinnitus patients</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5b) Female partners of tinnitus patients would report higher psychological</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>distress than male partners</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5c) Female tinnitus patients would report more severe tinnitus than male</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>patients</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coping</td>
<td>6a) Patients with severe tinnitus would use avoidant coping strategies</td>
<td>Yes *</td>
</tr>
<tr>
<td></td>
<td>more than those with mild tinnitus</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6b) There would be significant differences in the coping styles adopted by</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>male and female patients, with females using task-oriented coping</td>
<td></td>
</tr>
<tr>
<td></td>
<td>more than males</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: * = Due to small group sizes, comparisons were made using mean scores, rather than formal statistical analyses.
The open-ended questions on the ‘Brief Questionnaires’ were subjected to a content analysis. Stressful experiences were often reported to be involved in tinnitus. Just under half of patients reported the presence of a stressful life event at the time tinnitus developed. Feeling under stress was said to be influential in raising awareness of, and triggering tinnitus. Some patients also stated that tinnitus had an impact on their mood and sleep pattern, which also disturbed, and was reported by partners.

4.2. Results related to hypotheses and previous literature

4.2.1. Psychological Distress

No significant differences were found between distress levels reported by tinnitus patients and partners, similar low levels of distress were found. Therefore, one could presume that tinnitus did not adversely affect patient psychological well-being. This contradicts previous literature; Scott and Lindberg (2000) compared tinnitus patients who had sought help, a group who had not and a control group. They reported that the help seeking tinnitus group scored higher than the others on measures of anxiety, depression and reaction to stress and that they met the criteria for depression. Similarly, Singerman et al. (1980), Berrios et al. (1988) and McKenna et al. (1991) concluded that tinnitus could lead to increased psychological distress.

Studies in chronic pain, such as, Flor et al. (1987) revealed significantly lower levels of depression in spouses compared to patients. The current study hypothesised that tinnitus patients - by definition help-seekers - would report increased psychological distress compared to partners. In response to the open-ended questions on the ‘Brief Questionnaire’, some tinnitus patients and partners reported that tinnitus influenced mood, leading to depression, irritation and annoyance. However, this was not demonstrated by significant differences in patient and partner distress levels.

88
Although previous research reported high levels of psychological distress in tinnitus patients, direct comparisons across studies is difficult due to the variety of measures used and the application of different scoring procedures within measures. In comparison to a study of audiological outpatients by Singerman et al. (1980), fewer tinnitus patients in the current sample were categorised as having 'definite psychiatric morbidity' using the GHQ30. The GHQ scores of the partners in the current study were more similar than the tinnitus patients were to the audiological outpatients in the Singerman et al. study. Thus, partners reported more psychiatric symptomatology than the tinnitus patients in the current study. The partners of tinnitus patients may therefore be in need of psychological help in conjunction with or independent of the patient themselves. Singerman et al. did not report how they scored the GHQ, although it would seem from their data that they used GHQ scoring. However, as this is unclear, caution is recommended with this comparison. Despite these difficulties, it is evident that only a small number of tinnitus patients in the current study experienced high psychological distress. As already stated, it may be that tinnitus has not caused increased distress. However, the reason for this is unclear, given that previous research identified distress in tinnitus patients.

These contradictory results may indicate a selection bias in the sample. Five patients consented to participate and completed questionnaires, yet their partner did not. These patients were excluded from the analysis. These patients reported more psychological distress than those included in the research. Their higher distress levels may indicate that the included patients are not representative of the tinnitus population. Participants were recruited by clinic staff, who may have selected less distressed patients, or distressed patients may have chosen not to participate in the study.
On discussion with staff at one of the participating clinics, an alternative explanation was proposed. They commented that in their experience, tinnitus patients are generally seen for their first appointment much sooner than in previous years. As a result, the time from tinnitus onset to assessment is reduced, which may mean they have less time to become distressed by it. If retrospective data on distress levels of patients in relation to the length of time they had been on the waiting list was available, this may have been verified. As it stands, this cannot be ruled out. The question remains as to whether patients are less distressed, or whether the sample is not representative of the tinnitus population.

It had been predicted that a relationship would exist between patient and partner distress; that an increase in patient distress would relate to an increase in partner distress. However, this was not upheld and no association was found. Previous research demonstrated the effect of patient psychological distress on the partner. Coyne et al. (1987) reported significantly higher distress levels in the partner of patients currently experiencing depression, compared to those where the patient had previously experienced depression. In the current study, a relationship did not exist between patient and partner distress. Factors such as a satisfactory relationship may influence the relationship between psychological distress in one member of the couple and the effect of this on the other. The effects of marital relationships are discussed below.

It had been proposed that an association would exist between high psychological distress and severe relationship problems in patients; yet, evidence of this was not found. Burman and Margolin (1992) described the ‘stress-buffering’ model of marital status, which suggested that positive social support could buffer against the negative effects of stress. Thus, if support were available, this could protect an individual from the harmful
effects of stress, or in this case psychological distress. Partners were asked in the ‘Brief Questionnaire’, if they received any form of support specific to the tinnitus. However, neither they, nor patients, were asked about the availability of more general social support, within and outside of the marriage. It is possible that support is influential in the link between psychological distress and quality of relationship; support may reduce the negative effects of stress or distress, which may influence marital quality. To determine this a more thorough assessment of sources and quality of support is necessary, than is available in the current study.

The item regarding previous experience of an emotional problem on the ‘Brief Questionnaires’ is limited in the information it provided, as it did not establish when this was a problem, or what the problem was. It does illustrate, however, that tinnitus patients reported experiencing an emotional problem of some sort, more frequently than partners. Previous research also suggested an increased likelihood for tinnitus patients to experience psychological problems (Holgers et al., 1999; Rizzardo et al., 1998; Scott & Lindberg, 2000). Although a quantifiable difference in the psychological distress of tinnitus patients and partners was not detected, the fact that all patients reported experience of an emotional problem requires further investigation, in order to clarify if this pre-existed, facilitated or was a consequence of tinnitus.

4.2.2. Hearing Impairment

The effects of a hearing impairment in a hearing-impaired tinnitus patient are often difficult to dissociate from the effects of tinnitus. A comprehensive analysis of the independent and related effects of both conditions is an important area worthy of further investigation, but was beyond the scope of the current study. The following section offers some preliminary investigation of hearing impairment in tinnitus patients.
As highlighted in the results section, due to uneven and small groups (hearing impaired group, n = 19; non-impaired group, n = 3), formal statistical analyses were not undertaken in this area. The discussion of trends are noteworthy, but should be viewed cautiously due to the small sample size.

The mean levels of psychological distress in hearing-impaired and non-hearing impaired patients were similar. This contradicts the conclusions of Hetu et al. (1993, p. 363) who implied that “severe consequences” might be experienced by couples in response to a progressive hearing impairment. Hetu et al. did not define specifically what the consequences would be, but discussed how impairment could influence self-image, role expectations and interaction in intimate relationships, all of which could contribute to psychological distress. Hearing-impaired tinnitus patients were not more distressed than those without impairment. Relationship quality may have a role to play in this, as contrary to the prediction and previous research (Erlandsson & Holgers, 1999), hearing-impaired patients reported less relationship problems than non-impaired patients. As previously discussed, relationship quality may be influential in mediating the impact of a psychological problem.

The partners of hearing-impaired patients reported higher mean distress scores compared to partners of non-impaired patients as was predicted. Although the ‘Brief Questionnaire’ did not ask partners to comment on the hearing impairment, some of the comments received could be attributed to hearing impairment, as well as tinnitus. For instance, partners reported communication difficulties and social life restrictions because of tinnitus, yet these could also be due to hearing impairment and both could influence the psychological well-being of the partner. The RNID (2002) acknowledged that decreased communication could cause the partner frustration and lead to stress. Two partners
reported that the patient’s disrupted sleep disturbed them; this problem is likely to be due to tinnitus, rather than impairment.

Despite partners of non-impaired patients having reported less psychological distress, they reported slightly higher scores indicative of relationship difficulties, than the partners of those with impairment. This contradicts the work of Hetu et al. (1993) and Backenroth and Ahlner (2000), who acknowledged the impact of hearing impairment on interactions in interpersonal relationships and relationship quality. In the current study, those with impairment, however, had less relationship problems. Partners did, however, acknowledge on the ‘Brief Questionnaire’, that the following caused difficulty: needing to repeat speech, needing the television volume to be increased and the presence of loud noises making hearing or conversation difficult. A minority of tinnitus patients also reported that needing speech repeated caused frustration for their family and themselves. Whilst it is not clear whether these hearing difficulties related to tinnitus or a hearing impairment, it seems that they did not have a detrimental impact on patient and partner views of their relationship.

It is probable that the discrepancy in the effects of impairment and relationship difficulties, that is, that those with normal hearing reported more relationship problems, is due to the disparity in group size and variance in scores, rather than due to factors related to non-impairment. Additional research with a larger sample of hearing-impaired and non hearing-impaired patients is necessary to ascertain whether a relationship between lower psychological distress, good relationship quality and hearing-impairment exists.

Hetu et al. (1993) commented that questionnaires looking at interpersonal interactions might be insensitive to the changes in close relationships, derived from a hearing
impairment. To demonstrate the subtle changes that may result, Hetu et al. used an example of research by Jones, Kyle and Wood (1987, p. 113, cited in Hetu et al., 1993) who reported that 80% of couples, where one partner had a progressive hearing loss, agreed with statements such as: “Our communication is less personal.” The work of Hetu et al. was based on participants with progressive hearing loss, which may have differing consequences to the subjective hearing loss reported by this study’s participants. However, it may still be that the GRIMS is not sensitive enough to detect relationship problems associated with a hearing impairment or tinnitus.

