DYSPAREUNIA AS A CHRONIC PAIN SYNDROME:

A COMPARATIVE STUDY

Thesis submitted for the degree of Doctor of Clinical Psychology

By

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ABSTRACT

The diagnosis of Dyspareunia relies on a woman's self-report of pain associated with sexual intercourse, and is reported to be a common and distressing condition. Considered within psychiatric classifications as primarily a sexual dysfunction, there has been little research on dyspareunia as a pain syndrome. In this study 11 women with dyspareunia were compared with 13 women with more generalised chronic pelvic pain, and a comparison group of 11 women with other recognised chronic pain syndromes. The groups were compared on various psychosocial measures including sexual functioning, relationship adjustment, anxiety, depression, beliefs about pain and pain intensity. It was hypothesised that women with dyspareunia would share many psychosocial characteristics with women experiencing other chronic pain syndromes. The data were analysed using nonparametric analysis of variance and correlational statistics.

The study found many similarities between women with dyspareunia, chronic pelvic pain and other chronic pain syndromes on the measures of psychosocial functioning. In addition, significant relationships were found between the frequent experience of catastrophising self-statements and anxiety, with self-reports of pain ratings. The results suggest that impairments in sexual and relationship functioning may not be specific to women with dyspareunia. The findings provide support for the view, expressed recently in the literature, that dyspareunia may be more usefully considered as a chronic pain syndrome resulting in sexual difficulties. The findings highlight the role of cognitive factors that may promote or hinder attempts to cope with pain, and have important implications for possible psychological interventions. An integrative model of investigation and management is proposed, drawing on current biopsychosocial pain theories for women with dyspareunia and chronic pelvic pain.
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1.0 INTRODUCTION

1.1 OVERVIEW

In this research study two groups of women with chronic pelvic pain were compared with a third group of women experiencing other chronic pain syndromes on various measures of psychosocial adjustment. In particular, the self-reported experiences of a group of women with dyspareunia, defined as pain associated with sexual intercourse, were compared with women who suffer from more generalised chronic pelvic pain and women with chronic pain in another area of their body.

Despite its prevalence the experience of chronic pelvic pain is still an under-researched area. Contemporary models of pain perception have only recently been adopted in an attempt to understand and treat this distressing condition. Likewise, there has been very little research on dyspareunia as a pain syndrome. Until recently the syndrome has been considered primarily as a sexual dysfunction despite the diagnosis of dyspareunia being based on a woman's self-report of pain.

The following literature review describes research on the role of psychological factors in chronic pelvic pain and dyspareunia, highlighting the historical dichotomy between pain with observable physical pathology and that with a lack of organic findings. The search for the role of psychological factors in the aetiology of chronic pelvic pain and dyspareunia is outlined. The call by investigators for the adoption of multidimensional models of pain that consider the mediating and maintaining roles of biopsychosocial factors is also described. Links with the wider chronic pain literature are made following a brief review of the historical and developmental conceptualisations of pain perception. Finally, research drawn from studies of diverse chronic pain conditions, is compared with recent studies considering pelvic pain and dyspareunia as chronic pain syndromes. Gaps in the literature are highlighted. Measures used to answer the research questions posed are reviewed in the Method section.
1.2 GENERALISED CHRONIC PELVIC PAIN

1.2.1 Definition

Chronic pelvic pain (referred to throughout as CPP) is a common and distressing condition that may affect millions of women worldwide (Zondervan, Yudkin, Vessey, Dawes, Barlow et al., 1999). Though definitions vary, it is usually defined as non-malignant pain in the lower abdominal region of at least six months duration. It is distinguished from cyclical pelvic pain (dysmenorrhoea) and pain associated with sexual intercourse (dyspareunia) (Zondervan et al., 1999). Women who suffer are typically in their reproductive years (Milburn, Reiter and Rhomberg, 1993).

1.2.2 Prevalence

Prevalence and incidence rates, until recently, have been unclear. The syndrome has been estimated to comprise between 2-10% of outpatient gynaecological consultations and 10-35% of investigative laparoscopies performed (Reiter, 1990). Milburn et al. (1993) report that CPP is listed as the indication for 12-16% of hysterectomies in the US, accounting for approximately 80,000 procedures annually.

A recent UK study reported annual prevalence rates of CPP to occur in 38.3/1000 women attending their GP (Zondervan et al., 1999). The study concluded that CPP is a common condition in primary care with prevalence rates comparable to migraine, back pain and asthma and suggested that the incidence of CPP within the general population is likely to be much higher.

CPP is a debilitating condition that can result in reduced quality of life, emotional distress, relationship problems and loss of time at work (Zondervan et al., 1999). However, despite its high prevalence, CPP is still a poorly understood condition and often inadequately managed (Savidge and Slade, 1997).
1.2.3 Aetiology

The cause of CPP has defied any simple taxonomy (Milburn et al., 1993). Aetiology appears to be multifactorial and related to gynaecological and non-gynaecological factors. Among the gynaecological disorders considered to be associated with pelvic pain are endometriosis, adhesions, cysts, pelvic inflammatory disease and pelvic venous congestion. Gastrointestinal disorders, urological syndromes and musculoskeletal diseases have also been cited.

Rates of abnormal findings in women with CPP following diagnostic laparoscopy vary widely. Savidge and Slade (1997) cite reports of organic pathology ranging from 8-88% with endometriosis and pelvic adhesive disease being the most common findings. The degree or severity of organic pathology often does not seem to account for the extent of the individual's experience of pain. For example, Steege and Stout (1991) found no correlation between the extent or intensity of pelvic pain reported subjectively and the severity of adhesions diagnosed at laparoscopy.

Controlled trials have documented that the prevalence of gynaecological disorders is similar in women with CPP and in pain-free controls, such as women undergoing sterilization or fertility investigations. Walker, Katon, Harrop-Griffiths, Holm, Russo et al. (1988) found the same percentage of patients with CPP and a comparison group of patients with no pain, to have organic findings with no differences in the type or degree of pathology. The findings suggest that the presence of organic pathology may have little relevance to reported pain.

Studies evaluating outcome of surgery, such as hysterectomy, for the treatment of CPP are few. The data available suggests that surgery may often not be successful in leading to a reduction in pain in a significant number of cases. Slocumb (1990) notes that women who have undergone hysterectomy for unrelated symptoms can develop pelvic pain postoperatively. Many women who have had a hysterectomy for pain experience a recurrence of pain after surgery. Estimates of therapeutic failure of surgical treatment for pelvic pain without observable organic pathology range from 20-50% (Hillis, Marchbanks and Peterson, 1995; Gambone and Reiter, 1990).
In many women who complain of pelvic pain, no organic cause can be identified on examination. Studies have shown that more than 53% of women with CPP have no diagnostic organic pathology at laparoscopy (Reiter and Gambone, 1991). Women who report pelvic pain in the absence of identifiable pathology have typically posed a problem to the medical profession who have not found it easy to evaluate or help them.

Failure to identify specific organic factors related to CPP has led to a search for psychosocial factors that may contribute to the aetiology of this complaint. The majority of research in the area has been conducted from a medical perspective and has therefore tended to focus on the search for psychiatric abnormalities in women with CPP (Savidge and Slade, 1997).

The search for non-gynaecological aetiological factors has encompassed a large number of variables. Outcomes from many of the early studies have been difficult to compare and therefore to interpret. Studies have typically used one of two types of research design: 1) the comparison of women with CPP with and without obvious pathology; or 2) a generic group of women with CPP compared with no-pain controls, norms from standardised measures or other pain groups. Possible contributors have included psychopathology, somatisation, abuse history and sexual and relationship factors. These are reviewed briefly below.

1.2.3.1 Overall psychopathology

Various studies have reported that women with CPP without obvious pathology report higher rates of neuroticism, depression and anxiety, sexual problems and somatisation (e.g. Bak, Verhage, Drogendijk, Voitus van Hamme and Duivenvoorden, 1989; Reiter, Shakerin, Gambone and Milburn, 1991). However, others have failed to find any significant differences between groups on global measures of personality or mood (e.g. Pearce, 1987). Hodgkiss and Watson (1993) similarly, found no differences between CPP groups on measures of anxiety, depression and illness behaviour.

In a meta-analytic review of the literature, McGowen, Clark-Carter and Pitts (1998) report that overall, no significant differences between women with and without observable pathology, on a range of psychological variables, have been found.
However, they report that when generic groups of women with CPP are compared with pain-free groups on measures of depression, anxiety and anger-hostility differences have been found to be significant and consistent with findings from other areas of pain research.

Walling, Reiter, O'Hara, Milburn, Lilly et al. (1994) included a chronic headache comparison group together with a pain-free group. They found no significant differences between the pain groups on reports of physical symptoms, depression and anxiety. McGowen et al. (1998) point to other studies from the chronic pain literature indicating that psychological morbidity is widely reported in association with chronic pain. It has been suggested that clinical levels of anxiety and depression, in particular, are likely to be a consequence of, rather than the cause of chronic pain in these groups. With improved methods of establishing organic pathology and measuring psychological morbidity, recent studies have added further support to the suggestion that the psychopathology reported in women with CPP may be a consequence of the experience of living with chronic pain (Savidge and Slade, 1997).

In general, the search for psychological factors that cause or explain pain otherwise undiagnosed has not been supported. Similarly, research has failed to identify a personality profile of the 'typical chronic pain patient'. These personality models, based on retrospective data collected some years into a chronic pain problem often relied on the extensive use of instruments such as the Minnesota Multiphasic Personality Inventory (MMPI). A relationship between hypochondriasis, depression and hysteria scores on the MMPI in chronic pain patients has often emerged. However, instruments such as the MMPI were never standardised on populations of pain sufferers, so that the generalisability and validity of outcomes generated must be viewed with caution (Williams and Erskine, 1995).

1.2.3.2 Somatisation

McGowen et al. (1998) report that studies have revealed differences in the levels of multiple symptom reporting between CPP groups without observable pathology and women with pelvic pain and accompanying organic disease. They interpret these
findings as indicating the possibility that the lack of obvious pathology may influence the attributions of women with CPP, causing them to feel that they need to re-emphasise their pain in order to be taken seriously.

In a recent study, Ehlert, Heim and Hellhammer (1999) report that approximately 73% of women with CPP without pathology and 60% of women with abdominal adhesions met DSM III-R diagnostic criteria for Somatoform Pain Disorder. In comparison with pain-free controls they report that both pain groups scored significantly higher on a checklist of somatisation symptoms. High rates of somatisation have also been found to be associated with self-reports of sexual or physical abuse in women with CPP (Badura, Reiter, Altmaier, Rhomberg and Elas, 1997). McGowen et al. (1998) point to the fact that increased levels of somatisation have been shown to be associated with chronic pain in other patient populations.

1.2.3.3 Abuse history

The literature is suggestive of a higher prevalence of certain life experiences, particularly childhood sexual and physical abuse, in women with CPP (Savidge and Slade, 1997). Walker, Katon, Hansom, Harrop-Griffiths, Holm et al. (1995) found that over half of the women in their study with CPP reported childhood sexual abuse. In contrast, a control group of women with no-pain reported levels of childhood sexual abuse comparable to norms for the general population. Other studies have reported the incidence of sexual abuse in women with CPP to be similar to that of the general population (e.g. Fry, Crisp, Beard and McGuigan, 1993). However, a recent well-controlled British study found that women with CPP reported a higher lifetime prevalence of sexual abuse in comparison to women with chronic non-pelvic pain and women who were pain-free (Collett, Cordle, Stewart and Jagger, 1998).

With respect to physical abuse, Rapkin, Kames, Darke, Stampler and Naliboff (1990) found a significantly greater number of women with CPP reported experience of childhood physical abuse than women with other types of chronic pain and a no-pain comparison group. However, the prevalence of childhood sexual abuse did not differ significantly between groups. In contrast Walling et al. (1994) found that the lifetime
prevalence of physical abuse did not differ significantly between women with CPP and a comparison chronic headache group.

In light of these mixed results, and the incidence of elevated physical and sexual abuse levels reported in other chronic pain patients compared to pain-free groups, investigators have speculated that abusive experiences per se may influence the nature of many chronic pain conditions (Savidge and Slade, 1997). Jacob and DeNardis (1998) note that making sense of the correlation between abuse history and CPP in a way that is helpful to patients has not yet been satisfactorily addressed in the literature.

1.2.3.4 Sexual dysfunction and relationship adjustment

Early theories based on a psychoanalytic perspective considered the uterus to be the central organ in the aetiology of hysteria (van der Feltz-Cornelis and van Dyck, 1997). CPP was hypothesised to be a result of early trauma where the painful emotional response is expressed via somatic symptoms in the pelvic area. Wood, Wiesner and Reiter (1990) report that women with CPP without organic pathology have difficulties forming close relationships, feel inadequate in their female roles, are emotionally insecure and immature, have strong dependency needs and experience difficulty externalising feelings of stress and hostility. A number of other studies also report the frequency with which sexual and relationship problems are noted for women with CPP. Most interpret these findings as a result of the high rates of sexual abuse also found (Walker et al., 1995).

Savidge and Slade (1997) have criticised many of these studies for tending to draw simplistic conclusions about the role of sexual anxieties in the development of CPP. They point to the fact that sexual dysfunction and poor relationship adjustment may also be considered as a response to the pain experienced. Altered family dynamics including marital discord, accompanied by loss of physical function and signs of depression are noted to be the hallmarks of chronic pain syndromes (Steege, 1998a).

Studies have not examined the association between chronic pain and sexual functioning directly. The use of pain-free controls and the confounding effects of depression and
anxiety limit the conclusions that can be drawn from studies so far. Loss of self-esteem, medication use, fatigue and marital dysfunction have all been associated with chronic pain in the literature and may in turn also effect sexual functioning (Smith and Grabois, 1995). The true prevalence of sexual dysfunction in the presence of CPP is unclear (Bachmann and Phillips, 1998). Savidge and Slade (1997) recommend that community norms of sexual dysfunction and relationship difficulties, and comparison data from other chronic pain groups is needed to clarify these issues in future research.

1.2.4 An Integrative Approach

CPP, and the many adverse psychosocial outcomes associated with it, represents a primary health concern for women (Walling et al., 1994). High rates of health care utilisation, undiagnosed psychological morbidity and protracted disability have been documented in several comparative cross-sectional studies (Reiter, 1990; Walker et al., 1988). The care provided to women with CPP has been reported to be varied and idiosyncratic and historically women complaining of CPP without obvious pathology may have been blamed for their pain and the reality of their experience challenged (Savidge, Slade, Stewart and Li, 1998).

The search for psychological or physical factors at the source of CPP has been unhelpful in yielding clinically useful results. Studies that have set out to highlight differences between organic versus non-organic pelvic pain have been unable to draw firm conclusions about the role of various psychosocial variables in the cause of the complaint. In an attempt to further the research in this area, there has been a call for a change in the focus of future studies from the consideration of aetiological or predisposing factors to that of maintaining factors in CPP (Savidge and Slade, 1997).

Many similarities have been drawn between CPP and other chronic pain groups with respect to the psychopathology associated. Researchers have frequently failed to consider that the factors reported may be a possible long-term consequence of the experience of pain rather than a specific association with CPP. Steege (1998a) notes that many of the behavioural, emotional and physiological changes in women with CPP after six months are similar to those in people coping with other types of pain. He concludes
that although all the forms of gynaecological pathology are found more frequently in women with CPP, the development of pain is likely to be multifactorial.

An integrative approach is advocated that addresses the capacity for biological, psychological and environmental factors to be important in both the cause and modulation of the pain experience. Peters, van Dorst, Jellis, van Zuuren, Hermans et al. (1991) report on a study in which patients with CPP were randomly allocated to two treatment groups. The first group were treated using standard protocol to exclude organic factors first and later examine psychological factors if organic causes were ruled out. These patients routinely underwent diagnostic laparoscopy. The second group were treated with an integrated approach that devoted equal attention to organic, psychosocial, environmental and physiotherapeutic factors, without routine laparoscopy. At one year follow-up the authors report that the integrated approach improved pelvic pain significantly more often than the standard approach, and concluded that laparoscopy played no important role in the treatment of these patients.

The view that pain is a complex phenomenon in which physical and psychological factors interact has not been appreciated within the area of CPP until recently. In other areas of chronic pain research the perspective of multidimensional models of pain have been adopted. However, within the area of CPP the more limited biomedical view has continued to dominate thinking and practice. The adoption of broader based biopsychosocial perspectives have therefore been advocated in recent reviews of the literature to enhance the clinical utility of future research (Savidge and Slade, 1997; Steege, 1998a; McGowen et al., 1998).
1.3 DYSpareunia

1.3.1 Definition

Dyspareunia has been described as a special type of chronic pelvic pain (Steege, Frank and Ling, 1993). It is defined as the occurrence of persistent genital pain during or after intercourse and can be described in terms of pain location (superficial or deep) and pain onset (primary/lifelong or secondary/acquired). Intensity can range from a mild discomfort to a sharp, burning pain and it can be located anywhere from the external genitalia to the abdomen (Bergaron, Bouchard, Fortier, Binik and Khalife, 1997). Dyspareunia is classified as a sexual dysfunction and is a symptom or syndrome not a diagnosis. It can be described as a pain symptom by itself or as a single symptom of a more generalised pelvic pain syndrome (Steege et al., 1993).

1.3.2 Prevalence

Dyspareunia has been reported to be the most common of the female sexual dysfunctions as well as possibly the most underreported by women, and the sexual dysfunction most commonly linked to physiological pathology (Meana and Binik, 1994). It is the most under-investigated sexual dysfunction relative to its reported frequency of occurrence in women.

Prevalence rates have been reported to range from 4-55% (Meana and Binik, 1994). Rosen, Taylor, Leiblum and Bachmann (1993) found dyspareunia was reported by 8% of women on most or all occasions and experienced frequently by 11% of women in an outpatient gynaecology sample in the US. In a recent British epidemiological study, of women with CPP in primary care, dyspareunia was most commonly reported in younger women, with the highest frequency (7%) found in 21-30 year olds (Zondervan et al., 1999). Some authors have indicated that incidence rates may be increasing (Goldberg, Wabrek and Young, 1987) and estimates of lifetime prevalence suggest that 60% of women will experience dyspareunia at some time (Glatt, Zinner and McCormack, 1990).
1.3.3 Aetiology

Despite its long history, with reports of descriptions of clinical features first noted in ancient Egyptian writings, there has been a lack of consensus on the basic description of dyspareunia and the variables pertinent to its classification (Meana and Binik, 1994). Investigators have faced a similar dualistic aetiological debate as that addressed by researchers of CPP described above.

Traditionally, the aetiology of dyspareunia has been divided into organic or psychogenic with gynaecology focusing on cases associated with observable peripheral pathology and psychiatry/psychology focusing on cases where no such pathology was evident (Meana and Binik, 1994). The psychiatric view has been that dyspareunia is primarily a sexual dysfunction. The American Diagnostic and Statistical Manual of Mental Disorders (DSM IV; American Psychiatric Association, 1994) and the International Statistical Classification of Disorders (ICD-10; World Health Organisation, 1992) both classify dyspareunia in terms of organic or non-organic aetiology. However, DSM IV also includes a 'combined' category that considers both psychological and physiological factors.

Organic factors associated with dyspareunia include disease (e.g. candidiasis, pelvic inflammatory disease, endometriosis, vaginal infections or scaring), epithelial damage (e.g. friction or chemical trauma), or hormonal changes (e.g. during breast feeding or atrophy post menopause). Urological, structural (e.g. stricture or shortening of the vaginal canal) and musculoskeletal problems have also been cited. Non-organic factors include emotional (e.g. distress, anxiety or anger), relationship factors and unaroused sex (Marin, King, Dennerstein and Sfameni, 1998).

Although linked to physiological pathology for most women, Meana, Binik, Khalifé and Cohen (1997a) found that a significant proportion (24%) of women complaining of dyspareunia in their study had no diagnosable physical findings to account for the pain experienced. This indicates that the same problem of lack of correlation between reported pain and presence or severity of organic symptoms is associated with the dyspareunia syndrome as that found in the CPP literature.
A common diagnosis made in women with dyspareunia is vulvar vestibulitis. This is described as severe pain or burning sensations on vestibular touch or attempted vaginal entry. Treatment for this disorder has often included the surgical removal of painful tissue, a procedure known as vestibulectomy. Until recently the effectiveness of this treatment approach has not been evaluated adequately, in particular the impact of the operation on sexual functioning. Bergeron et al. (1997) in a retrospective study of outcome found that 63% of women reported improvement in pain symptoms and sexual functioning approximately 3 years after undergoing the procedure. However, Weijmar Schultz, Gianotten, van der Meijden, van de Weil, Blindeman et al. (1996) using a randomised controlled design found no differences in outcome between a behavioural treatment, based on a psycho-educational approach with sexual and relationship counselling, and the surgical intervention. They suggested that despite recent reviews about the aetiology of dyspareunia indicating multifactorial causes, a biomedical approach to treatment is still advocated in practice.

The validity of the classification of dyspareunia as primarily a sexual dysfunction rather than a pain syndrome, despite the fact that diagnosis is reliant on self-report of pain, has been recently challenged by a group of researchers from North America (Meana and Binik, 1994; Meana, Binik, Khalife, Bergeron, Pagidas et al., 1997b). The group have argued that the vast majority of pains are defined by the location in which the pain is experienced. The term dyspareunia however, is not specific to any anatomical structure. Meana et al. (1997a) suggest that the emphasis has traditionally been focused exclusively on the activity with which the pain interferes, i.e. sexual intercourse, rather than on the location of the pain. This approach has limited the understanding and treatment of this distressing and common condition for women.

The predominant psychological factors in the literature on the aetiology of dyspareunia have included general psychopathology, somatisation, negative attitudes towards sexuality, sexual abuse and relationship conflicts (Meana, Binik, Khalifé, Cohen, 1997c). Studies have typically employed within-group correlational designs to examine the association of various psychological/psychiatric factors with reports of pain, or differences between women reporting dyspareunia with and without observable peripheral pathology. A few studies have reported findings from a mixed group of
women with dyspareunia compared with no-pain controls. Some of the relevant areas of research are reviewed briefly below.

1.3.3.1 Overall psychopathology

Factors leading to dyspareunia cited in the literature have included anxiety, depression, attitudes, personality style, and maladaptive responses to stress (Marin et al., 1998). Emotional disturbances have been commonly reported in early studies (e.g. Beard, Reginald and Wadsworth, 1988; and Jarvis, 1984; both cited in Meana and Binik, 1994).

In a more recent study Marin et al. (1998) found no differences between women with dyspareunia without obvious pathology and those with observable vulvar disease on measures of anxiety and depression. Mild levels of depression were indicated in both groups and mean anxiety scores were higher than norms for working women. They concluded that both groups showed evidence of emotional distress, impaired coping, and a pattern of dysfunctional sexual behaviour.

In one of the few studies with a matched no-pain control group Meana et al. (1997c) reported that women with dyspareunia were found to have more physical pathology on examination and to report more overall psychological distress than women with no pain. The dyspareunia group scored significantly higher on scales measuring interpersonal sensitivity, depression and anxiety. When the dyspareunia group was sub-divided according to physical findings however, patterns of differences between groups and their matched no-pain controls were reported to differ according to subtype. In particular, the no-physical findings group reported significantly higher rates of psychological symptomatology than controls. In contrast, the subgroup of women with vulvar vestibulitis did not differ from women with no pain on measures of psychological distress. Meana et al. (1997c) concluded that dyspareunia is a heterogeneous disorder.

The specific role of anxiety in the aetiology and maintenance of dyspareunia has been emphasised in the literature by both psychoanalysts and learning theorists (Meana and Binik, 1994). This reflects the focus on psychological variables in the wider
psychosexual literature, in which anxiety is believed to be a common and important factor in disrupting normal sexual responses (Bancroft, 1989). The role of anxiety in sexual dysfunction has been found to be varied and complex. It is reported to have both direct and indirect effects and has been described in terms such as 'performance anxiety', 'anticipation of failure' and 'specific fears' (Hawton, 1985).

Jehu (1979) recognised that dyspareunia may be associated with other sexual dysfunctions. For example, painful intercourse might lead to reduced sexual interest or pleasure and to a disruption of normal physiological responses, such as lack of lubrication, inability to achieve orgasm or the experience of painful muscular spasms, known as vaginismus. In turn, these other sexual dysfunctions may contribute to painful intercourse. Lack of arousal may also result from insufficient foreplay or interest, or from mood disorders, such as depression. Some of the medications used to treat depression may further be responsible for decreased arousal (Bachmann and Phillips, 1998).

