

**A STUDY OF THE COUVADE
SYNDROME IN THE MALE PARTNERS
OF PREGNANT WOMEN IN THE UK**

FOR REFERENCE ONLY

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**FACULTY OF HEALTH AND SOCIAL CARE
SCIENCES, KINGSTON UNIVERSITY**



**SUBMITTED IN PART FULFILMENT FOR DOCTOR OF
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ABSTRACT

The Couvade syndrome or pregnancy-related symptoms in men occurs mainly in industrialised countries around the globe. However, a comprehensive review of available literature suggests that there is a notable dearth of research within the United Kingdom. To address this, a 2-phase study was conducted in the UK. Phase I comprised a qualitative phenomenological study of a purposive sample of fourteen men, who were interviewed to explore the characteristics of the syndrome and explanations for it. The use of interview fieldnotes and summary sheets provided supplementary data. Three themes emerged from an inductive analytical approach: “*emotional diversity in response to pregnancy*”, “*nature, duration and management of symptoms*” and “*explanatory attempts for symptoms*”.

Few, if any, previous study instruments of the Couvade syndrome have been informed by qualitative studies and evidence of their validation is lacking in the literature. Phase II sought to develop and pilot test a structured questionnaire based on the findings of the qualitative study to assess the physical and psychological symptoms of the syndrome in 23 purposively selected male partners of pregnant women. The questionnaire was completed repeatedly over two time periods. The Cronbach Alpha Coefficient of reliability test for the total scale was 0.89. Other tests of internal consistency showed high reliability and validity, except for nine items, which were subsequently removed from the final amended questionnaire.

Few studies have investigated the type, severity, distress and duration of the syndrome’s symptoms collectively. These were investigated using the newly developed questionnaire and the perceived stress coping scale in an experimental group of men with pregnant partners ($n = 182$) over the 1st and 3rd trimesters of gestation and 4-weeks into the postpartum period. This was compared with a control group ($n = 181$) whose partners were not pregnant over a 3 and 6-month comparative time period. Results indicated a significantly higher incidence of 26 physical and 17 psychological symptoms associated with the syndrome for those in the experimental group. There were also statistically higher median severity and distress values for the majority of physical and psychological symptoms in the experimental group. Symptom severity and distress for physical and psychological symptoms commenced in 1st trimester, dissipated in 2nd trimester, returned in the 3rd trimester and then decreased upon the birth or shortly in the postpartum period except for a minority of symptoms. For the control group the median severity and distress scores for physical and psychological symptoms between 3 and 6-month comparative time periods were all non-significant except for “sore gums” which revealed a statistically significant decrease between these periods. In the experimental group the physical symptoms of the longest duration in the 1st trimester were “stomach pain/cramps and “back pain”, “weight gain” and, “stomach distension” in the 3rd trimester and, “tiredness” in the postpartum period. The psychological symptom of the longest duration during the 1st and 3rd trimesters was “sleeping less than usual” and, “early morning waking” in the postpartum period.

In the experimental group there no statistically significant associations between age and the severity and distress of physical and psychological symptoms. There was only one significant association between social class and the severity of the physical symptom of “poor appetite” and none for the distress of the remaining physical symptoms. There were statistically significant associations between social class and the severity scores of three psychological symptoms including “early morning waking”, “feeling frustrated” and “feeling stressed”. There were also statistically significant associations between social class and the distress scores of “sleeping less than usual” and “feeling frustrated”. The largest number of associations were evident between the previous number of children and severity scores of “unable to keep food down”, “cough”, “sore throat”, “pain while urinating”, “toothache”, “sore gums” and “mouth ulcers”. Significant associations between previous number of children and the distress scores were also shown for “stomach pain/cramps” ($P=0.018$), “indigestion”, “cough”, “urinating more than usual” and “sore gums”. There were also significant associations with the severity scores of 2 psychological symptoms namely, “sleeping less than usual” and “unable to cope with daily life” and the distress scores of the preceding symptom and “early morning waking”.

Binary logistic regression revealed five physical symptoms as strong predictors of the Couvade syndrome namely, “cough”, “leg cramps”, “headache” and “diarrhoea” and “pain while urinating” and four, which were weak or unreliable predictors with low R^2 values. There were also three psychological symptoms, which were revealed as strong predictors of the syndrome including “loss of concentration”, “sleeping less than usual” and “lack of motivation” and a further four, which were weak predictors.

There was a higher incidence of all perceived stress coping (PSC) indicators as well as statistically higher median scores for the majority of indicators in the experimental compared to the control group. Between the 1st and 3rd trimesters of pregnancy the median scores of all PSC indicators increased, as did seven in the postpartum period where a further two decreased and one remained constant. For the control group the median PSC scores between 3 and 6-month comparative time periods were all non-significant. For the experimental group, the association between total perceived stress coping scores and the severity scores for physical and psychological symptoms showed no statistically significant relationships at all which was surprising. Binary logistic regression revealed 5 perceived stress coping indicators as weak or unreliable predictors of the Couvade syndrome with low R^2 values.

Thus, the results support the existence of the Couvade syndrome and its time course, and the male partner’s of pregnant women in the study confirmed symptoms as severe and distressing. In view of such findings, men’s health needs should be accorded a greater profile within the realms of antenatal care as their health can affect pregnancy outcome. In addition, past problems with the syndrome’s diagnosis should now be resolved with regression analysis identifying clear symptom predictors for its presence.

Key words: ‘Couvade syndrome’, ‘modern couvade’, ‘sympathetic pregnancy’, ‘pseudo-pregnancy’, ‘pseudocyesis’.

ACKNOWLEDGEMENTS

Dr Hafez Ahmed: an endearing, charming, inspirational supervisor who committed himself in terms of time and energy and who provided constant support and encouragement throughout. He also made a valuable contribution to the analysis of the 2nd phase of the study, helping me to acquire a wealth of new knowledge and skills in statistical methods.

Dr Susan Ayers: an endearing and inspirational supervisor who during the initial stages of the qualitative and quantitative aspects of this research study offered valuable guidance, suggestions and constant encouragement throughout. She also provided much pragmatic help with the development of the analytical field notes and reflective interview summary sheet and qualitative analysis.

Dr Margaret Whittock: one of my supervisors in the early part of the project who helped broaden my perspectives to incorporate a sociological view of the phenomenon being investigated where there was a dearth of literature.

Dr Sylvie Marshall-Lucette: an inspirational supervisor who guided and helped me develop and refine the 1st phase of the study, making some very useful suggestions for the pilot interviews. She made valuable additional contributions to the development of the interview guide, analytical field notes and reflective interview summary sheet. She also made prolific contributions toward the analysis for this phase of the study drawing from her vast and extensive research experience in the process.

Professor Susan McLaren: who took a great interest in the project and provided much needed funding covering the costs of interview equipment and transcription, qualitative analytical software and postal administration of questionnaires.

Professor Fiona Ross: who took a great interest in the project and provided much encouragement, support and sensitive advice with the handling the media publicity in the reporting of the study.

Mrs Debbie Lyndon: who worked many long hours with great efficiency and vigour in transcribing the interviews for the qualitative phase of the study and who preserved their original meaning by not proofing the data grammatically as instructed.

Mrs Angela Horrocks (Senior Librarian): who provided valuable help in assisting me to access and obtain the relevant literature for the project.

Mr Clive Allnutt (Senior Librarian): who expressed constant interest in the research study and provided valuable help in accessing and obtaining the literature thus enabling me to update it continually.

Mr. Robert Stanley: who helped me format the final version of the Couvade symptom questionnaire for which I am eternally indebted.

Mrs Jane Brennan: my beloved wife who demonstrated much perseverance, encouragement, patience, love, loyalty and inspiration to me while undertaking this PhD. The level of her emotional and practical support was unwavering and constant throughout. My son Adam and daughter Emily who always expressed interest in the PhD and were so patient and sacrificial with the time it took to do it.

Mrs Susan Slevin: my mother-in-law who demonstrated constant encouragement, support and interest and who proof-read many drafts of the work and related publications over the years.

Mr Paul Flinders: who provided invaluable help, advice and IT support without which this work would not have been possible.

Medical and Midwifery staff at the Foetal Medicine Unit, Teaching Hospital, London

who allowed me to recruit “expectant” men over a 2 year period for the qualitative and quantitative phases of the study. The staff were always welcoming and interested in the progress of the study.

Mr Chris Jeacock: who helped me develop both websites for the recruitment of participants for the first and second phases of the study and who offered his technological expertise in the process.

Ms Tamsin Starr: in the Media Department of St George’s, University of London who vigorously networked for the national and international publicity of the study on TV, radio, newspapers and media websites.

Mrs Caroline Dacey: who proof-read the final draft of the work and provided valuable feedback subsequently.

Mrs Sandra Jago: who was so kind, helpful and encouraging to me while making the resources of the marketing department at my disposal for the printing of the thesis.

LIST OF ABBREVIATIONS

Δ^2	Statistical power to detect sample size.
α	Chronbach alpha reliability coefficient.
ASSIA	Applied social sciences index and abstracts.
β	Type II error.
BAS	Body attitude scale.
BSRI	Bem sex role inventory.
CES-D	Centre for Epidemiological Studies Depression Scale.
CINAHL	Cumulative index to nursing and allied health literature.
CT	Computerised tomography.
DF	Degrees of freedom.
DOH	Department of health.
DSM	Diagnostic statistical manual of mental disorders.
Σ	The sum of.
EEG	Electroencephalography.
FSH	Follicle stimulating hormone.
GFB	Gamma fluoro buterarone.
HPH	Health and physical history scale.
ICD	International classification of diseases.
IPAT	Institute for personality and ability testing.
ISEL	Interpersonal support evaluation list
K	Constant (based on tables of the standard normal curve)
LREC	Local research ethics committee.

M1	1 st male interviewed.
M14	14 th male interviewed.
MFA	Maternal foetal attachment scale.
MHD	Expectant fathers monthly health diary.
MIDIRS	Midwives information and resource services.
MMPI	Minnesota multiphasic personality inventory.
<i>n</i>	Sample number or size.
NOPC	Number of previous children.
NS	Non-significant.
NS-SeC	National statistics socio-economic classification.
σ^2	Variance for each sample group.
P	Statistical probability
PFA	Paternal foetal attachment scale.
PHI	Preliminary health interview.
PSCS	Perceived stress coping scale.
r	Correlation.
rho	Spearman's rank order correlation coefficient.
SD	Standard deviation.
SPSS	Statistical package for social scientists.
STAI	State trait anxiety inventory.
TSCS	Tennessee self-concept scale.
<i>U</i>	Mann-Whitney <i>U</i> test.
χ^2	Chi-square test.

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- 14 Access letters, study information sheets and consent forms.
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CHAPTER 1

INTRODUCTION

Chapter 1

Introduction

1. Introduction

This chapter firstly outlines the structure of the thesis. It then provides a brief historical background of its origins and international incidence. This is followed by a discussion of attempts at defining the Couvade syndrome and the problems in doing so, including its specific symptoms and their time course, differential diagnostic interpretations and the distinguishing features of the syndrome compared to other disorders. Thereafter the research questions, overall aim and objectives and research context are outlined.

1.1 Structure of the thesis

Chapter one considers the historical background of the syndrome and its incidence, attempts at defining it. The relationship between the syndrome and socio-demographic factors are also examined. It also includes the aim and overall study objectives as well as the research context. Chapter two includes the literature review which first outlines the search strategy. International studies investigating the types of physical and psychological symptoms associated with the syndrome and their time course across pregnancy are evaluated. Theories accounting for the origins of the syndrome and the evidence for these are systematically appraised. Finally, a conclusion is provided highlighting the limitations of the studies reviewed and identifying gaps in knowledge, which the different phases of this study will seek to address. Chapter 3 covers design and methods. Within this the naturalistic approach and positivistic perspectives are outlined including their respective aims and objectives, a description of the research approach/design, the respective research paradigms and underpinning theoretical

perspectives. This chapter also includes access and sampling as well as data collection methods and issues, methods of data analyses and methodological rigour. Chapter 4 considers the relevant ethical issues. The overall study results are then presented in Chapter 5 and discussed in Chapter 6 as well as the clinical implications for healthcare practice and limitations. Finally, Chapter 7 discusses the integration between the two phases of the study and the ways in which the qualitative investigation influenced the design and data collection of the experimental phase as well as providing opportunities for the comparison of findings across both. It also considers theoretical propositions generated and contributions to the universal body of knowledge in the area. A conclusion is then offered which synthesises the findings and makes some suggested directions for future research in the area.

1.2 Historical background and incidence

The Couvade syndrome is an involuntary disorder consisting of psychosomatic symptoms in the male partners of gestational women (Trethowan and Conlon 1965 and Klein 1991). It occurs mainly in industrialised countries around the globe. The two features, which distinguish it from other syndromes, are its time course and the fact that it has no pathological basis. Descriptions of pregnancy-related symptoms, many having a known association with the syndrome, are of great antiquity and contained within the historical literature dating back to the 17th Century. For example, toothache, euphemistically known as “*love pain*”, receives mention in Shakespeare’s (1600) *Much Ado about Nothing* and in *Westward Ho* by the Elizabethan dramatists Dekker and Webster (1607) in Bowers (1955, p. 207). A study by Hugosson and Koch (1979), evident within the dental literature and conducted in a Swedish town, recorded that both men and women suffered concurrently from dental problems during pregnancy.

Historically, the symptom of stomach pain was acknowledged by Wilkins (1609, p.42) in his book, *The Miseries of Enforced Marriage* ...

“I have got thee with child in my conscience and like a kind
husband, ‘methinks I breed it for thee. For I am already sick
in my stomach and long extremely”.

Likewise the famous English naturalist and antiquary Robert Plot (1677) questioned...

“why in birth the pangs of the woman in the exclusion of the
child sometimes affected the abdomen of the husband ?”.

Alluding to the same symptom Hunter and Macalpine (1963, p.119) contend that this was known to Francis Bacon who stated in 1627...

“There is an opinion abroad that loving and kindle husbands
have a sense of their own wives’ breeding childe by some
accident in their ‘owne body”.

Later, Curtis (1955) and Trethowan and Conlon (1965) provide a further historical account of severe transient abdominal pains among soldiers in World War 2 whose partners were pregnant. Army medical officers commonly observed this symptom at the time and explained its presence as arising because of the separation of both partners. Curiously, the symptom usually disappeared when the soldier heard about the birth of his child.

The incidence of the syndrome has a wide international variation and early reports from the U.K. give a wide range of 11-50% (Trethowan and Conlon 1965 and Dickens and Trethowan 1971). Bogren, (1984) found an incidence of 20% in Sweden. In the USA, Clinton (1987) and Brown (1988) reported a much higher incidence of 94-97%. Khanobdee *et al* (1993) estimated an average incidence of 61% among Thai males,

while Tsai and Chen (1997) reported a similar incidence of 68% among Chinese men. The global incidence of the syndrome has also been demonstrated by reports of its presence in France (Sizaret *et al* 1991), South Africa (Chalmers and Meyer 1996), Russia (Marilov 1997) and Serbia (Koić *et al* 2004). However, one country where the syndrome has been sparsely reported is Australia (Condon 1987), which might reflect reluctance to admit to such symptoms and to be an anathema in what is perceived to be a “*macho culture*”. Thomas and Upton (2000, p.221) endorse this view when they state...

“many men hide the physical symptoms of the
syndrome as they may be ashamed to admit them
lest this indicate weakness”.

Therefore, the incidence of the syndrome shows global variability with an overall range of 11-97%; this suggests it may affect a significant proportion of all pregnancies. Moreover, it provides a good rationale for investigating further the explanatory factors that might account for such variance across countries, in particular patterns of health care consultation and referral as well as socio-demographic characteristics.

1.3 Defining the Couvade syndrome

The term “Couvade” was first introduced into the anthropological literature by Tylor (1865) and is derived from the French verb “*couver*”, which means to brood, nest or hatch. The Couvade syndrome is a phenomenon, which occurs in industrialised countries around the world. It affects the male partners of pregnant women who experience a range of physical and psychological symptoms with no pathological basis (Klein 1991 and Mason and Elwood 1995). However, one case study has reported a Couvade syndrome equivalent in an African-American woman (who was not pregnant) during both of her twin sister’s pregnancies (Budur *et al* 2005). Interestingly, whether the

Couvade syndrome extends its reaches to women has been raised repeatedly in many of the conference presentations listed in (Appendix I).

Conner and Denson, (1990) identified three main groups of symptoms commonly associated with the syndrome. The first group included gastrointestinal symptoms, nausea, heartburn, abdominal pain, bloating and appetite changes. The second group comprised upper respiratory symptoms like colds, breathing difficulties and epistaxis, in addition to pains such as toothache, leg cramps, backache and urogenital irritations. In the third category, psychological symptoms such as changes in sleeping patterns, anxiety and worry, depression, reduced libido and restlessness were reported. The course of symptoms appears to follow a U-shaped pattern over the duration of pregnancy (Schodt, 1989) as they appear in the first trimester, temporarily disappear in the second and reappear in the third trimester. This has been confirmed by the timing of medical consultations (Lipkin and Lamb 1982 and Quill *et al* 1984). The symptoms classically cease abruptly at birth or shortly within the postpartum period. Benvenuti *et al* (1989) propose that the symptoms most commonly take the form of loss of appetite, nausea and vomiting, toothache, renal and abdominal colic, sore throat and weight gain. They argue that their origin and meaning are not often recognised. Men often have no idea of the connection of these symptoms to the pregnancy and often do not consult a doctor for their ailments. It is this lack of awareness that has led to the somatic symptoms of the Couvade syndrome being interpreted as a kind of hysterical enactment of pregnancy by the man.

Some contend that the display of such symptoms might indicate features of somatic disorder which is defined by recurrent somatic symptoms particularly those affecting the

gastrointestinal system. However, unlike the Couvade syndrome, this disorder is age-specific in which onset must begin before the age of thirty and occur over a period of several years. Furthermore, the Diagnostic Statistical Manual of Mental Disorders: DSM-Version 1V, (American Psychiatric Association, 2000) also stipulates that the gastrointestinal symptoms of somatic disorder must occur outside the period of pregnancy. These criteria are different from those for the syndrome. Early accounts tended to medicalise the syndrome as a psychosomatic disorder (Trethowan and Conlon 1965 and Trethowan 1968). Enoch *et al* (1967) refer to it as an uncommon psychiatric syndrome. Despite this, the syndrome does not appear in the nosologies of the DSM-Version 1V, (American Psychiatric Association, 2000) or the International Classification of Diseases: ICD-Version 10 (World Health Organisation 1993). The reason for this is unclear but the syndrome is idiopathic and, according to classic definitions, is not specifically related to physical or psychological illnesses or injury. Furthermore, Couvade symptoms are by definition non-specific and transient, which hampers attempts to discriminate them from symptoms that do have a patho-physiological basis. Its diagnosis is principally made by exclusion (Schodt 1989 and Mason and Elwood 1995). In some cases the benign symptoms of the syndrome may even be misdiagnosed and over-treated (May and Perrin in Hanson and Bozett 1995). While the somatic symptoms of the syndrome are chronologically connected with pregnancy, the fact that they are not associated with disease may cause some to question whether they constitute a syndrome at all? Nevertheless, the syndrome is mentioned in the *Dictionary of Medical Syndromes* (Magalini and Magalini 1997), where it is proposed as a neurotic disorder, which occurs in men whose partners are pregnant, usually within the first and third trimesters of pregnancy.

In 1991 Klein argued that the syndrome was a poorly understood phenomenon. This still holds true today even among professionals in antenatal care as evidenced in the conference presentations mentioned previously. Limited knowledge might be explained by problems of definition, inconsistencies in its diagnostic criteria and the use of multiple and varied measures across studies. Moreover, the fact that the syndrome is an unconsciously and involuntarily determined phenomenon (Klein 1991 and Brennan *et al* 2007a: Appendix 1) may complicate efforts by physicians to explain it and attempts by those affected to understand it. Yet Mayer and Kapfhammer (1993) and Magalini and Magalini (1997) suggest that the syndrome is the man's conscious imitation or simulation of his partner's symptoms during gestation. Therefore, one could summarise a presumptive definition of the Couvade syndrome as a psychosomatic phenomenon with little or no recognised physiological basis that affects male partners mainly during the first and third trimesters of gestation and disappears early in the postpartum period (Brennan and Marshall-Lucette 2004:Refer Appendix 1).

1.4 Research questions

Despite the syndrome's pervasive occurrence around the globe and historical testaments to its existence within the UK, there is a noticeable dearth of research on the Couvade syndrome in that country. Even globally, little is known about the syndrome (Klein 1991). Research into the area may have been constrained by health professionals' dearth of knowledge about the syndrome and their inability to diagnose it, as well as the public's attitudes of ridicule toward it. Many of the study instruments to measure the symptoms of the syndrome have not been informed by preceding qualitative research. In many cases they limit measures to the type of symptoms and their time-span over pregnancy and the postpartum period but do not include the severity of, and distress

caused by, symptoms, which are important for its clinical diagnosis and treatment. Moreover, few studies have investigated the type, severity, distress and duration of the syndrome's symptoms collectively, internationally or within the UK. Furthermore, the study instruments deployed in many investigations appear not to have been validated. It was this state of affairs that provided the impetus for a two-phase study addressing all these omissions evident in past research investigations. The study sought to answer three research questions:

Question 1: What are the characteristics found in men with pregnant partners that would suggest the presence of the Couvade syndrome?

Question 2: How can the syndrome be assessed in men with pregnant partners?

Question 3: How can a newly developed tool be used to measure the physical and psychological symptoms of the syndrome in men with pregnant partners?

1.5 Overall aim and objectives

The general aim of the study was to explore the characteristics of the Couvade syndrome, thus generating a new body of knowledge and additional insights into its experience and meaning which would in turn inform the development and validation of a study instrument to quantify and measure its facets. The questionnaire would then be used to quantify and compare the type, severity, distress and time frame of physical and psychological symptoms in an experimental group (men with pregnant partners) and a control group (men without pregnant partners).

The overall study objectives were to:-

- Identify the nature of men's involvement in the pregnancy, their experience of psycho-physiological symptoms and the way these were managed. The objective

also sought to determine the time course for symptoms including, their onset and cessation and explanations for them and their meaning;

- Develop and validate a study instrument informed by the literature review and qualitative phase of the study to quantify the physical and psychological symptoms of the syndrome as well as their severity, distress and time course over pregnancy and the postpartum period;
- To compare the incidence, severity, distress, time course and duration of physical and psychological symptoms and perceived stress coping (PSC) in an experimental group (men with pregnant partners) and a control group (men without pregnant partners). Furthermore, to examine associations between socio-demographic factors and Couvade symptoms and PSC in the experimental group and to identify predictors of the syndrome.

The research study took place in the Antenatal clinic and Foetal Medicine Unit of a large teaching hospital Southwest London area. This geographical location where the study was conducted caters for a high Asian, Afro-Caribbean and Caucasian population. Men in the control group were recruited from two large higher educational institutions situated in London and Surrey. Further details of the research context can be found in Chapter 3: Section 3.3.

CHAPTER 2

LITERATURE REVIEW

Chapter 2

Literature Review

2. Introduction

This chapter firstly outlines the search strategy. In identifying the Couvade syndrome studies using different research designs and methods of data collection are compared and contrasted. The relationship between the syndrome and socio-demographic factors such as age, educational level, social class, number of previous children, planned or unplanned pregnancy and ethnicity are also considered. Various theoretical perspectives are outlined and critically evaluated. Finally the conclusion synthesises the main points of the literature review and highlights deficits in the existing body of knowledge, which provide the impetus for this study to be conducted.

2.1 Search strategy

A number of key words were used to guide the search. These were “*couvade*”, “*couvade syndrome*”, “*modern couvade*”, “*sympathetic pregnancy*”, “*pseudo-pregnancy*”, “*phantom-pregnancy*” and “*pseudocyesis*”. Search databases included OVID Online, PubMed, CINAHL, ASSIA, British Nursing Index, MIDIRS and PsychInfo. The search covered the period 1950-2005 to obtain relevant archival and contemporary literature. It was expanded to include international sources given the syndrome’s global nature. MIDIRS, CINAHL and PsychInfo were among the more prolific databases with the most contemporary articles relating to the 1980’s and 90’s. Despite a predominance of literature on the syndrome during the 1980’s and 90’s, little has been published between 2000 and 2005 with nothing over the last two years. This might reflect fluctuating interest over the decades seen also with other subjects that do not receive significant

scientific attention from public and independent funding bodies that usually express more interest in common health problems. Laws's (2006, p.10) comment emphasises this point...

“by far the largest volume of research centres on the investigation of prominent male-specific health problems. However, there are those male health problems which are less common and still impact on the quality of life”.

In addition the transient nature of the syndrome, which affects otherwise healthy males, and the relative ignorance about its exact definitions and possible impact might also explain the deficit. Hanson and Bozett (1995) argue that the Couvade syndrome represents a time of significant emotional disturbance for many men who may otherwise appear to function normally, which shrouds it in further mystique.

2.2 Lay perspectives and the media

Over the last decade there has been increasing awareness of “*men's health issues*” driven by research literature appearing in professional journals and by media coverage of men's health problems. However, within the UK there is a dearth of literature on professional and lay perspectives of the Couvade syndrome, thus constituting a gap in knowledge. It is likely, however, that lay conceptions of its symptoms are shaped by a variety of social, cultural and personal factors. It has been shown that medical definitions of the syndrome predominate and often overlook lay narratives of the phenomenon and its social context. However, one should avoid making a simplistic interpretation of this as reflecting a simple hierarchy of “*expert domination*” and “*lay subordination*”, especially given the knowledge explosion about health and illness and its dissemination in recent years. As

will be shown, studies of the Couvade syndrome, many of which employ quantitative methodologies, also fail to address the socio-personal contexts of its symptoms. In doing so they ignore the lived experience of those afflicted. Falkum and Larsen (1999) argue that accounts of illness and explanations express individualised views based on beliefs and experience, which if taken into account, will promote a greater level of understanding for all concerned. This therefore necessitates the need for qualitative approaches aimed at a deeper level of exploration. This level of understanding is crucial to acquire insights into the ways male partners of pregnant women comprehend, evaluate and explain Couvade symptoms.