On the ‘Brief Questionnaire’, patients reported specific difficulties with their hearing and tinnitus in situations such as pubs, cinemas and theatres. Partners whilst acknowledging these difficulties, also reported the patients’ reluctance to attend these venues. Newman and Weinstein (1986) compared the perception of hearing impairment in patients and their spouse. Both reported similar views of the social impact of the impairment. However, patients reported greater emotional consequences due to it. Newman and Weinstein concluded that the social consequences of impairment might be readily observable, whilst the emotional consequences may be hidden from partners. Patients in the current study reported frustration at having to ask for speech to be repeated and some partners expressed their anguish at being unable to ease tinnitus, which is suggestive of an emotional response to tinnitus. A specific focus on the emotional consequences of hearing impairment was beyond the remit of this study. Research directed at an awareness of the partner’s perception of impairment and tinnitus, may verify Newman and Weinstein’s findings and add to an understanding of the impact of tinnitus on the partner.
4.2.3. Concurrence in Perception of the Relationship

Patient and partner ratings of relationship satisfaction were positively related; that is, if a patient rated the relationship as good, then the partner tended to rate it comparably. Therefore, the state of a relationship could be predicted to a certain extent from the GRIMS score of one member of a couple. Rust et al. (1990) found a similar result in the GRIMS standardization study. In the current study, forty-one percent of the variance in patient relationship scores was explained by the variance in partner relationship scores. Clark-Carter (2001) noted that in psychological research, variance of 25% or more is considered a large effect size.

The mean scores obtained by patients fell into the 'very good' GRIMS interpretive category and into the 'good' category for partners. These scores are slightly lower, indicating greater relationship satisfaction, than the general population sample used in the GRIMS standardization study, where mean scores for male and female GP patients were categorised as 'above average' (Rust et al., 1990).

4.2.4. Tinnitus Severity

A positive relationship was identified between patient psychological distress and tinnitus severity, that is, higher levels of psychological distress were associated with increased tinnitus severity. Twenty-seven percent of the variance in tinnitus severity scores was explained by the variance in psychological distress.

This positive relationship fits with the assumption of House (1991) that severe tinnitus could lead to excessive stress. Delb, D'Amelio, Schonecke and Iro (1999) also reported a positive relationship between increased levels of depression, as measured by the Beck Depression Inventory and the degree of impact of tinnitus on the Tinnitus Questionnaire.
This association was commented on by McCombe et al. (2001, p. 390) who stated: “...in assessing tinnitus severity, in fact, one may be grading psychological state as much as tinnitus experience...” McCombe et al. noted that difficulties with tinnitus related more to the patient’s psychological response, than to the noise itself. The presence of tinnitus alone is not enough to cause distress; many people experience it, but do not access services and do not ‘suffer’ in response to it. Those who experience severe tinnitus and seek professional help may have a different psychological response to it, than those who do not access help.

Previous researchers have indicated that it is difficult to pinpoint the direction of a relationship between psychological distress and tinnitus, that is, do psychological problems pre-exist, facilitate or stem from tinnitus? The current research is not able to further this debate. However, the fact that a relationship between psychological distress and tinnitus severity was found and that all tinnitus patients reported previous experience of an emotional problem, adds to the need to investigate this area more thoroughly.

In addition, a positive association was identified between partner psychological distress and tinnitus severity. Therefore, as tinnitus severity increased, so did partner distress, the variance accounted for by these two variables was 18%. The explanation for this relationship, however, is not straightforward. Partner distress levels were not associated with patient distress levels; therefore, partner distress does not appear to be a simple function of patient distress, resulting from increased tinnitus severity. It may be that the consequences of severe tinnitus in the patient - for example, changes in mood, reluctance to socialise - generate partner distress. In addition, a small number of partners on the ‘Brief Questionnaire’ expressed distress that they could not ease the tinnitus for the patient. Whether or not this distress could engender psychological distress is unclear.
The mean scores of patients with ‘mild’ and ‘severe’ tinnitus did not differ in terms of relationship quality. Similarly, for the partners of patients with ‘mild’ and ‘severe’ tinnitus, relationship quality was comparable. Thus, it would seem that tinnitus severity did not influence the marital relationship. In their study, Flor et al. (1987) reported that chronic pain had a negative effect on the marital relationship of 66% of male chronic pain patients. One patient in the current study reported that tinnitus affected their mood, which influenced their relationship, yet most did not testify to the impact of tinnitus on their relationship.

Almost half of partners on the ‘Brief Questionnaire’, reported that tinnitus influenced their relationship with the patient, as it affected the patient’s mood and sleep pattern. Yet, few reported relationship problems on the GRIMS and relationship satisfaction did not relate to tinnitus severity. As previously discussed, Hetu et al. (1993) noted that some relationship measures might be insensitive to changes caused by hearing impairment. As the difficulties caused by hearing impairment and tinnitus are similar, it may be that the GRIMS did not accurately record difficulties caused by tinnitus. Equally, as the research required the participation of patients and partners, it may have ‘attracted’ participants in satisfactory relationships, as only a small number reported difficulties.

4.2.5. Gender

Dineen et al. (1997) compared the psychological characteristics of male and female tinnitus patients and concluded that whilst both reported similar anxiety and stress levels, females reported higher depression levels. A similar finding of higher reports of depression in female patients was noted by Zoger et al. (2001). No relationship was found in the current study between psychological distress levels and patient or partner gender.
Previous studies have looked at gender and reaction to tinnitus, Dineen et al. (1997) found that females perceived tinnitus as louder and more annoying than males. In the current study, tinnitus loudness was not studied. However, no relationship between gender and tinnitus severity was identified. As previously discussed, there is no standardised definition of tinnitus severity, although a number of measures exist to quantify it. This study used the THI, whereas Dineen et al. used the ‘Tinnitus Reaction Questionnaire’ to look at psychological reaction to tinnitus. Although, these studies are not directly comparable due to the variables measured (tinnitus severity and reaction to tinnitus), further research on the influence of gender in tinnitus is required to determine its significance.

4.2.6. Coping

Although no firm conclusions can be drawn from the small sample here, patients with severe tinnitus tended to use avoidant coping more than those with mild tinnitus. Greimel et al. (1999) commented that inadequate coping strategies were one of the main reasons that tinnitus patients were unable to habituate to tinnitus and it became chronic.

As previously discussed, studies of coping often define ‘avoidant’ coping differently. Sullivan et al. (1994) reported that avoidant coping led to less tinnitus disability; here avoidance was described as not paying attention to tinnitus. This type of avoidance would fit with the notion that paying attention to the noises and placing significance on them, influences their perception. Budd and Pugh (1996b) and Hallberg et al. (1992) noted that ‘maladaptive’ or ‘escape’ coping was associated with increased depression and tinnitus severity. Their definitions of maladaptive coping involved wishful thinking and avoidance of social situations because of tinnitus, both of which can be defined as avoidance. In the CISS, ‘avoidance’ includes the sub-factors social diversion and distraction. These include
activities aimed at cognitive change, or engagement in activities to distract oneself with the intention of avoiding stressful situations. It may be that different definitions and types of ‘avoidance’ have diverse consequences on how the use of such strategies relate to tinnitus severity.

Patients with severe tinnitus also used emotion-oriented strategies more than those with mild tinnitus. Dineen et al. (1997) remarked that patients who perceived tinnitus as something they could not change and must accept, used more emotion-focussed coping, whilst those who thought it could be changed used problem-focussed coping more. Patients with severe tinnitus may perceive it as something they have to live with and consequently use more emotion-focussed coping.

Few studies have tackled the issue of gender in coping. In the current study, it had been predicted that female tinnitus patients would use task-oriented coping more than male patients would. This was based on the Dineen et al. (1997) study, which reported that female patients used problem-solving coping more in response to tinnitus. Looking at the mean CISS scores of patients in the current study, female patients did not use task-oriented coping more than males. Both male and female patients used task coping the most and both followed the same pattern of use of coping; that is they used task coping most, followed by emotion and avoidant coping. This pattern was similar to the male participants in the normative sample, although females in that sample tended to use avoidant strategies more than emotional (Endler & Parker, 1999). Despite the similarity in the usage pattern of coping styles, females had higher scores on the emotion and avoidant styles, indicating that they tended to use these more than males. From the data here, it is clear that gender and coping style interacted or worked together in their effects.
The CISS measures dispositional coping strategies. These assume that people can be characterised by their preferred method of coping in one situation and that this remains static and applicable across all situations. Schwarzer and Schwarzer (1996) argued that this approach did not allow for situation-specific coping, or coping, which went through different stages or styles in response to a situation. Schwarzer and Schwarzer stated that to measure coping, it is appropriate to consider that coping styles are generalisable to a certain extent and that people tend to use a limited number of strategies, which they apply across different settings. It may be that the patient's style of coping with tinnitus, changes with duration of the condition.

The CISS was included to ascertain coping styles adopted by tinnitus patients and to determine whether coping style related to gender and tinnitus severity. Given the former discussion on measuring dispositional coping, one cannot assume that coping styles reported on the CISS directly reflect how they cope with tinnitus. It may demonstrate the range of coping adopted by those with tinnitus.

Research in coping styles in the area of chronic pain has identified that certain coping styles predict psychological distress and associated disability. Further research in this area in the field of tinnitus should be conducted. Future research should consider whether the use of a tinnitus specific coping measure, such as the Tinnitus Coping Style Questionnaire (Budd & Pugh, 1996a) would be more appropriate than the generalised coping measure used here. Use of a tinnitus specific coping measure may lead to the identification of coping strategies that are associated with increased tinnitus severity and could therefore become targets for psychological intervention.
4.3. Content Analysis

A number of points from the content analysis have been included in preceding discussion sections. The following section includes aspects worthy of separate consideration.