The anticipation of pain during sexual activity, arising from the experience of previous discomfort, has been observed to play an important role in the maintenance of dyspareunia. Phobic reactions resulting from an expectation of pain or fear of penetration have been reported to result from previous sexual trauma. In particular, physical and sexual abuse has been highlighted in the early literature. Repeated sexual pain can set up a cycle in which fear of pain leads to avoidance of sexual activity. In time, this can lead to the total avoidance of sexual intimacy and relationship difficulties, further exacerbating the problem (Butcher, 1999). Once this cycle has been established it can maintain the painful symptoms even when contributing physical pathology has been medically or surgically treated.

Traditionally, treatment for dyspareunia without organic pathology has been similar to that used for other sexual dysfunctions and drawn from the techniques devised by sex researchers such as Masters and Johnson (1970). The view by most authors is that coital pain is maintained by a lack of relaxation of the genital musculature, which inhibits normal sexual arousal and results in decreased lubrication (Meana and Binik, 1994). The techniques most commonly reported in the literature include vaginal dilation,
systematic desensitisation, education for the couple about sexuality and communication, sensate focus techniques and vaginal muscle exercises.

Vaginal dilation is the oldest and most widely used treatment for dyspareunia. This behavioural technique involves the introduction of dilators of gradually increasing size, by the woman, into her vagina while practising specific exercises for relaxing the muscles around this area. As progressive relaxation occurs the woman learns that non-painful penetration is possible and she begins to feel less anxious. Sensate focus exercises were designed to be practised by both partners to encourage communication, minimise anxiety and to encourage patients to focus on pleasurable sensations rather than painful ones, and have been used in the treatment of dyspareunia. Education about sexual anatomy and normal female arousal, and advice on positions for sexual intercourse have also been advocated (Hawton, 1985). More recently, the specific cognitive elements inherent in the use of these techniques have been recognised, and successful treatment has been related to the woman's ability to understand her problem more clearly, and to feel more in control of her body and sexual activity (Butcher, 1999).

1.3.3.2 Somatisation

Meana et al. (1997c) inquired about pain other than dyspareunia in their study. They found that when women were asked about other non-genital aches and pains regularly experienced over the past six months, there were no differences between the dyspareunia group and controls. They also report no differences between women without pathology and those with vulvar vestibulitis compared to matched no-pain controls on measures of somatisation.

Marin et al. (1998) however found that women with dyspareunia without obvious pathology were more likely to experience concurrent life stresses than women with a vaginal epithelial disorder and reported less general capacity to cope with their symptoms. They explained this finding by suggesting that a disproportionate number of women without pathology may have generally poor coping skills, and may somatise in response to ordinary life stresses.
1.3.3.3 Abuse history

Early theories of the aetiology of dyspareunia emphasised the conscious/unconscious motives underlying reports of pain (Meana and Binik, 1994). During the first half of the 20th century dyspareunia was considered under the diagnostic classification of 'hysteria'. Sex researchers have since argued for the consideration of factors such as traumatic sexual experiences, relationship discord and early developmental influences on the formation of attitudes towards sexuality (Meana et al., 1997a). Traumatic factors emphasised in the literature refer to prior aversive sexual experiences or some other trauma associated with the genital area.

Meana et al. (1997c) in their study inquired about history of abuse in women with dyspareunia using a semistructured interview. In comparison with women who did not experience pain on intercourse, they found that the dyspareunia sample did not report more current or past physical or sexual abuse. In a different study comparing women with chronic vulvar pain syndrome with a group of women reporting CPP, Bodden-Heidrich, Küppers, Beckmann, Rechenberger and Bender (1999) report that 3% of women with chronic vulvar pain syndrome compared with 22% of those with CPP reported sexual abuse in childhood. Although the study also included a pain-free comparison group results relating to reports of childhood sexual abuse for these women were not included.

1.3.3.4 Sexual dysfunction and relationship adjustment

Due to the nature of the activity associated with pain, relationship factors have been assumed to be important in the aetiology of dyspareunia. Variables cited range from deficits in lovemaking techniques to pervasive feelings between partners that are detrimental to the sexual relationship (Meana and Binik, 1994). Relationship conflicts such as anger and hostility, lack of affection, respect or personal identification with partner, and phobic anxieties such as fear of pregnancy, sexual inadequacy, pain or loss of control have all been cited as causal factors (Marin et al., 1998).
Meana et al. (1997c) found that in comparison with women who did not experience pain with intercourse, women with dyspareunia reported more negative attitudes towards sexuality, higher levels of impairment of sexual functioning and lower levels of marital adjustment. When divided into subtypes based on physical findings, they report that elevated psychological distress and relationship maladjustment was confined to the subgroup with no observable pathology. However, this group also reported levels of sexual functioning similar to matched no-pain controls. The vulvar vestibulitis subgroup suffered the highest levels of sexual impairment, but did not report higher levels of psychological symptoms than controls.

This pattern was also found by Marin et al. (1998) who reported that women with dyspareunia and no discernible physical findings were more likely to engage in sexual intercourse in the absence of desire than women with vaginal epithelial disease. Reasons provided by the women for this behaviour were timidity, guilt and habit. Marin et al. (1998) suggest that in the absence of observable disease women with dyspareunia may feel unable to refuse intercourse.

Van Lankveld, Weijenborg, and Ter Kuile (1996) compared women with vulvar vestibulitis and their partners with population norms on measures of psychopathology, marital satisfaction and sexual dysfunction. They found that the women with vulvar vestibulitis and their partners did not differ significantly from population norms on the measures of psychological distress or marital satisfaction. However, vulvar vestibulitis was found to be associated with situationally defined sexual dysfunction for the women.

The lack of psychological symptomatology in women with vulvar vestibulitis suggests that the pain described by these women cannot be reasonably attributed to psychosexual conflict. In fact Meana et al. (1997c) state that it may not be accurate to assume gross psychosexual dysfunction in women with dyspareunia and they highlight the unhelpful implications of considering dyspareunia as primarily a sexual dysfunction rather than a pain syndrome with sexual sequelae.
1.3.4 Changing Conceptualisations

The symptoms of dyspareunia are considered to have deleterious psychological effects on patients and their relationships with sexual partners. Steege (1998a) reports that for many women with CPP a major motivation for compliance with referral to a pain clinic is the hope that comfortable coitus will be restored and a relationship saved. The problem is often chronic in nature and women report feeling sexually inadequate. Partners may interpret pain as a relationship problem and women can suffer self-esteem problems as a result (Meana et al., 1997b).

There has been little empirical support for aetiological pathways posed in the literature that emphasise the distinction between psychogenic and physical causes of pain during intercourse. In fact, Meana et al. (1997c) argue that the traditional single causal pathway approach may have served to obscure the possibility that there are different subtypes of dyspareunia, possibly indicating different treatment strategies.

Dyspareunia has been found to be a heterogeneous disorder requiring a multidimensional approach to understanding and intervention. Similarities have been drawn between the approach to the study of dyspareunia as that applied to early research in CPP. As the focus of research has started to consider the effects of mediating and moderating variables in the experience of CPP, drawn from the wider pain literature, so investigators of dyspareunia have been urged to follow suit. Bergaron et al. (1997) propose that a pain syndrome conceptualisation taking into account the pain experience and incorporating biological and psychosocial factors, irrespective of whether physical pathology is found, is the most useful approach for the study and treatment of all types of coital pain.

The lack of comparison with other chronic pain groups, the use of clinician-rated measures of personal coping or psychosocial stressors, and a lack of standardised measures of sexual functioning or relationship adjustment, have limited the usefulness of outcomes in the research on dyspareunia so far. There has been little consideration that the relationship difficulties or psychopathology noted could be a response to pain rather than a cause of it. Instead, the traditional psychiatric classification of coital pain has continued to pathologise women with dyspareunia where no observable pathology is
found as being sexually inadequate, despite evidence to the contrary (Meana et al., 1997c).

There continues to be little empirical evidence available as to the ways in which dyspareunia can be mediated (Meana et al., 1997a). Surgical interventions have been used with limited research to support this drastic approach in preference to behavioural/educational approaches. Some women continue to experience pain even after suspected pathology has been medically/surgically treated.

Meana et al. (1997b) assert that dyspareunia needs to be integrated into mainstream pain research and a biopsychosocial perspective adopted. So far there has been little research on dyspareunia as a pain disorder, and study of the syndrome has been denied the exploratory potential of current pain theories that no longer distinguish between 'organic' and 'non-organic' pain (Meana and Binik, 1994). The potential implications of considering dyspareunia as primarily a pain disorder or syndrome rather than a sexual dysfunction, include the possibility of informing clinically useful research and treatments for this common and distressing condition.

The current study compared women with dyspareunia and women with more generalised chronic pelvic pain, with women experiencing other chronic pain syndromes. The three groups were compared on various psychosocial measures found to be important in the assessment of chronic pain from a biopsychosocial perspective. It was hypothesised that similarities between the groups in reported experience of pain would add further support to the argument posed by Meana et al., that dyspareunia is more usefully conceptualised as a pain syndrome.

The biopsychosocial perspective on chronic pain is outlined below following a brief history of research approaches to the investigation of pain. The study of psychological factors in pain perception has been guided by the dominant schools of thought in the discipline of psychology during the 20th century (Gamsa, 1994). Similarly, approaches to the investigation of CPP and dyspareunia have followed the developmental trends pursued by researchers of other pain conditions. The major approaches are outlined briefly in order to illustrate how research into gynaecological pain syndromes has lagged behind current pain theories.
1.4 THEORIES OF PAIN

1.4.1 Early Pain Theories

As scientific and medical paradigms have changed, so the role attributed to psychological factors in pain has also varied. The study of pain as a discipline began in the late 1800's. Early models classified pain with the senses and disease models were used to explain all pains, even those without observable tissue damage or organic pathology. Pain was believed to be the direct result of tissue damage and the severity of the pain directly proportional to the traumatic stimuli. Emotions were assumed to be merely reactions to pain. Sensory models, such as specificity theories and pattern theories, provided the basis for pain research and management (Gamsa, 1994).

1.4.2 Psychoanalytic Theory

The first psychological theories of pain were drawn from psychoanalytic theory during the early part of the 20th century. Psychoanalytic theories explain intractable pain that defies organic explanations, as a defence against unconscious psychic conflict. Emotional pain is displaced onto the body where it serves to express this conflict. Pain is attributed to problems such as repressed hostility and aggression, rigid superego, guilt, resentment, defence against loss or threatened loss, early childhood deprivation or trauma, masked depression, neuroticism and various personality disorders (Gamsa, 1994). Overall, many of the psychoanalytic ideas of chronic pain have been superseded. However, this work called attention to the important influence of psychological factors during a time when the disease model dominated.

1.4.3 Gate Control Theory

By the late 1950's it became increasingly evident that sensory explanations failed to account for certain puzzling pain phenomena e.g. placebo effects and phantom limb pain. The Gate Control Theory (Melzack and Wall, 1965; cited in Melzack and Wall, 1996) marked a landmark in the formulation of pain. The theory expanded the
conceptualisation of pain from a purely sensory phenomenon to a multi-dimensional model that integrates motivational-affective and cognitive-evaluative components with sensory-physiological ones. It provided an important impetus to research in demonstrating the modulation of psychological variables in pain perception (Turk and Melzack, 1992).

Over the years, various limitations of the Gate Control Theory have been put forward (Turk, 1996). At different times, researchers have chosen to emphasise different parts of the model in a mainly aetiological search for psychological factors that cause pain. These studies have been increasingly found to be inconclusive and unhelpful in refining models of chronic pain. More recently, as psychological theory has matured and methodological rigour improved, the consideration of interacting physical, social and psychological factors in initiating and maintaining the pain experience have been made possible.

1.4.4 Behavioural Theories

The inability to objectively measure or observe pain led Fordyce et al. (1976; cited in Gamsa, 1994) to emphasise the importance of pain behaviours and communications about pain. Proposing an operant conditioning model, Fordyce and colleagues were the first to apply behavioural theory to pain. Behaviour theory defines pain by the presence of "pain behaviours" which are observable and therefore subject to the principles of learning.

Behavioural explanations propose that pain may be maintained because it elicits secondary gain, such as permission to avoid chores, unpleasant sexual activity or aversive interactions with family members, or to obtain otherwise unattainable attention and care. Pain behaviours may also be learned by observing "pain models", that is individuals who exhibit such behaviour. The concept of modelling comes from social learning theory (Bandura, 1969; cited in Turk, 1996) and has been used to interpret results of studies, which show that members of a family often share similar types and/or sites of pain.
1.4.5 Cognitive Theories

The Gate Control Theory established a specific role for cognitive-evaluative processes in the modulation of pain. A great deal of research has been directed towards identifying cognitive factors that contribute to pain and disability (Jensen, Turner, Romano and Karoly, 1991; Turk and Rudy, 1986). These studies have consistently demonstrated that patients' attitudes, beliefs and expectancies about their condition and coping resources, affect their reports of pain, activity, disability and response to treatment (Turk, 1996).

Great variability in patients' beliefs about their pain has been observed. Certain beliefs are hypothesised to lead to maladaptive coping, exacerbation of pain, increased suffering and greater disability (Flor and Turk, 1988). An individual's cognitions (beliefs, appraisals or expectancies) regarding the consequences of an event, and his or her ability to cope with the event, are hypothesised to impact functioning in two ways. Firstly, beliefs about the implications of events are hypothesised to have a direct influence on mood. Secondly, appraisals are thought to influence adjustment through their impact upon coping (Turk and Rudy, 1986).

In practice, cognitive and behavioural theories are used together to inform treatment strategies. A cognitive-behavioural perspective provides a useful theoretical framework for understanding reactions to pain, as it emphasises the interaction between cognitive, affective and behavioural components, with sensory input, in determining patient beliefs. From this integrated perspective, coping with pain is viewed as a dynamic process, in which patient beliefs, attitudes and thinking style mediate emotional and behavioural responses (DeGood and Shutty, 1992).

1.4.6 Biopsychosocial Model of Pain

The highly varied individual and subjective responses to pain have led to the view that pain is a complex, multidimensional experience. The diversity in pain expression is determined by the relationships among biological changes, psychological and social factors, and cultural contexts, that shape patients' perception and response to pain (Turk, 1996).
The biopsychosocial model incorporates tissue pathology, the individual's response to physical stimuli, and environmental factors, that in turn modulate perceived pain and disability, and may continue to maintain behavioural responses even after the initial physical cause has been resolved (Turk and Melzack, 1992). Turk (1996) describes the hallmarks of the biopsychosocial perspective as the 'integrated action' of biological, psychological and social factors, and 'reciprocal determinism', which refers to the dynamic nature of these factors that shape the experience and responses of patients. The changing nature or 'evolution' of chronic conditions, that influence the expression of these physical, psychological and social factors over time, is stressed.

Within this dynamic reciprocal model biological factors may initiate, maintain and modulate physical symptoms; psychological factors influence the appraisal and perception of internal physiological signs; and social factors shape the behavioural responses of patients to the perceptions of their physical status. Conversely, psychological factors may effect biology by influencing hormone production and the autonomic nervous system. The effects of behavioural responses on biological factors and of disease and treatment upon cognitive and behavioural factors must also be considered (Turk, 1996).

### 1.4.7 Contemporary Views of Chronic Pain

The historical emphasis on research into chronic pain has been in determining aetiological factors, or in describing the impact of pain on psychosocial functioning. Psychological distress and social problems have been commonly noted. With the development of contemporary models that incorporate psychological processes in the experience of pain, research has been prompted into the specific psychosocial variables that contribute to the development and maintenance of chronic pain.

The view that chronic pain is either caused by psychosocial factors, or provokes psychosocial sequelae in a simple unidirectional relationship has continued to prevail. The apparent divergence in theoretical perspective and resultant scientific investigation has obscured the view of these associations as reciprocal and dynamic (Turk, 1996). Biopsychosocial models of pain have been developed to take account of these dynamic
interrelations. In this model, the psychosocial context is considered as relevant to the understanding of the development as well as the impact of the experience of chronic pain.

Biopsychosocial models suggest that common elements shared by diverse pain conditions should be evident at behavioural and psychosocial levels. Therefore individuals with different chronic pain syndromes may share many behavioural, psychological and social characteristics such as affective disturbance, limited personal, social and work activities, increased use of medications and health care services, and generalised adoption of the sick role (Turk, 1996). In considering how dyspareunia may be similar to CPP and other chronic pain syndromes, many of these psychosocial and behavioural characteristics may also be shared.

Factors that were once considered to be specific in the aetiology of CPP or dyspareunia have also been observed in other chronic pain syndromes. Research that has investigated these psychosocial and behavioural factors will therefore be presented next. Recent studies that have investigated dyspareunia as a pain syndrome will also be described. Gaps in the literature are highlighted such as the neglect of cognitive variables in consideration of the multidimensional nature of the experience of CPP and dyspareunia.

1.5 PSYCHOSOCIAL FACTORS ASSOCIATED WITH CHRONIC PAIN

1.5.1 Depression and Anxiety

The role of anxiety and depression has received the greatest amount of attention in chronic pain patients. The most common psychiatric classification used in the diagnosis and treatment of chronic pain is that of depression. Longitudinal studies of depression in pain patients have suggested that most commonly depression succeeds rather than precedes the onset of pain (Magni, Moreschi, Rigatti-Luchini and Merskey, 1994). Even though the prevalence of depression is substantially higher in chronic pain patients than in groups of individuals without pain, the majority of chronic pain patients are not clinically depressed (Love, 1987; cited in Jensen et al., 1991). Anger has also been
widely observed in individuals with chronic pain. However, the impact of anger and frustration on exacerbations of pain and treatment acceptance has received little research attention (Turk, 1996).

The importance of anxiety in the maintenance of pain has been highlighted by research into respondent learning mechanisms, which developed from earlier operant conditioning models. Fordyce et al. (1982, cited in Turk, 1996) hypothesised that factors contributing to chronicity may also be initiated and maintained by anxiety about pain, so that actual reinforcement of pain behaviours is not necessarily required. Once a pain problem exists, fear of activities that the patient expects to result in pain may develop and motivate avoidance of activities. Many activities that are otherwise neutral or pleasurable may elicit or exacerbate pain, and are thus experienced as aversive and avoided. Avoided activities may involve work, leisure and sexual activity.

In addition to avoidance learning, pain may be exacerbated and maintained by increases in muscle tension and activation of the sympathetic nervous system, occurring in anticipation of pain and also as a consequence of pain (Flor, Birbaumer and Turk, 1990). The low rate of reinforcement obtained when behaviour is greatly reduced serves to maintain the persistence of pain symptoms and allow anxiety to generalise to more and more situations (Turk, 1996).

Investigations into the role of anxiety and depression in CPP have been mainly limited to reports of affective distress associated with pelvic pain. However, Meana, Binik, Khalifé and Cohen (1998) studied the roles of anxiety, depression and relationship functioning in women's adjustment to dyspareunia pain. They found that depressive symptomatology, anxiety and marital adjustment together accounted for a statistically significant amount of the variance in pain reports, although only anxiety and marital adjustment were independent predictors of pain ratings. Depression, the most common psychological variable associated with pain in the literature, did not independently predict quantitative pain reports in women with dyspareunia.
1.5.2 Pain Beliefs and Attributions

Cognitive factors have been neglected in the study of CPP, yet are seen to be important intervening variables within a biopsychosocial model of pain (DeGood and Shutty, 1992). In particular, two variables thought to be significant in a cognitive-behavioural approach to chronic pain are pain-related self-statements and convictions of control (Flor and Turk, 1988).

The relationship between perceived controllability and pain has been demonstrated in a variety of chronic pain syndromes (Turk, 1996). Jensen et al. (1991) have shown that patients' beliefs about the extent to which they can control their pain are associated with such outcome variables as medication use, activity levels and psychological functioning. Flor and Turk (1988) examined the relationship among general and situation-specific pain-related thoughts, convictions of personal control, pain severity and disability levels, in patients with chronic low back pain and rheumatoid arthritis. The general and situation-specific convictions of uncontrollability and helplessness were more highly related to pain and disability than were disease-related variables for both samples.

In relation to pain-related self-statements, Flor and Turk (1988) found that in low back pain sufferers and rheumatoid arthritis patients, significant percentages of the variance in pain and disability were accounted for by cognitive factors labelled as catastrophising, helplessness, adaptive coping and resourcefulness. In both the low back pain and the rheumatoid arthritis groups, the cognitive variables of catastrophising and active coping had substantially more explanatory power than did disease-related variables or impairment.

Cognitive factors have been given limited attention in studies of dyspareunic pain, but have been noted to be of importance in research about CPP (Fry, Crisp and Beard, 1991). The way in which a woman with dyspareunia or CPP ascribes meaning to her experience of pain, her expectations, beliefs and worries about her pain, and her feelings of control over her pain are likely to be important maintaining factors.
Elcombe, Gath and Day (1997) examined the psychological effects of laparoscopy on women with CPP. They found that pain improvements after laparoscopy were predicted by beliefs about pain and the change in each woman's evaluation of the seriousness of her condition. These cognitive factors were more strongly associated with pain improvement than other factors such as pain chronicity.

Similarly, in a qualitative study Savidge et al. (1998) reported that an important factor influencing a decrease in pain in women with CPP after laparoscopy, was a reduction in anxiety, following an explanation of the result of the investigation that made sense to her. This was in turn hypothesised to lead to an increased ability to cope with the pain. Conversely, lack of clarity perceived by women in the explanation provided for their CPP led to increased anxiety, uncertainty and a sense of not being believed. Savidge et al. (1998) suggest that identification of beliefs, expectations and worries about pain during assessment, would enable clinicians to reduce uncertainties and enhance women's ability to manage their pain.

Meana, Binik, Khalife and Cohen (1999) examined the causal attributions for pain in women with dyspareunia. They report that beliefs about the cause of pain were related to psychosocial adjustment for these women. Specifically, women who attributed their pain to psychological i.e. sexual or relationship issues, were found to have more pain and poorer adjustment than women who made physical attributions. Although beliefs were measured using a single question, in a rather limited way, this study is the first to highlight the importance of cognitive factors in dyspareunia.

1.5.3 Relationship Adjustment

The Operant Conditioning Model has led researchers to investigate social reinforcers of pain behaviours that include spouses and significant others. Spouses have been seen to be of importance because they have many opportunities to interact with partners with chronic pain and have powerful reinforcement capacities. Block, Kremer and Gaylor (1980) showed that patients reported higher levels of pain when their spouses were observing them compared to neutral observers, especially if the spouses provided
positive attention in response to the patients' overt communications of pain and suffering.

Romano, Turner, Friedman, Bulcroft, Jensen et al. (1992) videotaped patients and their spouses engaged in a series of cooperative household activities, and recorded patients' pain behaviours and spouses' responses. Spouses' solicitous behaviours were found to be more likely to occur before or after non-verbal pain behaviours, in pain patients than in healthy controls. In a later study, Romano, Turner, Jensen, Friedman, Bulcroft et al. (1995) showed that positive responses by spouses to non-verbal pain behaviours were significant predictors of physical disability, but not psychosocial dysfunction.

Two further studies (Flor, Kerns and Turk, 1987; and Turk, Kerns and Rosenberg, 1992), support the tenet that spouse response to pain behaviour is highly associated with the frequency of pain behaviour. In these studies chronic pain patients reported more intense pain and less activity when they indicated that their spouses were solicitous.

Flor, Turk and Rudy (1989) investigated the mediating role of marital satisfaction on reports of pain, and found that patients who were more satisfied with their relationship reported higher overall levels of pain. However, the effects of gender differences suggested that spouse support was associated with reported pain severity only for married male patients. Lower marital satisfaction has also been found to be related to less pain, but conversely, more depressed mood. In a different study, Flor, Turk and Scholz (1987) have shown that chronic pain is associated with heightened distress and physical symptoms in spouses as well as the patient, indicating the complex nature of the interpersonal interactions.

More recently, the role of cognitive factors have also been emphasised (Williamson, Robinson and Melamed, 1997), highlighting the importance of the patient's perceptions and interpretation of their partner's responses to communications of pain. In summary, spouse solicitousness seems to be related to increased pain behaviours and paradoxically, marital adjustment correlates positively with reports of higher pain levels.
In women with dyspareunia, marital adjustment has been reported to be independently predictive of pain rating (Meana et al., 1998). However, contrary to what is commonly reported in the pain literature well-adjusted couples predicted lower pain ratings. Meana et al. (1998) interpreted this as suggesting that in women with dyspareunia, spousal solicitousness may indicate a willingness to avoid sexual activity or a general sensitivity to the partner's pain during sexual activity.

1.5.4 Sexual Functioning

While the relationship between marital adjustment and chronic pain has been investigated in the literature, the relationship between sexual functioning and chronic pain has been under-represented (Smith and Grabois, 1995). Despite this, the research that does exist suggests that sexual dysfunction in patients with chronic pain conditions is a common problem encountered in clinical practice (Monga, Tan, Ostermann, Monga and Grabois, 1998).