Falkum and Larsen (1999) propose that people are actors, creatively making sense of their symptoms by using combinations of cultural resources such as medical knowledge and the media in order to explain their own personal illness experiences. One of the ways in which people make sense of health symptoms is through the use of medical and lay metaphors. Annandale and Clark (1996, p.36) have observed the use of metaphors to annex male reproduction with instrumentality: 'firing blanks in the context of infertility'. The media portrays the Couvade syndrome with vivid imagery of a portrait of "*the pregnant male*" along with the use of clichés such as '*sympathy pains*' and '*phantom pregnancy*'. Media images of the phenomenon are sometimes taken seriously in the press (Fleming: The Daily Telegraph, 14th June, 2007 and Sims: The Daily Mail, 14th June, 2007: Refer Appendix 1) but not in cinema where men are held up to ridicule and not taken seriously, as illustrations for the characters in films from an earlier era such as *Junior* (1994) and later in *A Slightly Pregnant Man* (2006) demonstrate below.



Similarly T.V. presenters also ridicule the syndrome, as seen in documentaries about it (Brennan interviewed on Living T. V. Sky Channel, March 2003 and Brennan interviewed BBC Breakfast, June 2007: Refer Appendix 1). The researcher also faced a similar response and one of scepticism from midwives while presenting a seminar at a teaching hospital affiliated to a London university in May 2005. However, radio tends to treat the syndrome more seriously where the researcher has been interviewed on numerous national and international stations listed in (Appendix 1).

When it comes to the appraisal of symptoms, Cornwall (1984) suggests that people divide them into three categories: real or serious, ordinary or normal and a minor health problem; these do not necessarily follow a medical categorisation. At a *prima facie* level one might be correct in thinking this categorisation to be an oversimplification of the sophisticated process of symptom appraisal without making recourse to its socio-political, cultural and personal contexts. People's assessment of the nature and severity of their symptoms is based on experiential knowledge, perceptions and observations of bodily sensations. Gender also influences symptom perception and appraisal, which will

be discussed later. Part of this process is the search for their meaning often unveiled in accounts of them to others, whether in a research or a medical context.

As previously indicated the idiopathic nature of Couvade symptoms may hamper attempts to understand them, especially where enlightenment is sought from health professionals who are also confounded by the symptoms of the syndrome. Culture may hinder the process further. In Western cultures the relationship between emotional changes/conflicts and specific somatic dysfunction is not always recognised in the same way as it is in China (Annandale and Clark 1996). The link between the two is important as a basis for explaining the syndrome, as will be shown in the section on theoretical perspectives.

2.3 Identifying the Couvade syndrome

Over the last five decades international studies have sought to innumerate and appraise the type, frequency and time course of men's pregnancy-related symptoms or those of the Couvade syndrome as illustrated by a systematic review spanning 1951-2005 (Refer Appendix 2). In the UK, Trethowan and Conlon (1965) investigated the frequency, incidence and duration of the symptoms of the syndrome over the nine months of pregnancy in 327 men (mean age 29) whose partners were pregnant compared with 221 men (mean age 35) whose partners were not. Fifty-eight percent of expectant men had no previous children compared to only fourteen percent of the control group. Both groups were matched for social class. The data collection consisted of a questionnaire about nine physical and nine psychological symptoms of the syndrome reported in the literature. The defining criteria were the presence of two symptoms of the syndrome. One hundred and eighty-six expectant men (57%) exhibited more than two symptoms

over the nine months of gestation as opposed to 101 (46%) in the comparative group. The most common physical symptoms were loss of appetite, toothache, nausea and sickness.

Psychological symptoms included depression, anxiety, insomnia, irritability and nervousness. Peak incidence of symptoms occurred in the third month of pregnancy. They tended to diminish in the second trimester and rise again during the ninth month. Thirty percent of expectant men indicated a cessation of symptoms just before labour began, 36% immediately after birth, while 23% indicated their persistence into the postpartum period. There was a statistically significant association ($P < 0.01$) between the occurrence of each of the physical and psychological symptoms. The small difference in mean age between the groups (29 and 35 years) might represent a confounding factor with some impact on the results. The investigators have not appropriately addressed this aspect. The authors might have looked at the age difference as an additional factor in the study as they clearly acknowledge it. In addition, no evidence was provided for the reliability and validity of the study instrument.

A later epidemiological study by Lipkin and Lamb, (1982) reported the same time course for symptoms described earlier by Schodt (1989). The sample consisted of the partners of 267 nulliparous and primiparous pregnant women who attended an antenatal clinic in New York. The mean age of men was 29 years with 90% being Caucasian. Having one or more symptoms during pregnancy was used as the criterion to define the presence of the syndrome. A “*tracer*” condition was also used to exclude the presence of illness diagnostically through a series of physical examinations and laboratory tests. There were two control periods, one before the pregnancy and one after parturition. Men

experienced significantly more symptoms ($P < 0.001$) outside the control periods than during them compared to men who did not fulfil the criteria for the syndrome. Sixty men sought care for the symptoms of the syndrome, having a twofold significant increase in medical visits during these periods. Physical examination and laboratory investigations confirmed no pathological explanation for the symptoms. The investigators concluded that the woman's pregnancy, and not illness, was the prime aetiological factor in the onset of the syndrome. This study was one of the few to highlight that men do seek medical care for the Couvade syndrome as well as the difficulties involved in diagnosing it. One notices, however, that this study included mainly Caucasian males with little ethnic diversity and recruited male partners attending a large health maintenance organisation which might have a socio-economic bias. The study also focused on physical signs with no psychological symptoms included. This was unfortunate, as the study could have compared patterns of healthcare seeking for physical and psychological symptoms had both been included.

Bogren (1983) confirmed many of the reported symptoms of the syndrome. A psychiatrist conducted three semi-structured interviews during the 13th and 14th weeks of pregnancy, the week after delivery and 4-5 months postpartum. For mental symptoms, a global rating of illness was used. The duration of most of the Couvade mental symptoms showed no differences during the three periods investigated but a global rating of discomfort showed them to be more disabling when they did occur. There was no relationship between the symptoms of the syndrome in male partners and the somatic and psychological symptoms of female partners. This null relationship might be explained by sex differences in symptom reporting. Barsky *et al* (2001) have confirmed that women report more intense, more numerous and more frequent bodily symptoms

than men *per se* but especially so during pregnancy. One would also expect a comment on the qualitative analysis of the interviews conducted, as it might be difficult to analyse all interview data in a quantitative way. The investigator has the advantage of choosing the analytical method and the technique of presenting the data, provided a sense of completion is provided to the reader. On this occasion, one wonders if more information could have been imparted through qualitative analysis of the interviews.

A prospective study by Clinton (1987), sought to measure the frequency and type of Couvade symptoms during each trimester of pregnancy and at the sixth week postpartum. The sample consisted of 81 expectant men with an age range of 18-44 years. Ninety percent of the men were of mixed ethnic origin and married. The expectant father's preliminary health interview (measuring 39 Couvade symptoms) and expectant father's monthly health diary were used as the instruments for data collection. The mean number of Couvade symptoms reported in a typical month was 9.4 symptoms during the first trimester, 12.4 symptoms during the second trimester and 11.8 symptoms during the third trimester, which is not in agreement with the previous reports of U-shaped incidence of symptoms over the course of pregnancy. During the postpartum period, an average of 7.1 symptoms was reported, which also contradicts the previous reports on the disappearance of symptoms during this period. Depression was ranked among the ten top symptoms in the postpartum period. This finding was of interest since postpartum depression in men has rarely been acknowledged in the literature. The frequency of most of the Couvade symptoms ranged from less than 1 day to 2.5 days. The investigator acknowledged the methodological problem of being unable to obtain complete lunar month data sets from every study participant, especially during the first two months of

pregnancy. This was offset by condensing the data into three trimesters to obtain a sufficient number of values for the purpose of the analysis.

Sizaret *et al* (1991) conducted an exploratory survey investigating Couvade symptoms experienced by expectant men during the first months of gestation and first week, third and fourth months of the postpartum period. The sample included 42 primiparous men (mean age 27 years) and 17 multiparous men (mean age 30 years). No social class data was provided. Data was collected by a questionnaire on somatic symptoms of the syndrome based on the literature. Twenty-four men (40%) suffered from symptoms of the syndrome for at least one of the specified time periods. The most frequently reported symptoms during the first trimester were increase in appetite, gastritis, weight increase, headache, diarrhoea and toothache. Those most frequent in the first week postpartum were appetite loss, increase of appetite, toothache, constipation, nausea and vomiting. Those in the third month postpartum included increase in appetite, headaches, toothache, indigestion, colic and diarrhoea. Like the Lipkin and Lamb (1982) investigation the study ignores psychological symptoms. Additional limitations and omissions similar to some of the previous studies were also evident, such as the small sample size curtailing generalisation of findings, failure to investigate the symptoms during the third trimester of pregnancy and no evidence provided for the reliability and validity of the study instrument. It was also curious that physical symptoms persisted into the postpartum period which contradicts the reported time course for the Couvade syndrome.

Khanobdee *et al* (1993) investigated the incidence and duration of the syndrome among a purposive sample of 172 (age 19-50 years, mean 30 years) Thai men throughout pregnancy. One hundred and nineteen (69.2%) of the men were married. One hundred

and fifteen men (67%) were having their first baby. Forty-seven men were primiparous and 10 had two children previously. Fifty-nine of the men (34.3%) were government officers with 55 (32%) being employed by private companies. A modified version of the 22-item Somatic Symptoms Checklist (Longobucco and Freston 1989) was used for data collection. Fifty men reported 2-4 symptoms; 44 reported 5-10 symptoms; eleven reported more than 10 symptoms. Seventy-nine (46%) reported the onset of symptoms in the first trimester. The physical symptoms were similar to those reported in the previous study, but psychological symptoms included mixed feelings of sadness and happiness, poor concentration, anxiety and increased sleep. Of the 79 men who reported symptoms in the first trimester, 30 indicated their absence in the second. In the third trimester the most frequently reported symptoms were polyuria, digestive problems, fatigue, poor concentration, anxiety and sleep disturbance. There were no statistically significant differences in the occurrence of symptoms between first-time expectant men and those who already had children, which confirms previous findings. Social class and level of education showed no relationship with the syndrome. The use of the questionnaire developed by Longobucco and Freston (1989) for monitoring the Couvade syndrome among males of Western European and North American origin might not have accounted for cultural differences in symptom expression and reporting by Thai men. In addition, there were no defining criteria for the syndrome provided in the study.

Chalmers and Meyer (1996) further reported similar symptoms for the syndrome. One hundred and fifty South-African first-time expectant men (aged 18-40 years, mean 28 years) were recruited from two maternity hospitals in Johannesburg. All the men were Caucasian, of whom 42% had technical, or college, education and 33% university degrees. The pregnancy was planned for 74% of the sample. A questionnaire relating to

men's experiences of pregnancy was used. Physical Couvade symptoms that were reported included weight gain (17%), nausea (13%), back pain (11%) and weight loss (7%). Psychological symptoms included sleep disturbance (22%), anxiety in the last trimester (20%), extreme tiredness (13%), emotional lability (13%) and irritability (7%). There were no defining criteria for the syndrome introduced by the investigators. Moreover, the dominance of Caucasian males in the study population might hinder generalisation of the results to a population like that of South Africa.

Dissimilar physical, but similar psychological, symptoms to those presented in the previous investigation were reported by Tsai and Chen (1997) in a cross-sectional study of two groups of Chinese men (age 26-35 years). The first group consisted of 150 married men whose partners were in the third trimester of pregnancy while the second group comprised of the same number of married men whose partners were not pregnant. Sixty-three percent of the samples were first-time expectant men. Eighty-five percent of the expectant men had a secondary and advanced level of education compared to 88% of the comparative group. Socio-economic status between both study groups was largely similar. A translated version of the 22-item Somatic Symptoms Checklist (Longobucco and Freston 1989) and the 10-item Coping with Perceived Stress Scale (Cohen *et al*, 1983; Cohen and Williamson in Spacapan and Oskamp 1988) were used for data collection. Defining criteria for the syndrome were the presence of two or more symptoms. Sixty-eight percent of expectant men suffered from a higher number of somatic and psychological symptoms than the control group. These differences were statistically significant ($P < 0.01$).

Physical symptoms included headache, increased or decreased appetite, leg cramps and diarrhoea. Psychological symptoms included sleeplessness, worries, depression, panic and feelings of unease. Men with expectant partners also showed a significantly higher score for perceived stress than did controls. The use of a questionnaire developed for a Western population, and, apart from translation, with no attempt at adaptation, to investigate Chinese men who have different cultural attitudes might not be ideal. The study also focuses on the third trimester period only, with no attempt to investigate other important periods of gestation when symptoms of the syndrome occur.

In the UK, Thomas and Upton (2000) used a 24-item questionnaire to investigate the somatic and psychological responses of 141 expectant men (age 16-51 years, mean 30 years) to their partners' pregnancies at the tenth week. There was a good dispersion of social classes within the sample. A total of 49 expectant men (55%) had the previously reported symptoms of the syndrome while ninety-two men (65%) did not. However, the frequency of reporting anxiety was lower in this study as only 25 (18%) expectant men reported the symptom while 116 (82%) did not which contrasts with previous studies. Moreover, this finding might challenge assumptions that anxiety causes the syndrome or is an intrinsic part of it. There was no association between the number of previous pregnancies or whether the pregnancy was planned or unplanned and the syndrome. Sample bias may have occurred since men were recruited from an antenatal clinic of one hospital in a given geographical locality. In addition there were no demonstrated tests of internal consistency performed on the study instruments.

It is interesting to note that inconsistencies in the findings examining the relationship between socio-demographic characteristics and the syndrome are also evident.

Explanations of the relationship between the syndrome and socio-demographic factors such as age, educational level, social class, number of previous children and planned or unplanned pregnancy all show inconsistent findings, with ethnicity being the only exception. Brown (1983) confirmed a greater presence of the syndrome in men younger than 30 years old and Bogren (1989) found it was more common among those older than thirty of a higher educational level and social class. Munroe and Munroe (1971, 1973), Trethowan in Howells (1972), Munroe (1980) and Lipkin and Lamb (1982) all indicate a greater prevalence of the syndrome among those with lower education. Strickland (1987) reported that working class men experienced a significantly higher number of somatic and psychological symptoms compared to those who were middle class. Clinton (1986) refutes the findings of correlations between age and educational level and the syndrome. In terms of ethnicity there is a consistently higher incidence of the syndrome among black men (Taylor 1951, Munroe and Munroe 1971, Munroe *et al* 1973 and Clinton 1986). These disparate findings might be explained by problems of sample size variation, cultural and age differences across studies, socio-economic class variability and geographical distributions.

In summary studies of the Couvade syndrome have been shown to have a number of methodological shortcomings. The defining criteria for the syndrome are absent in some investigations, presented differently in some but similarly in others. Some studies have assessed only physical symptoms while others have also included psychological manifestations. In many cases sampling selection bias has been evident with men recruited from backgrounds that focus on a predominant ethnic group only with the near exclusion of others, certain socio-economic classes and narrow geographical distributions. Another problem is the use of different types of questionnaires not

specifically designed to measure the symptoms of the syndrome but rather health symptoms generally. Inconsistencies in the type of symptoms revealed may reflect inherent methodological difficulties associated with the use of multiple and varied measures of the syndrome across studies (Brennan *et al*, 2007a: Refer Appendix 1). Detecting the effects of pregnancy on men is further complicated by the high background prevalence in the general population of symptoms such as stomach pain, nausea, vomiting, and anxiety. Furthermore, there are many competing explanations for their presence other than the woman's pregnancy. Finally, many of the studies reviewed frequently report weight gain and less so abdominal distension but make no reference to what both of these symptoms might indicate namely, pseudocyesis one of the less common symptoms of the syndrome shown in Figure 1.

Figure I. The Couvade Syndrome Symptom of Pseudocyesis



2.4 Theoretical perspectives

The theories proposed to explain the origins of the syndrome reflect varied orientations and perspectives. The psychoanalytical perspective seems to be guided by Freudian psychology with a range of unconscious conflicts leading to the syndrome. Psychosocial theories reflect a divergence of opinion concerning the man's role and status in pregnancy and their relationship with the syndrome. They also propose an association between men's transition to parenthood and the syndrome. Sociological theories assess the impact of changing conceptions of fatherhood and their relationship to masculinity and health. Paternal theories hypothesise but provide contradictory evidence for the role of paternal preparation and involvement in pregnancy as determinants of the syndrome. Anxiety between expectant couples seems to be interconnected but the evidence for its relationship with the syndrome is again inconsistent. Hormonal theories propose a physiological basis for the syndrome but studies examining the evidence for this, while consistent, are few in number.

2.4.1 Psychoanalytical theories

Parturition envy and childhood conflicts

Psychoanalytical theories propose that the syndrome evolves from the man's envy of the woman's procreative ability, which Van Leeuwen (1965) acknowledges has been underestimated. Historically Bohem (1930, p.456) first coined the term "*Parturition envy*" which he described as follows...

“men imagine that parturition and conception are so complicated and uncanny, and because these processes are so mysterious to them, they have a passionate wish to share in them or else an intense envy of this capacity in women”.

Similarly Rapheal-Leff (1991) argues that men's psychosomatic symptoms during gestation may reveal their unconscious need to experience the woman's pregnancy physically for themselves. Osofsky and Culp in Cath *et al* (1989) contend that some men develop parturition envy as a consequence of being bystanders in witnessing the evolution of foetal life. They further propose that pregnancy for the male partner acts as a catalyst for the emergence of ambivalence and resurgence of oedipal conflicts. The event may cause regression, with passivity and dependency being intensified by the developing foetus which conflicts with the man's need for autonomy.

Gerzi and Berman (1981) attempted to demonstrate this in their study of 51 Israeli men whose partners were in the third trimester of pregnancy. They were matched against a control group of 51 men whose partners were not pregnant. Data was collected by the Blacky Picture test (Blum 1949) to investigate the unconscious dimensions of the pregnancy experience. A Hebrew translation of the IPAT Anxiety Scale Questionnaire (Cattell and Scheier 1976) assessing symptomatic and covert anxiety was also used. Interviews were conducted in the hope of using them to reach a better understanding of the statistical findings. The study showed statistically significant differences ($P < 0.05$, $P < 0.01$) in Oedipal intensity, sibling rivalry reactions and guilt feelings for those in the experimental group compared to controls. Six of the men in the experimental group revealed considerable ambivalence directly related to re-aroused infantile fantasies, feminine identifications, castration fears and oedipal themes. Attempts to repress ambivalent feelings toward the pregnancy defensively through the processes of negation, denial, repression, intellectualisation and reaction formation also surfaced. This study was one of the few to have statistically established the involvement and frequency of Oedipal dynamics within the last three months of the woman's pregnancy when

symptoms of the Couvade syndrome are known to be most prevalent. However it focused only on psychological symptoms and did not include physical ones. The use of the IPAT Scale that measures anxiety-proneness but not situational anxiety relating to the event of pregnancy might pose a problem. A further problem was the analysis of men's sub-conscious responses to the Blacky Picture test, which was most likely prone to potential subjective interpretation.

Despite envy of the women's reproductive ability men are often readily invited into the symbiotic, early phases of parenthood through identification with their pregnant spouses. Pregnancy engenders a mixed range of emotional responses for them such as elation, excitement, wonder, jealousy, envy, threat, ambivalence, exclusion and anxiety. Nevertheless, men are capable of identifying with the procreative female, even if the pregnancy is perhaps an exhibitionist show of their own masculinity prowess or a reaction formation to a deeper-seated womb envy leading to the Couvade syndrome. Benvenuti *et al* (1989) argue that some of its symptoms, such as digestive disturbances, abdominal colic, weight gain, nausea and vomiting, are easily linked to pregnancy through a mechanism of identification.

Foetus as rival

The second psychoanalytical theory proposes that expectant fathers may sometimes view the unborn child as a rival for maternal attention. Mayer and Kapfhammer (1993) argue that a central concern for prospective fathers is the loss of their partner to the newborn infant. May's (1975) work on the involvement of men in pregnancy confirmed a widening distance between some of them and their partners, especially during the first trimester. She concluded that excessive jealousy of the unborn might have caused this

rift, especially among men whose dependency needs were insufficiently or ambivalently satisfied in childhood. Some argue that a man whose choice of a partner is primarily based on such needs will often view the foetus as a rival for dependency. The pregnancy may then confront him with the truth that he is now no longer a child but rather an adult with increased paternal responsibilities. This in turn results in the frustration of his dependency needs. Some might even suggest that men are reluctant to give up the privilege of being cared for rather than assume the responsibility of giving care.

The expectant man's perception of the foetus as a competitor may also reactivate earlier conflicts of sibling rivalry. These are most likely to occur in those who had younger siblings but who experienced a loss of maternal attention and care as a consequence. Some psychoanalysts explain this as a symbolic re-interpretation of the foetus as the historical sibling and the pregnant woman as the biological mother from whom attention is diverted. Malthie *et al* (1980) corroborate this in a case-report of a 26-year-old married man with sharp, incapacitating pains in his abdomen, sacral area and lower back which were accompanied by episodic vomiting. The symptoms coincided with his partner's announcement of conception. The investigators concluded that the symptoms represented a regressive manifestation of narcissistic injury, which he experienced earlier when he lost his favoured position with his mother on the birth of his sibling. The man's rage at his partner was then replaced by identification with her and subsequently expressed as physical pain. Sizaret *et al* (1991) arrive at the same interpretation in their study by concluding that the gastrointestinal symptoms of male partners signified identification with their biological mothers.

Benvenuti *et al* (1989) argues that the unborn baby revives in the new father fears of abandonment by his parents and feelings of jealousy and rivalry, which recall rejection and anxieties suffered in the past. In addition to becoming the third person in the relationship with his own parents, the man now becomes the same in his relationship with his pregnant partner, from which he feels excluded following the intrusion of the child into the couple's world. The pregnant partner comes to be viewed exclusively as the biological mother who devotes all her attention to the infant, depriving her male partner of maternal love. This feeling is accentuated when the couple's rapport is such that the woman plays a maternal role towards the man, thereby satisfying his needs for dependency. The pregnant woman can thus assume a double meaning for the man as spouse and as nurturing mother for himself and the child.

The event of paternity is a very complex one. Initially it involves the necessity for tolerance of the frustration associated with being an "*outside observer*" of the dyadic mother-child pair, while at the same time being sufficiently participative for the man so as not to become a total outsider. Later it calls for the man's energies to be directed toward integration as part of the mother-child relationship without attempts aggressively to destroy this symbiotic bond or usurp the child by taking its place from the vicissitudes of the primary couple. These internal struggles of fatherhood, precisely because they are so difficult to recognise and articulate given their subliminal nature, may at times express themselves in the form of the Couvade syndrome. The way in which this occurs is by repression of the man's feelings of rejection, exclusion, ambivalence, anxiety and his aggressive inclinations toward the unborn and his partner and the transformation of these feelings through a process of identification with mother and child, as indicated in the Malthie *et al* (1980) study.

The expression of these feelings and impulses through a more socially acceptable outlet such as the Couvade suggests its protective function in such circumstances. The syndrome enables the man to identify with his pregnant partner so as to strengthen his protective instincts toward the baby. However, along with the joys and elation of fatherhood, aggressive impulses also emerge directed toward both the child and the partner that trigger unacceptable guilt feelings, which cannot be expressed directly but find bodily outlets instead. Overall the man's rivalry with his unborn child requires denial of, or dissociation from, a wide range of emotions. Dependency longings, separation anxiety and body anxiety are all profound feelings that men must deny or compartmentalise in order to conform to the normative expectancies of male behaviour during pregnancy. These in turn may be channelled through a more acceptable outlet such as the Couvade syndrome, albeit at the expense of dominant notions of the man's masculinity. However, the need for men to repress such wide-ranging aspects of the hidden self may become a primary source of chronic anxiety in their psychological makeup.

Three main criticisms can be levied at the psychoanalytic perspective in its attempt to explain the aetiology of the Couvade syndrome. One is the fact that many psychoanalytic theories continue to remain scientifically untested. Secondly, the subconscious interpretations and conflicts, the alleged causal antecedents of the syndrome, have mainly been derived from case studies or reports. These are prone to subjective interpretation and difficult to generalise. Thirdly, the men in such studies have been referred to psychoanalysts or psychiatrists for treatment but this contradicts the defining criteria for the syndrome that it cannot be explained by psychological illness. However, it is not surprising that the men in these studies have been referred to

psychoanalysts or psychiatrists for treatment given the idiopathic nature of the syndrome and its failure to be diagnosed by physicians.

2.4.2 Psychosocial theories

The marginalisation of men during pregnancy and birth

This theory proposes the marginalisation of men during the woman's gestation and parturition as an important antecedent of the syndrome. While the role of motherhood constitutes an important defining attribute for women the same may not be true for fatherhood and men. Expectant women have their maternity careers endorsed commercially, socially and medically in contrast to the careers of prospective fathers. The famous anthropologist, Margaret Mead (1949), discerned this in an earlier era when she argued that the problem of civilisation was to define the male role satisfactorily enough to provide men with a sense of achievement naturally granted to women in childbirth.

From a sociological perspective, Gillis (2000) argues that the equation of femininity with motherhood has grown stronger, while the connections between fatherhood and masculinity have weakened. The societal recognition accorded to many men is that they play a peripheral role during pregnancy and childbirth, thus accepting these as a mere token acknowledgement of their paternal existence. Until recently, male partners were treated by maternity professionals as "*semi-comical*" characters who were accorded "*pseudo*" birth roles such as being allowed to cut the umbilical cord. David (1985) proposes that fatherhood as a meaningful social concept within contemporary society has rarely been affirmed beyond its procreative role. Summersgill in Alexander *et al* (1993) alludes to this further by arguing that men in most middle-class Western

industrial cultures play a minimal role in the birth of their children and are still on the periphery of pregnancy and the parenthood process. It is true that since the 1970s men are now familiar figures in the delivery room where their attendance has almost become obligatory. Yet, because they are mainly there mainly to assist, they are relegated to an ancillary role where they feel marginal and sometimes wholly useless (Gillis 2000).