4.3.1. The Benefits of Appointments

Over half of patients and most partners who had attended a tinnitus appointment found explanations as to the ‘cause’ and treatment of it helpful. Hall and Ruth (1999) studied the outcome of patients after an audiological consultation. Before consultation, patients were sent the THI and a questionnaire on medical history and tinnitus duration. Consultation consisted of clarification of responses, information on the causes of and treatment for tinnitus and factors that may influence its perception. Patients were provided with written information and advice on masking the noises. Patients were asked to complete the same questionnaires 6 to 18 months later.

Hall and Ruth (1999) reported that the proportion of patients who perceived tinnitus for less than 20% of the day increased significantly after consultation; tinnitus severity rating however did not change significantly. As follow-up occurred 6 to 18 months after consultation, factors such as habituation may have contributed to the outcome. To overcome this, one would need to issue follow-up questionnaires within a shorter period. Hall and Ruth’s study, however, confirms the positive effect that an explanation of tinnitus can have on its perception.

4.3.2. Problems related to Tinnitus

Although a high level of distress in patients was not reported on the GHQ, the ‘Brief Questionnaire’ revealed a number of problematic areas reported to be due to tinnitus.
These included areas that previous research had identified, including: mood problems (Scott & Lindberg, 2000), sleep difficulties (Folmer & Griest, 1999), changes in leisure activities (El Refaie et al., 1999) and concentration difficulties (McKenna & Hallam, 1999). One patient also reported that tinnitus had created a loss of appetite, which might be due to the presence of an associated mood problem, for example, appetite loss in relation to depression.

4.4. The Sample

4.4.1. Excluded Patients

Five patients returned questionnaires, whilst partners did not; data from these patients was excluded from the main analysis of the current study. In comparison to patients included in the study, the mean scores of excluded patients demonstrated higher distress, slightly greater tinnitus severity and less relationship satisfaction. In a subsequent post hoc analysis, with the inclusion of data from the five excluded patients, a positive correlation between patient psychological distress and relationship difficulties was found, where previously no relationship was identified. Whilst these higher distress levels and increased relationship difficulties may be explanatory factors as to why partners did not return questionnaire packs, they may also highlight that the study sample used is not truly representative of the wider population of tinnitus patients. It should also be noted that there was a wide range of scores within the excluded sample. Two patients within this group had high distress levels, hence, their scores had a large impact on raising the mean score of this sample.

4.4.2. Patient Gender

The majority of patients were male; this corresponds with Zoger et al. (2001), who stated that more men sought help for tinnitus than women. The RNID (1998) however
noted that tinnitus prevalence differed only slightly between the sexes. Zoger et al. suggested men might find it more acceptable to seek help for a somatic rather than a psychological problem.

4.4.3. Hearing Impairment

Difficulties with hearing were reported by 86% of patients, whilst 37% had, or were awaiting a hearing aid. These figures are comparable to a longitudinal study of tinnitus patients by Andersson et al. (2001); they identified self-reported hearing loss in 87% of patients, whilst 33% used a hearing aid. Rizzardo et al. (1998) also identified hearing loss in 88% of tinnitus patients.

4.4.4. Tinnitus

Bilateral tinnitus (tinnitus in both ears) was reported most frequently, with left sided tinnitus being reported less frequently and few reported right-sided tinnitus. Andersson et al. (2001) reported bilateral and unilateral tinnitus (right or left sided) to be described almost equally by their sample. Andersson et al.’s study comprised 146 patients over seven years; it is not clear if a larger sample here would have led to a similar distribution.

Andersson et al. (2001) reported that tinnitus onset was associated with an event for 61% of their sample, compared to under half of patients in the current study. The majority of events associated with onset in the current study were life events, with occupational noise and illness being involved in a few cases. Andersson et al. reported the influence of hearing trauma and illness in the majority of their cases. Presumably, ‘trauma’ included damage to the ear, possibly due to exposure to occupational noise. Life events accounted for tinnitus onset in 9% of their cases. It is not apparent why these differences in cause of onset exist; the Andersson et al. study is Swedish and had a much larger sample, whether
these differences can be attributed to sample size, classification differences or cultural variations is unclear.

McCombe et al. (2001, p. 391) noted that by using the severity grading system of the THI, the majority of patients "...suffering tinnitus should fall into grades 2 and 3", or mild and moderate grades. A rating of grade 4, 'severe' would be uncommon and grade 5 'catastrophic' would be rare. A similar distribution was obtained here, with most patients rating tinnitus as 'mild' or 'moderate' and a minority in the 'slight' and 'severe' categories and only one patient in the 'catastrophic' range. The current study therefore supports the distribution of the THI grading system proposed by McCombe et al. (2001).

4.5. Theoretical Implications of Results

4.5.1. The Impact of Tinnitus on Partners

Patients and partners experienced similar low distress levels in the current study. It would seem that tinnitus did not cause patients excessive distress, as has been reported in studies comparing chronic pain patients and their spouse (Flor et al., 1987). Tinnitus did however have an impact on partners, as was verified in responses to the 'Brief Questionnaire' and in the relationship between increased tinnitus severity and increased partner distress. Additional study is crucial to determine whether other factors may explain why patient and partner distress levels were similar and to consider the dynamics of the relationship between increased tinnitus severity and consequences for the partner.

4.5.2. Tinnitus Severity in relation to Psychological Distress

Positive correlations between patient and partner GHQ scores and tinnitus severity are reported here. These correlations may be considered moderate ($r = 0.524$ for patients and $0.433$ for partners), but they are greater than those in research by Hiller, Goebel and Rief
(1994) with tinnitus patients, using the Tinnitus Questionnaire (TQ) and the Hopkins Symptom Checklist (SCL-90-R; a measure of psychopathological signs and symptoms). Correlations between the TQ and the SCL-90-R ranged from 0.23 to 0.37. Hiller et al. concluded that the distress of tinnitus patients could only be approximated by use of a standard psychological measure. The results from this study using the THI and the GHQ, point to a greater association between tinnitus severity and psychological distress. Additional investigation is recommended, using the THI in combination with the GHQ and the HADS, in order to determine which measure of psychological distress is better correlated with tinnitus severity.

4.5.3. Tinnitus Severity and Coping Style

Previous studies have been divided as to whether avoidant coping strategies related to tinnitus severity (Sullivan et al., 1994, Budd & Pugh 1996b). Although no firm conclusions can be drawn from the current study, it did highlight a trend for greater use of avoidant strategies by those with severe tinnitus. This finding supports Budd and Pugh (1996b) and Hallberg et al. (1992), who noted that those with severe tinnitus used avoidant or what they defined as ‘escape’ or ‘maladaptive’ coping more. Hallam’s (1987) model of habituation implied that using avoidant strategies such as paying attention to something else may assist in adaptation or adjustment to tinnitus.

Felton et al. (1984) in a study of patients with chronic illnesses noted that using emotional coping strategies (avoidance, blame and emotional ventilation) related to poorer adjustment to illness, negative affect and lower self-esteem. This would suggest that by using avoidant strategies the patient does not adjust to their condition, which would fit with the current finding, as tending to use avoidant strategies related to increased severity. The direction of this relationship, however, is unclear. Does severe
tinnitus lead to the adoption of avoidant coping? Alternatively, does avoidant coping lead to a perception of tinnitus as severe? It is suggested that this area be the subject of further investigation to address these issues. Patients with severe tinnitus also used emotion coping more than those with mild tinnitus and again this requires further research to establish the exact relationship between tinnitus severity, coping style and the subsequent impact of this on distress.

4.5.4. The Influence of Tinnitus in Psychological problems.

Research has suggested that tinnitus patients may experience psychological problems which, pre-date or co-occur with tinnitus (Holgers et al., 1999), or which post-date tinnitus (Rizzardo et al., 1998). All patients in the current study reported having experienced an emotional problem at some time in their lives. Whilst the shortcomings of this question have been highlighted elsewhere, this demonstrates that the link between tinnitus and the development of a psychological problem remains uncertain and requires further study.

4.6. Research Critique

4.6.1. Power

In terms of the statistical power of a study, to demonstrate a large effect size, a smaller sample of participants is required than if one is looking to find a small effect size. In this study, a large effect size was adopted, based on research findings in similar areas. As few of the hypotheses were upheld, it may be that large effect sizes do not exist, or that a larger sample would be needed to detect them. Future studies may benefit from a smaller effect size and a larger sample, to determine, for example, whether significant differences do exist between psychological distress levels in tinnitus patients and partners.
4.6.2. Sample

As discussed elsewhere, a bias in recruitment may explain the low levels of distress in those patients included in the main analysis described. In the post hoc analysis section, which incorporated data from those tinnitus patients excluded, as their partner had not returned the questionnaire pack, higher levels of distress were reported. Inclusion of this data in the post hoc analysis highlighted a relationship between increased psychological distress and relationship problems, which had not previously been noted. Future research should consider ways to ensure that bias is reduced and that the sample of patients recruited is representative of the population from where it is taken.

Data from 22 couples were used and although some statistical analysis was possible, the sample size created problems when subdivisions of the sample were needed, for example, when comparing patients with mild and severe tinnitus. Three clinics were involved in recruitment to the study for a six-month period and efforts were made to increase the number recruited, through clinics approaching patients at individual and group sessions. It would be worth considering, however, whether a more direct approach to the patient by the researcher would yield a higher response.

4.6.3. Definition of Tinnitus Severity

Patients were divided into ‘severe’ and ‘mild’ tinnitus groups, based on scores on the THI. A score of 58 or more, led to patients being classed as ‘severe’. On the THI this would be categorised as ‘severe’ or ‘catastrophic’; tinnitus is always heard and rarely masked. Scores less than 58 were categorised as ‘mild’. This would be the ‘slight’, ‘mild’ and ‘moderate’ categories on the THI; here moderate tinnitus would rarely hinder daily activities. As less patients experience severe tinnitus than those with mild or moderate tinnitus, uneven group sizes are likely. Future research would need to consider whether
the cut-off score used is appropriate and how to increase the number of patients with severe tinnitus recruited to a study, in order to enable statistical analysis. Such analysis may confirm whether patients with severe tinnitus use avoidant and emotion coping significantly more than those with mild tinnitus and whether the patient’s relationship is influenced by tinnitus severity. As it stands, this study has highlighted areas worthy of further study.