Osborne and Maruta (1980) found that 78% of patients with chronic pain in their study reported either elimination or reduction in sexual activity and 66% reported pain after sexual activity. Monga et al. (1998) found that patients who reported symptoms of depression and distress had more sexual problems. Despite these statistics few studies have directly examined chronic pain and sexuality. The prevalence of sexual dysfunction is unclear in sufferers of chronic pain. Similarly, the prevalence of dyspareunia across different chronic pain syndromes is also unclear. However, Collett et al. (1998) found that women with pelvic pain reported a higher prevalence of sexual problems than women with chronic pain in another site or pain-free controls.

Flor, Turk and Scholz (1987) examined the effects of chronic pain on the marital and sexual relationship in 58 male chronic pain patients and their spouses. They report that 77% of patients indicated a change in the frequency of sexual activity and 67% were dissatisfied with their sex lives. Forty two percent of the patients reported complete elimination of sexual activity, although only 33% indicated that they suffered from sexual dysfunction. After analysis, the authors found that in contrast to the role of marital satisfaction on pain reports, lower sexual satisfaction was related to higher
levels of pain and accompanied by greater spouse support. This suggests that high pain levels may be associated with impaired sexual functioning but not necessarily with marital dissatisfaction.

Studies that have reported sexual functioning have often relied on interview methods, and standardised measures have not been utilised. High levels of sexual dysfunction have been attributed to women with dyspareunia, despite the lack of clear data about how this compares with women experiencing more generalised pelvic pain or other chronic pain groups. Meana et al. (1997c) suggest that it may not be accurate to assume gross sexual dysfunction in women with dyspareunia, and that a pain-centred approach would help to lift the stigma of sexual inadequacy that is so disturbing to women with dyspareunia and their partners.

1.6 SUMMARY AND RESEARCH QUESTIONS

There has been little research on dyspareunia as a pain syndrome. Therefore, this study compared women suffering from dyspareunia with women who experienced more generalised CPP, and women with other recognised chronic pain syndromes, in order to address this gap in the literature. The use of a control group of women, with chronic pain in another site, has not been included in research on women with dyspareunia so far. This has limited the conclusions that can be drawn about the pain characteristics of the syndrome. Similarly, there have been few attempts to measure the role of cognitive variables in women with dyspareunia or pelvic pain.

Studies that have compared subgroups of women with pelvic pain have used pain location as a distinguishing factor. For example, Bodden-Heidrich et al., (1999) compared women with chronic vulvar pain and women with CPP, with a control group of healthy women, on measures of psychopathology and sociodemographic variables. They concluded that CPP and chronic vulvar pain are two distinct gynaecological syndromes, accompanied by different psychological disturbance. However, this study did not compare women with other somatic pain syndromes, and did not include measures of sexual functioning, relationship adjustment or cognitive variables.
The importance of considering pain characteristics, such as location, have been highlighted by these studies and offer the potential for distinguishing between subtypes of pelvic pain and in developing possible treatments. However, the diagnosis of dyspareunia still relies on a woman's self-report of pain associated with sexual intercourse, and the global psychiatric classification of dyspareunia has persisted (DSM IV, 1994). This study therefore used self-report measures of pain to distinguish between women who report pain primarily associated with intercourse, and those who experience pain at times other than during intercourse.

The aim of the research was to compare women on the psychosocial variables shared by different chronic pain syndromes, according to biopsychosocial models. In particular, sexual dysfunction and relationship adjustment variables were compared across groups, because of their previously assumed aetiological roles in dyspareunia. Similarities between groups on these variables would add support to the proposed shift in conceptualisation of dyspareunia, from sexual dysfunction involving pain, to that of a pain syndrome resulting in sexual difficulties. Consideration of dyspareunia as primarily a pain syndrome has important implications for the treatment of dyspareunic pain, not least in removing the stigma of sexual dysfunction for women and their partners.

Specifically, this study compared women with dyspareunia with women who report CPP not limited to pain during sexual intercourse, and a control group. The control group consisted of women with chronic pain in another site. In this way women with dyspareunia and CPP were compared with women with other recognised chronic pain syndromes. The three groups were compared on measures of relationship adjustment, sexual functioning, anxiety and depression, beliefs about pain and pain intensity. The lack of use of standardised measures of sexual functioning and relationship adjustment in previous studies of pelvic pain was addressed in the present study by the inclusion of established psychometric measures.
1.6.1 Research Questions

The current study aimed to explore the following questions:

1. Do women with dyspareunia differ from women with chronic pelvic pain or women with other chronic pain syndromes on measures of: sexual functioning; relationship adjustment; anxiety and depression; beliefs about pain; or pain intensity?

2. How do sexual functioning, relationship adjustment, anxiety, depression and beliefs about pain relate to reported pain intensity in women with dyspareunia, CPP and other chronic pain syndromes?

3. Is it useful to consider dyspareunia as a chronic pain syndrome rather than a sexual dysfunction?

1.6.2 Statement of Hypotheses

It was hypothesised that women with dyspareunia would share many psychosocial characteristics with women with CPP and those with other chronic pain syndromes. In particular, the reviewed literature suggested the following hypotheses:

Hypothesis One: The dyspareunia and CPP groups will not differ significantly on psychometric measures of sexual functioning or relationship adjustment.

Hypothesis Two: There will be no significant differences between the three groups on measures of affect (anxiety and depression).

Hypothesis Three: The three groups will not differ significantly on the measure of beliefs about pain.

Hypothesis Four: The groups will not differ significantly on overall pain ratings.
Hypothesis Five: Significant correlations will exist between the psychosocial variables measured and reported pain intensity.

Prediction 1. There will be a significant positive correlation between anxiety and pain intensity in all groups.

Prediction 2. There will be a significant positive correlation between depression and pain intensity in all groups.

Prediction 3. There will be a significant negative correlation between relationship adjustment and pain intensity for the dyspareunia group.
2.0 METHOD

2.1 DESIGN

The study used a between groups quantitative design. The three groups comprised women with dyspareunia, women with generalised chronic pelvic pain and a control group of women with chronic pain in a different site of their body. The sample size was based on the accessibility of women in acute hospital services who met the inclusion criteria and time restraints imposed on the study. Allocation to the CPP and dyspareunia groups was based on self-report responses to questionnaire items about the frequency of genital and/or pelvic pain. Inclusion or exclusion was based on a priori criteria, therefore 12 women who agreed to take part in the study and completed some or all of the measures were later excluded.

The Independent variable was the allocated group and the methodology chosen was designed to explore the differences between groups on a number of dependent variables. The main dependent variables were sexual functioning, relationship adjustment, anxiety and depression, pain intensity and beliefs about the controllability of pain. During the investigation all groups were administered the same self-report measures and these were administered in the same order by one investigator.

2.2 PARTICIPANTS

Participants in the study were 35 women attending out-patient clinics in two Acute Hospital Trusts in Leicestershire. The sample consisted of 11 women in the dyspareunia group, 13 in the CPP group and 11 in the comparison pain group. Participants were recruited via three Consultant Gynaecologists, one Consultant Clinical Psychologist and a Consultant Anaesthetist and Pain Management Specialist. Participants were selected if they experienced chronic (defined as six months or longer) pain, regardless of the presence or absence of observable organic pathology.
2.2.1 Dyspareunia Group

Participants with dyspareunia were recruited from consecutive referrals to two out-patient Gynaecology Clinics and a specialist Chronic Pelvic Pain Clinic. Seven women were recruited from out-patient Gynaecology clinics and four from the Pelvic Pain Clinic. In order to be selected for the study the women had to be 18 years and over, have a current sexual partner and have been referred to a Consultant Gynaecologist with a six month or longer history of pain associated with sexual intercourse. Inclusion criteria for this group was based on previous published studies on women with dyspareunia (e.g. Meana et al., 1997a; 1998). Women were excluded if they were pregnant or did not have a current sexual partner; if their pain was due to malignancy; or pain was reported to occur more frequently and generally, at times other than associated with intercourse.

Eight women in this group had undergone a laparoscopy and five women had been given a diagnosis for their pain. Diagnoses included endometriosis, ovarian cyst, chronic inflammation, scar tissue and lichen sclerosis. Six women reported that they had not been given a diagnosis for their pain.

2.2.2 CPP Group

Participants with CPP were also recruited from two out-patient Gynaecology Clinics and the specialist Chronic Pelvic Pain Clinic. Three of the women were recruited from an out-patient clinic within the Pain Management Service. In order to be selected for the study, the women had to be 18 years and over, have a current sexual partner and have been referred to a Consultant Gynaecologist, with a history of generalised pain in the lower abdominal region, persisting for at least six months. Women were excluded if they had pain due to malignancy or chronic inflammatory bowel disease; if they were pregnant or did not have a current sexual partner; or if their pain was associated only with menstruation or sexual intercourse.
Eight women in the CPP group had undergone a laparoscopy and seven had been given a diagnosis for their pain. Diagnoses included muscular problems and endometriosis. Six women reported that they had not received a diagnosis for their pain.

2.2.3 Control Group

Participants in the comparison group were recruited from three Pain Management outpatient clinics run by a Consultant Anaesthetist in one hospital setting. Participants were included if they were women and met the age criteria (between 18 and 55 years), had a current sexual partner and experienced pain in a site other than the pelvis or abdomen for at least six months. Women were excluded from this group if they did not have a current sexual partner or were suffering from any other systemic illness. The majority of these women had musculoskeletal pain such as back pain, two women had joint pain and one woman experienced facial pain.

2.2.4 Demographic Information

Ninety-one women were selected from case notes prior to their attendance at an outpatient clinic. These women were sent information about the study before their appointment at the hospital and invited to take part. Forty-four women did not take part in the study for a variety of reasons. Some did not respond to the letter of invitation or declined to take part when asked by their Consultant; others were excluded by their Consultant as not being suitable for the study after clinical assessment. Unfortunately, due to consenting procedures, there was no demographic or medical information available on the women who declined to participate or were excluded in this way.

Forty-seven women gave their consent to take part in the study, however 12 women recruited from outpatient gynaecology clinics were later excluded. Inclusion to the dyspareunia and CPP groups was dependent on the self-report of women concerning the frequency of genital and/or pelvic pain. Women who responded to question 16 on the Demographic Questionnaire (see Appendix D) by stating that they only experienced pelvic pain 'sometimes', 'rarely' or 'never' were subsequently excluded from the study.
Demographic details were available for these women and are compared with those women included in the study below.

Table 1. Sample characteristics of women included and excluded from the study

<table>
<thead>
<tr>
<th>Sample Characteristics</th>
<th>Included</th>
<th>Excluded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>34.29 [10.64]</td>
<td>36.67 [10.00]</td>
</tr>
<tr>
<td>No. of children</td>
<td>2 {0-4}</td>
<td>2 {0-3}</td>
</tr>
<tr>
<td>Married/Cohabiting</td>
<td>18 (75.0%)</td>
<td>9 (75.0%)</td>
</tr>
<tr>
<td>Ethnic Origin:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>21 (87.5%)</td>
<td>11 (91.7%)</td>
</tr>
<tr>
<td>Black Caribbean</td>
<td>-</td>
<td>1 (8.3%)</td>
</tr>
<tr>
<td>Black (other)</td>
<td>1 (4.2%)</td>
<td>-</td>
</tr>
<tr>
<td>Pakistani</td>
<td>1 (4.2%)</td>
<td>-</td>
</tr>
<tr>
<td>Indian</td>
<td>1 (4.2%)</td>
<td>-</td>
</tr>
<tr>
<td>Years in Education:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 yrs</td>
<td>13 (54.2%)</td>
<td>7 (58.3%)</td>
</tr>
<tr>
<td>11-13 yrs</td>
<td>4 (16.7%)</td>
<td>1 (8.3%)</td>
</tr>
<tr>
<td>14-15 yrs</td>
<td>6 (25.0%)</td>
<td>1 (8.3%)</td>
</tr>
<tr>
<td>16 yrs</td>
<td>1 (4.2%)</td>
<td>3 (25.0%)</td>
</tr>
<tr>
<td>In paid employment:</td>
<td>20 (83.4%)</td>
<td>10 (83.3%)</td>
</tr>
</tbody>
</table>

Values are given as mean [SD], median {range} or frequency n (%). Included = CPP and Dyspareunia groups (n = 24); Excluded = participants excluded from CPP and Dyspareunia groups (n = 12).

Available data showed that women who were excluded from the study were similar in terms of age, parity, marital status, ethnic origin and education to women included in the dyspareunia and CPP groups. There was a trend for more women included in the study to work full-time (50%) compared with those excluded from the study (33.3%). There was also a trend for women included in the study to report that they had experienced their pain for a longer duration and to have been seeking treatment for longer compared to women excluded from the study.
2.3 PROCEDURE

The study was approved by the Regional Ethics Committee prior to recruitment of participants (see Appendix A). Potential participants were identified from referral letters, and hospital notes where available, during regular meetings between the researcher and clinic co-ordinators for each Consultant-led out-patient clinic. These women were then sent a letter of invitation signed by their Consultant (Appendix B) and an information sheet about the study at least one week before their hospital appointment (Appendix C). Due to the personal nature of some of the questions asked during the research, women were invited to read the information in advance and to bring the letter with them to their appointment if they were interested in taking part in the study.

Women were recruited during out-patient clinics and were seen following their appointment with their Consultant. Women who agreed to participate were given the opportunity to ask questions about the study to their Consultant before they were introduced to the researcher. Further opportunity to discuss participation with the researcher and ask questions was provided before informed written consent was obtained. The sensitive and personal nature of some of the questions included in the study was made explicit to the women and their partners, if they attended, prior to participation. Women were assured of confidentiality and the opportunity to withdraw at any time should they feel uncomfortable. Contact names and addresses were provided in case they had any queries following participation.

The women recruited to the study were asked to complete six brief anonymous self-report questionnaires. These are described in detail below. The questionnaires were presented in the same order, with the same instructions, to each participant. The researcher remained with the participant during completion of the questionnaires to answer any queries. Participation lasted between 30-40 minutes. Some women felt unable to spare the time to complete questionnaires during the clinic, but wanted to participate. These women were therefore interviewed briefly in order to explain participation and allow the opportunity for questions to be answered before written consent was obtained. Women then took the questionnaires away with them and were provided with a stamped addressed envelope to return the completed forms. They were also invited to contact the researcher if they had any queries about questionnaire items.
The first questionnaire presented contained basic demographic details, questions about the respondent's pain and a brief relevant gynaecological history (Appendix D). The same questionnaire was presented to the comparison group of women with pain in another site, with the omission of one question that was designed to discriminate between women with primarily dyspareunia and those with more generalised CPP. The rest of the questionnaires were presented to all participants in the three groups in the following order: Relationship Adjustment; Sexual Satisfaction; Anxiety and Depression; Pain Intensity; and Beliefs about Pain. When women were accompanied by their partner they were instructed that "the questionnaires require that you fill them in without consultation with your partner so that your responses are not influenced by his perceptions in any way. Is that ok with you?"

2.4 MEASURES

2.4.1 Demographic Questionnaire

A self-report measure was designed for the purposes of the study (See Appendix D). The questionnaire was constructed in two parts; the first part, entitled 'Participant Information' contained six questions about socio-demographic variables including age, current relationship status, ethnic origin, parity, education, and employment status. These items were constructed from standard epidemiological survey questions. The second part of the measure, entitled 'Pain Details' contained questions about the respondent's' pain and relevant gynaecological and obstetric history. Questions were included to gather information about pain location, pain chronicity, pain diagnosis, use of analgesics, functional impairment, beliefs about the cause of pain, gynaecological investigations and treatments, dyspareunia (intensity and frequency), dysmenorrhoea, generalised pelvic pain and menopausal status.

2.4.1.1 Construction of questionnaire

The measure was constructed, as far as possible, from information considered important in previous studies on women with dyspareunia or pelvic pain. The measure was designed to be brief and simple to complete, requiring participants to tick the responses
considered most appropriate to them. The questionnaire was also designed to be completed by all three pain groups, with the exception of question 16, which was omitted for the comparison pain group.

A question about surgical interventions was included for a number of reasons; primarily to provide details about the profile of gynaecological investigations of women in pain across in all three groups. Secondly, reports have indicated that significant proportions of women who undergo hysterectomy for pelvic pain continue to experience pain postoperatively, therefore information about surgical interventions of this kind were included. Thirdly, some surgical procedures have been reported to produce iatrogenic problems such as painful scar tissue, 'ovarian residual syndrome' or 'intrinsic vaginal apex pain', that can result in sexual dysfunction (Steege, 1998b). Poad and Arnold (1994) report that dyspareunia, reduced lubrication and libido, and reduced genital sensation, were common in women following pelvic surgery. Autopsy studies have also revealed that between 50-80% of women develop pelvic adhesive disease after pelvic surgery. Although not all adhesions are associated with pain, adhesions are more prevalent in those who have pain than in those without (Steege, 1998b). Fourthly, it is known that a cause of dyspareunia in some women post-menopause, or possibly post-hysterectomy without hormone replacement therapy, can be a thinning of the vaginal tissue due to lack of oestrogen. Therefore a question about menopausal status was included.

Question 18 is an open question that asks women, 'what is bothering you most about your pain?'. This question was included to obtain some additional qualitative information about women's perceptions of the impact of their pain on their lives. Data from this question were categorised for comparison, and major themes were reported.

2.4.1.2 Inclusion criteria for pain groups

Question 16, which relates to the frequency of pelvic pain syndromes, was designed to discriminate between women with primarily dyspareunia and those with more generalised pelvic pain, for inclusion in the two pelvic pain groups. The item was structured to be similar to questions asked in a recent community prevalence survey in
North America (Jamieson and Steege, 1996). Frequency of dysmenorrhoea was also included as it is reported to be a common symptom that can occur together with dyspareunia and recurrent pelvic pain unrelated to menstruation or coitus, in women undergoing gynaecological investigation (Mahmmod, Templeton, Thomson and Fraser, 1991).

Specifically, women were asked a) 'How often do you experience pelvic pain during and/or after sexual intercourse?' b) 'How often do you experience pelvic pain around and/or during your period?' c) 'How often do you experience pelvic pain at times other than during intercourse or around your period?'. Women were asked to rate these questions on a five-point scale from 'never' to 'always'. Women who responded 'always' or 'often' to the question about pelvic pain at times other than during intercourse or around their period, were included in the CPP group. Some of these women also indicated that they experienced dyspareunia and dysmenorrhoea.

Women, who indicated that they experienced pain during and/or around sexual intercourse 'always' or 'often' and experienced pain at times other than during intercourse or around their period 'sometimes', 'rarely' or 'never', were included in the dyspareunia group. Some of these women also indicated that they experienced dysmennorrhoea. Women, who were excluded from the study after completing this measure, often responded to these questions in a way that indicated that they had primarily dysmenorrhoea.

2.4.1.3 Scoring and interpretation

The measure was scored by a variety of categorical and ordinal ratings. Where items required women to rate their experience in some way e.g. 'never', 'often', 'always', 'mild interference', 'moderate pain' etc. responses were given numerical values (e.g. no interference = 1, severe interference = 4). In each of these cases a higher score indicates a more severe problem. Responses from the questionnaire were used to compare women in each of the three groups on socio-demographic variables.
2.4.1.4 Pilot

The measure was piloted using three women from the Pelvic Pain Clinic. The aim was to test the face validity, administration time and usefulness of the measure in allocating patients to groups. The rest of the standardised measures below were also administered during the pilot procedure. Based on feedback from participants following this process minor amendments were made to the wording of some of the items to make the terminology clearer and more reliable.

2.4.2 Sexual Functioning

Researchers investigating sexual functioning in women with pelvic pain have commented on the lack of suitable measures for use in these studies (Meana et al., 1997a). Instead, studies have used a range of self-report questionnaire items, semi-structured interviews and visual analogue scales to rate levels of sexual desire, arousal and aversion and there has been a lack of use of standardised questionnaires. Unfortunately, the use of such a wide range of unstandardised measures precludes replication and makes the interpretation of results across studies, in relation to sexual functioning, difficult.

Standardised measures that have been used in studies on patients with chronic pain include: the Brief Index of Sexual Function for Women (Taylor, Rosen and Leiblum, 1993; cited in Rosen et al., 1993); and the Sex History Form (Schover and Jensen, 1988; cited in Schover, Youngs and Cannata, 1992). Other related measures include the Sexual Opinion Survey (Fisher, Byrne, White and Kelley, 1988; cited in Meana et al., 1997a; 1997c) and the Mosher Sex-Guilt Scale (Galbraith and Mosher, 1970; cited in McGuire, Guzinski and Holmes, 1980).

Derogatis and Laban (1998) in their review of inventories designed to assess sexual functioning, cite the Golombok Rust Inventory of Sexual Satisfaction (Rust and Golombok, 1986) and the Derogatis Inventory of Sexual Functioning (Derogatis, 1987) as showing substantial promise as outcome measures. Both inventories have been used in published studies of women with chronic pain (Waller and Shaw, 1995; Monga et al.,
The Golombok Rust Inventory of Sexual Satisfaction (GRISS) was chosen for this study because it has been developed and standardised on a British population and can be used in conjunction with the Golombok Rust Inventory of Marital State, a measure of marital adjustment (see below). It is also brief and easy to administer.

2.4.2.1 The Golombok Rust Inventory of Sexual Satisfaction (GRISS) (Rust and Golombok, 1986)

The GRISS is a self-report measure for assessing the existence and severity of sexual problems. There are two versions of the scale for males and females. The female version only was used in this study and consists of an overall score, and seven subscales, measuring 'infrequency', 'non-communication', 'female dissatisfaction', 'female avoidance', 'female non-sensuality', 'vaginismus' and 'anorgasmia'. Together the subscales provide a profile of sexual functioning and reflect the common areas of concern in which a sex therapist would hope to see change during therapy (Rust and Golombok, 1986).

Scoring
The scale consists of 28 items with a five-point response format that refers to the frequency of sexual interests and activities. It is a self-administered questionnaire, taking 5-10 minutes to complete, and requires the participant to read each item in turn, indicating the most appropriate response from: 'never', 'hardly ever', 'occasionally', 'usually', and 'always'. 13 of the items are phrased in a positive direction where 'never' scores 0 and 'always' scores 4. The remaining 15 items are phrased in the opposite direction where 'never' scores 4 and 'always' scores 0. Overall raw scores can range from 0-96. Subscale scores are made up of groups of two or four items, depending on the subscale, with raw scores ranging from 0-16. The overall and subscale scores are then transformed into stanine scores that range from 1 to 9. The higher the score the greater the sexual dysfunction.
Table 2. GRISS Subscales and Abbreviations

<table>
<thead>
<tr>
<th>Subscales</th>
<th>Abbreviation</th>
<th>Number of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrequency</td>
<td>INF</td>
<td>2</td>
</tr>
<tr>
<td>Non-communication</td>
<td>NCO</td>
<td>2</td>
</tr>
<tr>
<td>Female dissatisfaction</td>
<td>DISF</td>
<td>4</td>
</tr>
<tr>
<td>Female avoidance</td>
<td>AVF</td>
<td>4</td>
</tr>
<tr>
<td>Female non-sensuality</td>
<td>NSF</td>
<td>4</td>
</tr>
<tr>
<td>Vaginismus</td>
<td>VAG</td>
<td>4</td>
</tr>
<tr>
<td>Anorgasmia</td>
<td>ANORG</td>
<td>4</td>
</tr>
</tbody>
</table>

**Interpretation**

The transformed scores used for this measure were derived from a standardisation sample where a score of 5 or above indicates a 'problem' (Rust and Golombok, 1986). Although the authors suggest that there are no 'typical' profiles for the major sexual dysfunctions, interpretation of the profile of subscale scores is advocated. Non-clinical samples are likely to have a profile of subscale scores that vary between scale points 1-4. A 'flat' profile of 1's and 2's would be rare, with most 'normal' relationships yielding at least one score of 5. Rust and Golombok (1986) note that for research purposes overall scores are most important as these main scales have higher reliability and validity and are more sensitive to differences in sexual functioning.

**Psychometric details**

The GRISS has been shown to be a reliable measure of sexual dysfunction, discriminating well between those with and without sexual problems and proving useful as a measure of outcome in therapy. The measure was standardised in the UK on 88 couples receiving sex therapy and included factor analysis to confirm the subscales (Rust and Golombok, 1986). Split-half reliabilities yielded a correlation of 0.94 for the female scale and 0.87 for the male scale. The test-retest method of reliability produced average values of 0.65 and 0.76 (female and male scales respectively).
Validity was based on comparison between a clinical group (comprised of 42 women and 57 men with sexual dysfunctions) and a control group of 59 randomly chosen GP attenders. The overall male and female scores on the GRISS were found to discriminate significantly between the clinical and nonclinical groups. Scores on the specific problem subscales presented by the clinical group were also compared with the control group and found to discriminate adequately. A further measure of validity was obtained by correlating between therapists' ratings of severity of problems and overall GRISS scores. Correlations were found to be significant on both male and female versions. Finally, therapists' estimates of improvement during therapy for 30 clinical couples also correlated significantly with overall scores on the GRISS.