The respective epistemological relationship of men and women with their unborn children is undoubtedly different. The woman has an awareness of, and the maternal relationship with, her unborn occur through an internalised, sensory, tactile and kinaesthetic experience. The man, on the other hand, often experiences his unborn child vicariously with access being sanctioned by his pregnant spouse. Men's lack of access to the direct embodied experience of pregnancy means that their biological encounters are therefore by proxy, as they rely upon "*second hand*" accounts of their partners. May (1980) concurs by proposing that it is largely the pregnant woman who determines the extent of the father's involvement during pregnancy and childbirth. Within antenatal care it is the primacy of the woman's health, which is deemed paramount often at the expense of the man's. In response expectant men may develop what Mayer and Kapfhammer (1993) term their own "*pseudo-pregnancy*" with all its somatic symptoms.

Yet not everyone would agree that expectant men are confined to the realms of obscurity within what is claimed to be a "*matricentric*" world. The feminist perspective rejects the notion of male marginalisation in this context. They argue for the progressive rise of men's new gender roles involving a more child-centred approach to family life along with increased participation in domestic labour. Many men are now more actively involved in pregnancy and the birth process where once they were excluded. Masoni *et*

al (1994) follow a similar line of argument and assert that for many men pregnancy and baby care are no longer an exclusive female heritage. It is the men who tend to maintain this separation so as to uphold traditional male values and paternal roles. This may be unsurprising given the pressures on men to be present during labour and birth where they are directly, rather than symbolically, confronted with the power of the woman's reproductive capacity. This repositions men as vulnerable and marginal, thereby threatening conventional or hegemonic notions of masculinity.

In 1980 Kitzinger proposed the concept of "*self-inflicted marginalisation*", whereby fathers prefer to hand over complete control to "*experts*" in an attempt to sustain their limited status. Romalis (1981) endorses this idea further by asserting that there is a widespread belief amongst men in many cultures that once they have played the important and irreplaceable role of "*planting the seed*", their duties are largely completed, at least until after the birth. However, even this so-called "*irreplaceable role*" is now replaceable by technological innovations such as "*in vitro fertilisation*". Earlier, Van Leeuwen (1965, p.137), from a psychoanalytic perspective, even casts doubt of the importance of this role, a fact that men may be forced to recognise...

“The man can never forget that it is simply he who
fertilises the woman and defends himself against this
insight”.

Men's perceptions of, and encounters with, the pregnant body shaped by biological, medical and cultural influences may further contribute to their sense of marginalisation. The contemporary man's "*pregnancy ritual*" (Heinowitz, 1977) has been relocated in an unfamiliar private arena, rather than more familiar public roles. Draper (2003a) argues

that just as the new technological model of birth with its ritual symbols of science and medicine relocates women's traditional private birth experience in the public domain of the hospital, so too has the new contemporary man's pregnancy ritual which locates him in an unfamiliar private space of the pregnant body and birth experience which come into the foreground. The nature of this private bodily domain is alien to men. While they are encouraged to be part of the pregnancy and birth processes, this alienation serves ironically to marginalize them even more. Men are expected to function and be welcomed into the previously clandestine space of gestation and birth while simultaneously occupying a role, which is ill-defined and precarious. Shapiro (1987, p.38) refers to this simultaneous welcoming and distancing as the "*cultural double bind*"...

“men are encouraged to participate fully in the pregnancy and birth of their children but are simultaneously given to understand, in a multitude of ways, that they are outsiders. Most of all, it is made clear that while their presence is requested, their feelings are not, if those feelings might upset their partners. Anxiety, anger, sadness and fear are unwelcome”.

Draper's (2003b) longitudinal ethnographic study of eighteen novice and experienced expectant men whom she interviewed confirms the impact of the phenomenon of "*cultural double bind*". Men's accounts acknowledged their changing statuses during pregnancy and birth, which were accompanied for many by a sense of uncertainty about their new role and how different their lives might be. Many regarded pregnancy as a

highly ambiguous time, when they were located in in-between statuses, which for many was framed by the familiar territory of medical management. The majority of men felt vulnerable and excluded during this period, expressed by a heightened sense of their feelings during labour. Draper (2003a) acknowledges the shaped and familiar masculine instruments of science in men's coping with these feelings. Their experience of the body-mediated moments (the pregnancy test, the annunciation, the ultrasound, quickening and birth attendance) helped men to reframe the unfamiliar territory of pregnancy, birth and the level of their involvement. Alternatively, they may have distanced men from these confirmations, thus pre-disposing them to the syndrome.

The transfer of pregnancy from the domestic to the hospital domain can also be unfamiliar territory further compounding the problem and underlining men's and women's powerlessness in the face of extensive medical power over the processes of gestation and birth. Moreover, this loss of control can occur even before the man physically enters the hospital environment because the decision to admit the woman is often influenced by "*expert*" knowledge provided in consultation with her and community or maternity staff. Unlike women, men may not be reasonably well prepared to enter the hospital environment, especially in cases where it is their first child. The man may experience the maternity clinic as a culturally alien environment, where he encounters a mass of nameless, faceless experts using unfamiliar medical idioms and technology. Men's marginalized status could be further amplified by the expectation that they should conceal their anxieties, fears and concerns during birth. They should also keep a very low profile and stay well out of the way of all decision making and action during this process of the "*woman's business*". Moreover, obstetricians may often

underestimate the potential psychological boost men give to their partners during delivery (Hayward and Chalmers 1990).

There are even those who question the presence of men during parturition by arguing that women might well be better off without male partners during this time given the latter's emotional unpredictability (Di Renzo *et al* 1981) during this period. More recently Odent (1999) suggests that the man's presence at a time of great stress for both him and his labouring partner may actually hinder the progress of labour. Unlike Di Renzo *et al* (1981), Odent (1999) argues that men who often repress their emotions during labour and birth to safeguard the woman may impede these events. Johnson (2002) endorses this view by arguing that a stressed birth partner can be counterproductive and that stress, like fear, can be transmitted to the mother thus slowing down labour. Furthermore, Ip (2000), in a correlational study of a convenience sample of 45 primigravidae Chinese women and their partners selected from the maternity unit of a public hospital in Hong Kong, found that the level of perceived partner-provided emotional support did not result in positive maternal outcomes. However, nowadays with only very few men not being present during labour and birth it is difficult to make valid comparisons between the impact of their presence, or absence on maternal outcomes (Kiernan 2006).

Despite this, men are nevertheless granted access and expected to participate in the process of gestation and parturition but often conditionally at the cost of reinforcing the domination of "*experts*" and perpetrating the primacy of obstetric and midwifery opinion over lay needs. Expectant men might even collude with this by sharing the burden of responsibility for a safe birth with the health care team, thus upholding the conventional

masculine view of the dependency of the pregnant woman needing medical management. The emergence of the “*progressive involved man*” who is expected to be equally implicated in pregnancy and childbirth, but whose power and control over these process and roles are limited is constrained. According to Summersgill in Alexander *et al* (1993, p.91) these uncertainties have given rise to the “*retaliation of marginalised fathers*”. This involves a number of active strategies undertaken by men to redress their peripheral status within the realms of pregnancy and childbirth, one of which is a display of the Couvade syndrome. However, this implies that the syndrome is a conscious entity, an argument which Klein (1991) and Brennan *et al* (2007a,b) reject. Lamentably, there is a dearth of research exploring the relationship between men’s perceptions of their status in pregnancy and the Couvade syndrome. Osofsky (1982) sheds light on the reasons for this by arguing that one of the causes for our lack of knowledge about expectant men’s health is a tendency to minimize the adjustments of normal males to the pregnancy experience.

Transition to fatherhood as a crisis

The transition to fatherhood has no distinct beginning or end and is therefore ambiguous. Technically, of course, it begins with conception, but men often remain unaware that conception has occurred until weeks or months later. Furthermore, a substantial proportion of conceptions do not result in live births and subsequent fatherhood. The transition to fatherhood appears to begin with the birth of the first child but many men are in the process of becoming fathers several months before the birth occurs and are making their plans and preparations (Hansen and Bozett 1995). What is clear is that parental roles are acquired abruptly with the birth of the child for which the man may be unprepared. This has not been helped by the ever-changing social, political and cultural discourse concerning the constructions of fatherhood. The postmodernist view suggests

that the structural uniformity of fatherhood is undergoing a process of emulsification that is blurring the boundaries between what should be and what is. Daly in Kimmel (1995) argues that many men feel aghast at this new postmodernist pluralism where the ideological structures of the past appear to have loosened their hold on who they should be as fathers.

Cultural and political changes in Western society over the last 20 years, such as those relating to family practices, employment and the division of domestic labour, have led to ever changing notions of fatherhood. The “*new man*” discourse has emerged which encompasses a model of the egalitarian family where the man is required to be equally involved in the care and nurturing of children (Clarke and Popay in Popay *et al* 1998). Symonds and Hunt (1996) argue that, in Western societies, fatherhood has not attained the central ideological position which has been accrued to motherhood as men are not socialised from childhood into their role as fathers. This can cause problems in transition. For women the transition to parenthood is fraught with a bewildering array of psychosocial changes. This transition for men may equate to that of motherhood. While the pregnancy experience is often shared, the concerns and emotions that it induces are undoubtedly gender-specific. However, within the literature it is often mistakenly implied that the concerns and emotions of expectant men and women are synonymous when they are not. The main body of literature depicts the transition to fatherhood as potentially pathological (Berman and Pederson 1987), disruptive and involving interpersonal struggles (Cowan and Cowan, 1992) and stressful (Terry *et al* 1991). Scopesi and Repetto (1990) propose that impending fatherhood is one of the most crucial phases in human life. Gurwitt in Cath *et al* (1989) argues that becoming a parent is a significant developmental phase, if not a crisis, for the man. Men undergo significant

psychological changes, which in part echo those of their pregnant female partners, but are in part independent (Greenberg 1985). Klein (1991) contends that pregnancy constitutes one of the most cataclysmic periods for the expectant man. The event of pregnancy and the passage to parenthood are major life-cycle transitions of considerable individual and social importance. They are characterised by rites of separation and also reintegration or incorporation, which transcend a mere physiological function and are socially and culturally marked and shaped events (Cooper 2005).

Another problem is that men are far less prepared to achieve good standards of parenting compared with the good standards of mothering (Gillis 2000). Women are socialised for parenting in ways that men are not. Women's passage to motherhood begins well before pregnancy, whereas men's preparatory transition to fatherhood does not and may occur at the moment of birth. Efforts to involve men at earlier stages of reproduction appear to have been only partially successful, producing a sense of inferiority and frustration for many men (Lamb 1987).

Men usually accept pregnancy without any concomitant physical changes to reinforce its reality. They lack the biological markers of transition to parenthood and their "*disembodied*" experiences of pregnancy are therefore, very different from women's "*embodied*" experiences. Draper (2003) argues that the ambiguous nature of the woman's pregnant body and her subsequent privileged knowledge contrasts with men's biological exclusion. This biological exclusion presents a paradox as, in contemporary Western cultures, where expectant men are encouraged to be centrally involved in gestation and parturition but feels excluded from both. Men's transition to fatherhood is made arduous not only by a cultural ambiguity, arising from the changing status of

contemporary fatherhood, but also by a biological ambiguity. Others argue that men are culturally separated from the processes of pregnancy and childbirth as their roles are not clearly defined and the medical profession, which determines how both are experienced and managed, minimises men's participation in these processes (Cooper 2005). In such instances some men may experience higher than normal levels of physical symptoms during their partners' pregnancies. Clinton (1986) concurs on the basis of her observations, arguing that the Couvade syndrome is a reactive response to the developmental crisis of pregnancy. According to Douglas (1984, p.97), the transition to parenthood constitutes a liminal or marginal period where the novice expectant man has no place or status in society and is consequently an outcast. She argues that the male partner in transition encounters feelings of ambiguity by virtue of his undefined status with dangerous consequences...

“danger lies in transitional states, simply because transition is neither one state nor the other, it is indefinable. The person who passes from one to another is in danger and emanates this to others”.

These feelings of marginality and vulnerability emanating as a consequence of the ambiguous nature of this yet undefined and misunderstood role may be expressed in the form of somatic symptoms reflecting the plight of men in transitional crises. This receives further support from Benvenuti *et al* (1989) who argue that difficulties in working out the changes associated with prospective parenthood leads to the emergence of depressive symptoms. A process of transition may begin but men will encounter various kinds of obstacles that prevent its successful conclusion. The event of parenthood triggers the man's competitive stance with his own parental figures, up to the

point of usurping their roles. This culminates in a potentially explosive transitional conflict between the real and fantasised bond with these figures and the loss of a relationship in which the respective roles of parents and children were formerly and absolutely clear. Reconciliation between the reality and imagined childhood parental bonds is a difficult transitional task to achieve which leads to internal conflict, thus increasing the man's susceptibility to, or expressed outcome in, a range of physical and psychological problems. Benvenuti *et al* (1989) outline the multiple conflicts which men face in transition, including feelings of jealousy and rivalry with the unborn, intensification of ambivalence toward their own parents, envy of their partners' procreative abilities and sexuality conflicts. It is not surprising, therefore, that men are predisposed to psychological morbidity during this transitional process.

Polomeno (1998) further alludes to this transitional crisis by proposing that the change from dyad to triad is so abrupt that many men may not be prepared for their new paternal roles. Jordan (1990) views the struggle of prospective fatherhood as "*labouring for relevance*". This involves incorporating the paternal role into the man's identity. Expectant men have to come to terms with a changed sense of self during this period of on-going transition. In some instances the developmental process remains incomplete, so that not all men achieve actualisation as involved fathers. Similarly, Imle (1990) argues that men have to assimilate the identity of "*father*" into their self-concepts. They then need to develop this role to give shape to this new self-image. For some the role may differ considerably from that enacted by their own fathers. For others there may even have been no paternal role model to emulate. These life circumstances can lead to transitional difficulties or crises. Gerson in Cath *et al* (1989) views Erikson's (1959) concept of identity as an amalgam of partial childhood identifications, which may be

more problematic for fatherhood than for motherhood. For women the partial identifications of childhood, involving as they do a renunciation and yet identification with the mother, provide a kind of structural integrity to motherhood identity. For men, working through the disjuncture and strains of achieving a multifaceted yet coherent fatherhood role, identity may be the most dramatic and integrative psychological task of adulthood. Scopesi and Repetto (1990) argue that becoming a father implies a radical modification of one's perspective in life, necessitating a complex change of one's own existence and a kind of identity reconstruction as indicated. Despite much speculation as to the relationship between parental transition and the syndrome there is, nevertheless, a notable scarcity of studies here. Those psychological investigations, which have been carried out open themselves up to criticism. The few studies of couples undergoing the transition to parenthood have compared new fathers and mothers separately without considering the impact of one partner's distress upon the other.

2.4.3 Sociological theories

There are no sociological theories directly pertaining to the Couvade syndrome, so related ones are considered instead. These include socio-cultural constructions of fatherhood and reproduction, how fatherhood is defined, gender issues and the relationship of all these to men's health.

Socio-cultural constructions of fatherhood and health

Fatherhood is a socio-cultural and biological construct, which has been far less studied than motherhood. Barclay and Lupton (1999, p.1013) observe that research on health in fatherhood lags behind that in maternal health where the existence of this disparity has been cited as 'one of the significant gaps in family research and theory'. The social

construction of fatherhood and gender are inextricably linked with both having health consequences during, and after, the processes of conception and gestation. Trevett (2002) points out that gender is rarely mentioned in either quantitative or qualitative studies, even where it appears to be an obvious factor. Gender role and feminist theorists such as Harrison *et al* in Kimmel and Messner (1992), Sabo and Gordon (1995), and Silverstein (1996) all propose that hegemonic notions of masculinity (Connell 1995) produce negative impacts on men's health and have physical and emotional costs which may arise as follows. In the course of growing up the young boy's gender identification is disturbed by alienation from his father. His father is perceived as an outsider and absent since he goes out to work, leading to the boy's sense of masculine estrangement conditioned by the reality of work. Consequently, the young male, who constructs a view of himself as masculine and as someone who may in the future have a partner and children, defines himself as fundamentally alienated from family life (White 1994). This construction often saturates male existence with feelings of anxiety and rage which may often have psychological consequences during the period of reproduction and thereafter (Brittan 1989). Similarly, Barlett (2004) observes that the social construction of fatherhood is currently undergoing redefinition, which could also affect men's cognitive appraisal of, and psychological reactions to, pregnancy, parturition and the postpartum period.

From the 1970s up to the millennium, modernity has moved toward the concept of "*new fatherhood*" which has challenged traditional notions of fathering and its roles. In its favour this new concept, at least in Western cultures, is influenced by, and takes account of, changes in the global economy, domestic division of workload, redefined notions of masculinities, gender socialisation, relations, and norms. However, the reshaping of

fatherhood in response to such changes exerts mixed effects on the health of men within the contexts of gestation, parturition and the postpartum period. Increasingly the demise of the conventional notion of “*provider*” as a defining aspect of paternal identity has been observed and has gradually been consigned to history. With labour market changes, especially higher baseline levels of unemployment and the increased participation of women in paid employment, men’s role as financial providers for the family has been challenged and no longer appears prominently in accounts of good fatherhood (Dermot 2003). Additionally, sparse mention of the provider identity in current empirical accounts of fatherhood has been used as evidence to support this contention. Cohen in Hood (1993, p.5) noted that among his sample of fathers with young children interviewed, that ‘traditional work-centred definitions of fathering’ were inadequate for characterising their beliefs about fatherhood. He concluded...

“contrary to what traditional thinking about
fatherhood would lead one to expect, becoming
a father had a dramatic impact on participants’
lives, extending far beyond the economic implications
of this transition”.

While income generation still exists as one expression of fathers’ commitment ideologically, women are now increasingly sharing this “breadwinning” role because of economic necessity. The beneficial offshoots from this are an increase in fathers’ familial roles and a greater level of practical and emotional involvement with their children whose protective health effects resonate not only for fathers themselves but also the family unit as a whole. Lamb *et al* in Lewis and O’ Brien (1987) in a review of five studies which looked at the effect of increased paternal involvement on the

psychological health of fathers, found a greater increase in their self-confidence in parenting abilities, in satisfaction with the fathering role, and in overall self-esteem. However, there may be deleterious social and health effects with this economic role transition also. Hawkins *et al* (1993) propose that it is the internal psychological reorganisation rather than external behavioural shifts toward this role that men find challenging. The authors argue that men are socialised to provide for, rather than care for, children and so must struggle to develop an enlarged identity that allows for generative care taking. Many men experience psychological disequilibria and inner conflict as they make the developmental shifts necessary to become fathers.

The social meaning of fatherhood, acknowledged previously, is changing and been transformed into a legitimisation of its presence in the domestic realm as a consequence of expanded family responsibilities, economic conditions and the empowerment of women. However, a more equitable division of workload within the domestic environment is not without its social and psychological problems. Volling and Belsky (1991) argue that it produces dyadic conflicts and tensions as couples renegotiate household and care-taking tasks. In addition, these changing definitions of masculinity and its roles may create conflicts between the external and personal worlds of the man with psychological consequences. Silverstein (1996, p.4) aptly captures the dichotomy between the two...

“our cultural definition of the fathering role as
employment in the *public world*, rather than
caretaking in the *personal world* of the family,
has been responsible for the inability of most
men to be aware of, and to articulate, their needs

for intimacy and emotional connectedness”.

However, Barclay and Lupton (1999) are critical of attempts to distinguish between the “*public*” and “*private*” spheres of fatherhood which they argue create a false dichotomy, especially since parenting and families are not separated from the outside world. While there is no doubt that cultural imageries of fatherhood abound there is a further contradiction between what La Rossa (1997) has labelled the “*culture*” and “*conduct*” of fatherhood. While “*culture*” presents images of fathering that suggest radical change, studies of the “*conduct*” of fatherhood indicate only minor alterations in behaviour. As La Rossa (1997) emphasises, many of the recent accounts of fatherhood are concerned with its images and the ideological shifts of men in relation to pregnancy and parenthood, while measurements of the extent of fathers’ participation in childcare tasks tend to give a different perspective. Thus we are left with the question of why fathers’ practices do not currently match their ideological position. Bronstein and Cowan (1988) suggested that the reason for this disparity is that many women are ambivalent about sharing parenting roles and subtly make paternal involvement more difficult. Another explanation offered by Burgess (1997) proposes that the apparent disparity in the attitudes and behaviours of fathers is often seen as an expression of the ideal versus the personal or possible desire where reconciliation is countered by societal and economic constraints. These take many forms such as the unyielding position of employers and the punitive measures taken against men who do not adhere to labour market expectations and the legal and social security systems, which continue to assume that women should take primary responsibility for children.

As we have seen the notions of “*new fatherhood*” propagated in Western societies may not always be culturally or economically compatible, thus leading to conflicts for men in their attempts to reconcile the two as they strive in their efforts to adhere to a redefinition of fatherhood. One study, which demonstrated this, was a qualitative longitudinal exploration by Barclay and Lupton (1999) of the perceptions and meanings of “*new fatherhood*” among a purposive sample of 15 Australian first-time fathers who were interviewed. The study covered the antenatal period up to 6 months after the birth. The investigation concluded that men and their partners who endorsed the notions of “*new fatherhood*” were out of step with the social and cultural structures in Australia. Men in the Australian workforce are expected to work longer hours and their paternal benefits are less protected by industrial agreements. At the same time social reform and support is diminishing and men are expected simultaneously to be providers, share equally in the domestic workload and be actively and emotionally involved with their children. The study found that Western society required men to be simultaneous providers, household helps and nurturers. The demands of these roles created tensions in meeting social expectations and were perceived as unrealistic. They also created confusion and distress generated by a sense of ambiguity, which led to conflict with partners and were perceived as stressful. In addition men found fatherhood, initially at least, to be disappointing and frustrating. They also felt that they inadvertently replicated the traditional behaviour of their own “*absent fathers*” but that this arose out of economic necessity rather than choice and subsequently created deep feelings of guilt, loss and conflict. This was not surprising given that most men today desire to have a closer relationship with their children than their fathers did (van Dongen *et al* 1995). These feelings, engendered by social redefinitions of fathering to which men find it difficult to aspire and that are incongruent with cultural images, are likely to lead to

physical and psychological pathology during the events of pregnancy and parenthood. In other words the ever-changing socio-cultural constructions of fatherhood may share some responsibility for the causation of Couvade syndrome although the evidence for any direct link between the two is lacking within the sociological literature.

Reproduction, fatherhood, gender and health

Social, legal and medical discourse has now put reproduction into the foreground with a focus largely centred on women and not on men. Medicine may be partially responsible for perpetuating this inequality by centralising reproduction and childbirth on the experiences of women often at the neglect of men (Annandale and Clark 1996). Eisenstein (1988, p.91) notes...

“femininity and biological motherhood are one and the same but masculinity and fatherhood have no similar biological relationship”.

However, the explanation for the invisibility of men in the reproductive process cannot rest with duality alone since cross-culturally and historically childbirth has been, and still is, largely the province of women (Mason 1993). Moreover, the entrenchment of women in their reproductive roles can leave men without one in this context. It is no wonder then that Rich (1992) follows along similar lines to those of some psychoanalytic theorists (Bohem 1930 and Van Leeuwen 1965) and psychosocial theorists (Gillis 2000) by viewing men as jealous and fearful of women's reproductive power. Boyarin (1994) further illustrates male anxieties about the female reproductive body and its overwhelming plenitude *vis-à-vis* the contrasting male body, which cannot become pregnant, give birth, or lactate. Women's centrality and men's invisibility and

marginality in the field of reproduction might also be explained by the gendered construction of health, which has given rise to polarised views of it for each sex. Courtenay (1998) has argued that, sociologists, medical researchers and other health professionals have all contributed to cultural portrayals of men as healthy and women as the ‘*sicker*’ gender. Within the reproductive context Pfeffer in Homans (1985, p.31) states that...

“implicit in medical definitions is the assumption
that the male reproductive system is more
structurally efficient, and that its functions
proceed smoothly”.

This has led to a pathologisation of women’s reproductive health and an underestimation of men’s during the periods of conception, gestation, parturition and postpartum. Pregnancy is now construed as a pathological state where the woman is unwell because of her deficient body but the male partner, by contrast, cannot be unwell because his body is strong. Moreover, a common perception is that the woman’s physical discomfort, her articulation of it and subsequent health care seeking behaviours typically embody feminine characteristics, which men cannot exhibit. If the Couvade syndrome as an aspect of the man’s reproductive health presents itself then there may be gender ramifications. Hypothetically speaking the man’s masculine status will be reduced by a potential displacement of his position from being “*strong and needed*” to that of “*needing and being dependent*”, thus shifting power relations with his pregnant partner. If he complains about, or articulates, his physical discomfort to others he contravenes social and masculine expectancies that he should not do so especially at a time when his partner supposedly suffers more. He will be perceived as selfish, weak and not a real

man. His only option, therefore, is to reassert his masculinity according to stereotypical convention which Anaya cited in Gonzales (1996, p.63) sum up as follows...

“a man doesn’t show weakness. Grit your teeth,
take the pain, bear it alone, be tough and prove
your maleness”.

It is these very hegemonic notions of masculinity and stereotypical gender expectancies that have an impact on men’s level of reporting, and seeking health care for the symptoms of the syndrome and on the ways these are diagnosed and treated. A typical illustration of this is the symptom of depression, frequently accompanied by feelings of powerlessness and diminished control, which men may construe as inherently feminine characteristics and signs of a weak emotional disposition should they display them. Moreover, men’s unwillingness to seek help for depression, coupled with health professionals’ gender-biased diagnosis of it as a woman’s problem, contribute to the social construction of men’s emotional invulnerability as well as inaccuracies in morbidity statistics (Adler *et al* 1990 and Potts *et al* 1991).

Contemporary reconstructions of fatherhood have pressured men to shed their traditional masculine roles with mixed consequences for their health. These pressures are illustrated by Pleck in Hood (1993) who acknowledges that fathers have not changed as much or as quickly as one would hope. Attempts by men to reconcile the conventional with the modernist views of fatherhood and its roles may lead to gender role strain. This paradigm proposes that contemporary gender roles are contradictory and inconsistent and that for those who violate these, negative psychological and social consequences will ensue (Pleck in Levant and Pollack 2003). Culture, as we have seen, often

subscribes to the prevailing masculinity ideology, which encompasses a variety of component beliefs relating to the norms for male behaviour. Male gender roles within the parenting context are riddled with contradictions, a legacy of opposing theoretical perspectives, which are conflicting and confusing for the man. For example, a leading proponent of the neo-conservative perspective on fatherhood, Popenroe in Gibbs (1993, p.61) states...