4.6.4. Definition of Hearing Impairment

A subjective definition of hearing impairment was used in the analysis, on the basis that the individual’s perception of loss might have more impact for them, than that which is audiologically defined. Some tinnitus patients report hearing difficulties that directly relate to tinnitus rather than a hearing loss, as they find it difficult to hear ‘through’ tinnitus. It is also acknowledged that the presence of impairment does not necessarily equate to the degree of difficulty reported by the patient in response to it. If patients reported that they had a hearing loss and difficulties in specific situations, they were categorised as hearing-impaired.

On this basis, 19 patients reported a hearing loss; 8 of these had, or were awaiting a hearing aid. It is not clear whether the hearing aid resolved their difficulties. As all eight confirmed that they had difficulty with their hearing in specific situations, they were classed as hearing impaired. This definition may be criticised due to its subjectivity, however, an audiological definition of hearing impairment would omit those with normal hearing impaired by tinnitus.

As with most research in tinnitus, it is difficult to separate out the effects of hearing impairment from those of tinnitus. However, it was felt important to include some
consideration of hearing impairment on the basis that this may have more impact on partners than tinnitus alone. Further research is required to ascertain whether the results obtained here are a true reflection of the limited effect of hearing impairment on patient relationships and psychological distress, or if the results are an artefact of: sample size, the definition of hearing impairment, or the measures utilized.

4.6.5. Postal Questionnaire & Response Rate

Given the research timescale and that few partners attend appointments, direct access to partners was not possible; therefore, a postal method was required. Postal methods are notorious for their low response; therefore, attempts were made to overcome this with pre-paid return envelopes, a follow-up reminder letter and a reminder poster in clinics. Response rates have been shown to vary according to the area surveyed and the questionnaire format. In an evaluation of general practice care by chronically ill patients, a response rate of 72% was achieved by a questionnaire handed to respondents, in comparison to 63% in postal questionnaires (Wensing, Grol, Smits & Van Montfort, 1996). Sapsford and Abbott (1994) stated that a response rate of 50% would be considered quite high for a postal survey. The study reported here achieved a response rate of 51% and is therefore a reasonable rate.

It is not known why the return rate from clinic ‘D’ was lower than clinics ‘C’ and ‘E’, although clinic ‘D’ did start data collection a little while after the other clinics. In addition, patients at clinic ‘D’ were given questionnaires to take home for non-attending partners, which may have had a negative effect on return rates. Staff at clinics ‘C’ and ‘E’ forwarded questionnaires to non-attending partners. Future research may benefit from questionnaires being distributed to non-attending partners directly from clinics.
Participants completed questionnaires at home. Therefore, it is not possible to establish whether participants completed them independently. Joint completion of measures may account for similarities in scores between partners.

4.6.6. Questionnaire Packs

Two couples, who originally consented to participate, later declined. They stated that the GRIMS questionnaire was too intrusive and intimate; one also stated that there were too many questionnaires to complete. It could be speculated that these were factors for other patients who initially agreed to participate, but then did not return questionnaires. Although a pilot study was conducted, this only considered the content validity of the 'Brief Questionnaires', as all other measures were standardised. A pilot study that incorporated all measures may have identified how patients would receive the size and content of the packs. Yammarino et al. (1991) noted that postal questionnaires in excess of four pages significantly reduced response rates regardless of the population targeted. The questionnaires used here were eight pages long for the patient and seven for the partner. Thus, questionnaire length may have adversely affected response rate.

4.6.7. Inclusion Criteria

Despite all patients being new referrals, there was great variation in the length of time they had had symptoms and in the duration symptoms had been problematic. Symptom duration and 'problematic time', ranged from less than 12 months to 45 years. Differences may occur in the experience and impact of tinnitus due to duration and habituation, which was not accounted for here. The fact that all patients were new referrals, however, might indicate a culmination in distress, which led to them asking for help, irrespective of symptom duration. Patients may therefore have been similar in tinnitus annoyance, even if this did not lead to similar psychological distress levels.
4.6.8. The Brief Questionnaires

The 'Brief Questionnaires' were developed for this study and with hindsight, some items might have been changed. Both have a focus that is broadly negative in outlook. For instance, items were posed to establish whether tinnitus 'affects' specific areas such as communication. The term 'affect' has a negative connotation and most responses were negative. Whilst a negative focus was in keeping with the aim of exploring if partners experienced psychological distress, it would have been interesting to determine whether there were any positive experiences, for instance whether tinnitus had brought them closer together as a couple. It would also have been helpful to establish the partner’s rating of the ‘size’ of influence tinnitus had on areas, alongside how the tinnitus affected these.

Current physical health problems were reported. However, their consequences and severity were not established. Both questionnaires had items that asked for the presence of a current life stressor. However, neither established what the stressor was, nor its influence, therefore, limited information was obtained. If the format of the stressor had been established, it may have been that participants reported physical problems within this. As already noted, participants were asked if they had experienced an emotional difficulty, but were not asked what this was, or, if it was current. Whilst, these omissions were an oversight and should be considered in future research, high distress levels were rarely reported and one could assume that these factors had little influence here.

4.6.9. GRIMS

The GRIMS is a measure of the current state of a relationship, therefore it is not possible to ascertain whether problems pre-dated tinnitus. Retrospective data on the quality of relationships were not obtained in this study.
The manual instructs that raw scores on the GRIMS are changed to ‘transformed scores’, which can then be interpreted descriptively (Rust et al., 1988). High scores on the GRIMS indicate severe relationship problems, whilst a transformed score of 1 (a raw score of less than 16) is categorised as ‘undefined’. Rust et al. (1990) argued that scores in this ‘undefined’ category should be treated cautiously, on the basis that respondents were either untruthful in their responses, or were at such an early stage of their relationship that its future outcome could not be predicted.

In this study, 36% of patients and 27% of partners GRIMS scores were ‘undefined’, the duration of their relationships ranged from 4 years to 56 years (mean = 24 years). Presumably, the duration of these relationships would not be defined as ‘early’, yet according to Rust et al. (1990), these results should be treated cautiously, on the basis that they may be untruthful and invalid. The GRIMS is a well-documented measure of marital quality, however, this scoring anomaly means it should be used cautiously. It is suggested that further research be conducted concerning the categorical interpretation of the GRIMS. Further research should also consider whether Rust et al. were too pessimistic about the quality of long-term relationships.

4.6.10. GHQ

The GHQ scoring method (0, 0, 1, 1) used in this study, counts the number of symptoms reported by participants. This is generally used for case identification and was described by Goldberg and Williams (1988, p. 19) as an: “area” measure, whilst Likert scoring (0, 1, 2, 3) was described as a: “composite measure encompassing both area and intensity.” Likert scoring provides a measure of the severity of disorder, according to Goldberg and Williams. However, there is little difference between misclassification rates using either method, therefore there is little benefit in considering severity. Goldberg and
Williams argued that GHQ scoring can produce a more skewed score distribution than Likert scoring, however the distribution of scores in this study was tested for normality and was found to be normally distributed. Data was re-scored using Likert scoring and the analyses re-run, this did not have any significant effect on the results obtained.

One criticism of the GHQ is that its response format may omit long-standing disorders and lead to false negatives. For example, respondents may answer 'same as usual' in relation to symptoms they have experienced for a long time (Bowling, 1991). Goldberg and Williams (1988; p. 20), however, argued that the number of cases omitted due to this is minimal as: “...many patients cling to a concept of their ‘usual self’ as being without symptoms.”

A further criticism is that the physically ill may obtain higher scores, due to physical rather than psychological symptoms. An alternative measure is the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983), this attempts to exclude symptoms that arise from somatic disorders; so scores are unaffected by illness. Zoger et al. (2001) compared use of the HADS to the Diagnostic and Statistical Manual of Mental Disorders, Standardised Diagnostic Interview (SCID-P) to investigate the prevalence of anxiety and depression in tinnitus patients. They concluded that the HADS was suitable for screening for depression, but not anxiety, in tinnitus, when identification rates were compared to the interview. They recommended the interview method, over self-administered measures. The current study used a self-report measure due to the need for a postal method to reach partners. Researchers based in a clinic setting should consider whether a standardised interview would be more appropriate than a self-report measure.
4.6.11. CISS

In general, there was no pattern to the items omitted on the CISS, however, four participants (9%) did not answer item five: 'blame myself for procrastinating'. One wrote that they did not understand the word 'procrastinate', which may have been true for others who did not answer this. Endler and Parker (1999) noted that the CISS might not be suitable for those with a reading ability less than eighth grade, or ages 13 to 14. The importance of this against the small number who omitted the item should be considered in future use of this measure.

4.7. Recommendations for Future Research

A number of suggestions for further research have already been posed, combining a number of these would resolve some of the questions raised in this study.

4.7.1. Sample and Effect Size

Future research would benefit from a larger sample and a small effect size, in order to ensure that comparisons, for example those with mild and severe tinnitus, were truly representative of the population of tinnitus patients.

4.7.2. Psychological Distress and Tinnitus Severity

This study identified a relationship between higher psychological distress levels and increased tinnitus severity, yet there were no significant differences between distress levels of patients and partners. It is recommended that both areas be targets of future research to determine whether tinnitus does have a psychological impact on patients and to ascertain the degree to which this can be predicted from tinnitus severity. Inclusion of a control group to compare tinnitus patients and partners, would clarify the extent of any distressing consequences of tinnitus in both parties. 'Multiple Regression' analysis could
be used to predict what variables would lead to high levels of psychological distress in tinnitus patients, variables to be investigated could include tinnitus severity, coping style, pre-morbid psychopathology and gender.