2.4.3 Relationship Adjustment

The study of marital adjustment has a long history with early attempts to measure the concept dating back to 1929 (Spanier, 1976). Despite varying conceptualisations of marital or dyadic adjustment, leading to different assessment approaches, the study of these relationships has continued to assume importance in the understanding of marriage and the family. Marital difficulties often overlap with sexual dysfunction and have a high incidence. About 20% of marriages have been shown to have a degree of disturbance (Rust, Bennun, Crowe and Golombok, 1988). The types of marital dysfunction have been classed in relation to satisfaction, cohesion, consensus and affectional expression.

Measures used in the study of women with chronic pelvic pain have included: the Golombok Rust Inventory of Marital State (Rust et al., 1988; cited in Low, Edelmann and Sutton, 1993; and Fry, Beard, Crisp and McGuigan, 1997); the Locke-Wallace Marital Adjustment Scale (Locke and Wallace, 1957; cited in McGuire et al, 1980; and Meana et al., 1997a; 1998); the Dyadic Adjustment Scale (Spanier, 1976; cited in Shover et al., 1992); and the Maudsley Marital Questionnaire (Arrindell, Boelens and Lambert, 1983; cited in Van Lankveld et al., 1996).

Of these questionnaires, the Locke-Wallace Marital Adjustment Scale was one of the earliest instruments developed and is now somewhat dated. The Dyadic Adjustment
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Of these questionnaires, the Locke-Wallace Marital Adjustment Scale was one of the earliest instruments developed and is now somewhat dated. The Dyadic Adjustment
Scale is also widely used, but like the Locke-Wallace was developed in the US, therefore a culture bias exists. The Maudsley Marital Questionnaire is a popular scale for use in sex therapy work in the UK. It has two brief versions (9 items and 20 items) and has demonstrated reliability and validity. However, doubts have been raised concerning how comprehensive and specific an index of marital adjustment the measure provides (Rust et al., 1988).

The Golombok Rust Inventory of Marital State (GRIMS) was constructed to address the shortcomings of existing instruments. Advantages of using the GRIMS over other marital or relationship questionnaires are that it is standardised on a British population, it can be used in conjunction with the GRISS and it is short and simple to administer. It was therefore chosen for the present study.

2.4.3.1 The Golombok Rust Inventory of Marital State (GRIMS) (Rust, Bennun, Crowe and Golombok, 1988)

The GRIMS is a 28-item self-report measure to assess the overall quality of the relationship between a heterosexual couple who are married or cohabit. It contains items shown to be important to a good relationship and which may be expected to show change when a couple are treated for relationship difficulties. The GRIMS is suitable for completion by males or females. Used in conjunction with the GRISS it is intended to provide a more complete assessment of the sexual and marital relationship.

Scoring
Each of the 28 items on the GRIMS is rated on a four-point scale, from 'strongly disagree' to 'strongly agree'. Participants are required to read each item in turn and respond by circling the option provided that seems most appropriate. 14 of the items are worded in a positive direction where 'strongly agree' is scored 0 and 'strongly disagree' is scored 4. The remaining 14 items are worded in the opposite direction so that 'strongly agree' is scored 4 and 'strongly disagree' is scored 0. Total raw scores on the GRIMS range from 0-84. From the raw score a transformed score is obtained, from the manual, that ranges from 1-9.
Interpretation

The scale has been constructed so that the higher the raw or transformed score the more severe the relationship problem. Transformed scores are interpreted in the table below.

Table 3. Interpretation of GRIMS Transformed Scores (from Rust et al., 1988)

<table>
<thead>
<tr>
<th>Transformed score</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>very severe problems</td>
</tr>
<tr>
<td>8</td>
<td>severe problems</td>
</tr>
<tr>
<td>7</td>
<td>bad</td>
</tr>
<tr>
<td>6</td>
<td>poor</td>
</tr>
<tr>
<td>5</td>
<td>average</td>
</tr>
<tr>
<td>4</td>
<td>above average</td>
</tr>
<tr>
<td>3</td>
<td>good</td>
</tr>
<tr>
<td>2</td>
<td>very good</td>
</tr>
<tr>
<td>1</td>
<td>(undefined)</td>
</tr>
</tbody>
</table>

Psychometric details

The GRIMS was standardised by comparing two groups; a group of 78 (30 men and 48 women) attending their GP and 80 'clinical' couples presenting for treatment. This led to a transformed GRIMS scale giving a good indication of the existence and severity of any relationship problem. Split-half reliabilities and Cronbach alpha coefficients were obtained as measures of reliability. Both procedures indicated a high degree of consistency within the GRIMS items (split-half reliabilities ranged from 0.81 to 0.94, with alpha coefficients ranging from 0.85 to 0.92).

Content and face validity of the GRIMS items are regarded as high. Diagnostic validity was determined by relating therapists' ratings with GRIMS scores, yielding a statistically significant degree of agreement. Empirical validity was assessed by administering the GRIMS to 24 couples who received marital therapy. Evidence of validity of the GRIMS in measuring change was obtained as both male and female scores reduced significantly following therapy. The amount of improvement correlated highly significantly with therapist ratings of change. Finally, correlation between
partners' scores on the GRIMS was found to range from 0.53 to 0.73 giving a good indication of the power of the test in predicting the state of a relationship from the responses of one of the partners alone. Taken together, these data indicate that the GRIMS is a reliable and valid instrument, providing a good estimate of problem severity.

2.4.4 Affect

Studies on women with pelvic pain have used a range of multidimensional psychiatric measures to assess psychopathology including anxiety and depression. Measures frequently used in research with this population include the following: the Minnesota Multiphasic Personality Inventory (MMPI) (Carson, 1969; cited in Reiter and Gambone, 1991; and Van Lankveld et al., 1996); Hopkins Symptom Checklist-90 (SCL-90) (Derogatis et al., 1974; cited in Van Lankveld et al., 1996 and Walker et al., 1995); Eysenck Personality Questionnaire (EPQ) (Eysenck and Eysenck, 1964; cited in Peveler, Edwards, Daddow and Thomas, 1996; and Low et al., 1993); General Health Questionnaire-30 (GHQ-30) (Goldberg, 1978; cited in Fry et al., 1997 and Low et al., 1992); and the Brief Symptom Inventory (BSI) (Derogatis and Melisaratos, 1983; cited in Peveler et al., 1996; Meana et al., 1997a; and Shover et al., 1992).

Despite their frequent use, serious criticisms have been made about the validity of some of these instruments, in particular the MMPI, in use with chronic pain patients (Main, Evans and Whitehead, 1991; cited in Williams and Erskine, 1995). The inclusion of somatic symptoms in instruments designed to evaluate psychopathology can contaminate results. Chronic pain can often directly cause a number of symptoms, such as fatigue or worry, in patients. Instruments designed for general or psychiatric populations are sometimes used with different diagnostic cut-off scores for medical patients, but Jacob (1998) recommends that interpretation using these criteria should be made with caution.

The Beck Depression Inventory (BDI) (Beck and Steer, 1987) has been widely used with pain populations, but has also been subject to criticism due to the inclusion of somatic items. The Hamilton Rating Scale for Depression (Hamilton, 1960) has been
used in studies on women with pelvic pain, but is designed to be used as an interview rating scale. The Zung Depression Scale (Zung, 1965) has also been used in studies of women with pelvic pain, and an adapted version is available for use with pain patients. However, it has been found that the measure does not distinguish depression well in persons who are also anxious (Rabkin and Klein, 1987; cited in Jacobs, 1998).

The Spielberger State-Trait Anxiety Inventory (Spielberger, 1983) is a standard measure of anxiety and includes separate scales to assess state and trait anxiety. It has been used widely in clinical and research settings with people in chronic pain. Published norms are also available for medical and surgical patients. However, the measure most strongly recommended in the literature for use with medical patients is the Hospital Anxiety and Depression Scale (HADS) (Zigmond and Snaith, 1983) as it almost entirely avoids somatic symptoms. For this reason the measure was chosen for the present study. It also has advantages in that it is brief and includes separate scales for anxiety and depression. The measure has been used in previous studies of women with pelvic pain (e.g. Hodgkiss and Watson, 1994; Collett et al., 1998)

2.4.4.1 Hospital Anxiety and Depression Scale (HADS) (Zigmond and Snaith, 1983)

The HADS is a self-report questionnaire containing 14 items with two subscales; anxiety (7 items) and depression (7 items). It was developed for use with medical patients to detect and assess the severity of clinical cases of anxiety and depression. Items relating to physical symptomatology have been avoided during the scale's development.

Scoring

Each of the 14 items on the HADS is rated on a four-point scale. Participants are required to mark the response most appropriate to them. Each item is scored from 0 to 3 with total scores for both the anxiety and depression subscales ranging from 0 to 21.
**Interpretation**

The higher the total raw score, the greater the level of anxiety and depression. Zigmond and Snaith (1983) suggest that for both scales scores from 8 to 10 indicate 'possible' clinical disorder and scores within the range of 11 to 21 are taken to indicate 'probable' clinical disorder. In addition, Johnston, Wright and Weinman (1995) report that further experience with the HADS has shown that it may be used as an indication of the severity of anxiety and depression. The four score ranges and interpretations recommended are shown in the table below.

Table 4. HADS total score ranges for anxiety and depression scales

<table>
<thead>
<tr>
<th>Score range</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-7</td>
<td>normal</td>
</tr>
<tr>
<td>8-10</td>
<td>mild</td>
</tr>
<tr>
<td>11-14</td>
<td>moderate</td>
</tr>
<tr>
<td>15-21</td>
<td>severe</td>
</tr>
</tbody>
</table>

**Psychometric details**

The HADS has been shown to have good psychometric properties based on studies with medical out-patients and people with cancer. Moorey, Greer, Watson, Gorman, Rowden *et al.* (1991) report on the factor structure and stability of the HADS in 573 cancer patients. Mean subscale scores where found to be 5.44 for anxiety (SD 4.07; range 0-19) and 3.02 for depression (SD 2.98; range 0-15) in this group. The same study reported internal consistency alpha coefficients to be 0.93 and 0.90 (for anxiety and depression respectively).

Zigmond and Snaith (1983) and Moorey *et al.* (1991) have also investigated concurrent and construct validity of the HADS. Correlations for concurrent validity, produced when the scale was compared with 5-point psychiatric ratings scales, are reported as 0.54 for anxiety and 0.79 for depression. Finally, factor analysis of the HADS items has confirmed the construct validity of the scale to be a measure of two independent factors. Although these data indicate good psychometric properties, replication on other medical
or pain populations is limited. Consequently, there are no norms for women with pelvic pain.

2.4.5. Pain Intensity

Pain intensity is the most salient feature of pain (Turk and Melzack, 1992). Other important dimensions include related affect and pain location. The most common methods of assessing pain intensity are verbal rating scales, visual analogue scales (VAS), and numerical rating scales. Verbal rating scales consist of lists of adjectives describing different levels of pain intensity (e.g. mild, moderate, severe). The patient is asked to select the word that best describes their pain.

Visual analogue scales provide simple, efficient and minimally intrusive measures of pain intensity and have been used widely in clinical and research settings. The method provides a quick index of pain that can be made meaningful by assigning a numerical value. A VAS uses a line, generally 10cm long. The line is labelled at each end by words or numbers (e.g. 'no pain' to 'worst possible pain' or 0 to 100). The patient rates their pain by marking the line at the point most representative of their experience of pain. The point at which the mark has been made is then measured in millimetres to obtain a score. VASs have been shown to be valid and reliable and are sensitive to treatment effects. They are easy to administer and correlate highly with pain measured on verbal and numerical rating scales (Melzack and Katz, 1992).

Numerical rating scales require patients to assign a number to their pain. Generally scales range from 0 to 10 or 0 to 100, where zero equals 'no pain' and the high end of the scale represents the worst possible pain. Numeric scales are used commonly and are simple to understand and administer. However it has not been established whether they are sensitive to other measures, particularly the VAS, or that they are responsive to treatment changes (Jensen and Karoly, 1992).

Often these methods of assessment are combined in measures such as the McGill Pain Questionnaire (MPQ) (Melzack, 1975). The MPQ was the first attempt to measure the three components of pain postulated by the Gate Control Theory (Melzack and Katz,
1992). It provides separate indices of sensory, affective and evaluative/cognitive aspects of the subjective pain experience and is a widely used self-report questionnaire. The measure was designed to assess the multidimensional nature of pain experience and has been demonstrated to be a reliable, valid and consistent instrument.

A short form of the MPQ has been developed (Melzack, 1987) for use in specific research settings. It has proved useful when the time to obtain information from patients is limited and when more information is desired than that provided by intensity measures such as a VAS alone. The MPQ, both full length and short form, have been used in studies of women with pelvic pain (e.g. Meana et al., 1997a; Reiter and Gambone, 1991; and Low et al., 1993). The short form MPQ (SF-MPQ) was therefore chosen as a measure of the pain experience in the present study.

2.4.5.1. The Short-Form McGill Pain Questionnaire (SF-MPQ) (Melzack, 1987)

The SF-MPQ consists of 15 representative words from the sensory (11 words) and affective (4 words) categories of the standard long form MPQ. Participants are instructed to rate the intensity of each particular pain descriptor by marking the appropriate label for each. Each descriptor is ranked on an intensity scale of 0 = none, 1 = mild, 2 = moderate, 3 = severe. For the second part of the scale participants are asked to place a mark on a visual analogue scale that represents the pain they are experiencing now. The VAS is anchored at each end-point by 'no pain' and 'worst possible pain'. In the last part of the measure participants are asked to place a tick beside the word that best describes their present pain experience on the verbal rating scale. The Present Pain Index (PPI) and VAS are included to provide indices of overall pain intensity.

Scoring

A number of different pain scores are derived from the SF-MPQ. Three Pain Rating Scores are obtained by summing the intensity rank values of words chosen for the sensory, affective and total descriptors. The sensory pain score is obtained by summing the responses to pain descriptors 1-11 (score range 0-33). The affective index is obtained by the sum of responses to pain descriptors 12-15 (score range 0-12) and the
total pain rating is the sum of responses to all fifteen pain descriptors (score range 0-45). The VAS is measured in millimetres and produces a score in the range of 0-100. The final measure of Present Pain Intensity (PPI) is obtained by scoring the response to the verbal rating scale which is ranked from 'mild' (score=0) to 'excruciating' (score=5).

**Interpretation**

The data obtained from the SF-MPQ provide information on the sensory, affective and overall intensity of pain. For each of the different indices obtained a higher score indicates a higher level of pain report. There are no normative data for the short or standard MPQ, but mean scores have been reported for different pain groups using the standard MPQ. The profile of qualitative descriptors chosen and severity have also been found to differ between pain conditions providing evidence for the scale's discriminative properties (Melzack, 1987). In a study on women with chronic pelvic pain, Reading (1982) found that chronic pain patients used more affective descriptors and less sensory descriptors on the standard MPQ than women with acute pain. Low, Edelmann and Sutton (1992) have also presented the specific pain descriptors chosen by women with endometriosis using the SF-MPQ.

**Psychometric details**

The SF-MPQ has been shown to correlate highly with the major Pain Rating Indices (Sensory, Affective and Total) of the long form MPQ. The SF-MPQ scores were compared to scores obtained with the standard MPQ in two studies (Melzack, 1987). The first study included patients in post-surgical and obstetrical wards and patients with musculoskeletal pain in a physiotherapy department. In the second study pain scores from patients suffering post-surgical and dental pain were included. Correlations between the short and long form were reported to be consistently high and significant. The studies indicated that the SF-MPQ is sufficiently sensitive to demonstrate differences due to treatment at statistical levels comparable to those obtained with the long form MPQ. The SF-MPQ has been used in studies of chronic pain of diverse aetiology and data suggest that the brief measure may be capable of discriminating between different pain syndromes; a valuable property of the long form MPQ (Melzack and Katz, 1992).
2.4.6. Pain Beliefs

Patients' beliefs about their pain have been shown to play an important role in the perception of pain and compliance with treatment interventions. Assessment of patients' pain cognitions may be useful in understanding the behavioural consequences of pain, such as degree of disability, and patients' efforts to cope with it (Williams and Keefe, 1991). Researchers have approached the assessment of cognitive components of pain in varying ways leading to a range of measures in the literature. DeGood and Shutty (1992) provide a review of measures used to assess pain beliefs, coping and self-efficacy. They advocate a cognitive-behavioural perspective for understanding patient responses to chronic pain, where patient beliefs, attitudes and thinking styles mediate emotional and behavioural responses.

Among the measures considered for this study were the Pain Cognition List (Vlaeyen, Geurts, Kole-Snijders, Schuerman and Groenman, 1990), a Dutch measure containing 50 items with 5 scales, measuring pain impact, catastrophising, outcome efficacy, acquiescence and reliance on health care. The Pain Beliefs and Perceptions Inventory (Williams and Thorn, 1989) is a shorter three-factor scale measuring beliefs about the stability of pain, self-blame and belief that pain is mysterious. Morley and Wilkinson (1995) have recently published a British replication of the factor structure of this measure indicating promising results.

The Survey of Pain Attitudes - Brief Version (Tait and Chibnall, 1997) consists of 30 items with 7 subscales and is a brief version of the previously published Survey of Pain Attitudes (SOPA). However, psychometric properties of this shortened scale have not yet been established. Two British measures were also considered; the Pain Beliefs Questionnaire (Edwards, Pearce, Turner-Stokes and Jones, 1992) emphasises the beliefs and attributions about the causes of pain i.e. 'organic' or 'psychological'. The Pain Cognitions Questionnaire (Boston, Pearce and Richarson, 1990) is a 30-item scale that has demonstrated adequate psychometric properties, however subscales have been noted to overlap the constructs of coping strategies and pain beliefs (DeGood and Shutty, 1992).
There has, as yet, been no published studies that have included the use of standardised or psychometric measures of pain beliefs in women with dyspareunia, and only limited consideration of cognitive factors in studies of women with pelvic pain. Therefore, with little guidance from previous studies, factors considered important for the inclusion of a measure in the current research were: brevity; face validity, in order to present the measure to women attending an out-patient gynaecology clinic; and the inclusion of a limited number of distinct subscales. The measure chosen was the *Pain-Related Self-Statements Scale* (Flor, Behle and Birbaumer, 1993) which has been designed to assess pain-related automatic thoughts assumed to mediate coping and adjustment in chronic pain. The scale is described below.

### 2.4.6.1 Pain-Related Self-Statements Scale (PRSS) (Flor, Behle and Birbaumer, 1993)

The PRSS is intended to assess situation-specific cognitions that either promote or hinder attempts to cope with pain. Self-statements are defined by Flor *et al.* (1993) as specific responses to environmental events that are guided by underlying cognitive schema and have been emphasised in cognitive theory as having an important role in guiding behaviour. The measure consists of 18 items with two scales entitled 'catastrophising' and 'coping'. Nine statements comprise each scale. Items on the PRSS are introduced as 'typical thoughts of persons in pain' and participants are asked to rate on a 6-point scale how often such a statement enters their minds when they experience pain.

**Scoring**

The two scales are scored by summing the responses to statements chosen by participants. Each item is rated on a six point scale where: 'almost never' = 0; 'rarely' = 1; 'sometimes' = 2; 'fairly regularly' = 3; 'frequently' = 4; and 'almost always' = 5. Total raw scores or mean scores can be generated for each scale, ranging from 0-45 or 0-5 respectively.
Interpretation

The authors recommend that each subscale be analysed separately as they are considered to be poorly correlated. Therefore scores on one scale do not predict scores on the other scale. High scores indicate a high frequency of catastrophising or coping self-statements. The authors suggest that the 'negative' catastrophising subscale may be more important in investigating chronic pain variables.

Psychometric Details

The reliability and validity of the scale was determined in two studies; the first on a sample of 120 patients with various types of chronic pain; the second study included 213 patients with chronic back pain, 44 patients with temporomandibular pain and 38 healthy controls (Flor et al., 1993). Internal reliability was assessed using Cronbach's alpha and is considered to be excellent with coefficients of 0.92 and 0.88 (Catastrophising Scale) and 0.88 and 0.79 (Coping Scale) (Flor et al., 1993). Test-retest reliability was used to establish stability over time. Both studies produced satisfactory stability with coefficients of 0.87 and 0.86 (Catastrophising Scale) and 0.77 and 0.84 (Coping Scale) across both studies.

Factor analysis confirmed the 2-factor structure of the scale. Construct validity was assessed by comparing the measure with other theoretically related and unrelated scales and was found to be satisfactory. Support for the discriminative validity of the measure and sensitivity to change was also reported. The measure has been shown to be closely related to pain intensity and interference from pain experiences.
### 2.4.7 Summary of Measures

Table 5. Summary of psychometric measures used

<table>
<thead>
<tr>
<th>Variable</th>
<th>Measure</th>
<th>Subscales</th>
<th>Score Range</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Functioning</td>
<td>GRISS</td>
<td>7</td>
<td>1-9 (transformed score)</td>
<td>High score (5-9) = 'problem'</td>
</tr>
<tr>
<td>Relationship Adjustment</td>
<td>GRIMS</td>
<td>1</td>
<td>1-9 (transformed score)</td>
<td>High score (6-9) = 'problem'</td>
</tr>
<tr>
<td>Affect</td>
<td>HADS</td>
<td>2</td>
<td>0-21</td>
<td>High score = 'problem'</td>
</tr>
<tr>
<td>Pain Intensity</td>
<td>SF-MPQ</td>
<td>3</td>
<td>0-45; 0-100; 0-5</td>
<td>High scores = greater pain intensity</td>
</tr>
<tr>
<td>Pain Beliefs</td>
<td>PRSS</td>
<td>2</td>
<td>0-45</td>
<td>High scores = greater frequency of thoughts</td>
</tr>
</tbody>
</table>

GRISS = Golombok Rust Inventory of Sexual Satisfaction (Rust and Golombok, 1986)
GRIMS = Golombok Rust Inventory of Marital State (Rust et al., 1988)
HADS = Hospital Anxiety and depression Scale (Zigmond and Snaith, 1983)
SF-MPQ = Short-Form McGill Pain Questionnaire (Melzack, 1987)
PRSS = Pain-Related Self-Statements Scale (Flor et al., 1993)
3.0 RESULTS

3.1 OVERVIEW

The data were analysed using SPSS for Windows version 9.0. Exploration and description of the data was carried out prior to statistical analysis. The measures chosen yield a combination of ordinal and interval data. In order to determine whether the data met the assumptions for parametric statistics a range of exploratory techniques were used to examine the average values, dispersion and distribution shapes of the three groups, on each of the psychometric measures used in the study.

As advised by Howell (1997), visual analysis of histograms and box plots, and inspection of means, medians, standard deviations and quartile ranges was carried out on the data. The analyses revealed that many of the distributions of scores were skewed and some showed the presence of outliers. Although statistical tests for normality (Kolmogorov-Smirnov analyses and the Levene's test) did not reach significance, nonparametric statistics were chosen for the final analyses due to the small sample numbers involved in each group. Results from the exploratory data analysis can be found in Appendix E.

This chapter is presented in five parts. Sample characteristics are described first including demographic information, pain details, beliefs about the cause of pain and gynaecological and obstetric details. Then the main research questions and hypotheses are tested using between group comparisons and correlational statistics. Finally, a brief qualitative analysis is presented, before a summary of the Results.

Kruskal-Wallis analysis of variance was used to test differences between the three pain groups on the psychometric measures used. Mann-Whitney \( U \) comparisons were computed to examine differences between pairs of groups where appropriate. All probabilities are at \( p<0.05 \) significance, unless otherwise stated. Kendall's tau-b (\( \tau \)) correlation coefficient was used for the analysis of associations between variables, and nominal data were examined, where appropriate, using Chi-Square. Qualitative data were explored using a simple Content Analysis to compare the frequency of responses.
from each group to major categories produced. Kappa correlations were computed to test the reliability of two raters in assigning participants' responses to the categories used.