“parenting of young infants is not a natural activity
for males. Making men do the ‘*unnatural*’ violates
their essential gendered nature, leading to manifold
negative consequences”.

Those extolling the virtues of “*new fatherhood*” with its reconstructed notions of masculinity view fatherhood differently. Here the “*new man*” role-shares with his partner and is nurturant, involved, intimate and emotionally expressive toward his children. Yet these qualities of the new and idealised father may depart markedly from the universal socialisation of males to be emotionally distant, aggressive, and “*alexithymic*” or unable to articulate their emotions (Levant 1992). Similarly Levant and Pollock (1995) argue that men’s shortcomings as nurturers and emotional communicators are increasingly identified, as sources of distress and that may be perceived as the exponents of the darker side of masculinity equated with ‘inadequate parenting’. Even more bewildering is the blurring of masculinity through androgyny where feminine traits need not be the opposite of masculine ones. Androgyny theorists (Bem, 1979 and Taylor and Hall 1982) argue that the androgynous male is able to muster both masculine and feminine responses according to the demands of differing social contexts, which clouds the issue of masculinity even further. The champions of

this theory support the view of its suitability for men's adaptation to the so-called feminine trait expectancies of "*new fatherhood*" and as a saving grace to the problems arising from gender-role stereotypes. Overall it appears that these contemporary perspectives on fatherhood have strengthened the link between femininity and motherhood but weakened the connections between masculinity and fatherhood.

Gender is constructed from cultural and subjective meanings that shift and vary constantly, depending on the time and place (Kimmel 1995). Gender stereotypes are among the meanings used by society in the construction of health. Bohan (1993) argues that people are encouraged to conform to stereotypical beliefs and adopt behaviours that are congruent with the dominant norms of masculinity and femininity. Research studies by Golombok and Fivush (1994) and Martin (1995) indicate that males experience greater social pressures than women to endorse gendered societal prescriptions for health, such as ability to be strong, self-reliant, robust and tough, as shown earlier. Social constructionist theorists such as Berger and Luckmann (1966), and Hacking (1999) argue that males are not the passive victims of socially prescribed roles because they have agreed to behave as if they did exist and in so doing perpetuate and construct them along the way.

There is no doubt that gender infiltrates the physiological and psychological health of men and women where there are sex differentials in the types of symptoms experienced, their perception, and how they are attributed. A commonly reported trend is sex differences in morbidity and mortality where women have more frequent illness and disability, but their health problems are typically not serious. In contrast men suffer more from life threatening diseases and these cause more permanent disability and early

mortality (Verbrugge 1985, Verbrugge and Wingard 1987 and Gijsbers van Wijk 1991). However, morbidity statistics need to be interpreted with caution given the differences in reporting, healthcare utilisation and diagnostic gender bias, even when sex-specific conditions like pregnancy, delivery are controlled for or excluded appropriately.

According to Verbrugge (1985) women encounter more psychological distress (anxiety, depression, feelings of guilt, conflicting demands) than men do which may decrease their physiological resistance to acute and chronic conditions. Furthermore, women's nurturant orientation and their attentiveness to the problems of their families and others place continual emotional burdens on their lives. Women's social roles tempered by the conflicting expectancies and demands of their dualistic roles of "*mother*" and "*provider*" in the current economic climate compounds strain on their health even further. Silverstein (1996) corroborates this by arguing that feminine gender norms now socialise women to perform the double act of "*provider*" and "*nurturer*". Men face same similar conflicting role expectations but react differently from women. Unlike women, men often deny and underreport physical discomfort being only too well aware that to do otherwise embodies "*feminine*" characteristics (Courtenay 2000). In enacting their masculinity they may often reject healthy behaviours, embracing those associated with risk instead. In terms of symptom perception women appear to be more sensitive to physical symptoms than men (Gijsbers van Wijk 1991). This is probably because men are socialised to ignore symptoms and may therefore end up with a higher perception threshold than women. The presumed higher sensitivity of women may have biological origins but more probably has social ones, such as the attention paid to the girl's puberty and menarche which increase her awareness of bodily changes and symptom perception. Women are also socialised to be responsible for family members' health, hence

becoming used to noticing symptoms. In cases of the Couvade syndrome pregnant women do observe the symptoms of their male partners despite having many of their own. They may also influence their partners to seek medical care for them as well. However, incidence rates of the syndrome may be underestimated in cases where men disregard or fail to seek medical care for its symptoms.

The perceptions of symptoms lead to causal attributions being made for them which again can differ for men and women. Symptoms are not always associated with a distinct disease but can be open to a variety of interpretations. Physical symptoms can be attributed to minor transient infections, stress or other psychosocial factors. The decision about what to do about symptoms partially depends on what the individual believes to be the cause. Robbins and Kirmayer (1991) identified three dimensions of causal attributions for physical symptoms. These were physical illness (somatic), emotional stress (psychological) and environmental (external). They found that women scored significantly higher on psychological attribution than men, but not on the somatic or external scale. There were also moderate correlations between the attribution scales. Nykvist *et al* (2002) carried out a Swedish survey of a randomly selected sample of 750 men and the same number of women that investigated categories of causal attributions for common somatic symptoms relating to shoulder/neck and stomach problems. The results showed that women's attributions fell within the clusters referring to psychological causes, which they perceived as important whereas men did not consider any of the causes as important. The results of these studies may have important relevance for the Couvade syndrome. Firstly, both investigations showed an excess of female excess in symptom reporting which may mean that men with the Couvade syndrome are likely to report less. Secondly, the commonality of the syndrome's

symptoms in comparison with those of the general population may decrease their perceived importance for men who may subsequently not seek medical help. Thirdly, the severity and duration of symptoms may be important in determining their causality. Men's interpretation of both must be appreciated in the context in which they occur, namely pregnancy. Men's true somatic responses may be muted during this life event while they maintain the bravado of their response in accordance with masculine expectations.

There are a number of criticisms of the conceptualisation of gender and its relationship to health. The sociology of gender and health has a tendency to polarise men and women, leading to the assumption that gender is fixed and immutable when it is not. Gender roles are deemed important for health since, in a normative sense, they characterise the divergent experiences of man and women. However, Annandale and Hunt (1990) advise caution in approaching the differential health experience of man and women via gender role alone. The danger in doing so is the assumption that the context and meaning of social roles are the same for men and women. While it might be reasonable to expect men to adopt socially defined male roles, not all men do so. Indeed the "*new father*" discourse, which embodies the interfusion of gender roles and gender role orientations, counters such a view. Even within the realms of psychology, Connell (1987) remarks that the notion of distinct unitary characteristics for men and women has been decisively refuted.

2.4.4 Paternal involvement theories

Men's involvement in pregnancy and role preparation

Like psychosocial perspectives, paternal theories also emphasise the relationship between the expectant man's involvement in pregnancy and Couvade symptomatology. The notions of paternal involvement and its roles central to the "*new man*" discourse are always in terms of what they entail. Dermot (2003) argues that the concept of the "*new father*" in this context remains opaque. She further observed the continuing problem of attempts to explain why the cultural and ideological images and aspirations of fatherhood have altered more than the conduct of fathers' child-related activities. What should be remembered here is that the woman takes on a gate-keeping function in being the permission giver and controller of whom is involved and the form this involvement will take. In the past there were other external influences outside the family such as obstetrical and paediatric practices which did not encourage expectant men to be involved. If anything they often discouraged it, making men feel unwanted, not needed and inept. However, maternity practices have now changed to allow men to be more actively involved in antenatal care and during the process of parturition.

However, external influences are not always solely culpable for men's level of involvement but rather emanate as consequence of purposively adopted related styles, as May (1980) indicates. She outlined a typology of men's detachment or involvement styles during pregnancy, namely the observational, instrumental and expressive styles. The observer style describes those men who remain on the periphery, which allows the man as much or as little involvement as he chooses. The instrumental style typifies men who assume a managerial role toward the pregnancy. These men perceive their contribution as organising their spouses' antenatal visits and ensuring adherence to

dietary prescriptions. Finally, the expressive style is one where men express their emotion about the pregnancy and view themselves as active participants in the process.

In 1982, May further elaborated on men's involvement identifying three phases: the announcement, the moratorium, and focusing phases. The announcement phase refers to the period between the man's suspicion of the pregnancy and its actual confirmation. His response will be dependent on whether the pregnancy is desired or not. The moratorium phase is characterised by the man's emotional distance from the pregnancy, thus allowing him to work through any related ambivalence. This phase lasts between the 12th and 25th week of gestation. Between the 26th to 39th weeks up to delivery, the man experiences a change in attitudes and feelings toward the pregnancy with a redefinition of himself in terms of his new parental role. The man's positive and negative emotional responses to his partner's gestation may be linked to his health state during that time. If a positive emotional response to the pregnancy can be taken to mean greater involvement then this would be in agreement with Clinton (1985) and Drake *et al* (1988), who conclude that the man's somatic symptoms are often reframed as evidence of his involvement in the processes of gestation and childbirth. Raphael-Leff (1991) contends that the adoption of extreme styles in response to the pregnancy such as that of "*extreme participator*" or "*extreme renouncer*" may increase men's susceptibility to developing Couvade symptoms.

The degree of the man's preparation for his new role has been cited as a determinant of the syndrome. Weaver and Cranley (1983) conclude that those with a higher level of role preparation for fatherhood were more predisposed to the syndrome. Many men want to be good fathers but feel unprepared for this role for a variety of social, psychological and

cultural reasons discussed previously. This is corroborated by Levant and Kelley (1989) who acknowledge the problem of men's lack of preparation for the birth and fathering role and call for training to remediate the deficits in these skills. A number of studies highlight men's lack of role preparation for childbirth, which can also lead to the expression of somatic symptoms of the syndrome through the medium of anxiety. Johnson (2002) in a qualitative study of a convenience sample of 53 British men conducted within 60 hours after delivery reveals the disenfranchised feelings and powerlessness of men in relation to the birth. He found that 57% felt pressured to be present at the birth, 38% did not believe that they had been effective in supporting their partner and 56% were made to feel "*in the way*" during the delivery and felt helpless in the face of their partner's pain. Steinberg *et al* (2000), in a combined methodological multinational study of 33 Canadian and Japanese men, found that a substantial gap existed between what men were prepared for and the reality of childbirth. Raskin *et al* (1990) acknowledge that the birth of a child has been linked to mental health consequences for men and women.

Paternal theories, in contrast to psychosocial ones, might imply that a transitional crisis is less likely to occur if the male partner is better prepared for his new role but the fact that he is may still predispose him to the syndrome. A number of studies confirm that the higher the level of men's involvement in pregnancy and the greater degree of role preparation, the more frequent the display of Couvade symptoms. Clinton (1987) found that affective involvement within the pregnancy was positively correlated ($P < 0.01$) with the number, duration, and seriousness of symptoms displayed by expectant men in contrast to non-expectant men. Similarly Longrobucco and Freston (1989) found statistically significant ($P < 0.001$) higher mean scores of pregnancy-related symptoms

evident for those who had a greater degree of role-preparation and involvement in their partners' pregnancies.

In contrast to psychoanalytical theories, paternal ones propose that it is the man's closeness to the foetus that gives rise to the syndrome. Part of the process of involvement is the man's attachment to his unborn child. Two investigations have pursued this line of inquiry but with contradictory results. Weaver and Cranley (1983) investigated a convenience sample of 100 white middle class first-time expectant men. They found a modest correlation ($r = 0.22$, $P < 0.05$) between indicators of paternal-foetal involvement and attachment (feeling and hearing the unborn child kicking, confirmation through the woman's pregnancy symptoms and the ultrasound scan) with the incidence of 6 physical symptoms of the syndrome. These included feeling more tired (34%), sleeping difficulties (33%), indigestion (14%), stomach upsets (12%), appetite changes (8%) and constipation (6%). The investigators concluded men's symptoms were a reflection of their level of attachment to the unborn child and involvement in the pregnancy. However, contradictory findings by Schodt (1989) found no relationship between symptoms of the syndrome and paternal-foetal attachment. Interestingly, Ferketich and Mercer (1989) in their 18 month study of 147 couples over pregnancy and postpartum period found that the earlier male partners felt foetal movements, the more positive the perception of their own health throughout the remaining period of gestation.

Foetal ultrasonography and men's involvement in pregnancy

Foetal ultrasonography has contributed to a change in men's' and women's' experiences of pregnancy. It is an imaging technique that permits the paradox of seeing with sound. Sandelowski (1994) argues that this technology has had the effect of

increasing the involvement of expectant men in pregnancy and, thus furthered a trend toward family-centred maternity care and a more egalitarian role for fathers. For the man foetal ultrasound is enabling, allowing him access to a female world from which he may have been excluded by virtue of his limited biological role in reproduction. Like the Couvade syndrome, which redresses the biological imbalance between the sexes (Meerabeau 1991), foetal ultrasonography may also technologically redress the inequality in men's knowledge of, and access to, the unborn child. Although the man and woman have a relationship with their unborn child, they nevertheless occupy different epistemological positions as "*knowers*" of the foetus. The pregnant woman has a privileged relationship to the foetus because she carries it inside her body, thus her knowledge of it is embodied. She also has a tactile and kinaesthetic awareness of the child inside her that the man does not. The man's knowledge of the foetus is disembodied and therefore more disconnected and abstract than that of his partner. He may sense the foetus, but only vicariously via his pregnant partner's body with her permission. However, ultrasound changes this by expanding the man's physical and emotional involvement in childbearing beyond the confines of his biological role. It also confirms the status of the foetus as an independent life and separate person growing inside of its mother. The personification of the foetus through direct visualisation enhances the man's parental feelings toward it and is likely to influence the level of paternal-foetal attachment.

Ultrasound technology may not always affect the man's level of involvement with, and attachment to, his unborn child in a positive way. Men's and women's display of both may rest conditionally on confirmation of foetal health by the anomaly scan. If health problems are detected the man's level of attachment will be affected by anxiety. Indeed

paternal anxiety *per se* for whatever reason will have an impact on foetal attachment a point that Brennan (1996) corroborates. In a correlational study of 37, first-time, low-risk expectant couples in South London he found a negative relationship between anxiety and foetal attachment ($P < 0.01$) after ultrasound was performed, even after the health of the unborn baby was confirmed as normal. It has been shown that men face many anxieties which range from conception to birth and thereafter and which are often repressed because of social expectancies, thus culminating in the expression of Couvade syndrome.

Men's involvement with their unborn infant may also be affected by their gender confirmation through ultrasound. Historically, there has been a preference for same-sex infants, especially among primiparous men (Roopnarine and Miller in Hanson and Bozett 1995). Cultural expectancies of preference for male gender may generate joy or disappointment once the confirmation through the ultrasound is known. Brennan *et al* (2007b: Refer Appendix 1) in a phenomenological study of 14 expectant men found an elated emotional display by Asian participants where male gender was confirmed but an expression of disappointment where female gender was verified. They concluded that this could affect the man's level of attachment to the unborn child as a result of cultural expectancies. Lamentably there are few studies examining the relationship between the ultrasound, paternal-foetal attachment and the Couvade syndrome.

Transition to fatherhood

Inevitably the event of pregnancy confronts male and female partners with multiple anxieties and concerns. These often centre on the impact of the dyadic relationship changing to a triadic one. Roopnarine and Miller in Hanson and Bozett (1995) argue that

the transition to fatherhood can be viewed as having a significant impact on the anxiety levels of men during the antenatal and postnatal periods. There may be additional concerns about the health of the unborn child and the woman during the periods of gestation and childbirth.

A number of studies have examined the relationship between anxiety and the Couvade syndrome. Trethowan and Conlon (1965) as well as Lukesch (1977) found that men with the syndrome often reported more anxiety. Bogren (1983) found that men's anxiety was more common when women were anxious about pregnancy and impending birth. The investigator concluded that the woman's anxiety seemed to be more important for the development of the syndrome than that of the male partner. Transference of, or shared anxiety between, the couples might explain the situation. Cutrona's (1996) family theory on conjugal dyads proposes the existence of an anxiety-feedback loop between partners whereby when one is stressed (the pregnant woman), the other (the male partner) would typically offer support. Once the stressed partner has recovered, the supporting partner may in turn become stressed and anxious along with deterioration in their physical or psychological health. This theory receives some empirical support from Deater-Deckard *et al* (1998) who studied 7018 partners of pregnant women located in the county of Avon (including the city of Bristol). They found a highly significant correlation ($P < 0.001$) between men's and women's depressive symptoms and concluded that each partner's psychosocial state had a direct influence upon the other's. Moreover, direct comparisons of men and their pregnant partners have shown that they have similar levels of pregnancy-related stress and anxiety (Deater-Deckard 1998). However, Raskin *et al* (1990) found that in the assessment of depressive symptoms in 86 couples during

pregnancy and after childbirth only 4 (11.1%) of them were symptomatic simultaneously.

Strickland (1987) confirmed that the total number of the pregnancy-related symptoms exhibited by male partners was directly related to their anxiety levels. Brown (1988) found a concurrent display of Couvade symptoms with other manifestations suggestive of anxiety. In a population of 313 couples, she reported anxiety-related symptoms in the form of worry (22%), feeling under stress and strain (20%), tension (19%) and inability to relax (10%). Thomas and Upton (2000) dispute these findings on the basis of their findings where no relationship between the syndrome and anxiety were evident. The problem with some studies in this area is their tendency to use anxiety and stress interchangeably as opposed to treating them as separate entities in their relationship with the syndrome and providing accurate definitions for each. A further difficulty is determining whether anxiety is the cause or consequence of the syndrome. The use of varied measures of anxiety across studies further complicates the issue.

2.4.5 Biological theories

Hormonal influences

Lamentably there is a conspicuous absence of research offering a biological basis for the Couvade syndrome as well as the factors that might influence the timing of neuro-hormonal changes here. Thus, it is no surprise when Klein (1991) argues that the syndrome does not appear to have a recognised physiological basis. Despite the plethora of hormonal studies conducted on animals in this context, few have been carried out on human participants. The reasons for this are unclear but might reflect the fact that the syndrome being uncommon and not having a high health profile detracts from scientific

attention being directed toward it. It is not surprising therefore, that women's reproductive health a natural part of their defining constitution receives much closer scientific and clinical interest than men. To date only two studies by Storey *et al* (2000) and Berg and Wynne-Edwards (2001) support a hormonal basis for the syndrome. The findings of both indicated a significant increase ($P < 0.01$) in men's levels of the hormones of prolactin and oestrogen but lower levels of testosterone and cortisol. These hormonal changes were associated with the display of paternal behaviours as well as Couvade symptoms of fatigue, appetite changes and weight gain. These findings support paternal theories proposing men's involvement in pregnancy as an antecedent of the syndrome. However, both investigations failed to assess the well documented but confounding relationship between paternal stress and anxiety with elevated levels of cortisol and somatic symptoms associated with the syndrome (Rosmond *et al* 1998, Wolf *et al* 2001, Kutrina *et al* 2005 and Oswald *et al* 2006). From the evidence reviewed here it seems that a physiological basis for the Couvade syndrome is inconclusive.

2.4.6 Conclusion

The Couvade syndrome is a global phenomenon occurring in developed countries. Many definitions of the syndrome have been offered with some conflicting perspectives. Some authors argue that the syndrome is a psychosomatic disorder while others indicate its idiopathic nature with no connection to physical or mental illness. It is clearly connected to pregnancy and characteristically disappears in the postpartum period. The incidence has been shown to vary widely across countries and its relationship with socio-demographic factors is inconsistent. Both of these might be explained by problems of subject definition, sample size variation, ethnic distribution, cultural and age differences across different studies or it might just be that the syndrome is multifactorial. The

defining criteria for the syndrome are absent in some investigations, presented differently in some and similarly in others. Some studies have assessed physical symptoms only while others have also included psychological manifestations. In many cases sample selection bias has been evident with men recruited from backgrounds that focus on a predominant ethnic group only, with the near exclusion of others, on certain socio-economic classes or on geographical distributions. Inconsistencies in the type of symptoms revealed may reflect inherent methodological difficulties associated with the use of multiple and varied measures of the syndrome across studies.

A plethora of psychoanalytical, psychosocial, paternal involvement and biological theories have been offered to account for the origins of the syndrome. However, some of these have not been investigated sufficiently and those, which have, show disparate findings thus weakening the definitive conclusion that the Couvade syndrome has a psychophysiological basis. Further research is needed in order to clarify the differences between many of the reported studies and to explore further the manifestations and level of expression of the symptoms as well as signs of the syndrome. Large scale mixed method studies are therefore needed which allow male partners to express and articulate their experiences of the syndrome in their own language, and which quantify the severity of the manifestations and their impact on male levels of distress. Quantitative studies should be undertaken in a sizable number of male partners of women from different ethnic groups and socio-demographic backgrounds in order to be able to assess the impact of these factors and retain enough numbers for statistical power. In addition, standardisation of study instruments across investigations is required since the review of the literature shows the use of different measures to investigate the Couvade syndrome making international comparisons of studies difficult.

CHAPTER 3

DESIGN AND METHODS

Chapter 3

Design and Methods

3. Introduction

This chapter discusses the design and methods for both phases of the investigation including their specific aims and objectives, underpinning paradigms, theoretical perspectives, sampling methods and data collection. The Chapter also includes the preliminary exploratory work, ethical considerations, methodological rigour and issues of reliability and validity. Phase 1 of the study adopts a naturalistic approach to the exploration of the Couvade syndrome in the UK within a sample of identified men who are potentially suffering from some of its symptoms. This was published by Brennan *et al* (2007b), (Refer Appendix 1). As demonstrated in the literature the syndrome continues to be poorly understood by those affected and the health care professionals they consult, necessitating an in-depth exploration of male partners' own perceptions and experiences. Field and Morse (1996) argue that qualitative research is particularly useful for studying a phenomenon about which little is known.

On the other hand the second phase espouses a positivistic perspective of the Couvade syndrome and provides the opportunity for the integration of data with the first phase, thus allowing both to be confirmed in a credible manner (Bowen 1996). This part of the investigation was largest conducted in the UK since the Trethown and Conlon investigation back in 1965. It was of comparable size but different design, which attempted to address the dearth of research of the syndrome within the UK over the last four decades. This experimental phase used a mixed methods approach to the Couvade. Caracelli and Greene (1993) argue that a mixed-methods framework allows for the

integrative potential of qualitative and quantitative analyses and comparison between the different data sets adding to the depth of understanding of each cycle. The use of a mixed-methods approach expand the researchers' horizons providing additional perspectives and insights that go beyond the scope of any single technique. The use and amalgamation of the naturalistic and positivistic approaches have the dual advantage of in-depth exploration and entrée to participants' lived realities through qualitative means as well as the potential to contribute to instrument design and statistically determined reliability and validity through quantitative methods.

3.1 Naturalistic approach

This section addresses the research approach used for the naturalistic phase of the study and whose aim was to explore the characteristics of the Couvade syndrome as experienced by men with pregnant partners. The identified objectives were to:-

- Establish the extent of men's involvement in their partners' pregnancies;
- Identify the nature of male partners' physical and psychological symptoms experienced across the three trimesters of pregnancy and labour;
- Ascertain male partners' accounts of the medical investigation and management of these pregnancy-related symptoms;
- Determine the timing of pregnancy symptoms and their cessation in male partners;
- Identify male partners' explanations and meanings of their pregnancy-related symptoms.

At this stage, it is considered necessary to examine the methodological ideas underpinning the theoretical stance taken in the study. Crotty (1998) argues that it might be difficult to conduct research without the conscious or unconscious use of underlying theoretical perspectives which he asserts inform methodology, thus providing a context for the process of the inquiry. However, Pope and Mays (2000) point out that although many social scientists assert that qualitative research studies should be theoretically driven, others suggest the link between theory and methods is overstated. This should not be the case in healthcare-related research because of its applied nature.

3.1.1 The interpretive paradigm

The qualitative phase of the study was conducted in an interpretive paradigm where the central goal was to seek to interpret the social world. Paterson and Higgs (2005) suggest that interpretive knowledge comprises constructions arising from knowing. An interpretive stance is considered appropriate for exploring the phenomenon of the Couvade syndrome in this phase of the study, since it is embedded within the human world, requiring a human sciences paradigm and research strategy that would address the syndrome richly and in context. Consideration of the syndrome in this research is based on interpretation of the relevant literature where it is acknowledged to be a poorly understood phenomenon (Klein 1991) as well as, from the perspectives and experiences of participants who encountered it. Morse (1991) contends that the interpretive approach focuses on individuals' experiences and can provide rich and detailed descriptions of previously unexplored phenomenon.

Furthermore the interpretive paradigm is grounded in the philosophy of idealism which emphasises “*embodied knowing as a determinant of social reality with recognition of*

multiple constructed realities” (Higgs, p.49 in Byrne-Armstrong *et al* 2001). Thus, within this paradigm, the various ways that the participants experienced and understood the syndrome are acknowledged. This is important given the predominant medical perspectives on the syndrome in the literature. The choice of an interpretive paradigm for this research also allowed for the uncovering of contextualised, personal and experiential knowledge as well as an understanding about the meaning of the Couvade syndrome from those who had the affliction and who were most likely to know and understand it. This was further supported by the notable absence of studies explaining how the symptoms of the syndrome are managed and explained by those who have experienced it.

3.1.2 Theoretical perspective

While research often incorporates a variety of theoretical perspectives combined judiciously, the philosophical stance informing the interpretive paradigm is based on social constructivism. Crotty (1998, p. 42) aptly defines social constructionism as:

“the view that all knowledge, and therefore, meaningful reality, is contingent upon human practices, being constructed in and out, of interaction between human beings and their world, and developed and transmitted within an essentially social context”.