Additional examination of the THI is required to clarify the use of its grading system in anticipating the psychological impact of tinnitus. In relation, as all patients reported an emotional problem at some time, more comprehensive research is needed to establish how this relates to tinnitus. Does tinnitus cause psychological problems? Are people who have had psychological problems, more susceptible to tinnitus? Alternatively, does tinnitus facilitate the development of psychological problems?

4.7.3. Gender

No relationship was found between tinnitus severity, increased psychological distress and gender of patient or partner. As previous research identified significant gender differences, further research is recommended to ascertain its significance.

4.7.4. Coping Style and Tinnitus Severity

This study considered how coping styles related to tinnitus severity and there was a trend for patients with severe tinnitus to use avoidant coping and, to a lesser extent, emotion coping, more than those with mild tinnitus. It is recommended that this be examined further in future research.

4.7.5. Coping Style and Tinnitus Duration

It might be of interest to consider whether the time a patient has had tinnitus influences their coping. If Hallam's (1987) model of habituation is true, those who have had tinnitus for a long period may have adjusted to it more, than those whose tinnitus had become
problematic over a shorter period. Schwarzer and Schwarzer (1996) argued that coping styles could vary over time in response to a situation, therefore an individual’s coping style may change with tinnitus duration. A few patients in the current study, had had tinnitus for a number of years, but this had only become problematic recently. Hallam provided an explanation for this. Hallam noted that a change in environment, such as retirement from work, could increase an individual’s attention to tinnitus that was previously masked by environmental noise. In a future study, it would be worth considering whether tinnitus duration influences, or interacts with coping style and tinnitus severity.

4.7.6. Positive Consequences of Tinnitus

It would be interesting to include questions to the patient to determine if they thought tinnitus had an impact on their relationship, this study only considered the partner’s view. As previously discussed, the inclusion of items to address any positive aspects, or benefits of tinnitus could also be included. For example, a question framed ‘does your partner’s tinnitus benefit your relationship in any way?’ may elicit a more positive outlook.

4.7.7. Impact of Hearing Impairment

As already noted, the independent and related effects of hearing impairment and tinnitus are hard to distinguish in hearing-impaired tinnitus patients. Such a consideration was beyond the remit of the current study, however, in future research it would be important to partial out or control for the effects of hearing impairment. For instance, tinnitus patients without hearing impairment could be compared to hearing impaired patients without tinnitus. In addition, a larger study should consider the impact of the degree of hearing impairment in those with tinnitus and those without, through use of objective measures of impairment, that is, audiograms. Research of this nature should
look at the effects of both tinnitus and hearing impairment in the partner of the patient, as well as the patient.

The impact of hearing impairment on both patients and partners requires additional enquiry, to verify if it does increase psychological distress and relationship difficulties. Contrary to previous research, hearing impairment did not create such difficulties for patients, forthcoming research should consider if this discrepancy was due to the definition of hearing impairment adopted, or whether a positive relationship was able to ‘buffer’ psychological distress in a couple where one had a hearing impairment.

4.8. Clinical Implications of Results

4.8.1. Assessment Issues

Higher levels of psychological distress in patients and partners were associated with increased tinnitus severity. Further research should look to establish whether these results are replicable. If a strong association between tinnitus severity, measured by the THI, and a measure of psychological distress was identified, it may be concluded that completion of the THI alone would suffice in identifying which patients (and partners) would be most likely to report high psychological distress levels. It would seem that, high severity represents a ‘risk factor’ for the development of psychological distress and this could be used to signal the need for a more in-depth psychological assessment. Currently the THI is recommended for use in research and is thought of as useful in clinical usage (McCombe et al., 2001). McCombe et al. suggested that additional examination of the THI is needed to consider whether it met with similar results from clinical assessment.
4.8.2. Involvement of Partners

Andersson et al. (2001) asked patients whether their relatives knew they had tinnitus, 99% reported that they did. They then asked whether relatives could do anything to help with the tinnitus, 35% said they could. As few studies have considered relatives’ views, the issue of involving them in tinnitus ‘treatment’ has rarely been discussed. In the current study, partners reported psychiatric symptomatology at similar rates to audiological outpatients in the Singerman et al. (1980) study, whilst tinnitus patients in the current study reported less symptomatology. This illustrates that although there were no significant differences between patient and partner distress levels, partners did report psychiatric symptomatology. This highlights the need for greater consideration of the psychological needs of the partners of tinnitus patients, who may warrant independent psychological intervention, which may have previously been overlooked.

In the current study, four partners reported that they felt upset the patient had tinnitus and that they could not ease it. This is similar to the response of a partner reported by the RNID (2000), who stated they were distressed watching the patient’s distress. Some partners reported that they had found appointments helpful. In response to the ‘Brief Questionnaire’ item, ‘which appointment had been helpful and why’, one partner commented “Tinnitus clinic...as they explained what tinnitus is and how to help my partner.” In this study, as tinnitus severity increased, so did partner distress. Involving partners of patients with severe tinnitus in appointments and the adoption of a systemic approach may prove helpful, to both the patient and their partner.

Just under half of partners had not attended an appointment, thus, it is difficult to access partners and provide them with information on tinnitus. Clinics may find a more
4.8.3. Written Information

As under half of partners had not attended tinnitus appointments, the development of an information leaflet, which patients could give to partners may be beneficial in explaining how the patient may react to tinnitus and what the partner could do to help. Information leaflets aimed at those who live with someone with tinnitus (Hewitson, 1994) or those living with someone with a hearing loss (RNID, 2002) would provide partners with information regarding the impact of the condition on the patient and themselves.

4.8.4. Potential Treatment Area

If the finding that patients with severe tinnitus used avoidant coping strategies more than those with mild tinnitus was replicated, then this would be a potential area of treatment. Previous research in physical health has noted that avoidant coping related to poorer illness adjustment (Felton et al., 1984). Modification of the coping strategies adopted by those with severe tinnitus may have positive outcomes in terms of reducing psychological distress, tinnitus annoyance and adjustment difficulties.

4.8.5. Involvement of Clinical Psychology in Tinnitus

McCombe (2003, p. 12) commented that there are three stages to tinnitus: emergence, detection and response, the final stage he acknowledged as: “... the crux of modern tinnitus management.” Tinnitus retraining therapy (TRT) based on Jastreboff’s (1999) Neurophysiological model of tinnitus is a successful treatment currently used. TRT encompasses directive counselling and sound therapy, that is, the use of low-level sound to help the brain filter out tinnitus. Directive counselling entails providing reasons for and
factors involved in tinnitus and focuses on reprogramming the auditory networks, which react to tinnitus (Hazell, 2002). TRT is lengthy and can take years, it therefore requires an adequate workforce. McCombe (2003, p. 16) commented on the shortage of audiological staff – for example, ENT Consultants and hearing therapists – and added: “Clinical psychologists, a very useful resource in tinnitus management, are also in short supply.”

Whilst few patients reported high distress levels, it is recognised that tinnitus can create psychological problems. In response to the open-ended questions, patients identified stress as a factor in triggering and raising their awareness of tinnitus. They also acknowledged the disruptive effects that tinnitus had on their sleep. Stress and sleep management are areas in which clinical psychologists can offer assistance. One clinic involved in the study, had direct access to a clinical psychologist within their service, whilst the others could refer to clinical psychology within their NHS Trust. The charity, ‘Action for Tinnitus Research’ is currently making a case to Parliament for: better NHS treatment of tinnitus, greater understanding and relief of the common psychological effects of tinnitus, increased provision of psychological therapy for tinnitus, increased funding for research and legislation to reduce environmental noise levels (Action for Tinnitus Research, 2003). Clinical psychologists could have an influential role working with patients with mood disorders associated with tinnitus and in treatments such as TRT, stress management and in addressing coping strategies.

Alongside direct work with the tinnitus patient, clinical psychologists could be involved in direct work with distressed partners of tinnitus patients. As previously noted, partners in the current study were more similar in their psychiatric symptomatology to audiological outpatients in the Singerman et al. (1980) study, than tinnitus patients themselves. A systemic approach focussing on enhancing how partners cope with and
manage their own psychological reaction to tinnitus may prove advantageous in reducing their distress.

In addition to direct work with patients and partners, clinical psychologists could take on a more indirect or Consultancy type role with tinnitus clinic staff. This work could involve staff training, support and supervision in areas such as assessing and managing patient suicide risk, determining readiness for change and patient acceptance and management of their condition and the teaching of cognitive behavioural skills applicable to improving both patient and partner coping strategies.

4.9. Conclusion

This is the first study of its kind to consider the impact of tinnitus on partners. It accessed information from partners who do not usually attend appointments; therefore, some interesting 'new' information was obtained. The majority of partners who had attended a clinic appointment found the explanations given about tinnitus had enhanced their understanding of the condition. This demonstrated to clinics that their explanations are useful to partners and it may be beneficial to present this in a written format for partners who are unable to attend appointments.

Tinnitus patients did not report higher distress levels than partners; this is in contrast to previous research on chronic pain patients. It was proposed that changes in service delivery, so that new patients are seen more quickly than in the past, may have decreased the likelihood of tinnitus becoming ingrained and distressing. A more detailed study could provide evidence to support or refute this proposition. Whilst no differences in patient and partner distress were found, all patients reported previous experience of an emotional
problem, yet partners did not. This suggests that further research is needed to clarify the link between the development of psychological distress and tinnitus.

A relationship between psychological distress and tinnitus severity in patients and partners was reported and this should be subjected to closer scrutiny. Such analysis should consider the clinical application of the THI in assessing tinnitus severity and in establishing the role of severity as a risk factor, indicating the need for a more detailed assessment of distress.