### 3.2 SAMPLE CHARACTERISTICS

#### 3.2.1 Demographic Details

Table 6. Demographic details for the three groups

<table>
<thead>
<tr>
<th>Demographic Details</th>
<th>Dyspareunia (n = 11)</th>
<th>CPP (n = 13)</th>
<th>Comparison (n = 11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>34.18 [11.98]</td>
<td>34.38 [9.87]</td>
<td>40.91 [11.24]</td>
</tr>
<tr>
<td>No. of children</td>
<td>2 {0-4}</td>
<td>2 {0-3}</td>
<td>2 {0-3}</td>
</tr>
<tr>
<td>Married/Cohabiting</td>
<td>8 (72.7%)</td>
<td>10 (76.9%)</td>
<td>8 (72.7%)</td>
</tr>
<tr>
<td>Ethnic Origin:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>9 (81.8%)</td>
<td>12 (92.3%)</td>
<td>10 (90.9%)</td>
</tr>
<tr>
<td>Black</td>
<td>1 (9.1%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pakistani</td>
<td>1 (9.1%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Indian</td>
<td>-</td>
<td>1 (7.7%)</td>
<td>1 (9.1%)</td>
</tr>
<tr>
<td>Years in Education:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11yrs</td>
<td>6 (54.5%)</td>
<td>7 (53.8%)</td>
<td>8 (72.7%)</td>
</tr>
<tr>
<td>11-13yrs</td>
<td>2 (18.2%)</td>
<td>2 (15.4%)</td>
<td>1 (9.1%)</td>
</tr>
<tr>
<td>14-15yrs</td>
<td>3 (27.3%)</td>
<td>3 (23.1%)</td>
<td>2 (18.2%)</td>
</tr>
<tr>
<td>16yrs</td>
<td>-</td>
<td>1 (7.7%)</td>
<td>-</td>
</tr>
<tr>
<td>In paid employment:</td>
<td>10 (90.9%)</td>
<td>10 (76.9%)</td>
<td>6 (54.6%)</td>
</tr>
</tbody>
</table>

Age is given as mean and [SD]; No. of children as median and {range}; other values are given as frequency n and (%).
The three groups were comparable in terms of age, number of children and relationship status. Although there was a trend for women in the comparison group to be slightly older than women in the other two groups this was expected and did not reach statistical significance. Ethnic origin was also comparable, with only four women in the total sample not describing themselves as white British. Unfortunately, expected frequencies were too small in a number of the categories for education and employment to enable chi-square comparisons to be carried out. However, there was a trend towards fewer women in the comparison group being in paid employment. In this group four women (36.4%) reported that they were unable to work due to their pain, compared with two (15.4%) in the CPP group and none in the dyspareunia group.

3.2.2 Pain Details

3.2.2.1 Pain location

Women included in the dyspareunia group described a variety of locations where their pain was experienced. Three (27.3%) women described pain in their 'pelvis', three (27.3%) described pain in their 'womb', two (18.2%) women described experiencing pain around their 'vulva' or 'vagina' and three (27.3%) women reported pain in their lower 'abdomen'. Women with CPP also reported a number of locations for their pain including: eight (61.5%) 'pelvis'; four (30.8%) 'abdomen'; one (7.7%) 'vagina'; and two (15.4%) 'bladder' area.

The majority (9; 81.8%) of women in the comparison pain group reported 'back' or 'neck' pain. Two (18.2%) women in this group reported pain in their 'whole body', three (27.3%) women reported 'hip' or 'leg' pain, two (18.2%) reported pain in their 'front' or 'side' and one (9.1%) reported 'face' pain.
3.2.2.2 Pain chronicity

Participants were asked to indicate how long they had experienced their pain and the length of time they had been seeking help for their problem. The results are shown in Tables 7 and 8.

Table 7. Duration of pain for each group

<table>
<thead>
<tr>
<th>Duration of Pain</th>
<th>Dyspareunia (n = 11)</th>
<th>CPP (n = 13)</th>
<th>Comparison (n = 11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 months -2 years</td>
<td>2 (18.2%)</td>
<td>4 (30.8%)</td>
<td>1 (9.1%)</td>
</tr>
<tr>
<td>2-5 years</td>
<td>3 (27.3%)</td>
<td>3 (23.1%)</td>
<td>4 (36.4%)</td>
</tr>
<tr>
<td>5-10 years</td>
<td>4 (36.4%)</td>
<td>1 (7.7%)</td>
<td>2 (18.2%)</td>
</tr>
<tr>
<td>More than 10 years</td>
<td>2 (18.2%)</td>
<td>5 (38.5%)</td>
<td>4 (36.4%)</td>
</tr>
</tbody>
</table>

Table 8. Length of time seeking help for pain problem

<table>
<thead>
<tr>
<th>Length of treatment</th>
<th>Dyspareunia (n = 11)</th>
<th>CPP (n = 13)</th>
<th>Comparison (n = 11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 3 months</td>
<td>3 (27.3%)</td>
<td>2 (15.4%)</td>
<td>-</td>
</tr>
<tr>
<td>3-6 months</td>
<td>1 (9.1%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6-12 months</td>
<td>-</td>
<td>1 (7.7%)</td>
<td>1 (9.1%)</td>
</tr>
<tr>
<td>1-2 years</td>
<td>2 (18.2%)</td>
<td>3 (23.1%)</td>
<td>3 (27.3%)</td>
</tr>
<tr>
<td>2-5 years</td>
<td>1 (9.1%)</td>
<td>3 (23.1%)</td>
<td>2 (18.2%)</td>
</tr>
<tr>
<td>over 5 years</td>
<td>4 (36.4%)</td>
<td>4 (30.8%)</td>
<td>5 (45.5%)</td>
</tr>
</tbody>
</table>

Women in the three pain groups were comparable in terms of chronicity of their pain, although more women in the CPP and comparison groups reported experiencing pain for longer than ten years. Chi-square analyses found no association between group membership and duration of pain, when women experiencing pain for less than five
years or more than five years were compared ($\chi^2 = 0.23; \text{ d.f.} = 2; \text{ NS}$). The table of frequencies suggests a trend for women in the comparison group to have been seeking help for their pain for longer than women in the other two groups, although it was not possible to examine this trend statistically.

### 3.2.2.3 Analgesic use

Participants were asked to indicate how often they took pain-killing medication for their pain. The results are shown in Table 9. The use of analgesic medication appears to be comparable between the dyspareunia and CPP groups. However, women in the comparison pain group reported using pain-killers more frequently, with over half taking medication every day.

Table 9. Use of analgesic medication for each group

<table>
<thead>
<tr>
<th>Analgesic use</th>
<th>Dyspareunia ($n=11$)</th>
<th>CPP ($n=13$)</th>
<th>Comparison ($n=11$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rarely</td>
<td>3 (27.3%)</td>
<td>5 (38.5%)</td>
<td>1 (9.1%)</td>
</tr>
<tr>
<td>Occasionally</td>
<td>2 (18.2%)</td>
<td>2 (15.4%)</td>
<td>2 (18.2%)</td>
</tr>
<tr>
<td>Most days</td>
<td>5 (45.5%)</td>
<td>6 (46.2%)</td>
<td>1 (9.1%)</td>
</tr>
<tr>
<td>Every day</td>
<td>1 (9.1%)</td>
<td>-</td>
<td>6 (54.5%)</td>
</tr>
<tr>
<td>(Missing)</td>
<td>-</td>
<td>-</td>
<td>1 (9.1%)</td>
</tr>
</tbody>
</table>

### 3.2.2.4 Functional limitations

Women were also asked to indicate how much their pain interfered with everyday activities and the severity of this interference. The results are shown in Table 10.
Table 10. Interference of pain with everyday activities

<table>
<thead>
<tr>
<th>Limited activities</th>
<th>Dyspareunia (n = 11)</th>
<th>CPP (n = 13)</th>
<th>Comparison (n = 11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No interference</td>
<td>2 (18.2%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mild interference</td>
<td>4 (36.4%)</td>
<td>3 (23.1%)</td>
<td>3 (27.3%)</td>
</tr>
<tr>
<td>Noticeable interference</td>
<td>5 (45.5%)</td>
<td>8 (61.5%)</td>
<td>7 (63.6%)</td>
</tr>
<tr>
<td>Severe interference</td>
<td>-</td>
<td>2 (15.4%)</td>
<td>1 (9.1%)</td>
</tr>
</tbody>
</table>

The frequencies suggest a trend for women in the dyspareunia group to report less interference of their pain with daily activities such as housework, job, family and social activities. Women in the CPP and comparison pain groups were comparable in their reports of the interference of their pain with everyday activities.

Participants in the three groups were also asked about the interference and severity of pain associated with sexual intercourse. The results are presented in Table 11. This question did not require participants to specify the location of the pain experienced during or after intercourse. This was to enable the comparison group to also respond to this item. Therefore, it is not possible to tell whether women in the comparison group have reported pelvic pain (dyspareunia) or pain associated with their referred problem. However, this question was included to compare the experiences of the women in the three groups in relation to functional impairments associated with their pain syndromes.

Table 11. Intensity of pain associated with intercourse

<table>
<thead>
<tr>
<th></th>
<th>Dyspareunia (n = 11)</th>
<th>CPP (n = 13)</th>
<th>Comparison (n = 11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No pain with intercourse</td>
<td>-</td>
<td>2 (15.4%)</td>
<td>3 (27.3%)</td>
</tr>
<tr>
<td>Mild pain</td>
<td>-</td>
<td>3 (23.1%)</td>
<td>4 (36.4%)</td>
</tr>
<tr>
<td>Moderate pain</td>
<td>5 (45.5%)</td>
<td>3 (23.1%)</td>
<td>3 (27.3%)</td>
</tr>
<tr>
<td>Severe pain</td>
<td>6 (54.5%)</td>
<td>5 (38.5%)</td>
<td>1 (9.1%)</td>
</tr>
</tbody>
</table>
All women in the dyspareunia group reported 'moderate' to 'severe' pain during intercourse, resulting in the activity being interrupted or unable to be continued. Sixty-two percent of the CPP group also reported 'moderate' to 'severe' pain associated with intercourse, compared to 36% of the comparison group. It is clear that the groups differ in their responses to this question, as expected, indicating that the dyspareunia group are most impaired by their pain in relation to sexual intercourse.

3.2.3 Beliefs About the Cause of Pain

Participants in the study were asked to record their belief about the cause of their pain. Three fixed choice responses were provided and an 'other' category. Responses are shown in Table 12. below as frequencies and percents.

Table 12. Beliefs about the cause of pain

<table>
<thead>
<tr>
<th>Beliefs about pain</th>
<th>Dyspareunia (n=11)</th>
<th>CPP (n=13)</th>
<th>Comparison (n=13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical cause</td>
<td>4 (36.4%)</td>
<td>7 (53.8%)</td>
<td>3 (27.3%)</td>
</tr>
<tr>
<td>Sexual problem</td>
<td>4 (36.4%)</td>
<td>4 (30.8%)</td>
<td>-</td>
</tr>
<tr>
<td>Chronic pain problem</td>
<td>2 (18.2%)</td>
<td>3 (23.1%)</td>
<td>8 (72.7%)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (9.1%)</td>
<td>-</td>
<td>1 (9.1%)</td>
</tr>
<tr>
<td>(Missing)</td>
<td>2 (18.2%)</td>
<td>2 (15.4%)</td>
<td>-</td>
</tr>
</tbody>
</table>

The majority of women in the dyspareunia and CPP groups believed their pain to be due to 'physical' or 'sexual' problems. As participants were able to tick more than one category some of these women ticked both causes. Two women from the dyspareunia group and two from the CPP group reported that they did not know the cause of their pain and therefore left this item blank. Interestingly, the majority (72.7%) of participants in the comparison group believed that they suffered from a 'chronic pain problem (no specific physical cause)' compared with 18.2% of women with dyspareunia and 23.1% of women with CPP.
3.2.4 Gynaecological and Obstetric Details

Participants in the three groups were asked to record whether they had experienced a range of gynaecological or obstetric procedures and to indicate their menopausal status. The results are presented in Table 13.

Table 13. Gynaecological, obstetric and menopausal details for each group

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Dyspareunia (n=11)</th>
<th>CPP (n=13)</th>
<th>Comparison (n=11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laparoscopy</td>
<td>8 (72.7%)</td>
<td>8 (61.5%)</td>
<td>3 (27.3%)</td>
</tr>
<tr>
<td>Dilation and Curettage (D&amp;C)</td>
<td>2 (18.2%)</td>
<td>5 (38.5%)</td>
<td>2 (18.2%)</td>
</tr>
<tr>
<td>Removal of one or both ovaries</td>
<td>1 (9.1%)</td>
<td>2 (15.4%)</td>
<td>1 (9.1%)</td>
</tr>
<tr>
<td>Hysterectomy</td>
<td>1 (9.1%)</td>
<td>3 (23.1%)</td>
<td>-</td>
</tr>
<tr>
<td>Termination of pregnancy</td>
<td>2 (18.2%)</td>
<td>2 (15.4%)</td>
<td>1 (9.1%)</td>
</tr>
<tr>
<td>Sterilisation</td>
<td>3 (27.3%)</td>
<td>-</td>
<td>3 (27.3%)</td>
</tr>
<tr>
<td>Infertility Investigations</td>
<td>2 (18.2%)</td>
<td>1 (7.7%)</td>
<td>-</td>
</tr>
<tr>
<td>Other Gynaecological Surgery</td>
<td>3 (27.3%)</td>
<td>6 (46.2%)</td>
<td>2 (18.2%)</td>
</tr>
<tr>
<td>Pre-menopausal</td>
<td>8 (72.7%)</td>
<td>8 (61.5%)</td>
<td>6 (54.5%)</td>
</tr>
<tr>
<td>Menopausal</td>
<td>2 (18.2%)</td>
<td>1 (7.7%)</td>
<td>3 (27.3%)</td>
</tr>
<tr>
<td>Post-menopausal</td>
<td>1 (9.1%)</td>
<td>4 (30.8%)</td>
<td>2 (18.2%)</td>
</tr>
<tr>
<td>Hormone replacement therapy</td>
<td>1 (9.1%)</td>
<td>3 (23.1%)</td>
<td>1 (9.1%)</td>
</tr>
</tbody>
</table>

Women in the dyspareunia and CPP groups had experienced significantly more gynaecological and obstetric procedures than women in the comparison group. With regard to gynaecological surgery, women in the CPP group reported the most procedures, averaging 1.8 procedures each. Women in the dyspareunia group also reported over twice as many surgical procedures than women in the comparison group. It is not possible to say how much surgery had been indicated for the treatment of pelvic or dyspareunia pain, but for at least some of the women included in the study, their pain had persisted despite these investigations.
Women in the dyspareunia and CPP groups were also asked to record the frequency of their experience of pelvic pain syndromes. Four (36.4%) women included in the dyspareunia group also reported dysmenorrhoea 'always' or 'often'. Ten (77.0%) women included in the CPP group also reported experiencing dyspareunia 'always' or 'often' and six (46.2%) reported dysmenorrhoea 'always' or 'often'. This item was not included for women in the comparison pain group.

3.3 BETWEEN GROUP ANALYSES

3.3.1 Sexual Functioning

Hypothesis One: The dyspareunia and CPP groups will not differ significantly on psychometric measures of sexual functioning or relationship adjustment.

Sexual functioning was compared between groups using the Golombok Rust Inventory of Sexual Satisfaction (GRISS). Transformed Scores were used in the analyses. (Raw scores can be found in Appendix F). Table 14. below shows the mean, median and standard deviation for each group.

Table 14. GRISS mean, median and standard deviations for each group

<table>
<thead>
<tr>
<th></th>
<th>Dyspareunia (n=11)</th>
<th>CPP (n=13)</th>
<th>Comparison (n=11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>4.00</td>
<td>3.31</td>
<td>2.55</td>
</tr>
<tr>
<td>Median</td>
<td>4.00</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td>(SD)</td>
<td>(2.37)</td>
<td>(1.93)</td>
<td>(2.55)</td>
</tr>
</tbody>
</table>
The means and medians suggest that the three groups were comparable in terms of reported overall sexual functioning. To test this observation Kruskal-Wallis analysis of variance was computed and found to be not significant \( (\chi^2 = 2.386, \text{d.f.} = 2, \text{N.S.}) \). Comparisons between pairs of groups using 1-tailed Mann-Whitney \( U \) Tests confirmed that the three groups did not differ significantly on this measure.

GRISS subscale scores were also compared across the three groups. The seven subscales measured were Infrequency (INF), Non-Communication (NCO), Female Dissatisfaction (DISF), Female Avoidance (AVF), Female Non-Sensuality (NSF), Vaginismus (VAG) and Anorgasmia (ANORG). Means and standard deviations for the three groups are presented in Table 15.

Table 15. GRISS subscale means and standard deviations for each group

<table>
<thead>
<tr>
<th></th>
<th>Dyspareunia</th>
<th>CPP</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>((n=11))</td>
<td>((n=13))</td>
<td>((n=11))</td>
</tr>
<tr>
<td>INF</td>
<td>5.27 (3.29)</td>
<td>5.08 (2.87)</td>
<td>4.18 (1.66)</td>
</tr>
<tr>
<td>NCO</td>
<td>4.09 (1.76)</td>
<td>4.23 (1.79)</td>
<td>3.55 (0.93)</td>
</tr>
<tr>
<td>DISF</td>
<td>2.55 (1.57)</td>
<td>2.77 (1.30)</td>
<td>2.45 (0.93)</td>
</tr>
<tr>
<td>AVF</td>
<td>4.55 (2.38)</td>
<td>4.08 (2.63)</td>
<td>3.45 (2.02)</td>
</tr>
<tr>
<td>NSF</td>
<td>4.00 (2.14)</td>
<td>3.77 (2.74)</td>
<td>3.45 (2.21)</td>
</tr>
<tr>
<td>VAG</td>
<td>5.82 (1.83)</td>
<td>5.77 (1.69)</td>
<td>5.18 (1.66)</td>
</tr>
<tr>
<td>ANORG</td>
<td>4.27 (1.74)</td>
<td>3.15 (1.34)</td>
<td>3.09 (1.04)</td>
</tr>
</tbody>
</table>

Graphical presentations of the profile of mean subscale scores for each group are shown in Appendix H. The profiles of subscale means follow a similar pattern across the three pain groups. Highest scores were reported in all three groups for the Vaginismus and Infrequency subscale items, with mean Vaginismus scores falling within the 'problem' range. The profiles show that participants in the three groups reported the lowest scores for subscale items relating to Female Dissatisfaction. No significant differences were found between groups on any of the mean subscale scores.
Low scores on the GRISS subscales indicate high satisfaction. Scores of 5 or above indicate a 'problem'. Four (36.4%) women in the dyspareunia group had total GRISS scores within the 'problem' range indicating gross sexual dysfunction. Four (30.8%) women in the CPP group also reported total GRISS scores of 5 or over. This figure was comparable with the dyspareunia group. No women in the comparison pain group had total GRISS scores within the 'problem' range. Overall, women in the three pain groups reported high satisfaction with their sexual relationships.

### 3.3.2 Relationship Adjustment

Relationship adjustment was measured using the Golombok Rust Inventory of Marital Satisfaction (GRIMS). Transformed Scores were used in the analyses. (Raw scores can be found in Appendix G). Table 16. shows the mean, median and standard deviations of GRIMS scores across the three pain groups. The means and medians suggest that the groups were comparable in terms of overall relationship satisfaction. Kruskal-Wallis analysis of variance was computed and confirmed that the groups did not differ significantly on this measure ($\chi^2 = 0.921$, d.f. = 2, N.S.).

<table>
<thead>
<tr>
<th></th>
<th>Dyspareunia ($n=11$)</th>
<th>CPP ($n=13$)</th>
<th>Comparison ($n=11$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.09</td>
<td>3.15</td>
<td>3.64</td>
</tr>
<tr>
<td>Median</td>
<td>3.00</td>
<td>3.00</td>
<td>4.00</td>
</tr>
<tr>
<td>(SD)</td>
<td>(2.07)</td>
<td>(2.19)</td>
<td>(1.86)</td>
</tr>
</tbody>
</table>

Transformed scores below 5 on the GRIMS indicate above average satisfaction with the marital relationship. Therefore, participants in the three groups reported overall high satisfaction with their relationships.
Only two women in each of the three groups had total GRIMS transformed scores within the 'problem' range (i.e. 6-9). This corresponds to 18.2% of women in the dyspareunia and comparison groups and 15.4% of women in the CPP group. This suggests that overall participants in the study were satisfied with their relationship with their current partner. However, there was a difference between groups in the number of women reporting very low (extremely good) relationships. A transformed score of 1 on the GRIMS is 'undefined', perhaps indicating a new relationship or an unrealistic appraisal of a relationship. In this study 3 (27.3%) women in the dyspareunia group and 3 (23.1%) in the CPP group had overall scores within this 'undefined' range, compared to 1 (9.1%) in the comparison group. When these cases were removed from the analyses the means were almost identical in each group (Dyspareunia = 3.88; CPP = 3.80; Comparison = 3.90). The medians for each group remained the same.

3.3.3 Anxiety and Depression

Hypothesis Two: There will be no significant differences between the three groups on the measure of affect (anxiety and depression).

The groups were compared using a standardised measure of anxiety and depression, the Hospital Anxiety and Depression Scale (HADS). The mean, median and standard deviations for each group on the two subscales are shown in table 17.

The means and medians indicate that the CPP group scored higher than the other groups on the measure of anxiety, while the dyspareunia group scored higher on depression. To test these observed differences Kruskal-Wallis analysis of variance was computed. No statistical differences were found between groups on either measure (anxiety: \( \chi^2 = 1.808, \) d.f. = 2, NS; depression: \( \chi^2 = 0.234, \) d.f. = 2, NS).
Table 17. HADS mean, median and standard deviations for each group

<table>
<thead>
<tr>
<th></th>
<th>Dyspareunia</th>
<th>CPP</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( (n = 11) )</td>
<td>( (n = 13) )</td>
<td>( (n = 11) )</td>
</tr>
<tr>
<td><strong>Anxiety</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>8.09</td>
<td>10.15</td>
<td>8.91</td>
</tr>
<tr>
<td>Median</td>
<td>9.00</td>
<td>11.00</td>
<td>9.00</td>
</tr>
<tr>
<td>(SD)</td>
<td>3.83</td>
<td>4.04</td>
<td>3.56</td>
</tr>
<tr>
<td><strong>Depression</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>5.27</td>
<td>5.00</td>
<td>5.09</td>
</tr>
<tr>
<td>Median</td>
<td>6.00</td>
<td>4.00</td>
<td>4.00</td>
</tr>
<tr>
<td>(SD)</td>
<td>2.61</td>
<td>3.92</td>
<td>2.17</td>
</tr>
</tbody>
</table>

Table 18. presents the frequency of scores within the 'clinical' categories produced by the measure for each group. The dyspareunia and comparison pain groups are comparable in their responses however, there appears to be a trend for more women with CPP to present with greater severity of anxiety and depression. Expected cell frequencies were too small to analyse this trend statistically.

Table 18. Frequency of HADS scores within 'clinical' categories for each group

<table>
<thead>
<tr>
<th>HADS score</th>
<th>Dyspareunia ( (n = 11) )</th>
<th>CPP ( (n = 13) )</th>
<th>Comparison ( (n = 11) )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anxiety</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-7 'normal'</td>
<td>4 (36.4%)</td>
<td>4 (30.8%)</td>
<td>4 (36.4%)</td>
</tr>
<tr>
<td>8-10 'mild'</td>
<td>4 (36.4%)</td>
<td>2 (15.4%)</td>
<td>4 (36.4%)</td>
</tr>
<tr>
<td>11-14 'moderate'</td>
<td>3 (27.3%)</td>
<td>5 (38.5%)</td>
<td>2 (18.2%)</td>
</tr>
<tr>
<td>15-21 'severe'</td>
<td>-</td>
<td>2 (15.4%)</td>
<td>1 (9.1%)</td>
</tr>
<tr>
<td><strong>Depression</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-7 'normal'</td>
<td>10 (90.9%)</td>
<td>10 (76.9%)</td>
<td>8 (72.7%)</td>
</tr>
<tr>
<td>8-10 'mild'</td>
<td>1 (9.1%)</td>
<td>1 (7.7%)</td>
<td>3 (27.3%)</td>
</tr>
<tr>
<td>11-14 'moderate'</td>
<td>-</td>
<td>2 (15.4%)</td>
<td>-</td>
</tr>
<tr>
<td>15-21 'severe'</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
3.3.4 Beliefs About Pain

Hypothesis Three: The groups will not differ significantly on the measure of beliefs about pain.

The Pain-Related Self-Statements Scale (PRSS) was used to assess participants' beliefs about the controllability of their pain. Table 19. shows the mean, median and standard deviations for each group on the two scales.