Guba and Lincoln (1989) give a useful account of the underlying assumptions of the social constructionist perspective as part of the interpretive paradigm. The first of these is that the researcher-participant relationship is subjective, interactive, and interdependent. The dyadic interaction tailors its exploration within the realms of participants’ life experiences, social and cultural contexts, especially within the pluralistic society from which the sample for this research study is drawn. Moreover, the researcher must go further by interpreting the meanings for clinical practice, education

and future research in the creation of culturally sensitive health care knowledge (Annells 1996), which this phase of the study attempts to demonstrate. Secondly, reality is multiple, complex, and not easily quantifiable. This is at odds with the objectivist paradigm, which holds that reality is singular and real in such a way that it can be measured and predicted. Hence, the simple Cartesian dualism of black or white, right or wrong, gives way to complex constructions of human experience. Moreover, the social constructionist approach does not build generalisations from particulars in a linear, incremental and deductive manner, but rather begins with the whole and works toward the parts and then the whole again in an inductive way. Thirdly, the values of the researcher, participants and underlying theory cannot help but undergird all aspects of the research study. Nevertheless, Gadamer (1981) emphasised the need for researchers to acknowledge their biases and pre-judgements, which this study attempts to do (Chapter 3: Section 3.8.8). He strived to listen actively to participants on their own terms unfettered by preconceived notions about what he was looking for. Moreover, the researcher acknowledges the ways in which dominant health professional ideologies and beliefs may mask, ignore or trivialise the realities of the participants with the syndrome are acknowledged. Fourthly, the research product, i.e. its interpretations, are context-specific which is shown by contextualising the data and its meanings within respective psychosocial and cultural contexts in this study.

Thus, the social constructivist's theoretical perspectives fit well with the interpretive paradigm that informs the qualitative research methodology used in this study. Consequently, Heidegger's interpretive phenomenology was considered an appropriate approach to address the research question for this phase of the study. Phenomenology as a methodology for this study is discussed in the next section.

3.1.3 The research approach

Key features of Heidegger's (1962) hermeneutic interpretive phenomenology are used to shape the study approach and methods in a flexible and creative manner without losing sight of the research question. Furthermore, the predominance of quantitative studies within the literature review supports the argument for studying the Couvade syndrome through an interpretive lens as opposed to an empirical one. Heidegger (1962) believed that the interpretive hermeneutical approach, unlike descriptive phenomenology as advocated by Husserl (1952), went beyond mere description of core concepts and looked for meanings, embedded in common human experience. In essence, the hermeneutical approach used here seeks to illuminate human understanding of subjective and social experiences of the Couvade syndrome. Parahoo (2006) argues that qualitative research is based on the belief that interpretation is central to the exploration of social phenomenon as a means of illuminating participants' perceptions of their actions. The approach also permits the study of conscious experience as encountered from the subjective or "*first person*" perspective. Participants narrate their own stories, in their own terms and refer to the phenomenon being studied through their "*lived experience*" of it, which gives meaning to their perceptions (Stanford Encyclopaedia of Philosophy <http://www.plato.Stanford.edu/entries/phenomenology/>). Moreover, the way of our being-in-the-world, to which Heidegger (1962, p.78) in his ontological perspective of hermeneutics refers, as "*Dasein*", that is, our capacity to make sense of things, requires a contextual appreciation of participants' subjective experiences within respective socio-cultural contexts, which this research study considers. Dilthey (1988) also emphasises the importance of acknowledging the cultural aspects of the individual's experience.

A number of philosophical assumptions inform the hermeneutic approach for knowledge creation, which shapes the strategies used for this research study. One of the key assumptions is the shared understanding that occurs through language (Koch 1999). This view is translated into the Gadamerian (1975) metaphor, “*fusion of horizons*”, whereby different interpretations of the phenomenon being explored (in this case the Couvade syndrome) are brought together through dialogue to produce shared understandings, thus bridging the gap between the familiar and unfamiliar. Similarly, Aylesworth in Silverman (1991) points out that the goal in hermeneutic research is to link the interpretations of the past, present, and future, relating the topic under study to the dialogue. Geanellos (2000) alludes to this further by arguing that hermeneutics is always bounded by the separate and intersecting interpretation of both the researcher and participant, thus enabling a true merger of both in the interpretive process. In this research study, the historical interpretation comprises the material found in the literature on the Couvade syndrome or topics related to it. The present interpretation emerges from the text in the form of transcribed interviews, field notes and interview summary sheets related to those who participated. The future interpretation is to bridge the gap in the knowledge of the syndrome.

Another philosophical assumption is that knowledge is constructed through dialogue from which meaning emerges which Koch (1999) describes as hermeneutic conversation between the text and the inquirer. A unique characteristic of hermeneutics is its openly dialogical nature, returning to the topic of inquiry repeatedly, each time with an increased understanding and a more completed interpretive account (Packer 1985). This obviously demands the researcher to be an active participant in the interpretive process rather than a passive recipient of knowledge and to strive continually to be immersed in

participants' narrative accounts (Walter 1995). A final philosophical assumption is that the hermeneutic process of interpretation is never closed but ongoing, moving dialectically between the parts and the whole. The researcher moves repeatedly between interpretations of parts of the text and interpretations of the whole text, seeking to illuminate the phenomenon within its context (Koch 1996 and Paterson and Higgs 2005).

Van Manen (1997) from the Dutch school links phenomenology with human science and hermeneutics which he tends to use interchangeably. This suggests that such phenomenology encompasses the two elements of Husserl's (1952) descriptive and Heidegger's (1962), interpretive phenomenology (Cohen and Omery in Morse 1994). The combined methodological assumption therefore indicates that phenomenological research is about participants' lived experience as they experienced them in an attempt to discover the meanings of the phenomenon under study. Hence human experiences are seen as a fundamental source of meaning, understanding and knowledge. Consequently, the methodology or philosophical framework adopted for this study reflects a human science perspective, which is based upon an eclectic phenomenological stance drawn from Husserl (1952), Heidegger (1962) and Van Manen (1997).

3.2 Positivistic perspective

An examination of the research paradigm informing the second phase of study attempts to transcend the over-simplification inherent in debates about the contrasting features of qualitative and quantitative research approaches but not their epistemological underpinnings. The nomenclature of positions has varied and includes: quantitative-qualitative; positivist-interpretivist; etic-emic. The roots of the debate are essentially

philosophical and go back to the nature of “*reality*” and “*knowing*”, where qualitative researchers operate under different epistemological assumptions from quantitative researchers. For instance, qualitative researchers believe that there is no objective reality but rather multiple realities constructed by human beings who experience a phenomenon of interest. Knowledge is idiosyncratic and purposefully constructed. By contrast, quantitative researchers informed by the positivist paradigm believe in a single, knowable reality, which can be quantified and measured objectively. The goal of knowledge is simply to describe the phenomena we experience. The most obvious epistemological difference between the “*naturalist*” and “*positivist*” is that for the former the researcher and the participant are interlocked in such a way that the findings of the investigation are the literal creation of the inquiry process. By contrast, the positivist is essentially objectivist and believes that it is possible for an observer to exteriorize the reality studied, remaining detached and uninvolved with it (Krauss, 2005). Another philosophical assumption of the positivist position, influenced by empiricism, is that science provides the means to uncover the truth and that theories must be tested against observations of the natural world to establish or predict reality, rather than resting solely on *priori* reasoning, intuition, or revelation. Hence, observation and measurement are at the core of scientific endeavour.

Realism, otherwise known as post-positivism (Denzin and Lincoln 2005) or neo-positivism (Guba and Lincoln 1994), is perhaps the most alluring research paradigm to influence this study since it has elements of both positivism and constructivism which address the three research questions in this study. While positivism concerns a single, concrete reality and interpretivism multiple realities, realism concerns multiple perceptions about a single, mind-independent reality (Healy and Perry 2000). The

concept of reality embodied within realism is one which extends beyond the self or consciousness, but which is not wholly knowable. Rather than being value-free, as in positivist research, or the supposed opposite in interpretive research, realism is instead value-cognizant, conscious of the values of human systems and of researchers. However, it acknowledges that there are differences between reality and people's perceptions of it. The goal of realism, therefore is to discover, through a mixture of theoretical reasoning and experimentation, knowledge of reality whilst acknowledging its different dimensions, one intransitive and relatively enduring and the other transitive and changing. The critical realism framework can accommodate both quantitative and qualitative methodologies despite their different epistemological orientations. Methods such as in-depth interviews and interpretive analysis are acceptable and appropriate within this paradigm, as are psychometric questionnaires and statistical analyses (Krauss, 2005). With the use of the realism paradigm, the seeming dichotomy between qualitative and quantitative research is therefore replaced by an approach that is considered appropriate given the research topic of interest and level of existing knowledge pertaining to it.

Thus, the aim for this phase of the study was to pilot test and validate a structured questionnaire that would investigate the type, severity, distress and time frame of physical and psychological symptoms of the Couvade syndrome in an experimental group of men with pregnant partners during the first and third trimesters of pregnancy and four weeks into the postpartum period. In order to achieve this, six objectives were identified.

These were to:-

- Identify and quantify physical and psychological symptoms of the Couvade Syndrome using the questionnaire under development and to validate the study instrument using appropriate statistical tests of reliability and validity;
- Compare differences in the type and incidence of symptoms experienced by men with pregnant partners compared to those with non-expectant partners;
- Assess the severity and distress of symptoms experienced by men with pregnant partners compared to those with non-expectant partners;
- Assess variability in symptom severity and distress for both study groups over time;
- Compare differences in the incidence of perceived stress coping indicators between the experimental and control groups;
- Assess variability in perceived stress coping for both study groups over time.

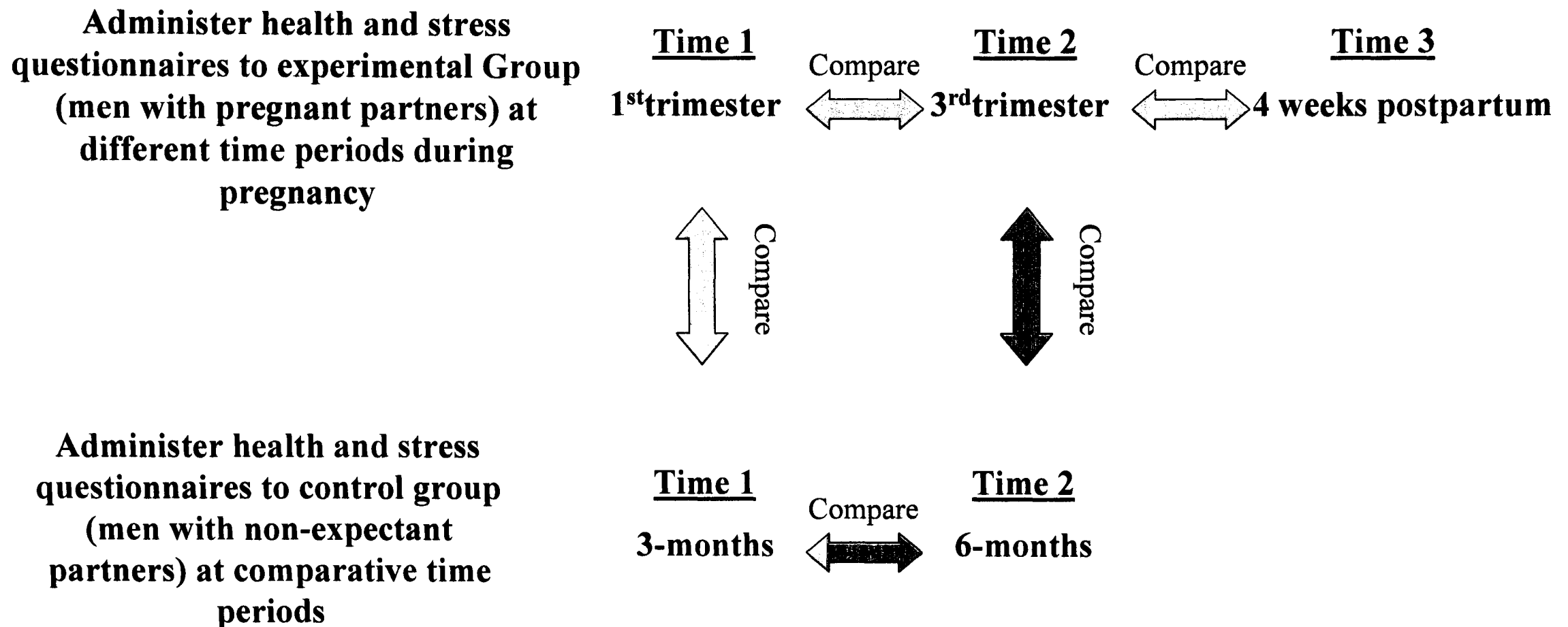
3.2.1 The research design

The design in this phase of the study follows the sequence described by Tashakkori and Teddlie (1998) where the investigation starts with qualitative data collection and analysis on a relatively unexplored topic and the results are used to inform the quantitative phase. The development and pilot testing of a questionnaire based on the categories and themes generated in the qualitative study is illustrated as part of the design (Refer Appendix 3). Van Teijlingen *et al* (2001) assert that pilot studies are a crucial element of a good study design. Additionally, Oppenheim (1992) argues that the piloting of a questionnaire over time, as in this study, contributes to its reliability and validity. Moreover, the piloting process provides valuable opportunities for detection of

errors in construction, sequence and wording as well as statistical validation and credibility of the study instrument.

A repeated measures design was used for the pilot study and a prospective one for the experimental study illustrated in Figure 2. Whilst observing for the control of variables in the experimental study random allocation of participants to the experimental and control groups was not possible for obvious reasons. Nevertheless, a number of strengths justified the selection of the design for this phase of the investigation. It was ideally suited to the time requirements of the experimental study spanning over the course of pregnancy and four weeks into the postpartum period. It enabled symptoms to be monitored in terms of their presence/absence, levels of severity and distress, and duration and variability over time as opposed to a snapshot view which occurs with the use of a cross-sectional design. In support of this Hoskins and Mariano (2004) argue that longitudinal designs enable more realistic variations of the phenomenon being studied across time unlike cross-sectional designs, which study the phenomenon at a single point in time. The selection of comparative time periods for the control group matching those of the 1st and 3rd trimesters in the experimental group allowed for the possible impact of time to be assessed. Differences in the perceived levels of stress between the two groups were also evaluated over the same time periods.

Figure 2. Experimental Study Design (Phase II)



3.3 Access and sampling

Written permission for both phases of the study and sample access was sought from the consultant obstetrician and head midwife of the Foetal Medicine Unit of a large teaching hospital in London, which served a large Caucasian, Asian and Afro-Caribbean population. The main investigator approached the men when they attended pre-scanning information sessions with their partners around the tenth week of the pregnancy, which provided them with details of the ultrasound scan procedure, potential pregnancy anomalies and details of antenatal care. Prior to these sessions the investigator introduced himself to the couples and provided an outline of the study and its purpose, making no mention of the “*Couvade syndrome*”, but rather “*men’s health during their partners’ pregnancies*”. Participants were offered the opportunity to ask questions about the study. For phase I of the study fourteen male partners agreed to participate, eight who had no children, four who had one child, and two who had two or more children. A further two men who were first-time parents were accessed and recruited from an Internet website specifically designed for the phase I of the study (<http://www.pregnancyandfathers.com> Refer Appendix 4) with the intention of reaching a more heterogeneous group. For the second phase of the investigation fourteen men who participated in the qualitative study were included as part of the sample for the pilot study. A further nine men were accessed and recruited from an Internet website specifically designed for the pilot and experimental parts of the study (www.geocities.com/pregnancyandfathers/ Refer Appendix 4). In addition a recruitment poster was located in the antenatal clinic and foetal medicine unit (See Appendix 5). It was emphasised to men in the experimental group that the study would require considerable commitment with the full completion of a total of six questionnaires (3 x ‘men’s health during partners’ pregnancy and ‘perceived stress coping scale’

questionnaires (PSCS-10: Cohen *et al* 1983 and Cohen and Williamson in Spacapam and Oskamp 1988)) over the trimesters of pregnancy and the postpartum period. The control group (men without pregnant partners) some who already had children were accessed from higher educational institutions in London and Surrey. The investigator approached the men from the staff and student populations of both university institutions. The study was announced during staff meetings and individual student cohort lectures with details of both groups provided on a registration details form, which was used for the two phases of the study. In the experimental phase its title was altered for those in the control group deleting “during partners pregnancy”. Again it was emphasised that the study would require considerable commitment with the full completion of a total of four questionnaires (2 x ‘men’s health questionnaires’ and ‘perceived stress coping scale questionnaires’) at a 3 and 6-month comparative time period.

3.3.1 Sampling methods

For the qualitative and pilot study a non-probability purposive sampling method was used since its goal in qualitative research is the selection of a specific population of information-rich participants. Crookes and Davis (1998) acknowledge this sampling technique to be one of the most commonly used in naturalistic research. The rationale for its use in the qualitative phase was specifically to target men with the Couvade syndrome who would be answer the research question. Denzin and Lincoln (2005), confirm the appropriateness of purposive sampling in targeting a specific group who are able to answer the research question. For the experimental investigation a convenience method of sampling was used. Its use was justified given the low incidence of the Couvade syndrome within the UK (Trehowan and Conlon 1965) and the fact that it is uncommon (Klein, 1991). Inclusion and exclusion criteria were formulated in keeping

with the requirements for the sampling methods used in the two phases of the study to reduce the likelihood of confounding symptoms (Fowler 2002), a challenging methodological problem facing past investigators.

The overall inclusion criteria were:

- Over 18 years of age.
- Can read (study information sheet and consent form), speak and understand English at a level suitable for the full completion of the interview and/or questionnaires.
- Partner has a confirmed pregnancy for which the recruited person is the biological father.
- Be willing to be interviewed and/or complete all questionnaires.
- For the qualitative and pilot phases have experienced a minimum of four physical or psychological symptoms whose onset coincided with the pregnancy.

The selection procedure for the qualitative and pilot phases also required the completion of a short diagnostic questionnaire requesting information about male partners' symptoms (Refer Appendix 6) as part of the entry criteria. The questionnaire contained a list of 35 symptoms (27 physical and 8 psychological) developed from the literature on the Couvade syndrome. The symptoms included 12 gastro-intestinal, 3 genito-urinary, 4 respiratory, 2 oral/dental, 2 generalised aches/pains and 4 other symptoms which did not fall into these anatomical categories. There were also 8 psychological symptoms relating to sleep, mood, emotional affect, motivation, cognition and coping. Men with 4 or more symptoms whose onset coincided with the pregnancy were included.

The overall exclusion criteria were:

- Under 18 years of age.
- Unable to read (study information sheet and consent form) and understand English at a level suitable for the full completion of the interview and/or questionnaires.
- Receiving current treatment for illnesses that might produce physical symptoms similar to those of the Couvade syndrome, e.g., inflammatory bowel disease, viral infections like chronic fatigue syndrome, herpes, glandular fever, meningitis, thyroid problems, any form of cancer, anaemia or relevant chronic disease.
- Receiving current treatment for any form of mental disorders that might produce psychological symptoms similar to the Couvade syndrome, e.g. depression or manic phases of affective disorder, anxiety disorders, schizophrenia and other relevant psychoses or neuroses.
- Partner has confirmed medical problems with her pregnancy, e.g., gestational diabetes, hypertension, pre-eclampsia or other relevant maternal disorders.
- Partner has a high-risk pregnancy, e.g., antenatal haemorrhage, foetal/maternal blood group incompatibility and similar conditions.

Cohen (1992) has observed the continued neglect of statistical power analysis to determine sample size in published health and behavioural sciences research. Therefore this was undertaken for the experimental phase of the investigation. There are a number of assumptions associated with the use of formulae to determine this. The first is that there will be no losses from the study and so extra allowance must be made for the likelihood of attrition. The second assumption is that in prospective studies the end-point

of interest must be known to be either present at a fixed point in time from the commencement of the study for all respondents (Daly *et al* 1991). Two further parameters are also specified. The first is the significance level p value probability of type I error, α error) at which the group difference is to be detected, and the second, the required probability of making type II (β) error in detecting this difference. The β probability was therefore set at four times the α probability. The following formula was used for the comparison of mean values for the two independent samples in this phase of the study:

$$n > \frac{2K\sigma^2}{\Delta^2}$$

where n is the sample size required for each group. K is the constant (based on tables of the standard normal curve) dependent upon the desired α and β probabilities for the comparison, and the level of significance being two-tailed. σ^2 is the variance for each of the sample groups being compared (with equal variances being assumed) and Δ^2 is the statistical power. The calculation using this formula includes a two-tailed statistical test at the 0.05 level, and a β probability of 0.02. This ensures an 80% probability ($1-\beta$; the power of the test) of detecting the difference between the groups in relation to the symptoms of the syndrome including their severity, distress and time span over the course of pregnancy and the postpartum period. Additional considerations in determining sample size in the experimental and control groups included, the low incidence (11%) of the Couvade syndrome in the UK (Trethowan and Conlon 1965). Secondly, the fact that the syndrome is uncommon (Klein 1991). Thirdly, the anticipated levels of attrition due to the depth of commitment required by participation in the study most especially, for men in the experimental group. Calculation using the formula indicated that a sample size of 120 as a minimum was required for each of the study groups. For those in the experimental group it was decided to increase the sample size by

a further 130% to 282 men. For the control group an increase in the sample size of a further 90% to 230 men was determined. Since the non-response and attrition rates in the experimental group were expected to be higher compared to the control group, the percentage was increased in the former group to accommodate this. However, the response rate in the experimental group was 182 and 181 in the control group.

For men in the experimental group mean age = 35 years, SD = 5.85 and range = 19-55 years. The highest numbers of men were social class II (73, 40%). The majority of men were married (142, 78%). The largest numbers of men were childless (137, 75%). Caucasian men were the most predominant ethnic group (111, 61%). For men in the control group mean age = 38 years, SD = 6.10 and range = 19-64 years. The highest numbers of men were in social class V (80, 44.2%). The majority of men were married (81, 45%) or cohabiting (33, 18%) or having a relationship but not cohabiting (67, 37%). Like the experimental group the majority of men were childless (132, 73%). So too was the fact that the majority of men were Caucasian (103, 57%).

The socio-demographic characteristics of the study sample for both phases are summarised in Tables 1, 2 and 3 respectively with a summary of those for the pilot study on Table 4 (See Appendix 7). Social class was classified according to the National Statistics Socio-Economic Classification: (NS-SeC), (DoH 2003). Two men did not fulfil the study selection criteria for the qualitative phase of the study because of language difficulties, having less than four physical symptoms and a partner with a high-risk pregnancy and so were excluded. Subsequently the selected number for the study was fourteen men. For the experimental phase all the men recruited satisfied the study entry criteria.

**Table 1. Socio-demographic characteristics of the qualitative study
sample ($n = 14$)**

Category	Study Population (n)
Age (years)	
19-25	2
26-33	5
34-40	1
41-48	6
Social Class	
Class I (Professional)	3
Class II (Intermediate)	6
Class III (Non-manual / Skilled)	1
Class IV (Manual / Skilled)	1
Class V (Unskilled Manual)	1
Unemployed	2
Marital status	
Married	12
Cohabiting	2
Number of previous children	
0	8
1	4
2	2
Pregnancy planning	
Planned	12
Unplanned	2
Ethnic group	
Caucasian	5
Black African	1
Black Caribbean	3
Black other	1
Asian	3
Chinese	1

Percentages not calculated due to the small sample size

**Table 2. Socio-demographic characteristics of the experimental group
(men with pregnant partners) (*n* =182)**

Category	Study Population (<i>n</i>)	Percent
Age (years)		
19-25	8	4.4%
26-32	64	35.2%
33-39	72	39.6%
40-46	31	17.0%
47-55	7	3.8%
Social Class		
Class I (Professional)	29	15.9%
Class II (Intermediate)	73	40.1%
Class III (Non-manual / Skilled)	28	15.5%
Class IV (Manual / Skilled)	15	8.2%
Class V (Unskilled Manual)	33	18.1%
Unemployed	4	2.2%
Marital status		
Married	142	78%
Cohabiting	40	22%
Non-cohabiting	0	0%
Number of previous children		
0	137	75.3%
1	29	15.9%
2	10	5.5%
3	4	2.2%
>3	2	1.1%
Ethnic group		
Caucasian	111	61%
Black African	13	7.1%
Black Caribbean	15	8.2%
Black other	2	1.1%
Asian	39	21.5%
Chinese	2	1.1%

Table 3. Socio-demographic characteristics of the control group (men without pregnant partners) (*n* =181)

Category	Study Population (<i>n</i>)	Percent
Age		
19-25	29	16.1%
26-32	47	26.0%
33-39	44	24.4%
40-46	28	15.5%
47-55	21	11.8%
56-64	11	6.2%
Social Class		
Class I (Professional)	6	3.3%
Class II (Intermediate)	24	13.3%
Class III (Non-manual / Skilled)	35	19.3%
Class IV (Manual / Skilled)	36	19.9%
Class V (Unskilled Manual)	80	44.2%
Unemployed	0	0%
Marital status		
Married	81	44.8%
Cohabiting (with partner)	33	18.2%
Non-cohabiting (with partner)	67	37%
Number of previous children		
0	132	72.9%
1	20	11.0%
2	23	12.7%
3	5	2.8%
>3	1	0.6%
Ethnic group		
Caucasian	103	56.9%
Black African	62	34.3%
Black Caribbean		
Black other		
Asian	14	7.7%
Chinese	2	1.1%

3.4 Data collection: methods and issues

The selected methods to collect data for this study were in-depth, open-ended interviews with their related analytical field notes and interview summary sheets. The purpose of the interviews were to explore men's pregnancy-related feelings, physical and psychological symptoms and the ways in which these were managed and explained as well as their meaning. A further purpose of the interviews was to inform the content of the questionnaires used in the second phase of the study. Data collection also consisted of the use of a specifically designed questionnaire to identify the presence, severity and distress of physical and psychological symptoms as well as their duration in days. An additional validated questionnaire was used to measure perceptions coping or difficulties in coping with daily stressors.