No conclusive results can be drawn regarding the influence of hearing impairment on psychological distress and relationship quality. A larger sample is required to investigate the impact of hearing impairment and to consider whether this is distinct from the impact of tinnitus. Partners reported many difficulties caused by tinnitus, which are similar to difficulties caused by hearing loss, for example, communication problems.

Partners reported how ‘symptoms’ of tinnitus, for example, the patient’s mood and their reluctance to socialise affected their relationship. Yet, few relationship problems were reported by patients or partners. This may be due to a mediating factor such as the availability of social support preventing relationship problems occurring, or may be due to the measure of relationship quality being insensitive to problems caused by tinnitus.

Differences in the style of coping adopted by patients with severe and mild tinnitus were found; patients with severe tinnitus used avoidant coping more. Differences in the definitions of avoidant coping have been implicated in the differing effects that this has on tinnitus severity and further research is required in this area.
The combination of standardised measures and specifically designed open-ended questions to collect information on patient and partner views of the impact of tinnitus, enabled a more rounded data and information set to be accumulated. The inclusion of participant views added to and clarified the data obtained on the standardised measures.

This study has proposed a number of areas on which future research should expand and develop. It has highlighted an area of research that has not previously been studied, that is, the impact of tinnitus on partners. Although this study did not provide conclusive evidence of the detrimental impact of tinnitus on partners, it has highlighted that partners of patients with severe tinnitus may be at risk of high levels of psychological distress, alongside the patient. Key targets for future research have been suggested, for instance controlling for the impact of hearing impairment in tinnitus research, considering the influence of coping styles on tinnitus severity and further consideration of the link between tinnitus severity and degree of psychological distress experienced. In addition, possible ways of working with patients and partners to reduce psychological distress have been proposed, including direct work with patients to manage sleep or mood problems and more systemic work with partners to alleviate distress and to enhance their coping strategies.
Appendix A:

Copy of Ethical Approval from North Derbyshire Ethics Committee
Miss S. L. Toft,
The Flat,
19 High Street,
Edwinstowe,
Mansfield,
Nottinghamshire,
NG21 9QP

Dear Miss Toft,

**Tinnitus and Partners**

Thank you for your letter dated 11th March and attachments in response to the issues raised by the North Derbyshire Local Research Ethics Committee at its February meeting. Your response was tabled and discussed by Members at its meeting on 18th March when the Committee agreed ethical approval be given you to undertake the study at the Chesterfield Tinnitus Clinic (Saltergate Health Centre).

The Committee is organised and operates according to ICH/GCP and the applicable laws and regulations.

The Members of the North Derbyshire LREC are:

- Mrs. A. Ashworth, Nurse *present at the meeting*
- Dr. J. Bethell, General Practitioner *not present at the meeting*
- Miss S. Bossom, Lay Member *not present at the meeting*
- Dr. R. C. Collin, Consultant Haematologist *present at the meeting*
- Dr. D. Clark, General Practitioner *present at the meeting*
- Mr. J. Harris, Pharmacist *present at the meeting*
- Dr. P. M. Preece, Consultant Paediatrician *not present at the meeting*
- Mrs. M. Thompson, Lay Member *present at the meeting*

Please can you let me know for our records when this study commences and finishes in North Derbyshire; forward a yearly report and one on completion.

Yours sincerely,

Jonathan Harris
Chairman, North Derbyshire LREC

Copies: Dr. A. Blair, Clinical Psychology Department, Walton Hospital
Mrs. C. de Normanville, Clinical Audit and Research Manager, Community Health Care Service NHS Trust
Appendix B:

Copy of Ethical Approval from Doncaster Ethics Committee
12 March, 2002

NT/CRC/02/05STb

Miss S Toft
The Flat
19 High Street
Edwinstowe
Mansfield
Nottinghamshire
NG21 9QP

Dear Miss Toft

Re: Tinnitus & Partners
Study No: 02/05

Thank you for submitting the amendments to the above research project these were reviewed at our meeting on the 12th March 2002. I can now confirmed unreserved Ethics Committee approval subject to the following terms and conditions:

1. That you familiarise yourself with the ICH Guidelines laid down for the conduct of human experiments.
2. It is understood that approval of the investigation does not absolve you from total responsibility for the safety and well being of the subjects.
3. That should any untoward event occur during the conduct of the study the Chairman of the Committee or failing this, the Administrator is informed immediately.
4. Reports of progress shall be submitted at yearly intervals.
5. Indemnity or insurance must have been agreed with either the Pharmaceutical Company, University or employing authority. For studies involving DRI patients or premises, the Director of Research & Development, Doncaster Royal Infirmary, should be sent a copy of the protocol with a letter outlining the "risk assessment".
6. No deviations from or changes of the protocol will be initiated without prior written approval of an appropriate amendment, except when necessary to eliminate immediate hazards to the subjects or when the change(s) involve only logistical or administrative aspects of the trial.
7. That you should promptly report any changes in increasing the risk to subjects; adverse drug reactions or new information that may affect adversely the safety of the subjects or conduct of the trial.

Cont/d
I can confirm that this Ethics Committee is organised and operates according to GCP and the applicable laws and regulations.

Yours sincerely,

Nigel Thomas
Dr N M Thomas
Chairman
Doncaster Local Research Ethics Committee
Appendix C:

Copy of Ethical Approval from Sheffield Ethics Committee
Dear Dr. Tungland

Research Protocol: SSREC/02/124 - Tinnitus and Partners

The Chair of South Sheffield Research Ethics Committee has considered the amendments submitted in response to the Committee’s earlier review of your application on 13/06/02 as set out in our letter dated 14/06/02. The documents considered were as follows:

Registration Forms dated 10/04/02
Protocol, version 1, received 13/05/02
Patient Information Sheet, version 1, received 13/05/02
Client Consent Form, version 1, received 13/05/02
Partner Consent Form, version 1, received 13/05/02
Brief Client Questionnaire, version 1, received 13/05/02
Brief Partner Questionnaire, version 1, received 13/05/02
Golombok Rust Inventory of Marital Status
General Health Questionnaire, version 1, received 13/05/02
Coping Inventory for Stressful Situations
Reminder Poster, version 1, received 13/05/02
Follow Up Letter, version 1, received 13/05/02
Letter to non-attending Partner, version 1, received 13/05/02

Modified Documents
Patient Information Sheet, version 2, received 22/07/02
Client Consent Form, version 2, received 22/07/02
Partner Consent Form, version 2, received 22/07/02

The Chair, acting under delegated authority, is satisfied that these accord with the decision of the Committee and has agreed that there is no objection on ethical grounds to the proposed study. I am, therefore, happy to give you the favourable opinion of the committee on the understanding that you will follow the conditions set out below:

Conditions

- You do not recruit any research subjects within a research site unless favourable opinion has been obtained from the relevant REC.
- You do not undertake this research in an NHS organisation until the relevant NHS management approval has been gained as set out in the Framework for Research Governance in Health and Social Care.
- You do not deviate from, or make changes to, the protocol without prior written approval of the REC, except where this is necessary to eliminate immediate hazards to research participants or when the change involves only logistical or administrative aspects of the research. In such cases the REC should be informed within seven days of the implementation of the change.
- You complete and return the standard progress report form to the REC one-year from the date of this letter and thereafter on an annual basis. This form should also be used to notify the REC when your research is completed and in this case should be sent to this REC within three months of completion.

Delegated favorable opinion
• If you decided to terminate this research prematurely you send a report to this REC within 15 days, indicating the reason for the early termination.

• You advise the REC of any unusual or unexpected results that raise questions about the safety of the research.

A full record of the review undertaken by the REC is contained in the attached REC Response Form. The project must be started within three years of the date on which REC approval is given.

Yours sincerely

Professor C. J. Taylor
Chair
South Sheffield Research Ethics Committee

cc Ms. S. Toft
The Flat
19 High Street
Edwinstowe
Mansfield
Nottinghamshire
NG21 9QP

Enclosures  REC Response Form
List of Members Present
Appendix D:

Introductory Paragraph for ‘C’Clinic Appointment Letters

“A research study is currently being conducted at the clinic. This study, looking at the impact of and experiences of tinnitus on the partners of those with tinnitus, is co-ordinated by a Trainee Clinical Psychologist from Leicester University. The study will involve both the patient and their partner completing a questionnaire pack. If you live with a partner and you would both be interested in participating, then your partner is encouraged to attend your appointment with you to obtain further details. Participation in the research is voluntary and will not affect the care that you receive at the clinic in any way.”
Appendix E:

Patient Information Leaflet

'Tinnitus & Partners'

Invitation You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what is involved. Please take time to read this information carefully and discuss it with friends, relatives and your GP if you wish. Ask at the clinic if there is anything that is not clear, or if you would like more information. Take time to decide whether or not you wish to take part. Consumers for Ethics in Research (CERES) publish a leaflet entitled “Medical Research and You.” This gives more information about research and looks at some questions you may want to ask, a copy may be obtained from CERES, PO Box 1365, London N16 0BW. Thank you for reading this.

What is the purpose of the study? The study aims to consider how the partners of those with tinnitus experience it. Much has been written about the psychological effects of tinnitus on the patient, e.g., anxiety, concentration difficulties, sleep problems, etc. There is however little research that considers whether tinnitus has an impact on partners and no study has looked at how partners experience tinnitus.

Why have I been chosen? All new patients and their partners attending the clinic from Summer 2002 for a six-month period will be invited to participate.

Do I have to take part? No, it is up to you to decide whether or not to take part. If you decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part, you are free to withdraw at any time and without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not affect the standard of care you receive.