Table 19. Beliefs about pain controllability for each group

<table>
<thead>
<tr>
<th></th>
<th>Dyspareunia (n = 11)</th>
<th>CPP (n = 13)</th>
<th>Comparison (n = 11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catastrophising</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>25.09</td>
<td>23.46</td>
<td>21.18</td>
</tr>
<tr>
<td>Median</td>
<td>25.00</td>
<td>24.00</td>
<td>22.00</td>
</tr>
<tr>
<td>(SD)</td>
<td>(8.48)</td>
<td>(9.96)</td>
<td>(6.15)</td>
</tr>
<tr>
<td>Coping</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>18.27</td>
<td>25.00</td>
<td>24.09</td>
</tr>
<tr>
<td>Median</td>
<td>17.00</td>
<td>24.00</td>
<td>24.00</td>
</tr>
<tr>
<td>(SD)</td>
<td>(8.30)</td>
<td>(7.72)</td>
<td>(7.20)</td>
</tr>
</tbody>
</table>

Again, Kruskal-Wallis analysis of variance was computed to test the difference between groups on this measure. Analyses revealed that the groups did not differ significantly (Catastrophising: $\chi^2 = 2.478$, d.f. = 2, NS; Coping: $\chi^2 = 3.901$, d.f. = 2, NS). The table of means shows that the dyspareunia group scored lower on the coping variable than the other pain groups. One-tailed Mann-Whitney $U$ comparisons were therefore computed to test this observation statistically. However, the difference between scores for all pairs failed to reach significance.
3.3.5 Pain Intensity

Hypothesis Four: The groups will not differ significantly on overall pain ratings.

The Short-Form McGill Pain Questionnaire (SF-MPQ) was used as a measure of pain intensity in the study. Subscale scores measured by the SF-MPQ are shown in Table 20. below.

Table 20. SF-MPQ subscale scores for each group

<table>
<thead>
<tr>
<th></th>
<th>Dyspareunia (n = 11)</th>
<th>CPP (n = 13)</th>
<th>Comparison (n = 11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensory Scale</td>
<td>13.09 (4.04)</td>
<td>15.62 (6.95)</td>
<td>13.91 (8.04)</td>
</tr>
<tr>
<td>Affective Scale</td>
<td>3.36 (2.58)</td>
<td>4.77 (3.42)</td>
<td>4.09 (2.26)</td>
</tr>
<tr>
<td>Total Scale</td>
<td>16.45 (5.99)</td>
<td>20.38 (8.47)</td>
<td>18.00 (9.60)</td>
</tr>
<tr>
<td>PPI</td>
<td>0.00 [0-4]</td>
<td>2.00 [1-4]</td>
<td>2.00 [1-4]</td>
</tr>
<tr>
<td>VAS</td>
<td>16.73 (33.95)</td>
<td>57.46 (15.61)</td>
<td>54.64 (25.24)</td>
</tr>
</tbody>
</table>

PPI = Present Pain Intensity; given as median [range]. VAS = Visual Analogue Scale; given as mm.

The groups were compared on the three pain descriptor scales; Sensory, Affective and Total. Kruskal-Wallis analysis of variance was computed to explore differences between the groups on these scales. The groups were found to be not significantly different on these measures. Table 20. shows that the mean and median scores on the measures of present pain intensity, PPI and VAS, differ between the three groups. Kruskal-Wallis analysis of variance found these differences to be highly significant ($\chi^2 = 12.21$, d.f. = 2, $p = <0.01$).

Further comparisons between pairs of groups were made using Mann-Whitney $U$ Tests. Comparison between the dyspareunia group and CPP group showed a significant difference in present pain intensity on the VAS measure ($Z = 3.23$, $p = <0.01$, 1-tailed). There was also a significant difference between the dyspareunia and comparison groups.
(Z = 2.807, p = < 0.01, 1-tailed). However, there was no significant difference between the CPP and comparison pain group (Z = 0.145, NS).

From the table it can be seen that the dyspareunia group has the lowest mean present pain intensity. This difference between groups provides some validity for the self-report criteria used to select participants to the dyspareunia and CPP groups.

Melzack (1987) reports that the SF-MPQ has good discriminative properties providing different profiles of pain descriptors for different pain conditions. The profiles of pain descriptors chosen by participants in each group in the current study are presented in Appendix I. The profiles are presented in a way intended to be directly comparable with other pain groups from studies by Melzack (1987) and Low et al. (1992). The pain descriptors rated most frequently by the dyspareunia group were 'tender', 'aching' and 'shooting'. The CPP group described their pain most frequently as 'sharp', 'aching' and 'tender'. The comparison pain group chose the pain descriptors 'tiring-exhausting', 'aching', 'heavy' and 'tender' most frequently to describe their pain.

3.4 CORRELATIONAL ANALYSES

3.4.1 Correlations Among Variables and Pain Intensity

Hypothesis Five: Significant correlations will exist between the psychosocial variables measured and reported pain intensity.

Prediction 1. There will be a significant positive correlation between anxiety and pain intensity in all groups.

Prediction 2. There will be a significant positive correlation between depression and pain intensity in all groups.

Prediction 3. There will be a significant negative correlation between relationship adjustment and pain intensity for the dyspareunia group.
Predictions one and two, based on findings from the chronic pain literature, stated that the relationships between the variables anxiety and pain intensity, and depression and pain intensity would be in the positive direction. Therefore a 1-tailed test of significance was appropriate. A 1-tailed test of significance was also used to test prediction three, which stated that a negative association would be found between relationship adjustment and pain intensity variables for women in the dyspareunia group.

The relationships between variables were examined visually first by scrutinising the scatter plots produced. The plots indicated that the variables were suitable for correlational analysis. Kendall's tau-b ($\tau$) correlation coefficient was chosen as the measure of association. Kendall's tau correlations have advantages over the Spearman correlation, especially with small data sets, in which there are tied-ranks (i.e. more than one individual having the same ranked score) and it was therefore chosen to control for this occurrence. The Kendall's tau-b statistic varies between ±1.

The total score from the rankings of pain descriptors from the SF-MPQ was used as the measure of pain intensity. This Pain Rating Index (PRI) is considered the global multidimensional measure of pain.

The relationship between the measure of anxiety (HADS-A) and pain intensity (PRI) was found to be not significant for women in the dyspareunia group ($\tau = 0.117; 1$-tailed; NS). Likewise, the relationship between the measure of depression (HADS-D) and pain intensity (PRI) was found to be not significant for this group ($\tau = -0.204; 1$-tailed; NS). Relationship adjustment (GRIMS) was also found to not be significantly associated with pain intensity in this group ($\tau = 0.162; 1$-tailed; NS).

As groups did not differ significantly from each other on the variables measured it was decided to explore the relationships between predictor variables and pain intensity using the combined data of all three groups. The variables analysed were sexual functioning (GRISS), relationship adjustment (GRIMS), anxiety and depression (HADS), beliefs about pain (PRSS) and pain intensity (PRI). One-tailed correlations were computed for these analyses in line with the predictions made above. Results are presented in Table 21. with significance levels indicated.
Significant positive correlations were found between many of the measures. The strongest correlations exist between the anxiety and depression scales of the HADS ($\tau = 0.402; p< 0.01; 1$-tailed), anxiety and the catastrophising scale of the PRSS ($\tau = 0.371; p< 0.01; 1$-tailed), and depression and the catastrophising beliefs scale ($\tau = 0.379; p< 0.01; 1$-tailed).

The only measures to be significantly associated with pain intensity were the catastrophising scale of the PRSS and the anxiety measure. These results indicate that women who experienced frequent negative or catastrophising thoughts about their ability to control their pain also experienced high pain intensity. Women who were more anxious also experienced higher pain intensity.

Table 21. Kendall’s tau-b correlation coefficients for relationships between variables measured ($n = 35$)

<table>
<thead>
<tr>
<th></th>
<th>GRISS</th>
<th>GRIMS</th>
<th>HAD-A</th>
<th>HAD-D</th>
<th>PRSS-Cat</th>
<th>PRSS-Cop</th>
<th>PRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRISS</td>
<td>0.220*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRIMS</td>
<td></td>
<td>0.286*</td>
<td>0.216*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HAD-A</td>
<td>0.259*</td>
<td>0.173</td>
<td></td>
<td>0.402**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HAD-D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.371**</td>
<td>0.379**</td>
<td></td>
</tr>
<tr>
<td>PRSS-Cat</td>
<td>0.225*</td>
<td>0.017</td>
<td>0.371**</td>
<td>0.379**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRSS-Cop</td>
<td>-0.034</td>
<td>0.022</td>
<td>0.190</td>
<td>0.178</td>
<td>-0.018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRI</td>
<td>0.119</td>
<td>0.157</td>
<td>0.206*</td>
<td>0.163</td>
<td>0.252*</td>
<td>-0.065</td>
<td></td>
</tr>
</tbody>
</table>

* Correlation is significant at the .05 level (1-tailed)
** Correlation is significant at the .01 level (1-tailed)
3.5 QUALITATIVE DATA

Participants were asked to complete one open question that enquired 'What is bothering you most about your pain?' (Qu. 18 Demographic Questionnaire, Appendix D). Responses to this question were reduced to 10 categories and compared between groups. Two independent raters sorted the original statements into the categories produced. Inter-rater reliability was computed using Cohen's Kappa Correlation. Percentage agreement for these 10 categories was 89% (κ = 0.89). Where there was disagreement about the categorisation of statements this was discussed until consensus was reached. The categories were further collapsed during this discussion to yield seven distinct themes. The results of this analysis are presented in Table 22, and the frequencies of responses compared between groups. Original statements before reduction are presented in Appendix J.

Table 22. Frequencies of responses to categories produced by open question

<table>
<thead>
<tr>
<th>Qualitative information</th>
<th>Dyspareunia (n = 11)</th>
<th>CPP (n = 13)</th>
<th>Comparison (n = 11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interference with sexual relationship</td>
<td>3</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Effect on relationship with partner, family</td>
<td>2</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Limiting 'normal' activities</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Experience of pain/irritation/discomfort</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Anxiety re: cause of pain and future prognosis</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Depression</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

The primary concern expressed by nearly half (46.2%) of women in the CPP group was the interference of their pain with their sexual relationship, compared to just 27.3% of women with dyspareunia. The second most frequently cited concern for women was anxiety about the possible cause of their pain or worries about the future e.g. "knowing what's causing it", "it bothers me it will get worse", or "that it won't go away".
Approximately a third (30.8%) of women with CPP and 18.2% of women with dyspareunia reported that they were also concerned about the effect of their pain on their relationship with partners and family members. This response was not cited as a primary concern by women in the comparison pain group. However, women with pain in other sites in their body were worried about their pain limiting 'normal' activities, such as "not being able to do physical things i.e. games and sport".

Five (38.5%) women in the CPP group referred to the actual experience of their pain, discomfort or irritation that bothered them most and two women from the sample reported being concerned about feeling depressed and that their pain was "getting me down".

Women with CPP provided the most responses to this open question, despite two participants not responding at all to the item. One participant in the comparison pain group also left this item blank and another woman in this group reported that "nothing" was bothering her about her pain.
3.6 SUMMARY OF RESULTS

3.6.1. Sample Characteristics

The three groups were comparable on demographic variables measured, but there was a trend for women in the comparison group to be slightly older and for fewer to be in paid employment, than women in the dyspareunia and CPP groups. The groups were similar in the chronic nature of their pain, although there was a trend for women in the comparison group to have been seeking help for longer, and to be using analgesic medication more frequently.

Women with dyspareunia reported being less impaired by their pain during everyday activities than the other two groups, but were most impaired during sexual intercourse. Over half of women in the CPP group and a third of the comparison group also reported that their pain interfered moderately or severely with sexual intercourse. Women with dyspareunia and CPP had experienced significantly more gynaecological surgery than women in the comparison group, but the groups were comparable in terms of menopausal status.

Most women in the comparison group believed their pain to be a chronic condition, with no specific physical cause. In contrast, the majority of women with dyspareunia and CPP believed their pain to be due to physical (organic), or sexual problems.

3.6.2. Between Groups Analyses

The groups did not differ significantly on measures of overall sexual functioning or relationship adjustment. However, four women in the dyspareunia group and four in the CPP group had total GRISS scores within the 'problem' range, indicating gross sexual dysfunction, compared to none of the participants in the comparison pain group. A similar number of women in each group had total transformed scores within the 'problem' range on the measure of relationship adjustment, indicating no differences between groups. However, more women in the dyspareunia and CPP groups had scores within the 'undefined' range on this measure than the comparison group.
No significant differences were found between groups on the measure of affect, with mean and median scores falling within the mild to moderate range for anxiety, and non-clinical range for depression. However, a trend was observed for more women in the CPP group to present with greater severity of anxiety and depression, than the other groups. There were also no significant differences between the three groups on the measure of beliefs about pain. However, the means and medians indicated that women in the dyspareunia group experienced catastrophising thoughts more regularly, and coping thoughts less frequently, than the other two groups.

Groups did not differ on overall pain ratings, but did show distinct profiles of pain descriptors chosen. Groups did differ significantly in response to the measures of present pain intensity, as expected, providing some validity for the selection criteria employed to differentiate the dyspareunia and CPP groups.

3.6.3. Within Groups Analyses

Within the dyspareunia group no significant associations were found between anxiety and pain intensity, depression and pain intensity, or relationship adjustment and pain intensity, as predicted, and contrary to previously published findings with this group of patients. When groups were combined however, significant positive, but small, associations were found between many of the measures used. The measure of anxiety and the catastrophising scale of the pain beliefs measure, were both found to correlate independently with pain intensity.

3.6.4. Qualitative Data

The most frequently cited concerns by participants in the study were the interference of their pain with their sexual relationship, and anxiety about the possible causes and future prognosis. A significant proportion of women with CPP were also bothered by the actual experience of their pain, irritation or discomfort. Many of the women with dyspareunia and CPP expressed worries about the effect of their pain on their partners and family. Women in the comparison group however, were most concerned about the limitations their pain imposed on 'normal' activities, and whether their pain would get worse, go away or come back again.
4.0 DISCUSSION

4.1 OVERVIEW

This study represents a preliminary attempt to explore how women with dyspareunia compare with women with more generalised chronic pelvic pain syndromes and women with chronic pain in sites other than their pelvis. In particular, the study investigated whether these three groups of women differed in response to self-report measures of sexual functioning, relationship adjustment, anxiety and depression, beliefs about pain, and pain intensity. The relationships between reported pain intensity and the psychosocial variables measured in the study were explored, in an attempt to shed light on the possible important psychological contributions to the maintenance of chronic pain for these women. Finally, the evidence in support of the shift in conceptualisation of dyspareunia from a sexual dysfunction to that of a chronic pain syndrome was investigated.

This study is the first that has compared women with dyspareunia with two comparison pain groups in order to investigate the role of psychosocial variables. The inclusion of a comparison group with chronic pain in another site has been an important methodological improvement on previous research that has, so far, only compared women with dyspareunia with no-pain controls. In turn, this has limited the conclusions that can be drawn about the experience of pain for these women. The hypotheses, although based on findings from the literature, can only be confirmed tentatively at this stage, due to the small numbers recruited in the time available for the study. However, the research questions posed and findings reported may offer a way forward in this under-investigated area.

The main findings are summarised at the end of the Results section. In brief, women with dyspareunia were found not to differ significantly from women with CPP or women with other chronic pain syndromes on measures of sexual functioning, relationship adjustment, anxiety and depression, beliefs about pain or pain intensity. Significant positive correlations were found between measures of anxiety and catastrophising self-statements, and reported pain intensity. These findings are
interpreted below, in relation to the research questions posed and findings from other published studies about women with chronic pain. This is followed by a discussion of the theoretical and clinical implications of the study. Methodological limitations are then discussed and recommendations proposed for future research, based on the current experience.

4.2 INTERPRETATION OF MAIN FINDINGS

4.2.1 Research Question One

Do women with dyspareunia differ from women with chronic pelvic pain or women with other chronic pain syndromes on measures of: sexual functioning; relationship adjustment; anxiety and depression; beliefs about pain; or pain intensity?

4.2.1.1 Sexual functioning

The hypothesis that the dyspareunia and CPP groups would not differ significantly on standardised measures of sexual functioning or relationship adjustment was supported by this study, although, due to the small sample sizes cannot claim to be confirmatory. A trend was observed between the groups whereby the overall mean and median GRISS scores for the dyspareunia group were higher than those of the CPP or comparison pain groups. It may have been that with larger sample sizes this trend between groups would be shown to be significantly different.

In the current study, the mean and median overall GRISS scores for the three groups were all within the 'non-problematic' range, indicating 'normal' sexual functioning. These findings are comparable to those reported by Waller and Shaw (1995) who also used the GRISS as part of their study on women with symptomatic and asymptomatic endometriosis. When subscale scores were examined and compared between groups, the overall profiles were found to follow a similar pattern. In particular, the dyspareunia and CPP groups reported the same difficulties, with high scores on the Vaginismus and
Infrequency subscales. Other subscale scores were found to be comparable with those reported by Waller and Shaw (1995). These similarities between studies provide some validity for the results in this research, despite the small numbers.

An interesting finding was that the mean Vaginismus subscale scores were highest in all three groups falling into the 'problem' range in each. One possible interpretation of this finding is that it could be due to the overlap between vaginismus and dyspareunia reported in the literature (Reissing, Binik and Khalife, 1999; Van Lankveld, Brewaeyys, Ter Kuile and Weijenborg, 1995).

Meana and Binik (1994) discuss the descriptive and classificatory problems in the distinction between vaginismus and dyspareunia. Vaginismus is described as an involuntary spasm of the pelvic floor muscles that surround the vagina, that interferes with sexual intercourse and causes marked distress (DSM IV, 1994). As a result penile entry becomes either impossible or painful. Vaginsimus has sometimes been treated in the literature as a severe case of dyspareunia, however, the DSM IV and ICD-10 consider them as distinctly different dysfunctions. In clinical practice the criteria used to distinguish between dyspareunia and vaginismus remain unclear (Reissing et al., 1999).

In this study it may have been that the vaginismus scale was actually measuring dyspareunia for the women, or that those women with dyspareunia reported higher rates of vaginismus as well. This explanation however, does not account for the high mean score reported by the comparison group, particularly as this group reported lower levels of pain associated with intercourse than the dyspareunia and CPP groups. It may be for this group, that the high Vaginismus scores are due to the real or perceived aggravation of pain, which may in turn increase anticipatory anxiety during intercourse. These cognitive factors have been reported elsewhere to affect the quality and frequency of sexual activity in patients with chronic pain (Smith and Grabois, 1995).

It would have been interesting to examine the association between dyspareunia and vaginismus in more detail to test whether they correlate significantly. In the present study the short ordinal scales of the item referring to pain associated with intercourse, and the small variance in scores on the Vaginismus subscale of the GRISS, made statistical tests of association inappropriate. Waller and Shaw (1995) found that women
in their study with pelvic pain scored higher than those not reporting pain, on four out of seven of the GRISS subscales, including the Vaginismus scale. However, they concluded that these differences were not accounted for by the greater frequency of dyspareunia in the pain groups.

The prevalence of dyspareunia in the CPP group in the present study, described as moderate or severe, was slightly lower than that reported by Collett et al. (1998), who found that 73% of women with CPP in their study reported pain during intercourse. Collett et al. (1998) also found that there was a much higher prevalence of current sexual problems among women with pelvic pain than with chronic pain in another site. This finding was not replicated statistically in the current study, although there were similar numbers of women in the dyspareunia and CPP groups who scored within the 'problem' range on the GRISS, compared to none of the participants in the comparison pain group. Despite this trend, women in the three groups reported high satisfaction with their sexual relationship.

Although overall GRISS scores were found to be 'non-problematic', the qualitative data indicates that the women with dyspareunia were concerned about the effect of pain on sexual activity and their relationship with partners. Women with CPP reported these concerns even more frequently than the dyspareunia group. Despite this, reports of infrequency or avoidance of sexual intercourse by these women only just fall into the 'problem' range. Women may be engaging in sexual intercourse in spite of their pain for a number of reasons. These could include, the importance they place on their sexual relationship, or because they feel unable to refuse in the absence of observable pathology or a diagnosis that makes sense to them (Marin et al., 1998). Glatt et al. (1990) noted that for women with dyspareunia in primary care, although a decrease in sexual intercourse due to pain was reported, once intercourse was initiated it was rarely discontinued.

In summary, the results tentatively support the findings of Meana et al. (1998) that as a heterogeneous group it may not be accurate to assume gross sexual dysfunction in women with dyspareunia. The women in this group appear to be similar to those with more generalised CPP and women with other chronic pain syndromes in their reports of sexual functioning and satisfaction.
4.2.1.2 Relationship adjustment

In this study overall relationship adjustment scores for women in the comparison pain group were slightly higher than the other two groups, suggesting that these women were less well adjusted. It may be that this was a result of the small number of women in the dyspareunia and CPP groups who scored exceptionally low on this measure, therefore reducing the mean for the groups. Transformed scores that fall within the 'undefined' range are cautioned against by Rust et al. (1988) who warn that participants may be trying to conceal problems in their relationship. When these cases were removed from the analysis the means were almost identical in each group.

The revised results were compared against Rust et al.'s (1988) standardisation data. The participants in this study were found to have similar quality relationships to a non-clinical GP sample, and better quality than a clinical population presenting to a sexual dysfunction clinic in the Rust et al. studies. These findings are also similar to other studies that have used the GRIMS with women with CPP (Low, Edelmann and Sutton, 1992 and 1993; Fry et al., 1997).

It is not clear why some women in the dyspareunia and CPP groups reported extremely high satisfaction with their relationships. It may be that these women were giving unrealistic appraisals of their relationships, or that they were in very new relationships. However, neither age nor marital status was predictive of responses to this measure in the current study. Given the location of pain for women with dyspareunia and CPP it may be that some women felt the need to respond defensively to questions about their relationship, for fear that they or their partner may be blamed for their pain.

No other published studies have used the GRISS and the GRIMS together with women with dyspareunia or CPP to assess the quality of intimate relationships. This is despite the assumption that has prevailed in the literature, that these women have poor sexual and marital relationships. It is interesting that the instruments used in this study show that there is no difference between the group under investigation and women with more generalised pelvic pain and other chronic pain syndromes. In turn, these groups were also found to show no difference from other GP attenders and a distinct difference from clients who may be described as 'clinical'. In other words, although women with
dyspareunia experience pain associated with intercourse, the quality of their intimate relationships was not found to be different from the reported experience of 'normal' women.

Meana et al. (1998) found that in women with dyspareunia marital adjustment predicted pain ratings, in contrast to the literature on other pain populations. They interpreted this finding as suggesting that in women with dyspareunia spousal solicitousness indicated a willingness to avoid sexual intercourse, or a general sensitivity to their partner's pain during sexual activity. Although it was not possible to replicate these results in the current study, if found to be true, they could in turn explain why women with pain during intercourse describe their overall sexual and marital relationship as good. It would have been interesting to also have data on the partner's perception of the relationship in order to explore this hypothesis.

4.2.1.3 Anxiety and depression

The findings from the present study suggest that the anxiety scores for the majority of participants were within the 'mild' to 'moderate' range of the scale. Depression scores were for most participants within the 'normal' range. Mean scores did not differ significantly between groups. Compared to previous research that has used the Hospital Anxiety and Depression Scale (HADS) with medical populations, the mean scores found in this study were higher than those reported by Moorey et al. (1991) for cancer patients. However, median scores were similar to those reported by Collett et al. (1998) for women with CPP.

The incidence of clinical anxiety symptoms has been reported to be higher in women with CPP than women with no pain, but not in comparison with women with chronic pain in another site (Collett et al., 1998). The results of the present study are therefore consistent with these findings.

Between 27.3% and 53.9% of participants in this study were experiencing moderate to severe levels of anxiety. This is reflected in the qualitative data collected, which revealed that women in all three groups expressed anxieties about the cause of their pain
or their future prognosis. Over half of the women in the CPP group could be considered as experiencing 'clinical' levels of anxiety. Women in this group also expressed concern about their actual experience of pain, which was described with adjectives such as uncomfortable, heavy and continual. As anxiety is known to be associated with pain intensity in the chronic pain literature, it is perhaps not surprising that this group also score higher on the anxiety scale of the HADS.

The mean depression scores were lower than anxiety scores for all three groups in the present research. The results are consistent with those of a recent study that compared women with chronic vulvar pain and women with CPP and found the groups did not differ statistically on a measure of depression (Bodden-Heidrich et al., 1999). In the present study, the dyspareunia group reported very similar levels of affect to those of the comparison pain group. This is interesting given that previous studies have suggested that women with dyspareunia may suffer from phobic anxiety (Dodd and Parsons, 1984; cited in Marin et al., 1998). Although the HADS does not specifically measure phobic anxieties, there is no suggestion from this study that women with dyspareunia are more anxious than other chronic pain groups.

4.2.1.4 Beliefs about pain

This study found that women with dyspareunia did not differ significantly from women with CPP or other chronic pain syndromes on the measure of beliefs about pain. However, a trend for women with dyspareunia to score lower than the other two groups on the use of coping self-statements was noted. The frequency of catastrophising self-statements was also slightly higher in this group.