3.4.1 Preliminary exploratory work

The first part of the data collection process for the qualitative phase of the investigation centred on preliminary exploratory work in preparation for the main interviews which Silverman (2005) argues is an essential prerequisite in qualitative fieldwork. The purpose of the preliminary exploratory work was to prepare for data collection in this phase of the study offering opportunities for the independent researcher's scrutiny of the investigator's interviewing skills and knowledge and for the interview documentation interview guide and probes (Refer Appendix 8), analytical field notes (See Appendix 9) and reflective interview summary sheets (Refer Appendix 9) to be developed, appraised and validated accordingly. Peer debriefing was an important part of this process throughout. Three married men of different social classes (2 middle class, 1 working class) were approached and consented for this purpose. All of the men had partners who were in the 1st or 3rd trimester of pregnancy. Two of the men were first-time fathers and

the other had one child. The men were of diverse ethnic origins (1 Caucasian, 1 Chinese and 1 Black-Caribbean). All the pilot interviews were carried out in the participants' homes after the study was explained to them and a written consent form signed. Richardson (2002) argues that it is usually preferable to interview people in familiar surroundings as this can affect the level of disclosure and power relations within the interview context. A male researcher carried out the interviews in the presence of an independent female researcher who provided feedback on the interview environment, interview guide, duration of the interviews, interviewing style and technique. She also observed potential and actual biases between the researcher and participants and *vice versa* as well as the development, and use of, analytical field notes.

Greenhalgh and Taylor (1997) point out that that the interview is considered to be a special mode of inquiry, which aims to make sense of, and interpret, phenomena in terms of the meanings people bring to it. It is particularly suited to the study of human behaviour and actions, which are unfamiliar and complex. Similarly, Paterson and Higgs (2005) argue that interviews are powerful tools for understanding human beings and their ideas. With this in mind and given the inherent complexities of the Covade syndrome about which much remains unknown (Klein 1990) the interview was considered to be one of the most appropriate methods of data collection. The interview with its scope for probing and depth would potentially allow for many hidden aspects of a "*poorly understood syndrome*" to be revealed, thus contributing to the generation of personal insights and a new body of knowledge.

The preliminary interview data was recorded and transcribed by the study researcher so as to gain insight into the transcription process. An interview guide was formulated after

four versions were developed and validated in keeping with Patton's (2002) recommendation for its use, thus allowing for the specification the topics or issues to be explored in advance of the interviews whilst taking account of the diversity of individual response styles in the process.

3.4.2 Maintaining rapport and neutrality

During the preliminary exploratory work the independent researcher provided feedback to the interviewing researcher on strategies for maintaining rapport and neutrality. These included encouraging participants to address the researcher informally by his Christian name and initially engaging in circumstantial conversation as an icebreaker. Another strategy was gaining the participants' trust through assuring them of the highly confidential nature of the interviews. Rapport was also established through the use of an informal open-ended conversational stance in order to avoid predetermined responses. Analytical field notes recorded that rapport was established spontaneously in circumstances where the research interviewer and participant were of the same nationality, occupation and religious beliefs. The independent researcher acknowledged that the interviewing researcher was a registered psychiatric nurse possessing a competent level of interview skills transferable to the study context. The researcher perceived that participants' narratives were a prime research tool, which provided the opportunity for immersion in their life world. Careful attention was paid to what was being, and what had already been, said. The researcher listened attentively without interruption, but signalled to participants what was going to be asked before it was asked. He used neutral elaboration probes to elicit greater depth of participant disclosure such as *"tell me more about that"*, *"could you elaborate a little more on that"* and *"could you please explain that"*. In addition the researcher made use of restatement, reflective

observation and requests for clarification in order to unveil what might be hidden and to verify common understandings or misunderstandings. The interviewing researcher also maintained a non-judgemental stance throughout by accepting unconditionally what participants told him. Questions, which threatened neutrality, were avoided. These included “*why*” questions which move beyond the person’s experience to the presumption of cause and effect. Leading questions and prompts were also avoided to prevent responses steered in a given direction. At the close of the interviews participants were thanked and the value of their feelings, experiences and contributions acknowledged for the study as a whole.

3.4.3 Identifying response biases

The preliminary exploratory work also offered opportunities for the identification of potential sources of response bias and their documentation in the interview analytical field notes and reflective summary sheets. Two types of response bias surfaced. Reflections indicated that one participant continually denied having any negative feelings and fears concerning his partner’s pregnancy throughout any of its trimesters. Both researchers in their subsequent discussions acknowledged the possibility of a “*Halo effect*” (Wengraf 2004) where the participant attempted to reveal himself in a good light and provided staged answers in doing so. Another participant showed reluctance to discuss the physical and psychological impact of his partner’s pregnancy in the presence of an independent female researcher. When the interview was completed and both researchers were exiting his flat he whispered to the male researcher that he was not going to talk about them “*in front of her*” (the female independent researcher). This suggested the presence of gender bias. Indeed Williams and Heikes (1993) argue

that interviews always take place in a gendered context, a point taken into account during the main interviews.

3.4.4 Validating analytical field notes

Morse and Field, (1995) highlight the importance of field notes in providing researchers with opportunities to record their own biases and unsubstantiated hunches relating to the interview context. Koch, (1996) also recommends the use of field notes by researchers where they keep a record of tacit aspects of communication within the interviews including congruence or incongruence of participant verbal and non-verbal responses, perceived participant hidden agendas and researcher perceptions. The use of field notes is further justified given that tape-recorded interviews do not capture non-verbal communication in the form of facial expression, eye contact, body gestures and hidden agenda. Most importantly they make reference to the context of the interview. An analytical field notes form, developed by the researcher focused on a description of the interview environment, interpersonal dynamics affecting the level of interaction, communication issues, the presence of hidden agendas, and the main issues emerging from the interview.

3.5 The interviews

The lessons learned from the preliminary exploratory work concerning the data collection procedure, process and relevant documentation were all taken into account and amendments made accordingly in preparation for the interviews in the qualitative phase of the study.

3.5.1 Rationale

The preliminary exploratory work had shown that the in-depth interview method of data collection would be one of the most appropriate in fulfilling the goals of hermeneutic research in unveiling insights into how people construct and interpret the world. It would also provide a means of exploring and gathering experiential narrative data as a resource for developing and enriching a deeper understanding of a human phenomenon like the Couvade syndrome. Moreover, the interview can be used as a medium to adopt a conversational stance with a person about the meaning of an experience (Paterson and Higgs 2005). Van Manen (1997, p. 98) captures its purpose in a hermeneutic context:

*“the art of the researcher in the hermeneutic interview
is to keep the question of the meaning of the phenomenon
open and to keep himself or herself and the interviewee
orientated to the substance of the thing being questioned”.*

In this process it is the researcher here who is the instrument of data collection and who determines its success or failure.

3.5.2 Procedure and process

The data for the interviews were collected over a six-month period from November 2002 to April 2003. Study participants were telephoned to arrange a suitable time for the interview. The purpose of the study was described to participants as being to explore their views about the pregnancy, experience of physical and psychological symptoms and accounts of how these were assessed, managed and explained. Details of the interview procedure were provided concerning its length of time, method of recording, confidentiality, management of interruptions and requests for clarification.

All the interviews were tape-recorded to prevent the irretrievable loss of data. The interviewing researcher checked that the equipment was in working order prior to the commencement of each interview. He requested that participants spoke slowly and clearly to ensure they were audible and arranged close proximal positioning of both parties in the interview. This was important to accommodate the clarity and accuracy of subsequent interview transcriptions (Gubrium and Holstein 1997). Ninety-minute audiotapes were used to cover the interview time period. Data was collected until it reached a point of saturation and redundancy, where no new information or insights appeared to emerge.

The interviews were conducted in the participants' homes during the evening time and lasted between 60-90 minutes. Conducting the interviews within a familiar environment was important as it enabled the participants to feel more relaxed and have more control over the interviews especially since the study researcher was a guest in their home. Female partners were requested not to be present during the interviews lest this affect male partners' level of disclosure, as had been the case on one occasion during the preliminary exploratory work. One male researcher carried out all the interviews to take account of potential gender interaction effects between the interviewer and participants. This was in keeping with Levine and DeSimone's (1991) and Barsky *et al's* (2001) observations that men often confide more readily to an interviewer of the same gender and report less to someone of the opposite sex. DeVault, (1990) argues that the process of developing shared understandings is thoroughly gendered and that same-sex pairs usually assume that they share certain background characteristics. Another benefit of having the same researcher throughout was that it helped to promote consistency and uniformity across the interviews. An informal conversational stance was used which

receives commendation by Silverman (1999) who argues that it is the most effective route in gathering an authentic understanding of people's experiences. An interview guide piloted and amended prior to the commencement of the interviews was used for the systematic sequencing of topics or issues and to foster flexibility in the topic area being explored. Analytical field notes were documented discreetly during the interviews and in more depth immediately afterwards, to prevent problems of interviewer recall. These were used in conjunction with a reflective interview summary sheet also completed immediately after the completion of each interview.

A professional transcriber undertook the transcription of the tape-recorded interviews. The transcription quality was reviewed prior to undertaking the analysis of the textual data as suggested by Poland (1995). This was further prompted by Lincoln and Guba (1985) who argue that the transcriber can struggle to decipher what is being said from one utterance to the next and cannot be expected to keep track of the larger context of the dialogue as a basis for assessing the plausibility of alternate assessments. To preserve the authenticity of the data the researcher repeatedly checked the transcripts with the audio-recordings to ascertain whether grammatical proofing of punctuation, syntax, paraphrasing and intonation by the transcriber had altered the meaning of the data. Further checks determined whether the transcriber omitted or substituted words because of the participant's dialect or in cases of poor audible recording.

3.6 The questionnaires

Data collection for phase II of the study comprised two questionnaires. The first of these was the "men's health during partners' pregnancy questionnaire". This had been designed and pilot tested by the researcher whose details and validation results in

(Tables 4-13) can be found in (Appendices 10 and 16) respectively. They are also referred to in Section 3.9. The amended questionnaire can be found in (Appendix 11). The second questionnaire was the “perceived stress coping scale” (PSCS), (See Appendix 12). In this section a detailed description of the features of both are provided as well as the administration procedure, response rates for the experimental and control groups and strategies used to follow up late or non-responders. At this juncture it should be emphasised that the title for the health questionnaire was modified to make it relevant for the control group whose partners were not pregnant and entitled “men’s health questionnaire”.

3.6.1 The men’s health during partner’s pregnancy questionnaire

The first questionnaire administered was the “men’s health during partners’ pregnancy”. This had been designed and pilot-tested by the researcher to measure the specific symptoms of the syndrome across the trimesters of pregnancy. In the experimental study this questionnaire was also used for the control group with modification to its title as previously indicated. The study instrument contained a total of 44 items covering physical symptoms including gastrointestinal (10), respiratory (5), genitourinary (2), dental/oral (3), musculo-skeletal (2), miscellaneous (5). Psychological symptoms included those relating to sleep (3), mood (2), emotional affect (6), cognition (3) and miscellaneous (3). The questionnaire was scored nominally for the presence (yes) or absence (no) of each symptom and numerically on a scale of 1-9 for levels of symptom severity and distress. The term “*distress*” in this context was defined by the American Psychiatric Association (2004, p.9) as “*a state of discomfort resulting from an inability to adapt to internal or external stressors or conditions experienced, resulting in negative effects on the health of the individual*”. The duration of each symptom was rated on a

sub-scale ranging from 1 day to more than 28 days. No reversal of scores was required for the questionnaire. The questionnaire was administered to men in the experimental group during the 1st and 3rd trimesters of gestation and four weeks into the postpartum period. For the control group it was administered at 3 and 6-month comparative time periods which matched those in the experimental group during the 1st and 3rd trimesters of pregnancy.

3.6.2 The perceived stress coping scale (PSCS)

The second questionnaire administered was the perceived stress coping scale whose reliability and validity estimates can be found in Section 3.9. The term “*stress*” in this context was defined by Lazarus and Folkman (1984, p.62) as “*a transactional relationship between the person and the external environment that is appraised as exceeding one’s coping resources and endangering health*”. It should be emphasised that “*stress*” is not the same as “*anxiety*”. Anxiety is defined as “*the degree of motivation or lack of it in the adaptation to stress*” (Lazarus p.82. in Esdorfer *et al* 1981). The perceived stress coping scale (PSCS) consisted of ten questions, which enquired about feelings and thoughts over the last month concerning the degree to which situations in one’s life are appraised as stressful or non-stressful. The scale contained four questions relating to perceived coping ability and six questions relating to difficulties in perceived coping with life stressors. Lazarus and Folkman (1984, p.82) provide a widely used definition of coping with stress as “*constantly changing cognitive and behavioural efforts to manage specific internal or external demands*”. Conversely, these authors define inability to cope with stressors as “*unchanging cognitive and behavioural efforts to manage specific internal or external demands*” (p.82). In further alluding to stress

coping Higgins and Endler (1995) grouped coping strategies into three domains namely, task-orientated, emotion-orientated, and avoidance-orientated.

PSCS-10 scores were obtained by reversing the scores for the four perceived coping indicators examining frequency of control (Q4, Q5, Q7, Q8), for example, a score of 4=0, 3=1, 2=2, 1=3, 0=4, and then summing across all scale items. The remaining six difficulties in perceived coping indicators (Q1, Q2, Q3, Q6, Q9, Q10) were scored in the normal way that is, 0=0, 1=1, 2=2, 3=3 and 4=4. The PSCS was originally designed for use with community samples with at least a junior high school education. Moreover, the questions are quite general in nature and, hence relatively free of content specific to any sub-population group. Both questionnaires comprised part of a study information pack posted to the study participants in both groups. This included a personalised access letter detailing the specific completion and return dates pertaining to each of the study time periods and related to the delivery date for those in the experimental group. The appropriate number of copies for each questionnaire, sampled addressed return envelopes, a study information sheet and consent form were also provided. The data collection took place over a period of eleven months from September 2004 to July 2005.

3.6.3 Response rates

Two hundred and eighty-two questionnaires were administered to men in the experimental group. Of these 182 (65%) completed and returned the questionnaires during the first trimester and 171 (61%) in the third trimester. In the postpartum period 163 (58%) men responded. Two hundred and thirty questionnaires were administered to those in the control group. Of these 181 (79%) completed the questionnaires at the 3-month time period and 162 (71%) at the 6-month time period. Response rates and

exclusions for both groups are shown in Table 14. A number of strategies were used to follow up non-responders in both study groups. These included telephoning participants prior to sending out the reminders (maximum of two) along with copies of the questionnaires in case these had been mislaid. Reminder letters were personalised and sent by first class post with stamped addressed return envelopes provided. Consistent checks were made for demographic disproportions between responders, late responders and non-responders, which might indicate bias.

Table 14. Response rates and exclusions for the experimental and control groups

Experimental Group	Control Group
1 st trimester responded 182 (65%)	3 months responded 181 (79%)
3 rd trimester responded 171 (61%)	6 months responded 162 (70.4%)
The postpartum period responded 163 (58%)	
1 st trimester exclusions 6 (2%)	3 months exclusions 5 (2.1%)
3 rd trimester exclusions 1 (0.3%)	6 months exclusions 1 (0.4%)
The postpartum period exclusions 0 (0%)	

3.7 Methods of data analyses

This section firstly outlines the analytical process and method for the qualitative phase of the study and this is followed by the statistical methods used for phase II of the investigation covering the pilot work and experimental study. The purpose of analysis in qualitative research is to organise, provide structure to and elicit meaning from the data regardless of its type or underlying research tradition. There are three main challenges which researchers face here. Firstly, there are no universal rules for analysing and presenting qualitative data. Secondly, there is an enormous amount of work required in attempting to make sense of the sizable amount of narrative data. Thirdly, reducing the data for reporting purposes still requires the inclusion of adequate information in order to reflect the richness of the original data and its interpretation. Le May (2001) argues that the aims of qualitative analysis are to produce rich and detailed accounts of the participants' experiences, to remain focused on the research question and to ensure that the categories and themes fit together and are located within the data collected to support the findings.

A clear specification of the method of analysis is important in quantitative research since one of its goals is to employ mathematical models based on probability theory to examine a phenomenon of interest. The process of measurement is also vital because it provides the fundamental connection between empirical observation and mathematical expression of quantitative relationships. The selection and use of appropriate tests of validation are an intrinsic part of the piloting process, which will determine the methods to be used for the experimental study.

3.7.1 The qualitative analytical process and method

Heidegger, (1962) does not seem to specify clearly the method of analysis for hermeneutical phenomenological research. It was important therefore that a set of guiding principles was used to analyse the data whilst maintaining transparency and methodological rigour in the study. Such an approach is required in order to elicit concepts, which would represent the meaning of the men's shared experiences and add to the body of knowledge on the Couvade syndrome. Subsequently, a non-prescriptive, inductive approach was adopted and informed by the analytic procedures from the work of Colaizzi's (1978) content analysis, Miles and Huberman's (1994) three specific parts of their cyclical process and Woolcott's (1994) three-stage analytical approach.

The interviews produced large amounts of rich data, which had to be managed systematically during the analytical process. The data was therefore processed using the qualitative software package WinMAX Professional (Udo Kuckartz, BSS, Berlin, Germany, 1998). Qualitative analytical software packages have been extolled by Pope *et al* (2000) as an important development with the potential to improve qualitative analytic techniques, which were previously constrained by long hours of arduous labour. In this study, the individual interviews were labelled M1-M14 (M1 = first man interviewed, M14 = fourteenth man interviewed).

All the transcripts were scanned line-by-line and particular phrases, words and sentences reflecting potential ideas of the characteristics of the syndrome as experienced by the men in the study were highlighted with labelled annotations. The transcripts were then read and re-read in the search for data patterns from participants' recurrent words or phrases. All similar data segments were then identified and grouped together to

formulate a category. Each category was assigned a label at a descriptive level, which was meaningful to each data set. The computer software WinMAX Professional facilitated this aspect of the analytical process. It also enabled the quantification of the number of data segments per category to be performed as suggested by Colaizzi (1978), (Refer Appendix 13). Within each category, all data sets were then checked and rechecked against the original transcripts. This allowed for a review of the categories in terms of quantity and overlap.

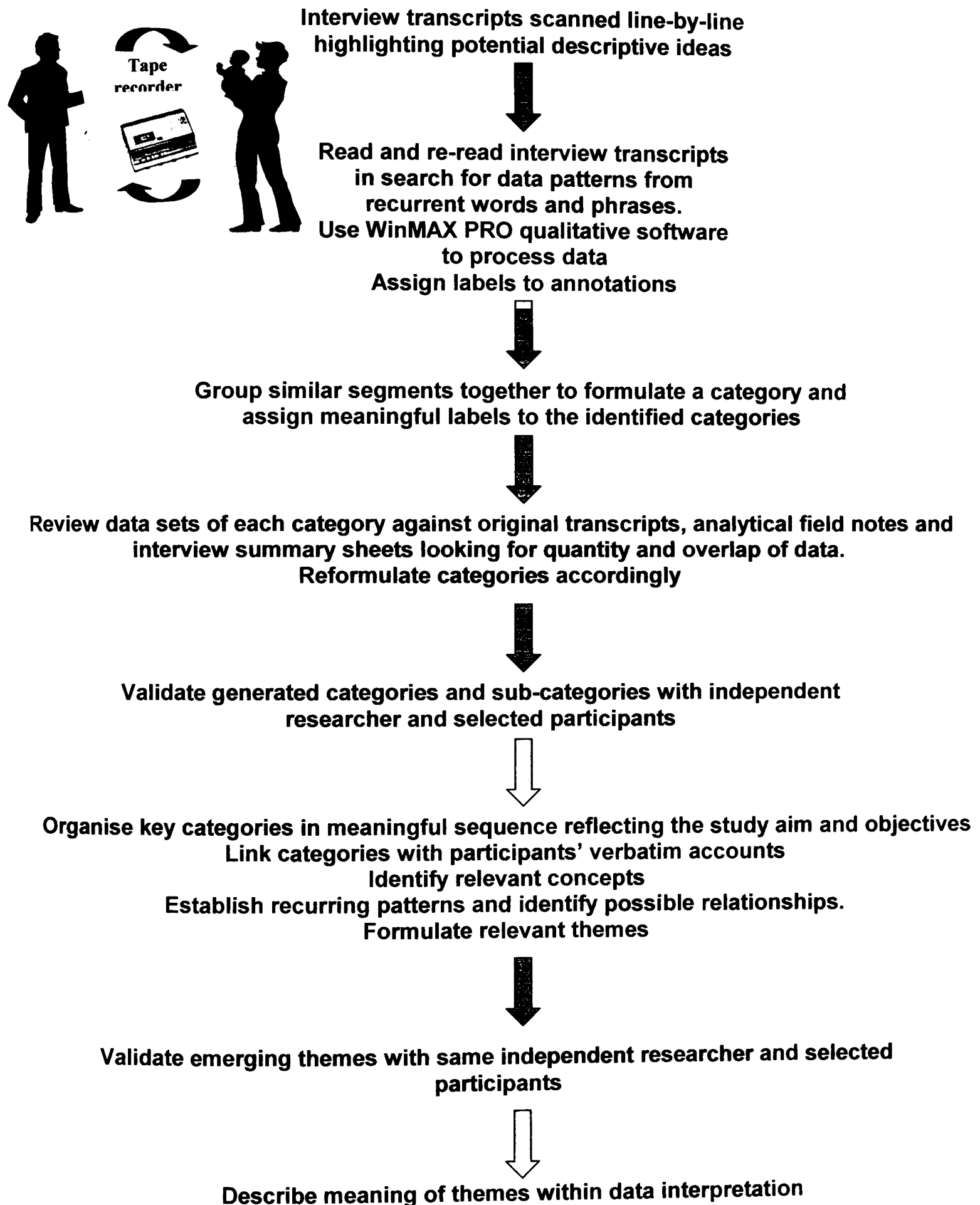
As mentioned previously analytical field notes for each participant were recorded discreetly during the interviews and a more detailed record made immediately thereafter. In keeping with Miles and Huberman's (1994) suggestion of data reduction, interview reflective summaries for each participant were completed immediately after the interview with both forms constituting part of contextualising the analytical data. In assuring this both of these interview texts were repeatedly cross-checked with the interview transcripts. Categories and sub-categories were re-formulated where necessary. All potentially unusable data or "*dross*" (Burnard 1991) was assessed for relevance and expunged from the data where necessary. The data sets were then sent for category validation with an independent researcher and three selected participants.

In order to develop meanings in the interpretation of the data key categories and sub-categories with their appropriate data segments were organised in a meaningful sequence, reflecting the aim and objectives of the study. Thus, the men's descriptive verbatim accounts were linked to the categories and sub-categories. This was followed by the identification of relevant concepts prior to establishing possible relationships and recurring patterns among the categories. At this stage, themes representing the identified

key concepts within the relationships of the categories were formulated, thus linking the data in and across the categories. According to Van Manen (1997), themes are a means of understanding the topic being studied. They give shape to the shapeless and describe the content of the topic thus clarifying it. The personal meanings of participants' experiences were interpreted using their "*lived perspectives*" to represent their reality and possible justification. Conceptual meanings were interpreted by making reference to individual participants' social and cultural contexts, as well as the pregnancy, in explaining the men's perceptions and experiences.

The final stage of the analytical process involved the validation of the three emerging themes by the same independent researcher and three participants who had previously validated the categories. There was some disagreement between the independent and study researcher on the use of the original metaphorical theme descriptors using metaphors namely '*emotionality of pregnancy*', '*essence of pregnancy*' and '*enigma of pregnancy*'. For example, since some participants could explain their symptoms the use of the metaphor '*enigma of pregnancy*' was not wholly appropriate. Immersion in, and the electronic tracking of, the data from the original transcripts were stages of the analytic process crucial as a precursor to generating contextual findings. In order to answer the research question for phase I of the study, the interpretation of the meaning of men's characteristics of the Couvade syndrome arose through organising the data in a way that collectively provides a description and interpretation of data sets within their respective categories and eventually their themes. An illustration of the analytical sequence (Marshall-Lucette 1999) was adapted in accordance with the aims and objectives of the study and illustrated in Figure 3.

Figure 3. Analytical sequence for generation of categories, sub-categories and themes



3.7.2 The quantitative analytical process and method

For phase II of the study the Statistical Package for Social Scientists (SPSS-Version 14 for Windows) was used to analyse the data. The tests for validation of the pilot questionnaire included the Cronbach's Alpha Coefficient of Reliability (α) used to correlate the scores of each item with the total score for each respondent on two repeated measures. In keeping with Salkind (2004) and Argyrous (2005) suggestion, any item with α score of <0.70 was removed from the questionnaire. The Spearman's Rank Correlation Coefficient test (ρ) was used to determine the correlations between test-retest values. Finally, a Mann-Whitney U was used to examine the statistical significance of differences between the median scores of the test-retest values.

In the experimental study descriptive statistics were used to calculate the number and percentage difference of the types of physical and psychological symptoms as well as perceived stress coping/non-coping indicators in the study groups. Chi-square test was performed to examine differences in the incidence of symptoms and perceived stress coping in the experimental group over the first and third trimesters of pregnancy and the control group over a 3 and 6-month comparative time period. The Mann-Whitney U test was used to compare differences between the median severity and distress scores for physical and psychological symptoms between the groups.

In assessing the variability of severity and distress scores (ordinal data) for physical and psychological symptoms for the experimental group during the 1st and 3rd trimesters and postpartum period the non-parametric ANOVA (Kruskal-Wallis test) was used. This was also used to assess the variability in perceived stress coping indicators in the experimental group over the three study time periods. For the control group the Mann-

Whitney *U* test was used to assess the variability in the severity and distress scores of physical and psychological symptoms as well as perceived stress scores over a 3 and 6-month time period. The duration of symptoms in the experimental and control groups were analysed using descriptive statistics to determine the number of days each symptom occurred using the time periods of classification specified in the health questionnaire as follows:

- ≤ 1 day
- $2 \leq 7$ days
- $7 \geq 28$ days
- > 28 days

The ETA non-linear, nominal-by-interval correlation coefficient test, which can also be employed for nominal-by-ordinal data was used to assess associations between the demographic variable of age (nominal data) and symptom severity and distress scores (ordinal data). The levels of association for Eta range from 0-1 with 0 indicating no correlation between the row and column variables and values close to 1 indicating a perfect association. It was decided to use the following arbitrary levels of association for this test:

- Eta statistic < 0.190 = no association
- Eta statistic $\geq 0.190 - \leq 0.390$ = weak association
- Eta statistic ≥ 0.390 = good association

The Chi-square test was used to examine associations between each of the social classes and previous number of children on one hand and the severity of physical and psychological symptoms on the other. The Eta test was also used to examine associations between perceived stress coping and the severity of physical and psychological symptoms.