What do I have to do? If you choose to take part in the study, you will be given two questionnaire booklets, one for you, and one for your partner. The questionnaires will take approximately 30-45 minutes to complete. You will be provided with 2 pre-paid addressed envelopes in which to return the questionnaires directly to the researcher.

Will my taking part in the study affect my care? No, your care at the clinic will not be affected by your participation in the study. Any decisions about your care rest entirely with you and the clinic and is not influenced by this study in any way.

What are the possible benefits of taking part? It is hoped that the information gained may improve our understanding of tinnitus and the wider effects it may have on others. The information obtained from this study may help us to provide better care and treatment to people with tinnitus and their partners.

What if participation distresses or upsets me? Completion of the questionnaires is not anticipated to cause distress. If however, your involvement in the study causes you or your partner upset, then please make an appointment to discuss this with your GP, or discuss this at your next appointment with staff at the clinic.

What if something goes wrong, or I wish to complain about the way in which this study has been conducted? If you wish to complain about any aspect of the way you
have been approached or treated during the course of this study, the normal National Health Service complaints mechanisms may be available to you.

**Will my taking part in this study be kept confidential?** All information collected about you during the course of the study will be kept strictly confidential. Each questionnaire has an identification (ID) number, which will only be used to ensure that all questionnaires completed by an individual can be identified and matched with their partners.

Your name is not required on the questionnaires. Other than your signature on the consent form, I will not have any access to information that could identify you. As the research is confidential, your GP will not be informed of your participation in the study.

**What will happen to the results of the study?** The results will be collated into a Doctoral thesis by the end of June 2003. After this, the clinic will receive an information sheet summarising the results, which will be available to you upon request. The results of the study are also likely to be published in a Psychological or Audiological journal. At no point in any report or publication will your identity be revealed.

**Who is organising and funding the research?** My name is Sarah Toft and I am studying for a Doctorate in Clinical Psychology at the University of Leicester. The research is supported by the University and will form the basis of a Doctoral thesis.

**Contact for Further Information / Help with Questionnaire Completion**

If you have any queries about the study at a later date, or if you require any help in completing the questionnaires, please feel free to call me on the following number and leave your contact number and a convenient time for me to call you back.

Sarah Toft: Tel: 0116 - 2522162.
Contact Address: School of Psychology - Clinical Section, Ken Edwards Building, University of Leicester, University Road, Leicester, LE1 7RH

Alternatively, you can contact staff at the Hearing Rehabilitation Clinic for further information on: 01302 - 553115

*If you decide to participate in the study, please keep this Patient Information Leaflet and a copy of the signed consent form.*

**THANK YOU FOR YOUR TIME AND CO-OPERATION WITH THIS STUDY**

Sarah Toft (Trainee Clinical Psychologist)

21/02/02
Version 1
Appendix F:

Consent Form – Patient with Tinnitus Version

Centre Number:
Study Number:
Patient Identification Number for this trial:

CONSENT FORM – Patient with Tinnitus Version

Title of Project:
‘Tinnitus and Partners’

Name of Researcher:
Sarah Toft, Trainee Clinical Psychologist, University Of Leicester

Please initial box

1 I confirm that I have read and understand the information sheet dated 21/02/02 (version 1) for the above study and have had the opportunity to ask questions.

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 agree to take part in the above study

_________________________  __________________________  __________________________
Name of Patient               Date                  Signature

_________________________  __________________________  __________________________
Name of Person taking consent Date                  Signature
(if different from researcher)

1 for patient; 1 for researcher; 1 to be kept with clinic notes
Appendix G:

Consent Form: Partner Version

PARTNER CONSENT FORM

Centre Number:
Study Number:

CONSENT FORM – Partner Version

Title of Project:
‘Tinnitus and Partners’

Name of Researcher:
Sarah Toft, Trainee Clinical Psychologist, University Of Leicester

Please initial box

1  I confirm that I have read and understand the information sheet dated 21/02/02 (version 1) for the above study and have had the opportunity to ask questions.

2  I understand that my participation is voluntary and that I am free to withdraw at anytime, without giving any reason, without my legal rights being affected.

3  I agree to take part in the above study

_________  _________  _________
Name of Partner  Date  Signature

1 for partner; 1 for researcher
Appendix H:

Covering Letter for non-attending partners

Date as postmark

Dear Sir / Madam:

Re: “Tinnitus & Partners” Research Study

At your partner’s recent tinnitus clinic appointment, they were informed of the above research study being carried out at the clinic and agreed for me to contact you in relation to this.

The research study aims to consider how the partners of those with tinnitus experience it. Much has been written about the effects of tinnitus on the patient, eg, anxiety, concentration difficulties, sleep problems, etc. There is however little research that considers whether tinnitus has an impact on partners and no study has looked at how partners experience tinnitus.

All new patients and their partners attending the clinic from Summer 2002 for a six-month period will be invited to participate. Participation in the research will involve completing the questionnaire booklet enclosed, which will take approximately 30 - 45 minutes. A pre-paid addressed envelope has been provided for the return of completed questionnaires.

A patient information leaflet has also been enclosed which addresses many of the questions you may have regarding the research. If after reading this leaflet you have any further questions, there is a contact telephone number for the researcher on the leaflet. If you decide to participate in the research, please complete and return a copy of the consent form included with this pack.

Thank you for your time in reading this information.

Yours sincerely

Sarah Toft, Trainee Clinical Psychologist, University of Leicester
Appendix I:

Follow-up Reminder Letter

Date as postmark

Dear Sir / Madam:

Re: “Tinnitus & Partners” Research Study – Reminder

At your recent tinnitus clinic appointment, you may recall being informed of the above research study. If you volunteered to participate in the study and received questionnaire packs for you and your partner to complete, then if you have not already done so, I would very much appreciate it, if you would return them as soon as possible in the pre-paid addressed envelope provided.

If you have already returned the questionnaires, many thanks for you and your partner’s participation in the study. A summary of the research findings will be forwarded to the clinic by Autumn 2003.

Yours sincerely

Sarah Toft, Trainee Clinical Psychologist, University of Leicester
Appendix J: Poster

Tinnitus & Partners

A research study is currently being carried out at the clinic looking at partners experiences of tinnitus.

The research is being conducted by Sarah Toft, Trainee Clinical Psychologist, University of Leicester.

Participation in the research is anonymous and will involve completing a questionnaire pack.

Participation will not affect your care at the clinic in any way.

Further details of the research are available from clinic staff.

Reminder: Please return completed questionnaires in the pre-paid envelopes directly to the researcher as soon as possible.

Results of the research will be forwarded to the clinic at the end of the study.

Thank you for your co-operation
Appendix K:

Brief Questionnaire – Patient with Tinnitus Version

For each question below, please tick the relevant box or provide as much detail as possible

PERSONAL DETAILS

1. What is your sex? Male □  Female □

2. How old are you? ________

3. What is your current occupational status? Employed full time □  Employed part time □  Retired □  Unemployed □  Student □  Other, please specify ____________________

4. a) Many people experience emotional difficulties (e.g., anxiety, depression, etc.) at some time in their lives, have you ever experienced any emotional difficulties?
   Yes □  No □  If no, please go to question 5

   b) If yes, how would you rate the severity of this difficulty, i.e., how much of an impact did it have on your life?
   No impact □  Some impact □  Moderate impact □  Large impact □

   c) Have you ever received help from a professional for this difficulty?
   Yes □  No □

5. a) Do you have any other medical conditions or physical health problems?
   Yes □  No □

   b) If yes, please specify

6. Are there any stressful events causing you difficulties at the moment? (e.g., bereavement, ill health, unemployment, etc)
   Yes □  No □

EXPERIENCE OF TINNITUS

7. How long ago did your tinnitus begin? __________

8. a) Were you experiencing any stressful events around the time that your tinnitus first began? (e.g., change of job, divorce, bereavement, etc.)
   Yes □  No □

   b) If yes, what was this?

9. Was the onset of your tinnitus? Sudden □  Gradual □

10. When did your tinnitus first become a problem? __________

11. In which location do you hear your tinnitus?
    Right ear □  Left ear □  Both ears □  Within head □

12. Do your tinnitus noises usually last for longer than 5 minutes at a time?
    Yes □  No □

13. How does the tinnitus sound? (please tick all those that apply)
    Intermittent □  Constant □
    High pitch □  Medium pitch □  Low pitch □

14. a) When are you aware of the tinnitus noises?
b) If there are times when you are more aware of your tinnitus, when are these?

15. a) Does the volume of your tinnitus change? Yes □  No □
b) if yes, is this related to a specific cause or trigger, eg, when you are under stress, etc? Yes □  No □
c) what seems to trigger your tinnitus?

16. a) Have you previously received any help or treatment for your tinnitus? Yes □  No □
b) If yes, what was this?

17. a) Approximately how many appointments have you attended about your tinnitus? _____
b) Which of these was most helpful to you and why? ________________________________
c) Which of these was unhelpful to you and why? ________________________________

HEARING DIFFICULTIES
18. a) Do you have any difficulties with your hearing? Yes □  No □
b) Are there any specific situations in which you have difficulty with your hearing?
c) Are these difficulties with hearing related to your tinnitus? Yes □  No □

19. a) Do you have a hearing aid(s)? Yes □  No □
b) If yes, do you use it? Yes □  No □
c) How often do you use it? (eg, all the time, occasionally, specific times – please state what times)

20. Do you have any other ear problems or diagnoses? (eg, Meniere’s, ear disorders, find some noises are uncomfortable, etc) Yes □  No □
If yes, please specify:___________________________________________________________

ADDITIONAL COMMENTS
21. Please use this space to describe other ways your tinnitus affects you, your relationship, or family life?

_________________________________________________________
Appendix L:

Brief Questionnaire – Partner Version

For each question below, please tick the relevant box or provide as much detail as possible.