The lack of use of measures of cognitive variables in the literature on women with dyspareunia and CPP precludes the comparison of results from other studies. However, the Pain-Related Self-Statements Scale (PRSS) has been used with other chronic pain populations. The results of the present study were compared with the Flor et al. (1993) standardisation sample.
Mean Catastrophising scores for all three groups in the present study were higher than those reported by chronic back pain patients and those with chronic temporomandibular pain. Mean Coping scores for the CPP and comparison pain groups were similar to those reported by Flor et al. (1993). However, the dyspareunia group scores were found to be lower. It is not clear why the scores in this study were different to those reported by the standardisation samples, but it may be that demographic differences between the studies are enough to account for the lack of consistency. Sample sizes were larger in the Flor et al. study ($n = 213$, and $n = 44$ respectively), males and females were both included, and mean pain duration was longer than in the present study (10.8 years).

The majority of women in the comparison pain group reported that they believed their pain to be due to a 'chronic pain problem'. In contrast, most women with dyspareunia and CPP attributed their pain to physical i.e. organic problems or sexual difficulties. Only two women with dyspareunia and three with CPP believed that they were suffering from a chronic pain problem. This difference does not seem to be accounted for by those participants who had not yet received a diagnosis for their pain, as there were similar numbers in each group. However, this striking difference between women with gynaecological pain problems and those with other chronic pain syndromes has implications for how women understand their pain, and their perceptions of treatments offered.

The importance of cognitions in the perception of pain has been a major research focus in the chronic pain literature over the past 20 years. Within a cognitive-behavioural framework, cognitions are viewed as mediators between pain-evoking situations and emotional or behavioural reactions. Personal evaluations of pain and an individual's ability to cope with it are seen as crucial in determining how disabled a person becomes or remains (Flor et al., 1993). The inclusion of a measure of pain-related cognitions has been an important contribution to exploring the experiences of women with dyspareunia and pelvic pain. The PRSS has been designed to assess situation-specific cognitions that either promote or hinder attempts to cope with pain. The observation that women with dyspareunia may use more negative and less positive self-statements than other chronic pain groups has important implications for possible psychological interventions.
4.2.1.5 Pain intensity

The groups in this study were found not to differ significantly on overall pain ratings, but they did differ on present pain intensity and on the profile of pain adjectives chosen by participants to describe their pain.

The majority of women with dyspareunia reported no pain or very mild pain on the present pain index and visual analogue scale, as expected. This also provided some validity for the discriminative properties of the selection criteria employed, to differentiate women with dyspareunia from those with more generalised CPP. However, a small number of women reported being in pain at the time they completed the measure, thus influencing the large standard deviation for the group. These high scores are likely to have been due to the fact that women took part in the research directly after their consultation with the gynaecologist, and many would have been examined during that time. In some cases this physical examination is likely to have precipitated or aggravated their pain, thus influencing their response to the present pain intensity.

The overall pain rating and profile of pain descriptors were compared with those of other pain groups from Melzack (1987) and Low et al. (1992). In relation to total pain ratings, the three pain groups in the present study reported experiencing greater pain intensity than patients with musculoskeletal pain from the Melzack (1987) study. The CPP and comparison pain groups also rated their pain as more severe than post-surgical patients with acute pain and women in labour. The dyspareunia group reported slightly lower pain ratings than the other two groups with total scores between those reported by patients with musculoskeletal pain and those with acute post-surgical pain. Low et al. (1992) reported total pain ratings for women with endometriosis which were significantly less than those in the present study and the Melzack (1987) study.

The pain descriptors chosen most frequently by participants in this study were distinct to each group, with the exception of the words 'tender' and 'aching' that were common to each. Low et al. (1992) report that the most frequently used descriptors chosen by endometriosis patients also included the words 'tender' and 'aching', with the addition of
'tiring-exhausting'. These words together have also been found to be similar to words used by patients with musculoskeletal pain (Melzack, 1987).

Comparison of the pain profiles between groups in the present study suggests distinct experiences of pain for women with dyspareunia, CPP and other pain syndromes, but with some commonality with musculoskeletal pain and women with endometriosis. It is not clear why women in this study reported overall pain ratings to be higher than those found in other studies. Possible explanations include the fact that women in the present study were seen during their out patient gynaecology appointment in comparison to the Low et al. study where women were interviewed in their own homes. It could be that women in the present study were more anxious due to being seen in the clinic. This anxiety could have influenced their perceptions of pain, particularly if they were concerned about having their pain taken seriously and being believed. Secondly, some women reported experiencing intermittent pain. Those not experiencing pain at the time of participation would be reliant on memory of their pain making it more likely to overestimate past pain experiences.

In summary, no significant differences were found between groups on the variables measured. However, due to the small number of participants involved it is not possible to conclude that there are in fact no differences. Similarities with other published studies suggest that the groups measured may be part of a representative clinical sample, indicating that further research with larger numbers would be more likely to confirm the hypotheses examined here. Women with dyspareunia appear to share many psychosocial characteristics with women with more generalised CPP and those with other chronic pain syndromes. Similarities between groups on the variables measured suggest that these factors may not be specific to women with dyspareunia.
4.2.2 Research Question Two

How do sexual functioning, relationship adjustment, anxiety, depression and beliefs about pain relate to reported pain intensity in women with dyspareunia, CPP and other chronic pain syndromes?

The psychosocial variables measured in the present study were chosen because they have been found to be associated with pain intensity in the chronic pain literature. However, the interactions have often been found to be inconsistent between studies and to reflect the complex and subjective nature of the experience of pain. The examination of mediating and moderating variables in chronic pain has been a recent development, and therefore the mixed results in this study perhaps reflect those in the wider chronic pain literature.

The predictions made in this study were based on research into the psychosocial variables associated with pain intensity in women with dyspareunia. Meana et al. (1998) found that anxiety and marital adjustment were both independently predictive of pain ratings. Unfortunately, these findings were not replicated in the present study. The results indicate that the measures used to assess anxiety and marital adjustment were not significantly associated with pain intensity. The lack of comparable results is likely to be due to the small sample size, but may also be influenced by the use of different instruments to measure marital adjustment and anxiety in the present study.

When the three groups were combined, significant correlations were found between many of the variables. In particular, two of the variables, anxiety and catastrophising self-statements, were found to be significantly associated with pain intensity. Flor and Turk (1988) demonstrated the association between negative self-statements and pain intensity using this measure in a study with chronic back pain and rheumatoid arthritis patients. The association however, does not imply a causal relationship, it is possible that high levels of pain and disability foster the use of catastrophising self-statements as well as the converse. Similarly, the positive association between anxiety and pain intensity has been established in the chronic pain literature (Gatchel, 1996).
The other variables measured in this study were not found to correlate directly with pain intensity. However, the significant associations between variables suggest that some may play a mediating or moderating role in pain perception. Depression was not found to be correlated with pain intensity in the present study, despite receiving much research attention due to its high comorbidity with chronic pain (Haythornthwaite, Sieber and Kerns, 1991). Anxiety and depression were found to be highly correlated however, and consistent with the psychiatric literature.

The relationship between depression, catastrophising and pain intensity has been discussed by researchers exploring the mediating role of depression in chronic pain (e.g. Flor et al., 1993). Strong correlations have been found between depression, pain severity and catastrophising using different instruments to measure the same constructs. Significant relationships were also found amongst these variables in the present study. Although depression may play a mediating role in the interactions between cognitive variables and pain, Flor et al. (1993) assert that the Catastrophising subscale of the PRSS makes a significant contribution to pain severity by itself. They conclude that this association lends support to cognitive-behavioural models that emphasise the importance of appraisal and coping with chronic pain.

The associations between relationship adjustment, sexual functioning, depression and pain intensity have been explored in an early study by Flor, Turk and Scholz (1987). Lower marital satisfaction was found to be related to less pain and more depressed mood, in a mixed sample of chronic pain patients. In contrast, lower sexual satisfaction was related to higher levels of pain, but greater spouse support. The results suggested that high pain levels are associated with impaired sexual functioning, but not necessarily marital dissatisfaction. However, the authors note that patients' and spouses' emotional and cognitive reactions to the pain problem and the quality of the marital relationship were the most important factors in the prediction of pain intensity.

Variables found to be significantly associated with sexual functioning in the present study included marital adjustment, anxiety, depression and catastrophising self-statements. These findings are consistent with those from other studies. Using the Coping Strategies Questionnaire (Rosenstiel and Keefe, 1983), Monga et al. (1998) report that the use of coping self-statements was positively correlated with sexual
functioning in patients with chronic pain. Conversely, catastrophising was found to be negatively correlated with sexual functioning. A significant relationship was found between perceived ability to control pain and sexual functioning. Overall, the study found that control appraisal, or how much patients perceived they had control over their pain and how much it interfered with their lives, was the most important factor associated with sexual functioning. Contrary to popular belief, pain-related variables such as pain severity and pain frequency were found to play a non-significant role in determining sexual functioning.

Although significant correlations exist between many of the measures used in the present study, the relationships between measures are not very strong. Therefore, together with the small sample size, it was not possible to examine the predictive properties of the variables measured and pain intensity, using further exploratory methods. The small correlations indicate that other factors, not measured in the current study, may be also influencing participants' experiences of pain intensity. For example, Low et al. (1992) hypothesised that anxiety and depression would be predictive of pain ratings in women with endometriosis. However, they found that extraversion and overall psychiatric disorder, as measured by the General Health Questionnaire (GHQ-30) (Goldberg and Williams, 1988), together were most predictive, accounting for 10% of the pain rating.

The decision to combine the groups in the present study for the correlational analyses was based on the hypothesis that the groups shared many psychosocial characteristics and the non-significant differences found. However, it is possible this may have obscured any differences that do exist between the groups. For example Meana et al. (1998) report that marital adjustment was negatively related to pain rating in their study, contrary to what is commonly found in the pain literature. If the group sizes had been larger to enable separate analyses to take place these differences could have been examined with more confidence.

In summary, it has not been possible in the present study to provide conclusions about the relationship between the psychosocial variables measured and pain intensity in women with dyspareunia. However, the anxiety and catastrophising self-statements
variables were found to be significantly related to pain intensity when the three groups were combined.

The measures of relationship adjustment, affect and negative self-statements were also significantly associated with sexual functioning. Consistent with the findings of Monga et al. (1998), pain intensity was not associated with sexual functioning. This provides further tentative support to oppose the assumed relationship between dyspareunia and sexual functioning that has existed in the literature, and indicates that women with dyspareunia reporting high pain do not necessarily also report poor sexual functioning or satisfaction. Finally, the importance of cognitive variables, specifically catastrophising self-statements, that are likely to hinder attempts to cope with pain, are highlighted in the current study. This in turn has implications for the assessment and treatment of women with chronic pain syndromes.

4.2.3 Research Question Three

Is it useful to consider dyspareunia as a chronic pain syndrome rather than a sexual dysfunction?

The results of this study do not enable confirmation of the hypotheses put forward in order to answer this question definitively. However, they do provide some tentative support for the shift in conceptualisation proposed by Meana et al. (1997a; 1997b). The variables measured in this study form part of a comprehensive psychological assessment of pain and reveal many similarities between the experience of dyspareunia pain and that of other chronic pain syndromes. In particular, women with dyspareunia do not appear to differ from women with CPP or chronic pain in another site on overall sexual functioning or satisfaction. Specific sexual dysfunctions e.g. vaginismus appear to be high in the three pain groups examined. The effects of chronic pain on sexual functioning have only recently been addressed in the literature (Smith and Grabois, 1995).

Women with dyspareunia in this study reported levels of pain intensity not significantly different from the other two groups and similar rates of chronicity, with 55% reporting
pain for over five years. Dyspareunia has been defined in psychiatric nosologies by the activity with which it interferes without regard for the location of the experience of pain. In this study women with dyspareunia reported the greatest number of locations for their pain, indicating that it is a heterogeneous condition.

In summary, the psychosocial variables measured in this study had no predictive value for women with dyspareunia, suggesting that elevated levels of psychological distress reported by some women may result from the experience of pain.

4.3 THEORETICAL IMPLICATIONS

"Although there is little question that dyspareunia constitutes a sexual dysfunction insofar as it inhibits a functional sex life, its current conceptualisation as a sexual dysfunction to the exclusion of its properties as a pain disorder or syndrome has had a far reaching impact on both research and treatment" (Meana et al., 1997b p. 212).

Research into dyspareunia has followed a similar developmental path to that of research into CPP. This in turn has lagged behind exploration of other benign chronic pain conditions. The conclusion drawn from research into CPP so far has been that assessment and treatment of this condition should involve an integrated approach (Savidge and Slade, 1997). As a special type of CPP, the same integrated approach has been advocated for all types of coital pain (Bergaron et al., 1997). However, the existence of dyspareunia as a sexual dysfunction rather than a pain syndrome has served to highlight the persistence of dualistic distinctions between psychogenic and organic pains (Meana and Binik, 1994).

The historical approach to the study of pain has been influenced by the development of the concepts of body and mind, which have in turn influenced the development of the concept of disease. van der Feltz-Cornelis and van Dyck (1997) describe how the emergence, evolution and disappearance of disease entities are linked to attempts to separate and integrate body and mind. They report the process by which diagnostic categories such as 'somatoform pain disorder' and 'affective disorders' arose, at a time when the prevailing concept of disease sought to avoid integration of body and mind.
The mind was seen to influence the body and problems were presumed to be 'mental' in the absence of illness in the body. This notion has persisted in the classification of diseases that are not physically observable in the body.

DSM IV classificatory criteria for dyspareunia have been criticised because they do not specifically address the pain on which the definition is based. Instead the criteria further classify dyspareunia as lifelong/acquired or generalised/situational, with no mention of location, which is the defining characteristic of most pains (Meana and Binik, 1994). As they have been developed and refined, the criteria have begun to include some acknowledgement of physiological processes, however these are still seen as quite distinct. The system has been accused of blurring the distinction between psychogenic and medical factors, and still lacks the explanatory potential of modern pain theories (Meana et al. 1997a). Current biopsychosocial models can be seen as a further attempt at integrating body and mind, where the mind is seen as influencing the body and vice versa.

Integrative models have been proposed for the development of CPP and other chronic pain syndromes (e.g. Steege, Stout and Somkuti, 1993; Gatchel, 1996). Elements of these models may also be relevant to women with dyspareunic pain. The models include events such as biological factors sufficient to initiate nociception, and associated emotional reactions such as fear, anxiety and worry as a consequence of the perception of pain. If the pain persists past a reasonable period of time this leads to a wider array of behavioural and psychological problems, such as alterations to lifestyle and relationships, and further affective reactions such as depression, distress, anger and somatisation. Gatchel (1996) hypothesises that the form these problems take depends primarily on factors such as premorbid personality characteristics, and current socioeconomic and environmental conditions. After a number of months the vicious circle among components is established and the factors that serve to maintain the chronic pain condition may not be the same as those that initiated it, prompting a different approach to treatment to that of acute conditions.
4.4 CLINICAL IMPLICATIONS

4.4.1 Assessment

Dyspareunia is reported to be an extremely common condition, the incidence of which may be increasing, and the most under-investigated gynaecological pain syndrome relative to its reported occurrence in women. Symptoms of dyspareunia may persist for years without being resolved, and many women with chronic pain may not consult their GP. Glatt et al. (1990) report that of those who do only a third report that they received a specific diagnosis and/or therapeutic benefit.

In terms of the present study, the finding that women with dyspareunia share many psychosocial characteristics with women with other chronic pain syndromes, has important implications for clinical psychology. Often women are referred to clinical psychologists if no organic pathology has been found, to treat the sexual dysfunction. In adopting a pain management approach psychologists can argue for a more integrated approach in which psychological and gynaecological assessments can be considered together.

The role of psychology in gynaecology has recently been advocated to address the growing acknowledgement that a large number of problems seen in the outpatient gynaecology clinic are chronic in nature and frequently associated without known organic pathology (Hunter, 1995). Developments in the areas of health and medical psychology and the substantial psychological contributions to modern theories of pain, suggest psychologists have much to offer to this specialty.

Clinical psychologists are already involved in multidisciplinary pain management services across the country and some specialist chronic pelvic pain clinics also exist. The role of the psychologist in the comprehensive evaluation of a woman presenting with pelvic pain includes carrying out a thorough psychosocial and behavioural assessment (Collett, Cordle and Stewart, 2000). Factors that may exacerbate or maintain pain symptoms are identified during this assessment as well as the woman's perception of the impact of her pain on her emotional well-being, her relationships and functional ability. In addition, specific assessment of the patient's beliefs about the controllability
of her pain, her use of positive or negative pain-related self-statements, and specific coping strategies are considered important factors in the formulation of her difficulties.

Clinicians and those who write about the integrated approach to the assessment of CPP (e.g. Steege, 1998a), emphasise the importance of introducing the psychologist to the patient early on during assessment as another member of the service, to avoid perpetuating the lay view of 'physical' versus 'psychological' problems. Qualitative research has highlighted the experiences of women seen by gynaecological services who have sometimes felt that they were not believed, or that they were over-presenting their pain (Savidge et al., 1998). This implies that a collaborative approach that is emphasised in most psychological therapies would be a helpful contribution, to enable women to feel listened to and understood.

The women with dyspareunia in this study revealed concerns about the effect of their pain on their intimate relationships and family, and fears about the underlying cause of their pain, and whether it will ever be adequately controlled. These anxieties should be explored during assessment. For some women, their pain was not limited to sexual intercourse and interfered with other valued activities. The way in which the assessment of dyspareunia is approached and explained to the patient will have implications for her understanding of her pain. This was reflected in the current study, where most women believed their pain to be due to physical or treatable causes or sexual problems, rather than a chronic condition.

4.4.2 Intervention

The most common treatments for dyspareunia pain currently, include surgical and medical interventions. This biomedical approach has continued to dominate, despite the range of other therapies now available. Women in this study had undergone a significant number of gynaecological procedures, putting themselves at risk of further iatrogenic harm. A pain management approach to dyspareunia pain could include modalities such as behaviour and sex therapy, biofeedback, cold application and acupuncture (Bergeron, Binik, Khalifé and Pagidas, 1997). These interventions have
advantages over surgical or medical treatments as they are non-invasive, and have shown success in the management of other chronic pain syndromes.

Clinical psychologists can offer interventions such as sex therapy for the treatment of specific sexual dysfunctions, such as vaginismus, which were common in the present study. Cognitive interventions also show promise for women with dyspareunia pain, with the aim of modifying maladaptive beliefs that impact on patient functioning. This study found significant associations between pain-related catastrophising self-statements, and both pain intensity and sexual functioning. In other studies pain-related beliefs have been shown to be associated with measures of psychological adjustment, physical functioning, coping efforts, pain behaviour and treatment outcomes. A cognitive-behavioural model remains the most useful approach to the formulation and understanding of patient adjustment to chronic pain (Jensen, Romano, Turner, Good and Wald, 1999).

4.4.3 Service Organisation

At an organisational level, the high prevalence of dyspareunia and number of medical, gynaecological and surgical interventions associated with the syndrome has implications for the cost of chronic or untreated pain to the individual and to the National Health Service. Dyspareunia can have debilitating effects on women's experience of their sexual relationship and other valued activities, their self-esteem and general quality of life.

The economic burden of intractable gynaecological pain has been estimated to cost the NHS in 1990/1991 a total of £158.4 million or 0.6% of total expenditure (Davies, Gangar, Drummond, Saunders and Beard, 1992). The annual and lifetime costs of diagnosis and treatment of pelvic pain were estimated to be £770 per woman. These figures were based on the assumed number of GP consultations and referrals to secondary care utilised by these women, and highlight the significant impact of CPP at a national level.
The assumptions behind these calculations underestimate the likely number of women suffering from dyspareunia, given that most women do not visit their GP, and only 50-75% of women consulting in primary care with pelvic pain are referred to a specialist for the duration of their symptoms (Zondervan et al., 1999). Further research is needed to investigate non-surgical interventions for dyspareunia and the potential for education at a primary care level to encourage GP's to ask questions about coital pain, so that more women may be given the chance to seek relief from this distressing condition.

4.5 METHODOLOGICAL LIMITATIONS

There are a number of methodological limitations of the present study that will influence the interpretation of the results found. These limitations are discussed below with suggestions for improvements or alternative approaches.

4.5.1 Design

The study employed a three-group comparison design with some correlational analyses. This design was considered appropriate in order to explore the research questions posed. However, it is acknowledged that a larger sample is needed in order to avoid Type II errors. With sample sizes of 11-13, in detecting large effects, the current study was calculated to have a power of .50. Clearly this is quite low, raising the possibility of Type II errors. The use of nonparametric statistics further limits the power of the study. Therefore, the results found must be interpreted with caution, as there is a 50% chance that significant differences that may exist between the groups have not been detected. A sample size of 60 per group would be needed for a power of .80, in detecting medium size effects, at $\alpha = 0.05$. It is likely, that differences, if indeed they do exist between groups, are quite small given that the current study did not detect any, despite having a reasonable chance of rejecting the null hypothesis using the measures employed.

Other limitations with the design used include the cross-sectional nature, meaning that variables are measured at one point in time. Therefore, it is not possible to say whether an individual's responses to items are typical. This was observed for the pain intensity
measure as women with dyspareunia reported higher present pain intensity than expected. Repeated measures over time would have been necessary to determine the variability in pain ratings. Cross-sectional designs also prevent the collection of objective information about psychological status prior to the onset of pain. Therefore it is not possible to say whether the psychological distress observed in some women was as a result of the pain experience. However, comparison with other chronic pain groups allows interpretations to be made about psychological variables that may have previously been thought to be of specific aetiological importance to women with dyspareunia. Longitudinal studies are needed to determine the predictive properties of premorbid psychological characteristics in the development of dyspareunia.

The correlational nature of some of the data has identified relationships between some of the variables measured, but no assumptions can be made about causality. As discussed earlier, the significant associations found may be the result of or influenced by other variables that are related to both. The small correlations suggest that there were other important variables, predictive of pain intensity, that were not measured by the present study.

A criticism of the study, but also a potential strength, is the way in which the groups were defined and selected. Women with dyspareunia were defined by self-report of pain during or after sexual intercourse. Meana and Binik (1994) have criticised assessment techniques that have relied on this question alone, in order to classify or diagnose women with dyspareunia. Asking this question tells the clinician very little about the type of pain the woman is experiencing, and gives few clues as to appropriate treatment. Yet this question remains the diagnostic criteria in DSM IV. Use of self-report of pain also enabled selection to be made against a priori criteria based on the women's response to questionnaire items. An alternative would have been to ask the consultant to classify participants, but this would have raised the possibility of lack of reliability of diagnoses between the different consultants referring.
4.5.2 Participants

Despite the small sample sizes, the prevalence of dyspareunia and CPP is estimated to be high. Therefore with more time for recruitment it is likely that adequate sample sizes could be achieved. Ninety-one consecutive referrals were sent information about the study and invited to take part, with forty-seven being recruited, and thirty-five included in the final analyses. It is clear therefore, that although these women are prevalent in secondary care the sample recruited may not be representative of the rest of those seen by gynaecologists. Furthermore, Zondervan et al. (1999) estimates that between 25-50% of women with pelvic pain in primary care are not referred to a gynaecologist. The clinical sample in this study is therefore unlikely to be representative of those women seen in primary care, and even less so of those who do not consult their GP about their pain. The results of this study are therefore considered to be exploratory, and not generalisable to the wider population of women with pelvic and/or coital pain.

It is reported that women with dyspareunia and CPP are heterogeneous populations, however the selection criteria for the present study may have made it more likely that the groups contained a range of problems. Women were recruited from a number of sources for this study that could be considered secondary or tertiary services. For example some women were referred to outpatient gynaecology or pain management clinics by their GP. Others had been referred by consultants, after completing their own investigations first. Therefore, women differed within the three groups in relation to the number of previous investigations and treatments they had undergone, and whether or not they had been given a diagnosis for their condition. However, between groups analyses failed to find any significant differences on these variables.

An alternative to the recruitment process employed would have been to select women either on their first visit to the clinic following a GP referral, or to invite women from the tertiary services only to take part. By the time women had reached these services their pain was considered truly chronic and most had experienced a significant number of medical and surgical interventions with varying success. Unfortunately these clinics ran much less frequently with fewer patients than the secondary care clinics. Recruitment from these services alone would have prolonged the data collection period.
and introduced an additional selection bias given that not all women with chronic pain were referred to them.