Binary logistic regression was used to assess the ability of Couvade symptoms in predicting the presence or absence of the Couvade syndrome. This was also used to assess the perceived stress coping indicators as predictors of the syndrome. In this type of logistic regression the independent predictor variables can take any form and in this case were ordinal. In logistic regression, there is no true R^2 value as that of ordinary least squares regression. However, because deviance can be thought of as a measure of how poorly the model fits (i.e., lack of fit between observed and predicted values), an analogy can be made to sum of squares residual in ordinary least squares. The Cox and Snell's R^2 of binary logistic regression attempt to imitate the interpretation of multiple R-square based on the likelihood but cannot reach a maximum value of 1. However, the Nagelkerke R^2 modifies this and can reach a maximum of 1. The Wald statistic was used to calculate whether the independent variables (selected Couvade symptoms) had a contribution to the model that predicts outcome. The binary logistic regression analysis was performed for all physical and psychological symptoms and perceived stress coping indicators. It was then repeated having selected those symptoms and perceived stress coping indicators, which were shown to have the highest contribution to the model.

The variables that significantly predict the Couvade syndrome are shown on the table of variables in the equation, together with their Wald statistic and significance. The variables that did not significantly predict the outcome are shown on the table of variables not in the equation and will not be presented in the thesis. The value of Exp (B) was important for the interpretation. If it is greater than 1, the odds of the outcome occurring increases as the predictors increase. On the other hand, if the value of Exp (B) is less than 1, the odds of the outcome occurring decreases as the predictors increase.

3.8 Methodological rigour of the study

In phase 1 of the study criteria to demonstrate rigour consisted of credibility, confirmability, demonstration of meaning in context, recurrent patterning, saturation of data, transferability of meaning and relevance of data, auditability and reflexivity. In phase II of the investigation reliability and validity of the questionnaire was demonstrated through the process of piloting and statistical testing.

Over the last four decades debate has raged over the question of whether universal criteria for judging the quality of qualitative research are necessary. According to Rolf (2004) the literature in the area is broadly divided into three positions on this question: those writers who argue that qualitative research can be judged according to the same criteria as quantitative research; those who believe a different set of criteria is required; and those who question the appropriateness of having any predetermined criteria. Advocates of the first position (Field and Morse 1986 and Morse *et al* 2001) propose that the credibility of qualitative studies depend on adopting the concepts and terminology of positivist research. Whilst adopting the second position Koch and Harrington (1998) argue that the issues at stake in qualitative research are fundamentally different from those in quantitative research, thus requiring alternative terminology to describe different concepts. Mays and Pope (1995, p.110) assert that rigour is achieved if *“another trained researcher could analyse the same data in the same way and come to essentially the same conclusions”*. However, Sandelowski (1993) rejects this by arguing that if reality is assumed to be multiple and constructed (as it generally is within the qualitative paradigm) then one would not expect expert researchers to arrive at the same categories and themes, and therefore the same conclusions, as the original investigator. This study adopts the view of Koch and Harrington (1998) and uses an evaluation

criteria informed by the works of Lincoln and Guba (1985), Leininger (1990) and Mays and Pope (1995) to assess rigour. However, it should be noted that Sandelowski and Barroso (2002) reject the use of such criteria as antithetical to the interpretive paradigm claiming that the epistemological scope of qualitative methodologies is simply too broad to be represented by a single set of criteria.

3.8.1 Credibility

The first criterion is credibility, which refers to the “*truth value*” or believability of the findings. This was accomplished in a number of ways. Firstly, according to Paterson and Higgs (2005), research strategies used in preliminary exploratory work, such as the provision of feedback and debriefing by an independent researcher, enhance credibility. Secondly, there was a clear relevance and interrelationship between the chosen research paradigm, approach and theoretical perspective shown previously in Chapter 3: Sections 3.1.1-3.1.3. Thirdly, credibility was also demonstrated by a selected number of participants’ reviewing the accuracy of their own narratives and commenting on the themes generated. Data was also verified and enriched from other sources such as analytical interview transcripts, field notes and reflective interview summary sheets. These were used as part of the hermeneutic interpretive process with deep immersion in the texts, repeated cycling between the parts and the whole to make sense of the syndrome in relation to the texts, repetitive exploration of the horizons of the researcher and the participants and depth of dialogue between the two.

3.8.2 Confirmability

According to Leininger (1990) demonstrating confirmability requires data affirmation by the participants and others. The interview transcripts were checked for accuracy and

verified with participants partially demonstrated this. Three randomly selected participants were also involved in verifying the categories and analytical themes. Additional confirmation of the themes was sought from an independent researcher with no connection to the study and who, after a blind reading of the interview transcripts subsequently arrived at similar interpretations as the study researcher but made some recommendations for modification indicated in Chapter 3. Conroy, (2003) endorses this action by proposing that interpretation spirals outward to include others who may confirm or re-interpret narratives and in doing so make additional contributions to the study findings. The researcher presented the study findings at a number of international conferences and obtained feedback from academic and professional colleagues. This dialogue added to the investigator's clarity of thinking and enriched his interpretations. Many who attended these conferences acknowledged, and agreed with, the interpretations of the findings presented but others added to these thus expanding the researcher's horizon of knowledge. The study findings and their interpretations were subjected to peer review in the International Journal of Reproductive Psychology.

3.8.3 Meaning in context

Mays and Pope, (1995) point out that meaning in context refers to the data becoming understandable with relevant meanings to the participants' social, historical and environmental contexts. The researcher expanded his interpretation through repeated visits to the original interview transcripts, making connections with other participants' narratives through notations made in field notes and consulting other documentary evidence, thus ensuring the contextual relevance of interpretations. In doing this, careful reference was made to the participants' wider socio-cultural and religious contexts in interpretation of their perceptions, views, experiences and explanations within the study.

3.8.4 Recurrent patterning

The fourth criterion is recurrent patterning, which produces evidence of repeated patterns and themes reoccurring in a sequential manner over time. Since the data time span covered a period of nine months and yielded repeated patterns of symptom reporting and management, this partially satisfied this evaluation criterion. Comparisons of similar feelings, perceptions and behaviour for some of the participants between the different trimesters of pregnancy were also evident.

3.8.5 Saturation

The fifth criterion is saturation, which refers to content-rich knowledge about the phenomenon studied. In this study the researcher conducted an in-depth investigation to the point where no new data or insights emerged. Part of this process involved a consistent and an exhaustive line of inquiry covering each trimester of pregnancy thus providing participants with the opportunity to offer further revelations concerning their perceptions, experiences and explanations for the syndrome throughout.

3.8.6 Transferability

The sixth criterion is transferability, which means that the findings will have similar meanings and relevance in another similar situation or context. It was not the intention of this phase of the study to generalise its findings since the hermeneutic approach does not build generalisations from particulars in a linear, incremental and deductive manner (Paterson and Higgs 2005). However, the data which did emerge concerning men's feelings, perceptions, symptoms and the ways in which these were managed and explained, were all related to the context of pregnancy. The findings could, therefore, be

relevant and transferable to other men with pregnant partners who suffer from the same syndrome.

3.8.7 Auditability

Auditability concerns the degree to which others can clearly follow the researcher's decision trail and track the research process. Koch, (1996) argues that readers need to be able to audit the events, influences and actions of the researcher that result in interpretive findings. This was accomplished in the study by following all stages of the research process in a clear and systematic fashion. The research approach, including its philosophical underpinning, assumptions and relevant theoretical perspective, was made explicit. Relevant aspects of data collection such as amendments required from the pilot interviews, including the interview guide, analytical field notes and reflective summary sheets provided further evidence of auditability. So too did the analytical process outlined in Figure 3.

3.8.8 Reflexivity

Prior to data collection, the researcher spent time examining his viewpoints and assumptions concerning the experience of pregnancy for men. The researcher held largely traditional views of pregnancy in terms of its gender roles and related tasks. He believed that pregnancy is a major life event, which exerts great pressure and strain on the man in a supportive role, which is expected of him. While most men joyfully acknowledge the pregnancy some might harbour muted apprehensions and concerns about imminent parenthood, which they will often not communicate to their partners. Additionally, there are those who may experience feelings of resentment because of their partner's dependency and the amount of attention they receive, which again are not

always communicated openly. The researcher was also of the opinion that not all men wished to be present at the birth of the baby but may feel forced to do so because of social and medical expectancies. Draucker (1999) agrees that in interpretive phenomenology it is agreed that such assumptions and perceptions enrich interpretation. Ray in Morse (1994) further endorses this point by arguing that the researcher's experiences, preconceptions, perceptions and assumptions in the process of data collection add to the body of interpretation. Elsewhere, Lopez and Willis (2004) argue that in interpretive phenomenology presuppositions or knowledge on the part of the researcher are valuable guides to the inquiry and make data collection a meaningful undertaking. Conversely, LeVasseur (2003) points out that if opinions and assumptions are not acknowledged they can bias the interview process. The technique of "*bracketing*" might help in this process but as Heidegger (1962) argues, it is impossible to rid the mind of the background of understandings that has led the investigator to consider a topic worthy of research in the first place and whose experiences have informed his/her perceptions.

3.9 Reliability and validity of the questionnaires

The preliminary exploratory work for the quantitative phase of the investigation involved pilot testing of the men's health during partners' pregnancy questionnaire developed from the interviews in the qualitative phase of the study whose details and overall validation results presented in tables can all be found in (Appendix 10 and 16) respectively as well as respondents' commentary and the subsequent amendments made in the light of both. The Cronbach Alpha Coefficient of reliability for the total scale was 0.89 (Reliability Coefficient: Number of cases = 23. Number of items tested = 50. $\alpha = 0.89$). There were 5 physical symptoms (Table 4: See Appendix 10) psychological symptoms (Table 5: Refer Appendix 10) with an $\alpha < 0.70$ and these were removed from

the study instrument accordingly. There were excellent direct correlations between test/re-test values for the severity and distress of physical symptoms (Tables 6 and 7: See Appendix 10) yielding correlation coefficient (r) values in the range of 0.98-0.99, with only a few exceptions. Those for the severity and distress of psychological symptoms (Tables 8 and 9: Refer Appendix 10) gave correlation coefficient (r) values in the range of 0.92-0.99. P-values were very small in the range of 0.002-0.001 with the majority being 0.001. Mann-Whitney U test revealed no statistically significant differences in the median severity and distress scores for all physical (Tables 10 and 11: See Appendix 10) and psychological symptoms (Tables 12 and 13: Refer Appendix 10) between the test-re-test periods. The range of test/re-test median values for the severity of physical symptoms were 0.35-5.04 and 0.35-5.22, and for their distress 0.39-5.65 and 0.39-5.61. The range of test and re-test median values for the severity of psychological symptoms were 0.17-3.61 and 0.17-3.91 and for their distress 0.17-3.70 and, 0.17 and 3.96. Amendments were then made and the final questionnaire emerged (See Appendix 11).

According to Cole (1999), there is strong evidence for the unidimensionality of the perceived stress coping scale (PSCS-10). Cohen *et al* (1988) show correlations between the PSCS-10 with other stress measures, health behaviours and help seeking behaviours. Since levels of appraised stress are likely to be influenced by daily hassles, major events and changes in coping resources, the predictive validity of the PSCS would be expected to rapidly fall after 4-8 weeks. Cole (1999) in a national U.S. sample ($n=2264$) found that several items in the PSCS-10 demonstrated statistically significant ($P=0.05$) differential item functioning by sex, race and education. A copy of the PSSS-10 can be found in (Appendix 12).

CHAPTER 4

ETHICAL ISSUES

Chapter 4

Ethical Issues

4. Introduction

Psychosocial research is an integral part of modern health care, which often uses human volunteers as its research tool, as this study does. This presents an immediate ethical challenge to the researcher; how to reconcile the human scientific imperative to acquire new knowledge for the benefit of the health care profession with the study participants' rights to autonomy and their general well-being. Stanley, (2004) proposes that the ethical imperative is to ensure that any research involving human participants is properly monitored to protect their rights and prevent unjustifiable physical, psychological or emotional harm to them. This section considers these and other ethical issues outlined by Ramcharan and Cutcliffe (2001) which relate to the two phases of the investigation. These include seeking permission for each phase of the study to be conducted, issues of consent and volunteerism, beneficence and non-malevolence, and sanction for the use of the perceived stress coping questionnaire, participant's accessibility to the study findings as well as their dissemination and adherence to the principles of research governance as outlined by the DOH (2003, 2005).

4.1 Seeking permission and consent

Permission for the study was obtained from the Local Research Ethics Committee (LREC) and the consultant obstetrician and head midwife where the study was conducted for all phases of the study. In the experimental study permission for the inclusion of staff and student participants in the control group was sought from the Research Ethics Committee at the higher educational institutions where they were

recruited. Men in the in the experimental group were approached when they and their pregnant partners attended scanning information sessions at the Foetal Medicine Unit around the tenth week of gestation. The study aim and purpose was outlined by the researcher in simple language, which contained no jargon, and opportunities for questions were offered. Those who indicated their interest and satisfied the study entry criteria were invited to participate. In keeping with the advice of Oliver (2003) it was made clear that male partner's decision to participate or opt out of the study would not affect the subsequent care that they or their pregnant partners received. Protection of participants recruited from the Internet website was observed in keeping with guidelines outlined by Im and Chee (2002). These included protecting the privacy of online cyber participants through the use of a secure email site for response. Personal details relating to suitability for study entry such as age, number of symptoms recorded in the diagnostic entry criteria, receiving current treatment for specified range of physical and/or mental health disorders and medical problems with the pregnancy were requested and kept confidential. The diagnostic entry criteria were important in ensuring the recruitment of genuine participants and taking account of the possibility of a racial and economic divide among Internet users. Participants in both phases of the study received an access letter (Refer Appendix 14) and were provided with a study information pack comprising of a study information sheet (See Appendix 14), written consent form (Refer Appendix 14) and demographic details questionnaire (See Appendix 15) and diagnostic questionnaire (Refer Appendix 6). The pack also included three copies of the "men's health during partner's pregnancy questionnaire" (but titled differently for the control group: "men's health questionnaire") and the "perceived stress coping scale" and the relevant number of stamped addressed return envelopes. Written permission was not

required for the use of the perceived stress coping scale questionnaire when used for academic research or educational purposes.

4.1.1 Maintaining anonymity and confidentiality and, issues of funding

Confidentiality was preserved during the interviews and other aspects of the research process. In the qualitative phase pseudonyms were used for study participants and their partners if they referred to them by name. Anonymity was also observed in the questionnaires for the pilot and experimental phases with each participant being assigned with an identification code and whose actual name was only known to the researcher for the purpose of follow-up. The identity of participants was also protected in publications, TV appearances and conference presentations related to the study. All forms of data were kept on a computer protected by a security password only known to the researcher. Tapes/magnetic discs and other documents related to the interviews and questionnaires were stored within a locked cupboard in a secure room. Data for the qualitative phase of the study was treated with strict confidentiality and was kept for a period of 2½ years and a period of 3 years for the remaining phase with the intention of disposing of it in a safe manner thereafter. Funding for the study amounting to £1,275 was provided via a university research fund. This helped with the costs of transcription, tape-recording equipment, purchase of qualitative analytic software and postage costs. All expenses were itemised accordingly.

4.1.2 Maintaining beneficence and non-maleficence

A fundamental ethical principle is that participation in research will be of benefit to participants and outweigh the associated risks. Moreover, the researcher must do no harm to those participating physically, psychologically, socially or financially. The

anticipated benefits of this study were outlined to men as part of the consent procedure. These included addressing the lack of knowledge and research into men's physical and psychological health during pregnancy, and how pregnant partners could benefit indirectly with raising awareness of men's health care needs during the antenatal and postnatal periods. Furthermore, the use of the Internet as a research tool provided opportunities for those participants who may have been unable or unwilling to participate in the physical world to do so online thus, providing a voice for these communities. Many of the participants commented that they appreciated the opportunity to engage in a dialogue about their views and health concerns during pregnancy and contribute to an area of research about which little was known. Conversely, the researcher was mindful that in-depth discussion or completion of questionnaires of pregnancy-related feelings and symptoms might have been distressing for some participants. In these cases informants would be offered the opportunity for their participation in the interview/questionnaires to be terminated and referral to an antenatal counsellor if they so wished.

4.1.3 Accessibility and dissemination of the study findings

Participants were assured that a copy of the main study findings or any related publications would be made available to them if they so wished. Two participants expressed their desire for this. The research governance framework (DOH 1991, 2001 and 2005) recommends that those conducting health and social care research must open their work to critical review through accepted scientific and professional channels. This was achieved through publication in peer-reviewed international journals, conference presentations, TV and radio interviews, and newspapers in the UK and internationally.

4.1.4 The principles of research governance

The ethical principles of this research were in keeping with the DOH (1991, 2001 and 2005) research governance framework. This framework evolved as a response to a range of past ethical contraventions in the field of clinical research such as issues of product regulation, abuses of human rights, incidences of fraud, and the divergence of ethical regulations in different countries causing a duplication of research. The research governance framework proposed and reinforced ethical policy frameworks which covered all of the following principles observed in this study:

- The use and protection of patient data, confidentiality of personal information and security of related data;
- The involvement of service users and carers of representative groups, reflected whenever possible, in the research design, conduct and reporting;
- Taking account of the risks to research participants in proportion to potential benefit, and risks, pain and discomfort which must be kept to a minimum, all of which must be explained to the relevant Research Ethics Committee and to participants;
- Findings must be made accessible to those participating;
- Those conducting health and social care research must disseminate their work for the purpose of critical review through accepted scientific and professional channels.

CHAPTER 5

RESULTS OF THE STUDY

Chapter 5

Results of the Study

5. Introduction

This chapter presents the results for the study. The findings of the qualitative study firstly focus on men's emotional journey from their partner's conception and covering the three trimesters of pregnancy, up to and including the period of parturition. Male partner's experiences of physical and psychological symptoms and their time course over gestation are discussed and the ways in which these were managed and by whom. Their attempts to explain their symptoms individually and as a whole are also outlined. The three themes, which emerged from the data, namely "*emotional diversity in response to pregnancy*", "*nature, duration and management of symptoms*" and "*explanatory attempts for symptoms*" are then presented.

In the experimental investigation the results relating to the men's health questionnaire are firstly presented. The presentational sequence for these results is outlined in Figure 8. The results include a comparison of the reported number, incidence, severity and distress of the physical and psychological symptoms of the Couvade syndrome for both study groups. The impact of time on the severity and distress of symptoms is then considered. The associations between age, social class and number of previous children and the severity and distress of symptoms for men in the experimental group are also presented. The duration of physical and psychological symptoms for the study groups is then discussed followed by binary logistic regression analysis of physical and psychological symptoms as predictors of the Couvade syndrome.

The results of the perceived stress coping questionnaire are then presented. The presentational sequence for these results is illustrated in Figure 9 and includes a comparison of the incidence and median scores for perceived stress coping indicators for the study groups. The impact of time on perceived stress indicators is also considered. The association between total perceived stress coping scores and the severity of physical and psychological symptoms in the experimental group is then presented. Finally, binary logistic regression analysis of perceived stress coping indicators as predictors of the Couvade syndrome is considered.

5.1 Emotional diversity in response to pregnancy

This theme involved the emotional journey that men experienced from the announcement of their partners' pregnancy over the three trimesters up to the birth. Men's experiences of the pregnancy from its announcement up to the birth were demonstrated through their feelings, worries and concerns, response to demands and involvement with partner and unborn child. A myriad of mixed feelings were expressed, which varied in intensity over time. Twelve men indicated their sense of excitement at the news of conception, especially in cases where it was their first child:

*...wow it was am-a-a-zing when I first heard that Sarah was pregnant
as we'd only been married for a short time. I remember announcing
it in the pub to all my friends the next evening that I was to become
a new father I was really elated. I was excited for about four
weeks afterwards... (M: 2).*

In addition, three men expressed ambivalence where the pregnancy was unplanned:

... yeah well it was a delight and in a way horror as well... (M: 12).

Another participant reacted similarly but the prospect of fatherhood also elevated his feelings:

...worried man but at the same time I was excited about becoming a dad...(M: 8).

Feelings of shock about an unanticipated pregnancy and a temporary reluctance to accept it also surfaced:

... it was a bit of a bombshell mate since we was using some prevention at the time you know what I mean? Later on I took it on board I guess ... (M 8).

After the period of announcement the initial excitement gradually lessened. Nevertheless, positive feelings continued for nine of the participants as the pregnancy progressed and intensified during the third trimester. One participant illustrates this:

...they'd certainly intensified because we were sort of getting towards the end of the pregnancy...(M: 13).

Six men indicated that the pregnancy precipitated feelings of closeness and intimacy with their partners, especially during and after the period of the first ultrasound scan:

...we actually got very close after that period my wife and I, we hadn't been married very long, and it sort of really brought us that much closer...(M:13).

Men's closeness to their pregnant partners was also displayed by their feelings of protection, which involved health precautions and environmental prohibitions:

...I tried to get Sarah out of the house a bit more but we kept out of smoky pubs because of her condition at that time...(M: 2).

Men's feelings also surfaced in response to the demands of the pregnancy, what it signified in terms of its potential effects on the health of the partner and unborn, its impact upon the conjugal relationship and other siblings, financial commitment, accommodation space, prospective parenthood, antenatal preparation and maternal care. The demands of pregnancy were largely pragmatic, emotional and financial. Men's practical support, such as shopping, lifting heavy items, care of siblings and housework, increased as the pregnancy progressed and the women's physical capacity declined. Many men responded empathetically and sensitively to their partners' emotional state especially in cases where they were tearful, anxious and vulnerable. Some male partners also seemed to have a contextual understanding of the woman's emotional state:

*... there were times when Eileen would start crying for
no reason and need a big hug from me and the boys to
cheer her up. I suppose that was her hormones though
at the time...(M: 6).*

While many men were responsive to demands demonstrating awareness of their partners' physical and mental stresses as the pregnancy progressed, their feelings were not always congruent with their actions. For example, some men harboured feelings of resentment, lack of patience and irritability although these were not expressed directly to their partners:

*...there was definitely 'shortness', anger, and a lack of patience
and irritation because there's too many things that I was thinking
that I had to do for her...(M: 13).*

Another participant expressed his frustration with his partner's increasing demands across the stages of pregnancy and felt that she should be able to do more for herself despite her condition. Evidence from field notes indicated a mood tone of annoyance for

one participant (M: 3) when questioned whether he felt closer to his partner during the latter stages of her pregnancy.

Worries and concerns centred on the health of the partner and unborn child, whether the pregnancy would go to term, prospective parenthood and its responsibilities, how other siblings would react to the newborn child, insufficient accommodation space and financial commitments especially among those with low income salaries or who were unemployed. Three participants expressed worries concerning the health of the unborn child based on their lay conceptions when the first ultrasound scan was performed:

*...I was worried 'cos I thought he wasn't right he might be..what
'ya' call it..a mongol or something...(M: 8).*

In relation to financial concerns one participant exclaimed:

*...then the reality hits you and you begin to worry about the
costs of having another addition to the family...(M: 6).*

When it came to prospective parenthood and its anticipated responsibilities eight men expressed mixed feelings. These included positive anticipation and longing for fatherhood, a realisation of its responsibilities and the sense of meaning it created in their lives:

*...becoming a father I think of many responsibilities I have for wife
and child, it also give meaning to my life. I knew that have child
change everything for me and family...(M: 9).*

Conversely, prospective fatherhood led to feelings of worry, uncertainty and apprehension for others who were expecting their first child:

*...well I guess I was worried about becoming a dad...it's a lot of
responsibility 'ya know what I'm sayin'...(M: 8).*

The majority of men participated in antenatal preparation such as attending ultrasound scans and antenatal classes but the feelings that these invoked were again mixed and seemingly influenced by cultural expectancies on some occasions. On one hand there were those who actively and willingly participated in antenatal classes with their pregnant partners but on the other hand there were those who seemed reluctant to do so because of the impact on their feelings. Others questioned the relevance of antenatal classes which even led to distancing from the pregnancy the evidence for which was recorded in the researcher field notes:

...oh 'yeh' I went to a few of those mother classes as well. I mean they 'was getting' me to do some exercises that Hope was 'doin'. I just felt like a bit of a plonker man. I mean it wasn't ME 'havin' the kid was it? ... (M: 3).

On some occasions antenatal classes were perceived as not being inclusive for the man:

...the focus of antenatal classes in my view is always on the woman and not on the man... (M: 10).

Men also contrasted their position with that of their pregnant partner when it came to antenatal care and felt their feelings were overlooked in the process:

... I did feel a bit of an outsider at the time...I mean it's not as if I felt I should be the centre of things then but I sometimes wondered if people really know what its like for the other half when a baby comes along ... (M: 2).

The feelings of the twelve men who attended the ultrasound scans varied and were sometimes influenced by cultural expectancies. For three men the scan unveiled the reality of the unborn baby through direct visual confirmation:

...seeing the baby growing inside Marcel made it really come alive for

me...(M: 4).

For others it created feelings of apprehension about whether the health of the unborn was “normal”. Other men reported that it drew them closer to their partners. Not all men wished to know the gender of the baby but those that did displayed contrasting feelings when it was confirmed. This was classically illustrated by two Asian participants where a boy was confirmed in one case and a girl in the other. The former stated:

...I felt very exhilarated when it was confirmed that we were going to have a boy...(M: 7).

The other exclaimed:

...well if I'm honest with you I felt a little disappointed since I was hoping for a boy...(M:10).

An interesting but relevant observation recorded in the analytical field notes and reflective interview summary sheet was an Asian participant's angry response and rebuke of the researcher in his questioning of the preferred gender of his unborn when he referred to the unborn child as “it” as opposed to making a specific reference to a particular person or gender. Men's emotional responses were sometimes linked to aspects of their involvement with the pregnancy and/or their unborn child. Their involvement in both took a number of forms, which included commitment to demands, attendance and participation in antenatal care, preparation for the baby and choosing names, seeking confirmation of the unborn baby and evidence of paternal-foetal attachment. Men's involvement with, and vicarious confirmation of, their unborn child mainly occurred through the ultrasound scans and when they felt or listened to their partner's abdomen for evidence of the baby kicking. Both the reality of the unborn baby

and prospective parenthood were reinforced in such instances. For one participant the audible evidence of his partner's "*quicken*ing" early in the second trimester confirmed:

...I used to try and listen to the baby in Sarah's tummy. What I do remember is feeling the kicking ...am-a-a-a-zing and it really brought home to me that I was a dad or would be very soon ...(M: 2).