PERSONAL DETAILS

1. What is your sex? Male □ Female □
2. What is your relationship to the person with tinnitus? ________________
3. How old are you? ____________
4. What is your current occupational status? Employed full time □ Employed part time □ Retired □ Unemployed □ Student □ Other, please specify ______________________________
5. a) Many people experience emotional difficulties (e.g., anxiety, depression, etc) at some time in their lives, have you ever experienced any emotional difficulties? Yes □ No □ If no, please go to question 6.
   b) If yes, how would you rate the severity of this difficulty, i.e., how much of an impact did it have on your life?
      No impact □ Some impact □ Moderate impact □ Large impact □
   c) Have you ever received help from a professional for this difficulty? Yes □ No □
6. a) Do you have any medical conditions or physical health problems? Yes □ No □
   b) If yes, please specify ______________________________________________________
7. Are there any stressful events causing you difficulties at the moment? (e.g., bereavement, caring for someone, ill health, unemployment, etc) Yes □ No □

EXPERIENCE OF TINNITUS

8. a) Have you ever attended a hospital, GP, or clinic appointment with your partner, in relation to their tinnitus? Yes □ No □ if no, please go to question 9.
   b) If yes, where was the appointment? (please tick all those that apply)
      GP □ Tinnitus clinic □ ENT Dept □
      Other, please specify: ______________________________________________________
   c) Approximately how many appointments have you attended? __________
   d) Which of these was most helpful to you and why? ______________________________________________________
      ______________________________________________________
      ______________________________________________________
   e) Which of these was most unhelpful to you and why? ______________________________________________________
      ______________________________________________________
9. a) Do you receive any support (emotional, practical, etc) from any source to help with your partner’s tinnitus? Yes □ No □
b) If yes, who provides this?

10. a) Does your partner have any difficulty with their hearing?
   Yes □  No □  if no, please go to question 11.
   b) If yes, are there any specific situations in which they have difficulty with their hearing?

   c) Are these hearing difficulties related to their tinnitus?
   Yes □  No □

11. Does your partner's tinnitus have an impact on your relationship with him/her?
   Yes □  No □
   If yes, how? ______________________________________________

   12. Does your partner's tinnitus affect communication between you?  Yes □  No □
   If yes, how? ______________________________________________

   13. Does your partner's tinnitus affect your social life?  Yes □  No □
   If yes, how? ______________________________________________

   14. Does your partner's tinnitus affect your physical health or well-being? Yes □  No □
   If yes, how? ______________________________________________

   15. Does your partner's tinnitus affect your emotional or mental health in anyway? Yes □ No □
   If yes, how? ______________________________________________

   16. Please use the space below to describe other ways in which your partner's tinnitus affects you, your relationship, or family life?

   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
Appendix M:
The Golombok Rust Inventory of Marital State (GRIMS) Questionnaire

Before beginning the questionnaire, please complete this section in block capitals

NAME: ...................................................................................................................................................... SEX:

DATE: ..................... AGE (Years): ............... LENGTH OF RELATIONSHIP: ...... Years .... Months

NAME OF PARTNER: ..................................................................................................................................................................

Instructions

Each statement is followed by a series of possible responses: strongly disagree (SD), disagree (D), agree (A), strongly agree (SA). Read each statement carefully and decide which response best describes how you feel about your relationship with your partner; then circle the corresponding response.

Please respond to every statement; if none of the responses seem completely accurate, circle the one which you feel is most appropriate. Do not spend too long on each question.

Please answer this questionnaire without discussing any of the statements with your partner. In order for us to obtain valid information it is important for you to be as honest and as accurate as possible.

All information will be treated in the strictest confidence.

1. My partner is usually sensitive to and aware of my needs .......... SD D A SA
2. I really appreciate my partner’s sense of humour......................... SD D A SA
3. My partner doesn’t seem to listen to me any more ...................... SD D A SA
4. My partner has never been disloyal to me ................................. SD D A SA
5. I would be willing to give up my friends if it meant saving our relationship ....................................................... SD D A SA
6. I am dissatisfied with our relationship ................................... SD D A SA
7. I wish my partner was not so lazy and didn’t keep putting things off SD D A SA
8. I sometimes feel lonely even when I am with my partner .......... SD D A SA
9. If my partner left me life would not be worth living ................ SD D A SA
10. We can ‘agree to disagree’ with each other .............................. SD D A SA
11. It is useless carrying on with a marriage beyond a certain point SD D A SA
12. We both seem to like the same things .................................... SD D A SA
13. I find it difficult to show my partner that I am feeling affectionate SD D A SA
14. I never have second thoughts about our relationship ............ SD D A SA
15. I enjoy just sitting and talking with my partner ....................... SD D A SA
16. I find the idea of spending the rest of my life with my partner rather boring ........................................ SD D A SA
17. There is always plenty of ‘give and take’ in our relationship ...... SD D A SA
18. We become competitive when we have to make decisions ...... SD D A SA
19. I no longer feel I can really trust my partner ......................... SD D A SA
20. Our relationship is still full of joy and excitement .................. SD D A SA
21. One of us is continually talking and the other is usually silent SD D A SA
22. Our relationship is continually evolving ................................. SD D A SA
23. Marriage is really more about security and money than about love SD D A SA
24. I wish there was more warmth and affection between us .......... SD D A SA
25. I am totally committed to my relationship with my partner .... SD D A SA
26. Our relationship is sometimes strained because my partner is always correcting me .................................. SD D A SA
27. I suspect we may be on the brink of separation ..................... SD D A SA
28. We can always make up quickly after an argument ............... SD D A SA

The Golombok Rust Inventory of Marital State (GRIMS) is © Rust, Bennun, Crowe and Golombok (1988). Published by NFER-NELSON. Reproduced with the kind permission of the authors. This measure is part of Assessment: A Mental Health Portfolio, edited by Derek Milne. Once the invoice has been paid, it may be photocopied for use within the purchasing institution only. Published by The NFER-NELSON Publishing Company Ltd, Darville House, 2 Oxford Road East, Windsor, Berkshire SL4 1DF, UK. Code 4919.56.
# Appendix N:

## Coping Inventory for Stressful Situations

The following are ways of reacting to various difficult, stressful or upsetting situations. Please circle the number from 1 to 5 for each item, indicating how much you engage in these types of activities when you encounter a difficult, stressful or upsetting situation.

<table>
<thead>
<tr>
<th>Item</th>
<th>Not at all</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schedule my time better</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Focus on the problem and see how I can solve it</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Think about the good times I've had</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Try to be with other people</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Blame myself for procrastinating</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Do what I think is best</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Preoccupied with aches and pains</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Blame myself for having gotten into this situation</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Window shop</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Outline my priorities</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Try to go to sleep</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Treat myself to a favourite food or snack</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Feel anxious about not being able to cope</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Become very tense</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Think about how I have solved similar problems</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Tell myself that it is not really happening to me</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Blame myself for being too emotional about the situation</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Go out for a snack or meal</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Become very upset</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Buy myself something</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Determine a course of action and follow it</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Blame myself for not knowing what to do</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Go to a party</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Work to understand the situation</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>'Freeze' and don't know what to do</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>Take corrective action immediately</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td></td>
<td>27. Think about the event and learn from my mistakes</td>
<td>1</td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------------------------</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>28. Wish that I could change what had happened or how I felt</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>29. Visit a friend</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>30. Worry about what I am going to do</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>31. Spend time with a special person</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>32. Go for a walk</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>33. Tell myself that it will never happen again</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>34. Focus on my general inadequacies</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>35. Talk to someone whose advice I value</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>36. Analyse the problem before reacting</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>37. Phone a friend</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>38. Get angry</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>39. Adjust my priorities</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>40. See a movie</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>41. Get control of the situation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>42. Make an effort to get things done</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>43. Come up with several different solutions to the problem</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>44. Take time off and get away from the situation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>45. Take it out on other people</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>46. Use the situation to prove that I can do it</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>47. Try to be organised so that I can be on top of the situation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>48. Watch TV</td>
<td>1</td>
</tr>
</tbody>
</table>
Appendix O:

Tinnitus Handicap Inventory (THI)

This questionnaire aims to identify any difficulties that you may be experiencing because of your tinnitus. Please circle YES, SOMETIMES or NO, to each question.

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>Sometimes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Because of your tinnitus, is it difficult for you to concentrate?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the loudness of your tinnitus make it difficult for you to hear people?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Does your tinnitus make you angry?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Does your tinnitus make you feel confused?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Because of your tinnitus, do you feel desperate?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Do you complain a great deal about your tinnitus?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Because of your tinnitus, do you have trouble falling to sleep at night?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Do you feel as though you can not escape your tinnitus?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Does your tinnitus interfere with your ability to enjoy your social activities (eg, going out to dinner, to the movies, etc)</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Because of your tinnitus, do you feel frustrated?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Because of your tinnitus, do you feel that you have a terrible disease?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Does your tinnitus make it difficult for you to enjoy life?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Does your tinnitus interfere with your job or household responsibilities?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Because of your tinnitus, do you find that you are often irritable?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Because of your tinnitus, is it difficult for you to read?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Does your tinnitus make you upset?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Do you feel that your tinnitus problem has placed stress on your relationships with members of your family and friends?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Do you find it difficult to focus your attention away from your tinnitus and on other things?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Do you feel that you have no control over your tinnitus?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Because of your tinnitus, do you often feel tired?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Because of your tinnitus, do you often feel depressed?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Does your tinnitus make you feel anxious?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Do you feel that you can no longer cope with your tinnitus?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Does your tinnitus get worse when you are under stress?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
<tr>
<td>Does your tinnitus make you feel insecure?</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
</tr>
</tbody>
</table>
References


Rust, J., Bennun, I., Crowe, M., & Golombok, S. (1986). The golombok rust inventory of marital state (GRIMS). *Sexual and Marital Therapy, 1*, 1, 55 – 60.