To enable the maximum number of participants to be recruited to the study, matching procedures were limited to age, pain chronicity and the presence of an intimate relationship. Using these criteria the groups were found to be comparable in terms of the demographic variables measured. However, some trends between groups were observed. The mean age of the comparison group was slightly older than the pelvic pain groups. However, the mean ages of the dyspareunia and CPP groups were found to be comparable to other similar published studies (e.g. Collett et al., 1998; Glatt et al., 1990; Meana et al., 1997c). Small differences were also observed between the groups in relation to length of time seeking help for pain, analgesic use and employment status. In order to reduce the implications of within group variability on between group differences, further matching criteria should be used. The most important demographic variables appear to be age, employment status, duration of pain, and length of time in secondary care.

4.5.3 Measures

The study used data from six self-report measures in order to explore the research questions of interest. Problems inherent in the use of self-report measures include the subjective nature of the information provided and the influence of factors such as affect, social and environmental context, and culture. Patient self-report was considered necessary in order to assess pain and psychosocial variables that are subjective in nature and not easily observable. However, reliance on these measures alone has been reported to pose the risk of shared method variance (Jensen et al., 1999) that accounts for some of the associations found between variables examined. Other sources of information are recommended to improve the validity of results.

In the present study information from partners would have provided additional support for the measures of sexual and relationship adjustment. Further, information could be gathered in this way about functional limitations and premorbid characteristics. Self-report methods also limit the depth of information that can be collected. Rating scales
for example, limit responses to the researcher's perceived ideas. Thus, interview methods would have been preferred to allowed participants greater flexibility in their responses that may have facilitated a better understanding of the individual's pain. The qualitative information reported by women in this study produced some interesting observations that could have been probed in an interview.

A combination of interview and self-report methods would enable the inclusion of psychometrically devised questionnaires to be used, thus overcoming one of the limitations of previous studies. This method was considered to be too time-consuming for use in the outpatient clinics however, and would have involved arranging follow up meetings with the researcher. Other methods of data collection such as postal surveys were considered inappropriate for the current study, due to the personal nature of some of the questions. Ethical considerations meant that women had to be recruited during clinics, so that written consent could be obtained from their consultants.

Most of the measures used in the study were considered to be psychometrically adequate and appropriate for the three groups studied. However, some problems were noted with the demographic questionnaire. In particular, some of the response categories offered were arbitrary and limited the information that could be gathered to frequency data. The item relating to pain associated with intercourse was confounded by the possibility that some participants were reporting dyspareunia and others the aggravation of pain in other sites of their body. It would have been preferable to include two items relating to pain associated with intercourse, to collect data on both these impairments. The literature indicates information is limited about the effects of chronic pain on quality of life issues such as sexual functioning. Further piloting of this questionnaire, together with the inclusion of methods to improve validity and reliability, such as comparison with other methods of data collection and re-test information, would improve this instrument.

The measures of sexual functioning and relationship adjustment were considered the best available instruments for the current study. However, some women reported that certain items did not take full account of their impairments and they wanted to make additional comments about the effects that their pain had on their sexual and marital relationships. Without the inclusion of the qualitative item it might have seemed that the
experience of pain with intercourse had no effect on the sexual relationship, which was clearly not what the women were expressing.

In relation to the other measures used, the inclusion of a multidimensional or global measure of emotional adjustment may have revealed psychological symptoms, other than anxiety and depression, in women with chronic pain. For example, Low et al. (1992) found extraversion and overall psychiatric functioning to be predictive of pain intensity in women with endometriosis. Ratings of pain intensity could also have been improved by including more visual analogue scales, for comparison of pain across time. For example, the inclusion of scales to assess average pain over a day or a week, and worst pain, as well as present pain could have provided additional information. Finally, the inclusion of the Pain-Related Self-Statements Scale was made with little guidance from previous research on women with pelvic pain. A more composite measure that included items relating to coping e.g. the Coping Strategies Questionnaire (Rosenstiel and Keefe, 1983) may have provided more information, in order to guide the further exploration of the role of cognitive variables in adjustment to dyspareunic pain.

### 4.6 Future Research

This research can be considered an exploratory study. Greater numbers are needed to confirm or refute the findings presented. Future research should consider the use of interview or other qualitative methods and the inclusion of information from partners. Multiple pain ratings would increase the reliability of data collected. With larger samples an emphasis on examining the predictive properties of psychosocial variables, in accounting for changes in pain intensity, could be achieved. Longitudinal or prospective studies will be needed in order to establish causal links between variables and pain intensity.

Attempts should be made to recruit more homogeneous groups, by improving matching procedures to control for diagnosis and number of interventions. Recruitment from a single service level would be preferable e.g. primary, secondary or tertiary care. A similar research design would be interesting to complete within a GP surgery, as many women with chronic conditions are not routinely referred to specialist services. This
appears to be related to the age of the patient, with older women being offered less referrals (Zondervan et al., 1999).

Recently, the literature has moved towards studying subgroups of women with dyspareunia such as those with vulvar vestibulitis or specific diagnoses such as endometriosis, in order to examine more homogeneous groups. Work in this area has suggested that subgroups of women with dyspareunia or CPP may differ from controls, in ways other than more heterogeneous groups.

There have been few treatment efficacy trials of interventions for dyspareunic pain. Those that do exist have shown advantages of the use of psychosocial and behavioural approaches over surgical treatments (Weijmar Schultz et al., 1996). Research is needed to evaluate psychological interventions and pain management strategies for women with dyspareunia. Further exploration of cognitive factors, in particular expectations, beliefs and appraisals of women with dyspareunia and how pain is conceptualised, would add to the understanding of this experience. Studies with other chronic pain populations have found relationships between pain control beliefs, coping strategies and adjustment to pain. Further work using these theories, may enable researchers to determine the maladaptive beliefs that need to be modified, in order to enhance adaptation to pain and treatment outcome.

A major issue in the study of women with dyspareunia is the definition and classification of the syndrome. Much of the variation in prevalence rates may be due to differences in how pain is defined. James et al. (1991; cited in Jamieson and Steege, 1996) defined dyspareunia as pain severe enough to have sought medical attention, required use of prescription medication, or interfered significantly with activities. By comparison, Glatt et al. (1990) defined dyspareunia as pain with intercourse. Further work on establishing a more precise definition of dyspareunia, would enable researchers and clinicians to target those women most in need of intervention.

Finally, research that aimed to explore partners' perceptions of the impact of pain on the relationship would be likely to produce interesting and clinically relevant information (van Lankveld et al., 1995), and further work on the impact on chronic pain on sexual functioning in general is needed.
4.7 CONCLUSION

In conclusion, this study found many similarities between women with dyspareunia, CPP and other chronic pain syndromes on measures of psychosocial functioning. In particular, the reported experiences of intimate relationships, affective responses, cognitive coping strategies and pain intensity, were found to overlap greatly between the groups examined. In addition, this study found significant relationships between the frequent experience of negative self-statements and anxiety, with self-reports of pain ratings. This has important implications for clinical psychology in relation to the types of cognitive interventions that may be developed for women with chronic pain.

This is the first study to have compared women with dyspareunia with other chronic pain groups. Previous studies have examined the differences between women with dyspareunia and no pain comparison groups, and found more psychological symptomatology, impairment in sexual function, and lower levels of marital adjustment. However, this study found no significant differences when women were compared with other pain groups on these variables. These findings suggest that the psychopathology often associated with women with dyspareunia may not be specific to the aetiology of coital pain.

Due to the small numbers involved in the study, the conclusions are tentative, but provide some support for the view that the experience of pain for women with dyspareunia would be better conceptualised within contemporary biopsychosocial models of pain. Application of these models takes into account the dynamic and reciprocal contexts of biological, psychological and social factors that shape an individual's response to pain.

Further work needs to be carried out in this area with larger numbers and more homogeneous groups in order to confirm or refute the findings presented here. Such studies would also enable exploration of the possible predictive factors, associated with pain perception and outcome for these women.

An integrative approach to assessment and intervention of women with dyspareunia, would enable consideration of psychosocial factors at the same time as gynaecological
ones. In turn, this may reduce the need for invasive surgical interventions and help lift the stigma of sexual inadequacy, so often reported when women are only referred to a clinical psychologist once exhaustive medical investigations have been completed.
REFERENCES


Dear Ms Woods

Chronic Pelvic Pain and Intimacy: A comparison of women with Pelvic Pain and Women with Chronic Pain in another site – our ref. No. 5786

Further to your application dated 12 January, you will be pleased to know that the Leicestershire Research Ethics Committee at its meeting held on the 4 February 2000 approved your application to undertake the above-mentioned study.

The Committee felt that the information sheet should invite patients to participate and should be produced on headed notepaper. The year 1984 should be removed.

Your attention is drawn to the attached paper which reminds the researcher of information that needs to be observed when ethics committee approval is given.

Yours sincerely,

Dr R F Bing
Chairman
Leicestershire Research Ethics Committee

(NB All communications relating to Leicestershire Ethics Committee must be sent to the Committee Secretariat at Leicestershire Health)
APPENDIX B

LETTERS OF INVITATION TO PARTICIPANTS

1. Letter of invitation to chronic pelvic pain groups  p. 122
2. Letter of invitation to comparison pain group  p. 123
LETTER OF INVITATION

Chronic Pelvic Pain and Intimacy: A Comparison of Women with Pelvic Pain and Women with Chronic Pain in Another Site

Dear

During your forthcoming visit to the clinic, I wonder if you would be prepared to assist in a study that is being conducted into women with problems similar to yours.

Participation will involve a one-off meeting with a female researcher lasting about 45 minutes, during which time you will be asked to complete some brief questionnaires. The Information Sheet that accompanies this letter has been written by the principal investigator and will explain more about the research.

If you would be interested in taking part in the study please bring this letter with you to your clinic appointment. I will then let the principal investigator know that you are interested so that you can meet her. You will have the opportunity to ask any further questions during the clinic.

The information provided by you will be strictly confidential and anonymous and will be used for research purposes only. If you do not wish to take part in the research you may do so without justifying your decision.

If you have any further questions please feel free to ask during your clinic appointment. I hope that you will feel able to participate.

Consultant Gynaecologist
LETTER OF INVITATION

Chronic Pelvic Pain and Intimacy: A Comparison of Women with Pelvic Pain and Women with Chronic Pain in Another Site

Dear

The Pain Management Service is currently involved in a study into gynaecological pain problems in women. We would like to compare women with this type of pain with women who experience chronic pain elsewhere in their body. The purpose of this study is to help us to understand better, and ultimately help, sufferers of this distressing condition and to provide insight into how people cope with chronic pain. During your forthcoming visit to the clinic, I wonder if you would be prepared to assist with this study.

Participation will involve a one-off meeting with a female researcher lasting about 45 minutes, during which time you will be asked to complete some brief questionnaires. The Information Sheet that accompanies this letter has been written by the principal investigator and will explain more about the research.

If you would be interested in taking part in the study please bring this letter with you to your clinic appointment. I will then let the principal investigator know that you are interested so that you can meet her. You will have the opportunity to ask any further questions during the clinic.

The information provided by you will be strictly confidential and anonymous and will be used for research purposes only. If you do not wish to take part in the research you may do so without justifying your decision.

If you have any further questions please feel free to ask during your clinic appointment. I hope that you will feel able to participate.

Consultant Anaesthetist in Pain Management
APPENDIX C

INFORMATION SHEETS AND CONSENT FORM

1. Information sheet for chronic pelvic pain groups p.125
2. Information sheet for comparison pain group p.127
3. Consent form (used for all participants) p.129
PATIENT INFORMATION SHEET

Chronic Pelvic Pain and Intimacy: A Comparison of Women with Pelvic Pain and Women with Chronic Pain in Another Site

We are conducting a study into chronic pelvic pain and intimacy and would like to invite you to take part. Below are some answers to frequently asked questions about the study to help you decide whether you would like to participate.

1. What is the purpose of the study?
Pelvic pain can cause much distress to the patient and her family. It is an area of concern to the medical profession because it is a common clinical problem. Although it is a common condition there is unfortunately, very little research to help us to understand how it affects the lives of many patients.

We are concerned to try to find out more about women's thoughts and experiences of gynaecological pain problems. In particular, how problems with pelvic pain or pain associated with sexual intercourse can have an impact on other areas of life. This information will help us to understand better, and ultimately help, sufferers of this distressing condition.

2. What will be involved if I take part in the study?
Participation in this study would involve a one-off meeting with a female researcher lasting about 45 minutes. During this meeting you will be asked to fill in some questionnaires and an information sheet containing some basic medical details about you. Some of the questions are of a personal nature and therefore the questionnaires are completely confidential. The researcher will go through the questionnaires with you prior to you filling them in and will remain in the room with you should you have any questions.

3. Will information in the study be confidential?
All information provided by you will be confidential and will be used for research purposes only. Data will be made anonymous and protected under the guidelines of the Data Protection Act.

4. What if I am harmed by the study?
This is a questionnaire study that will not interfere with your physical or psychological wellbeing or medical care. However, if you find any part of the meeting upsetting, then it will be terminated immediately. If you feel that you would like to talk to someone after participation, you will be given the name of a person you can contact.

Medical research is covered for mishaps in the same way as for patients undergoing treatment in the NHS i.e. compensation is only available if negligence occurs.
5. **What happens at the end of the study?**
After taking part in this study, or if you decide not to take part, the researcher will not contact you again. If you would like information about the findings of the study, please ask the researcher.

6. **What happens if I do not wish to participate in this study or wish to withdraw from the study?**
If you do not wish to participate in this study, or if you wish to withdraw from the study, you may do so without justifying your decision and your future treatment will not be affected.

**CONTACT NAMES AND NUMBERS:**

Ms. Andrea Woods, Principal Investigator, Centre for Applied Psychology - Clinical Section, University of Leicester, University Road, Leicester LE1 7RH
Tel: 0116 252 2466

Ms. C.J. Cordle, Head of Medical Psychology, Department of Medical Psychology, Leicester General Hospital, Gwendolen Road, Leicester LE5 4PW
Tel: 0116 258 4958
PATIENT INFORMATION SHEET

Chronic Pelvic Pain and Intimacy: A Comparison of Women with Pelvic Pain and Women with Chronic Pain in Another Site

We are conducting a study into chronic pelvic pain and intimacy and would like to invite you to take part. Below are some answers to frequently asked questions about the study to help you decide whether you would like to participate.

1. **What is the purpose of the study?**
Pelvic pain can be an extremely distressing condition for the patient and her family. Unfortunately, as with many pain problems, we do not always know exactly what the cause of the pain is, and there is very little research to help us to understand how it affects the lives of patients.

We would like to compare women with this type of pain with women who suffer from chronic pain elsewhere in their bodies. Pain anywhere in the body affects people's lives in many ways, but we do not have much information about how people cope with it. The purpose of this study is to help us to understand better, and ultimately help, sufferers of this distressing condition. We would therefore like to ask if you would be able to assist us by taking part in this study.

2. **What will be involved if I take part in the study?**
Participation in the study would involve a one-off meeting with a female researcher lasting about 45 minutes. During this meeting you will be asked to fill in some questionnaires and an information sheet containing some basic medical details about you. Some of the questions are of a personal nature and therefore the questionnaires are completely confidential. The researcher will go through the questionnaires with you prior to you filling them in and will remain in the room with you should you have any questions.

3. **Will information in the study be confidential?**
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Medical research is covered for mishaps in the same way as for patients undergoing treatment in the NHS i.e. compensation is only available if negligence occurs.
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After taking part in this study, or if you decide not to take part, the researcher will not contact you again. If you would like information about the findings of the study, please ask the researcher.

6. **What happens if I do not wish to participate in this study or wish to withdraw from the study?**
If you do not wish to participate in this study, or if you wish to withdraw from the study, you may do so without justifying your decision and your future treatment will not be affected.

**CONTACT NAMES AND NUMBERS:**

Ms. Andrea Woods, Principal Investigator, Centre for Applied Psychology - Clinical Section, University of Leicester, University Road, Leicester LE1 7RH
Tel: 0116 252 2466

Ms. C. J. Cordle, Head of Medical Psychology, Department of Medical Psychology, Leicester General Hospital, Gwendolen Road, Leicester LE5 4PW
Tel: 0116 258 4958
PATIENT CONSENT FORM

Chronic Pelvic Pain and Intimacy: A Comparison of Women with Pelvic Pain and Women with Chronic Pain in Another Site

Principal Investigator: Ms. Andrea Woods

This form should be read in conjunction with the Patient Information Sheet.

I agree to take part in the above study as described in the Patient Information Sheet.

I understand that I may withdraw from the study at any time without justifying my decision and without affecting my normal care and medical management.

I understand that members of the research team may wish to view relevant sections of my medical records, but that all the information will be treated as confidential.

I understand medical research is covered for mishaps in the same way as for patients undergoing treatment in the NHS i.e. compensation is only available if negligence occurs.

I have read the patient information sheet on the above study and have had the opportunity to discuss the details with my Consultant and ask any questions. The nature and the purpose of the study has been explained to me and I understand what will be required if I take part in the study.

Signature of patient ................................................................. Date ......................

Name in BLOCK LETTERS ........................................................................

I confirm I have explained the nature of the study, as detailed in the Patient Information Sheet, in terms, which in my judgement are suited to the understanding of the patient.

Signature of Consultant ................................................................. Date ......................

Name in BLOCK LETTERS ........................................................................

Signature of Investigator ................................................................. Date ......................

Name in BLOCK LETTERS ........................................................................


**APPENDIX D  DEMOGRAPHIC QUESTIONNAIRE**

**Participant Information**

1. Participant code number:

2. Age: ____________

3. Current relationship status  
   - Single - no regular partner □
   - Single - with regular partner □
   - Married/Co-habiting □

4. Ethnic Origin:  
   - White British □
   - White European □
   - White (other) □
   - Black Caribbean/West Indian □
   - Black African □
   - Black (other) □
   - Indian □
   - Pakistani □
   - Bangladeshi □
   - Chinese □
   - Asian (other) □
   - Other □

5. Children: Number _______ Ages ________________________________

6. How many years have you spent in full-time education?  
   - 11yrs (GCSE/O' Level) □
   - 11-13yrs (A' Level) □
   - 14-15yrs (HND, diploma etc.) □
   - 16yrs (Degree level) □
   - 16+yrs (Postgraduate level) □

7. Employment Status:  
   - No paid employment □
   - Employed Full-time □
   - Employed Part-time □
   - Self-employed □
   - Student □
   - Unable to work due to pain □

**Pain Details**

8. Whereabouts is the pain in your body? ________________________________

9. How long have you had your pain?  
   - 6 months-2 years □
   - 2-5 years □
   - 5-10 years □
   - More than 10 years □

128
10. How long have you been seeking help for this type of problem?

- Less than 3 months [ ]
- 3-6 months [ ]
- 6-12 months [ ]
- 1-2 years [ ]
- 2-5 years [ ]
- Over 5 years [ ]

11. Have you experienced any of the following investigations or treatments?

- Laparoscopy [ ]
- Termination of Pregnancy [ ]
- Dilation and Curettage (D&C) [ ]
- Sterilisation [ ]
- Removal of one or both ovaries [ ]
- Infertility Investigations [ ]
- Hysterectomy [ ]
- Other Gynaecological Surgery [ ]

Please specify: ________________________________

12. Have you been given a diagnosis for your pain?  Yes [ ]  No [ ]

If yes, what is it? __________________________________________________

13. How often do you need to use pain-killers?  Rarely [ ]

- Occasionally [ ]
- Most days [ ]
- Every day [ ]

14. Does your pain limit normal activities? (E.g. housework, job, family and social activities)

- No interference [ ]
- Mild interference [ ]
- Noticeable interference [ ]
- Severe interference (have to stop all activities because of the pain) [ ]

15. Do you experience pain associated with sexual intercourse?

- No pain with intercourse [ ]
- Mild pain, able to tolerate [ ]
- Moderate pain, causes intercourse to be interrupted [ ]
- Severe pain, unable to have intercourse [ ]
16. How often do you experience pelvic pain (please tick):

<table>
<thead>
<tr>
<th>always</th>
<th>often</th>
<th>sometimes</th>
<th>rarely</th>
<th>never</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

   a) During and/or after sexual intercourse? □ □ □ □ □

   b) Around and/or during your period? □ □ □ □ □

   c) At times other than during intercourse or around your period? □ □ □ □ □

17. What do you think is the most likely cause of your pain? (tick one or more)

   Physical cause □

   Sexual problem □

   Chronic pain problem (no specific physical cause) □

   Other (please specify) □

18. What is bothering you most about your pain? ________________________________

19. Menopausal Status?

   Pre-menopausal (regular periods) □

   Menopausal □

   Post-menopausal □

20. Are you currently using hormone replacement therapy (HRT)? Yes □ No □
Boxplot of GRIMS transformed scores for the three groups

Boxplot of GRISS transformed scores for the three groups
Boxplot of HADS anxiety and depression subscale scores for the three groups

Boxplot of SF-MPQ Total Pain Rating Index scores for the three groups
Boxplot of PRSS Catastrophising and Coping subscale scores for the three groups

Tests of Distribution and Homogeneity of Variance

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<th>Variable</th>
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<th>2-tailed Z (Sig.)</th>
<th>Levene's Test</th>
<th>2-tailed Sig.</th>
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<td>HADS-A</td>
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<td>PRSS-Cop</td>
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<td>(.698)</td>
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<td>(.706)</td>
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p< 0.05 (All analyses non-significant)
APPENDIX F

RAW SCORES GRISS

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<th>CPP</th>
<th>Comparison</th>
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Mean Total Raw Score 34.27 30.92 25.18
Median Total Raw Score 32.00 26.00 26.00
(SD) (14.79) (13.30) (6.34)
## APPENDIX G

### RAW SCORES GRIMS

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</table>

| Mean Total Raw Score | 23.00 | 22.92 | 26.00 |
| Median Total Raw Score | 24.00 | 22.00 | 28.00 |
| (SD)                  | (10.06) | (10.03) | (7.55) |
APPENDIX H

GRISS SUBSCALE SCORES

Fig 1. GRISS subscale scores for dyspareunia group
Fig 2. GRISS subscale scores for CPP group

![Bar chart showing GRISS subscale scores for CPP group.](image)

Fig 3. GRISS subscale scores for comparison pain group

![Bar chart showing GRISS subscale scores for comparison pain group.](image)
APPENDIX I

PROFILE OF PAIN DESCRIPTORS

Fig 4. Profile of pain descriptors and mean intensity for the dyspareunia group

The bars represent the percentage of participants who chose each pain descriptor and are labelled with mean intensity from (0-3).
Fig 5. Profile of pain descriptors and mean intensity for the CPP group

- Throbbing 0.64
- Shooting 1.82
- Stabbing 1.64
- Sharp 1.64
- Cramping 1.09
- Gnawing 0.27
- Hot-Burning 1.09
- Aching 1.82
- Heavy 0.73
- Tender 2.00
- Splitting 0.36
- Tiring-Exhaust 1.00
- Sickening 0.45
- Fearful 0.82
- Punishing-Cruel 1.09

Fig 6. Profile of pain descriptors and mean intensity for the comparison group

- Throbbing 1.36
- Shooting 1.09
- Stabbing 0.73
- Sharp 0.82
- Cramping 1.64
- Gnawing 1.36
- Hot-Burning 0.91
- Aching 1.91
- Heavy 1.73
- Tender 1.73
- Splitting 0.45
- Tiring-Exhaust 2.09
- Sickening 0.55
- Fearful 0.73
- Punishing-Cruel 0.73
APPENDIX J

QUALITATIVE DATA

Dyspareunia group

"Interfering with sexual relationship - puts a strain on my partner."
"I just dread my menstrual cycle"
"The effect it has on my family"
"Not being able to lead a normal life of a 21 yr old"
"Is there anything other than cyst causing pain"
"The pain has gone on for so long, it is getting me down"
"Reason behind pain"
"The interference with my sex life"
"Unable to have intercourse"
"I am worry about the future"
"That when to want to do somethings and it hard to do them"

CPP group

"My relationship with my husband and family"
"Sexual deprived and strain on relationship"
"Very uncomfortable, heavy pain"
"Continued pain on emptying bladder, getting no better as time goes on"
"Discomfort/pain on the right side which onset cystitis that leads to irritable bowels"
"I feel I have had this for a long time, it makes sex less enjoyable and makes us have sex less often. I feel it is something I will always have."
"Irritation all the time. Not being able to have sexual intercourse"
"Sexual intercourse"
"The way it stops me enjoying my life, my family, my career"
"Pain with intercourse: effect on my relationship"
"Lack of sexual relations"
2 participants did not respond to this item.
Comparison group

"It's not life threatening. I hope somebody could make it go away, as it bothers me it will get worse".
"Limits activities"
"Knowing what's causing it"
"That it won't go away"
"Tiredness, depression"
"The constant pain in my side"
"Having gynae problems as well as other body pains"
"That without medication I can't lead a 'normal' life and as I am young I would like a family"
"Nothing"
"Not being able to do physical things i.e. games and sport, also if the pain will come back".

1 participant in this group did not respond to item