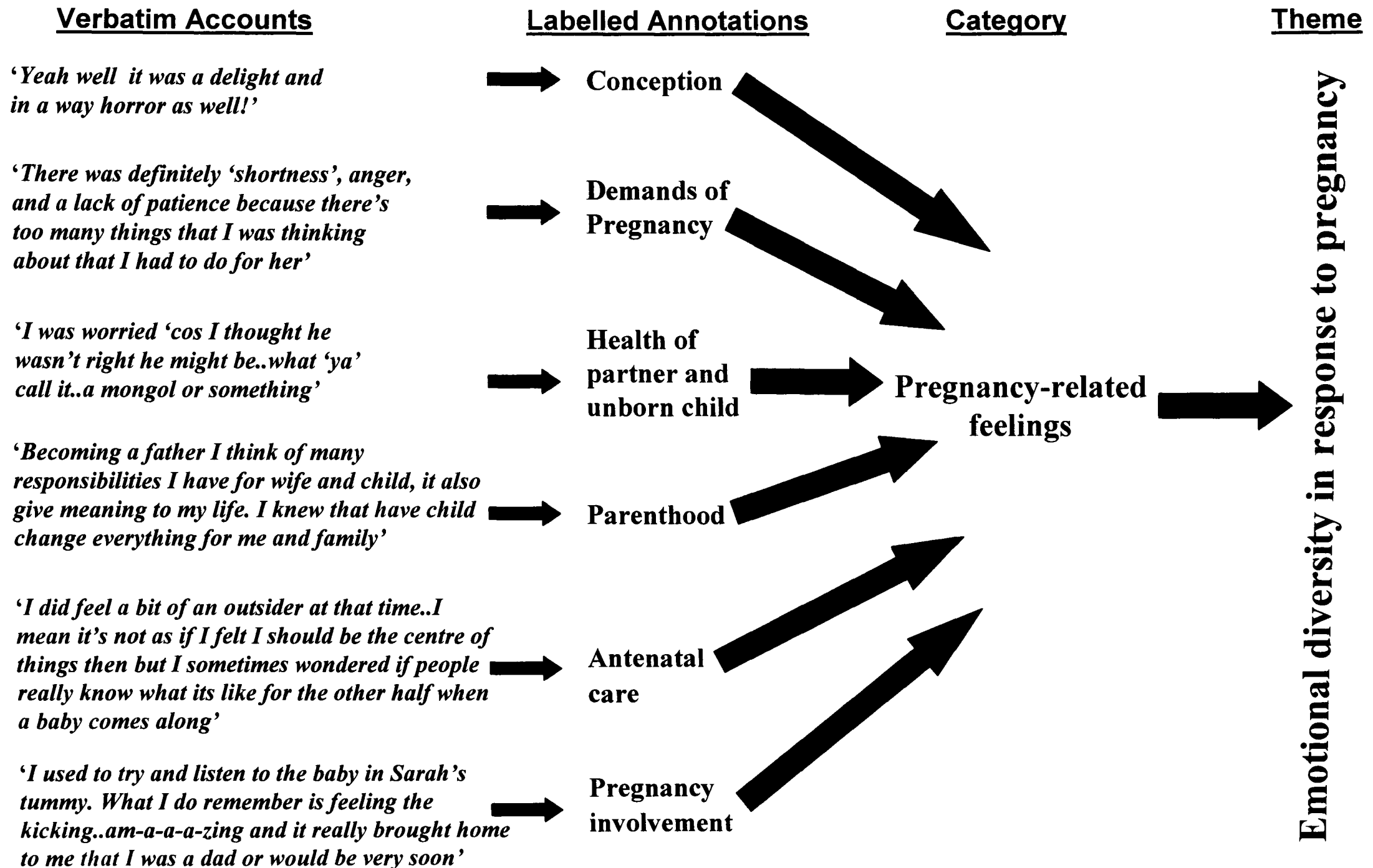
The sequence of data interpretation for theme I is illustrated in Figure 4.

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...I used to try and listen to the baby in Sarah's tummy. What I do remember is feeling the kicking ...am-a-a-a-zing and it really brought home to me that I was a dad or would be very soon ... (M: 2).

The sequence of data interpretation for theme I is illustrated in Figure 4.

Figure 4. Sequence of Data Interpretation for Theme I



5.1.1 Nature, management and duration of pregnancy-related symptoms

This theme centred on the men's experiences of pregnancy-related physical and psychological symptoms and accounts of the ways in which they were managed and by whom, in addition to their time span over the course of pregnancy and cessation patterns. The identification of symptoms by men revealed insights into the ways in which these were experienced and their reality, intensity and level of distress. The most commonly reported physical symptoms were gastrointestinal, genitourinary and musculo-skeletal and some other symptoms, which could not be classified anatomically. Gastrointestinal symptoms included stomach pains/cramps (*n*-13) vomiting (*n*-7) and appetite disturbances (*n*-6). Men described their stomach pains as distressing and varying in intensity from an "ache" or initially "mild" to getting progressively "stronger":

...my stomach pains were very much like a build up of a woman's contractions as she's giving birth, they start mild and then get stronger and stronger and stronger. That's exactly what these stomach pains were like for me, you know they started mild and got stronger and stronger and stronger... (M: 13).

Vomiting mainly occurred in the mornings and on some occasions was also displayed concurrently by pregnant partners:

...I was throwing up and retching a lot and couldn't keep anything down Bev' and me both... (M: 8).

Appetite disturbances took the form of either increased or decreased appetite with some participants experiencing both alternately. Some indicated that their appetite was insatiable and that their hunger continued no matter what had been eaten. Occasionally, increased appetite and specific food cravings were linked:

...I was constantly hungry all the time and had an unstoppable craving

for chicken kormas and poppadams. Even in the early hours of the morning I would get up and prepare myself one. It was strange to say the least...(M: 14).

The most common genitourinary symptom was difficulty with micturition (*n*-5). Men reported that it took them a long time to urinate especially at night and that it was painful:

...Another thing, going for a piss was really hard...it was evil man! (M: 3).

The most commonly reported musculo-skeletal symptom was back pain (*n*-5). Another symptom was tiredness (*n*-10), which some men described as disabling and accounted for their lethargy:

...I was tired all the time day and night, it took all my strength to do anything... (M: 4).

Less commonly reported symptoms included those of a gastrointestinal nature including abdominal distension (*n*-3), diarrhoea and constipation (*n*-3) and food cravings (*n*-2). Musculo-skeletal symptoms comprised leg cramps (*n*-1). Upper respiratory symptoms included sore throat (*n*-3), colds (*n*-1), cough (*n*-1) and epistaxis (*n*-1). Oral-dental symptoms, which were less commonly reported comprised of toothache (*n*-3) and sore gums (*n*-2). Other symptoms included lethargy (*n*-4), weight loss (*n*-4), weight gain (*n*-2) and fainting (*n*-1). While it was not the intention of this phase of the study to quantify symptoms, it was of interest nevertheless to note the number of men with different types of physical symptoms and their duration across pregnancy and labour shown in Table 15.

Table 15. Men's physical symptoms reported during the three trimesters of pregnancy and labour ($n = 14$)

	1 st Trimester	2 nd Trimester	3 rd Trimester	Labour
	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>
Gastrointestinal				
Stomach pains/cramps	6		12	1
Heartburn			1	
Abdominal distension			3	
Indigestion	1		1	
Nausea	1			
Vomiting	4		7	
Diarrhoea	2		3	
Constipation	1		1	1
Food cravings	1		1	
Increased appetite	3	2	4	
Loss of appetite	3		2	
Genito-urinary				
Micturitional difficulty	2		5	
Painful micturition	1		1	
Polyuria	1		3	
Musculo-skeletal				
Back pain	2	1	5	
Leg cramps			1	
Respiratory				
More colds than usual	1			
Cough			1	
Sore throat	1		2	
Breathlessness	1		1	
Epistaxis			1	
Oral-dental				
Toothache	2		1	
Sore gums	1		1	
Miscellaneous				
Tiredness	7	2	8	
Lethargy			4	
Weight gain	2		2	
Weight loss	2	1	1	
Fainting	1		1	

In contrast to physical symptoms, psychological ones were less common but those most frequently reported included insomnia ($n=12$), feelings of depression ($n=6$) and irritability ($n=3$). Men described their insomnia as difficulty in getting off to sleep coupled with nocturnal restlessness and short intermittent sleep:

...oh sure my sleep was terrible; I could never seem to get off.

I'd be tossing and turning in the bed all the time... (M: 6).

Insomnia appeared to be linked to other symptoms such as tiredness and lethargy or pregnancy-related worries and demands. Feelings of depression were related to physical symptoms experienced:

*...well I suppose I felt quite low about the problems with
my health ...* (M: 14).

Irritability mainly occurred because of the distressing nature of other physical symptoms and their failure to be diagnosed and treated by the health professionals consulted:

*...I was irritated with not being able to digest my food properly
and even more with the pain in my teeth especially because
nothing could be done about it...*(M: 7).

Less commonly reported psychological symptoms included those related to mood disturbance, emotional affect, motivation, cognition and coping ability. One unexpected result was that only three men reported anxiety, each within one of the trimesters of pregnancy only. The number of men with the different types of psychological symptoms and their duration across pregnancy and labour is illustrated in Table 16.

Table 16. Men's psychological symptoms reported during the three trimesters of pregnancy and labour ($n = 14$)

	1 st Trimester	2 nd Trimester	3 rd Trimester	Labour
	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>
Sleep				
Insomnia	6	12	10	
Early morning waking			1	
Sleeping more than usual			3	
Mood				
Feeling depressed	2		4	
Mood swings		1		
Emotional affect				
Annoyance	1	1		
Frustration	1			
Irritability	2	1	1	1
Anger		1	2	
Anxiety	1	1	1	
Feeling stressed	1		1	
Preoccupied			1	
Unable to relax			1	
Feeling restless		1		
Not feeling myself			1	
Motivation				
Lack of motivation			3	
Cognition				
Poor concentration	1	1	1	
Distracted			1	
Poor memory			1	
Coping				
Unable to cope			1	

Symptoms were managed by men themselves and/or by those whom they consulted. In addition to visiting their doctors six men initiated self-management of their physical symptoms, four of whom sought advice or treatment remedies from their local high street pharmacy:

...I 'goes' to the chemist a few times to get some of those throat sweets but 'they wasn't' up to much...(M: 8).

Another Chinese participant initiated his own dietary remedy upon the advice of his herbalist which appeared to be in keeping with his cultural beliefs,

...My appetite was very bad and it was very important to have hot food to make the dampness go away... (M: 9).

Men requested help only in relation to their physical but not their psychological symptoms. The people consulted were health professionals (general practitioners and/or dentists), one complementary therapist (Chinese Herbalist) and one church minister. A total of eleven men consulted their GPs during the first and third trimesters for symptoms such as stomach pains, painful micturition, episodic fainting and respiratory problems and their dentists for toothache ($n=3$). Most participants perceived that their GPs took their symptoms seriously, as indicated by the thorough assessment and the number and types of investigations performed. Assessment included physical examinations, blood or/urine tests, blood pressure monitoring, computerised tomography (CT) scan and electroencephalography (EEG) to check brain activity. Management strategies included medical advice, referral to a counsellor and prescriptions mainly in the form of analgesics. In each case no underlying pathology for symptoms was found and, hence no definitive diagnosis made. One participant illustrates

the idiopathic nature of his symptom of episodic fainting despite a multitude of investigations:

...he did an examination and a blood test and referred me to the hospital for a number of other tests. I had some done on my head, for one of these I had a scan of my brain but when the results came back they were all clear and my doctor seemed quite puzzled... (M: 14).

For men who had dental examinations a similar trend was evident causing one participant to temporarily doubt the reality of his symptom:

...I had a lot of pain in one of my back teeth. I thought it was the one where I had a filling so I went to my dentist and she told me that my tooth was OK and did not need any work doing on it. When this happened I begun to think I was imagining everything but I know I didn't imagine it and I was very frustrated that no one thought that anything was wrong with me except myself...(M: 5).

In relation to the time course of symptom development, the onset of physical symptoms was mainly in the first trimester of pregnancy. Many of these symptoms temporarily disappeared in the second trimester and re-emerged again in the third trimester, often with greater intensity. Eleven men reported this cessation pattern. One participant reported:

...my health was also very good and I did not have any pains in my stomach or in my back. The pain in my teeth was gone also...(M: 11).

One of these confirmed the abrupt cessation of his stomach pains at the moment of his partner's delivery:

...it went, literally. The baby had started to come and that was the point where I had to leave the delivery room and I couldn't have walked more than 10 or 15 yards and it just went totally, like someone turning the light off, the pain just went. I thought it was very strange because it had just gone, so I went back into the delivery room and I had a son... (M: 13).

However, three other men developed symptoms for the first time in the second trimester. Two of them acknowledged that tiredness did not cease permanently in the immediate postpartum period. Psychological symptoms displayed a similar time course and commencement/cessation pattern, although a greater number of symptoms either commenced in or persisted during the second trimester. Some symptoms such as insomnia and early morning waking persisted well into the postpartum period. The sequence of data interpretation within theme II is shown in Figures 5a and 5b.

Figure 5a. Sequence of Data Interpretation for Theme II

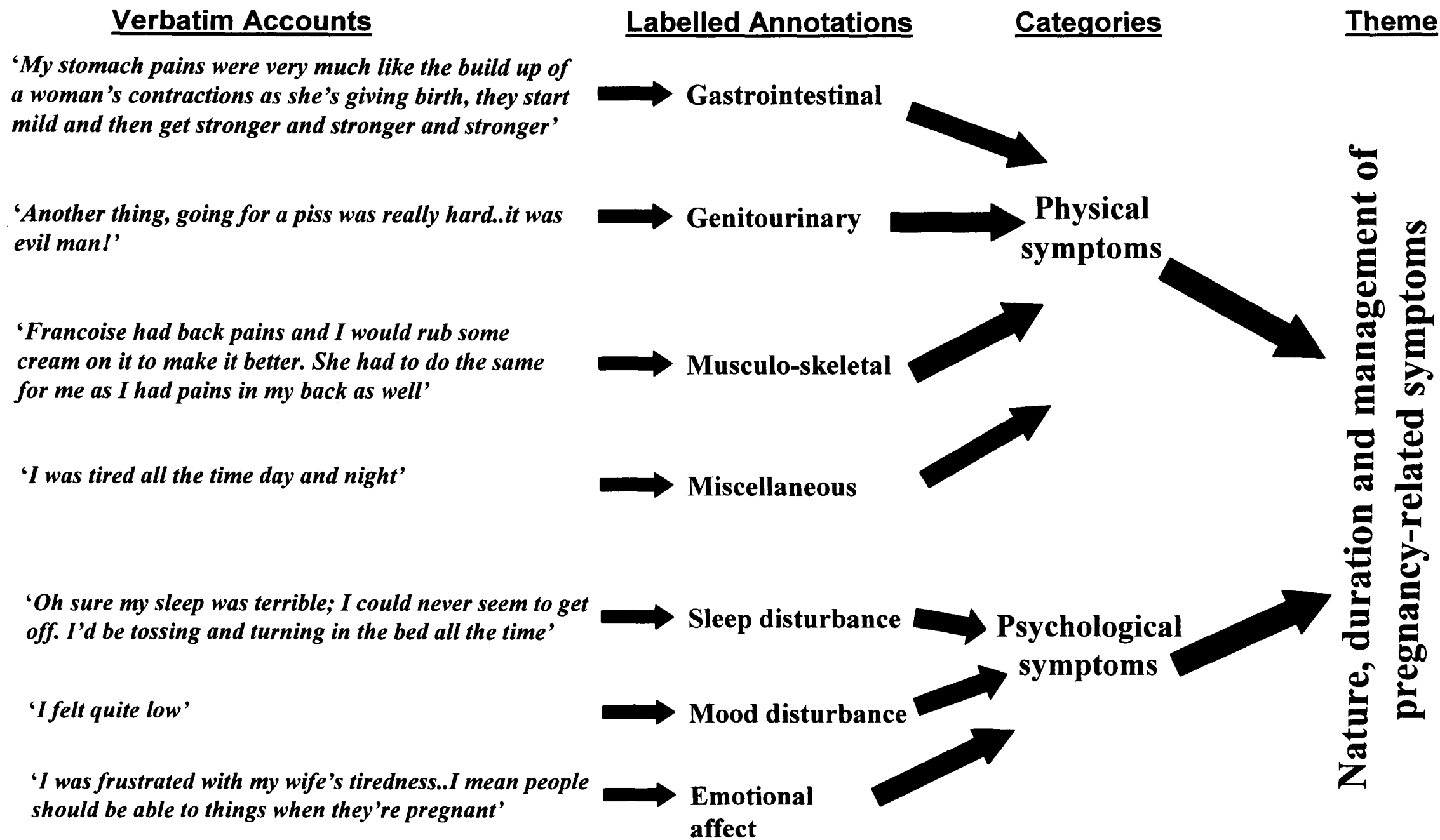
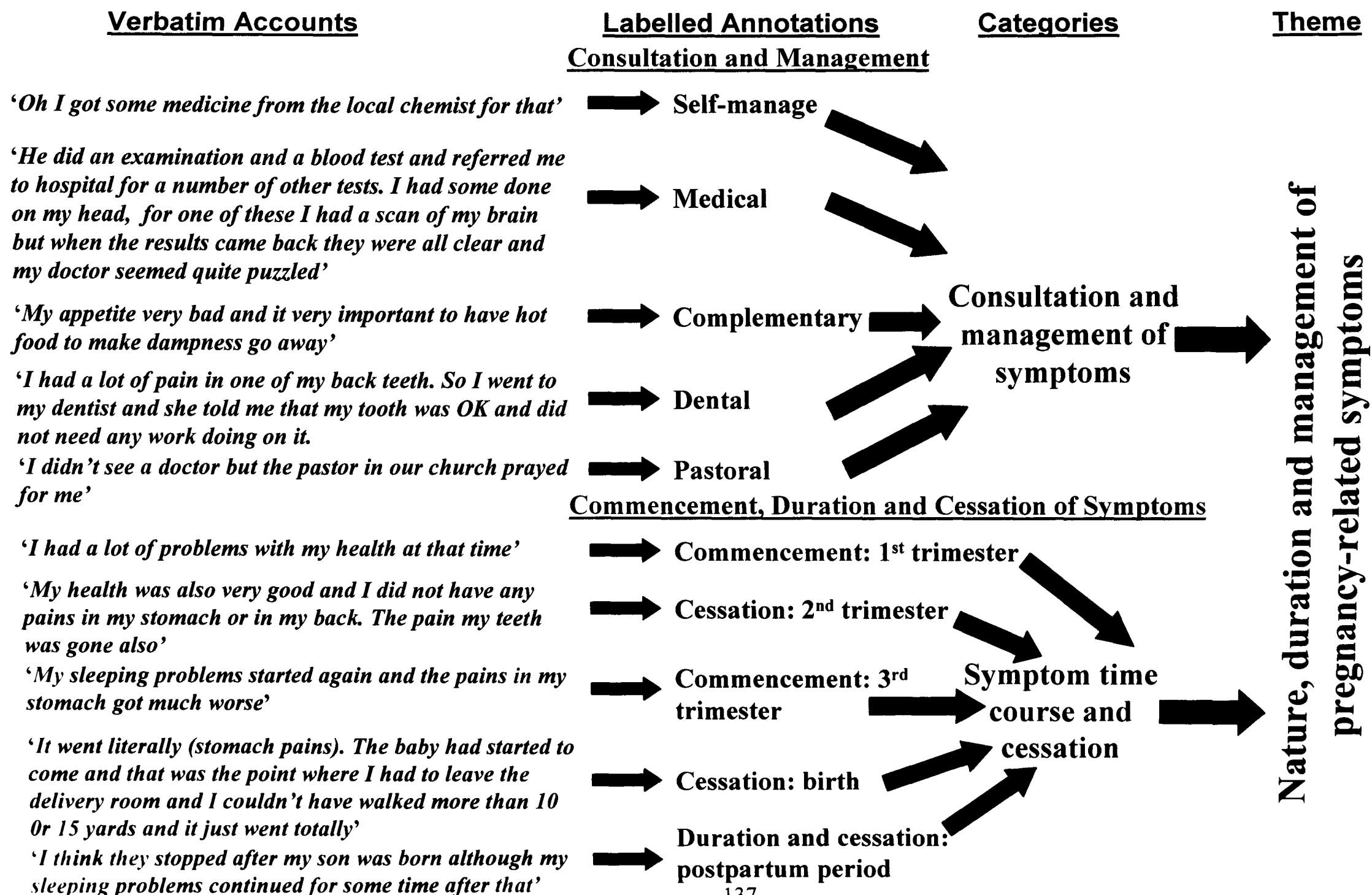


Figure 5b. Sequence of Data Interpretation for Theme II



5.1.2 Explanatory attempts for symptoms

Men's attempts at making sense of their symptoms and acquiring meaning were illustrated in the explanations they provided, sometimes influenced by cultural beliefs and conventions like religion, alternative medicine or through enlightenment gained from health care professionals in the process. All the men interviewed provided explanations for their symptoms referring to them individually and generally. Some men revealed insights into the contextual meaning of their symptoms, as did their partners:

...well the stomach pains were like aching especially in the mornings. There was me and Marcel comforting each other about our tummy pains and you know what she said to me one time, 'which one of us is pregnant you or me'?...(M:4).

Men also reflected on the onset of their symptoms and acknowledged these as coinciding with their partners' pregnancy. In one case a participant made a comparison with the period before his partner's pregnancy in assessing the onset of his symptoms:

...yes I had a lot of things wrong with me then. I just couldn't understand what was happening to me at the time I mean I had none of these problems before and then they all seem to come at once during my wife's pregnancy...(M: 5).

Other men acknowledged their symptoms arose as a consequence of the worries and concerns which the pregnancy generated and in some instances being "in sympathy" with their partners during that time:

...When I think back to that time it seemed that all these problems coincided with my wife's pregnancy in some way. Some people might say I was in sympathy with her pregnancy...(M: 10).

Men perceived that symptoms such as food cravings, abdominal pains and insomnia arose because their partners had also experienced them:

...She was a devil at night because she'd be turning in the bed all the time so I didn't get much sleep myself either...(M: 6).

In other cases male partners drew analogies between their abdominal pains with those of their pregnant partners during the pregnancy and labour. In doing so one participant attempted to make sense of this symptom by comparing its intensity with that of his partner and attributing its transfer from her to him:

...I think I was in more pain than she was. It seemed like my pain was worse. It was almost as if she was transferring the pain on to me that sort of transferral thing you get sometimes. It was very much like that because she was in pain, her contractions were fairly strong but she couldn't push and as that was happening my stomach pain was building up and up and getting worse and worse... (M: 13)

On another occasion a participant resorted to his religious beliefs to explain the meaning of his symptoms. He subsequently attempted to verify his spiritual perceptions with his church minister, who subsequently prayed for him and his partner:

...I have often tried very hard to think why all these things happened to me. When I look back I think that the problems with my health came about because of the forces of the enemy (Satanic) attacking us and making me sick. Satan hates Christian families you know! (M: 4).

Men's explanations for their symptoms were also influenced by their cultural beliefs and dietary patterns. For example, a Chinese participant attributed his poor appetite to ingesting too many "damp foods". He consulted an herbalist who confirmed the same

and suggested that he should include more “*hot or spicy foods*” in his diet. Conversely, an Asian participant explained his indigestion and diarrhoea as due to eating too many chillies the evening before.

Causal explanations for physical symptoms were most common where one symptom gave rise to another. In this context weight gain was interpreted as resulting from increased appetite while weight loss resulted from decreased appetite. Symptoms were also perceived as arising from common viruses and infections such as breathlessness from colds and stomach pains from a transient viral infection or food poisoning. Sometimes health professionals shared participants’ explanations for these symptoms but without confirmatory evidence. However, dentists consistently based their failure to provide explanations for toothache on their dental examinations all of which confirmed no underlying cause. A recording in the analytical field notes typified this in the case of one participant (M: 2), who attributed his tooth pain to a loss of one of his tooth fillings but whose dentist when consulted did not confirm this.

While participants did not consult for psychological symptoms they still tried to make sense of them which they perceived as arising from the financial, physical and emotional demands of pregnancy as well as concerns about the health of their partner and unborn baby during gestation. Other participants perceived that psychological symptoms occurred because of physical ones and seemed preoccupied with their impact on general health. Feelings of depression, anxiety, preoccupation and irritability were all explained in this way. Only in one case did a health professional interpret physical symptoms as having a psychological basis by suggesting the participant’s referral to a counselor, which appeared to negate his experience:

...he said there was nothing else he could do and suggested that he could arrange for me to see a counsellor. This made me REALLY angry. It was as if he did not believe that I had all these problems with my stomach and getting sick...(M: 14).

Six men showed difficulty in their attempts to understand their symptoms, as did the health professionals they consulted. In these instances men often resorted to supposition or conjecture in the process:

...as I've already said they might have had something to do with my wife's pregnancy but I don't know what exactly... (M: 7).

For some men their symptoms still constituted a sense of “*mystery*”, “*confusion*” and “*puzzlement*” when considered in hindsight:

...I don't know mate it's still a mystery to me...(M: 3).

In these cases they continued searching for answers and even sought enlightenment from the interviewer in doing so:

...well I'll tell you now I am baffled by the whole thing, I mean if you or my doctor couldn't tell me, who could?... (M: 6).

Those GPs who were unable to diagnose definitively or explain symptoms often made broad or generalised, non-descript diagnostic statements instead such as: “*you're run down*”, “*you're stressed*” or “*you're generally under the weather*”. The sequence of data interpretation within theme III is shown in Figures 6a, 6b and 6c. The relationship between the analytic categories, sub-categories and higher order themes is illustrated in Figure 7.

Figure 6a. Sequence of Data Interpretation for Theme III

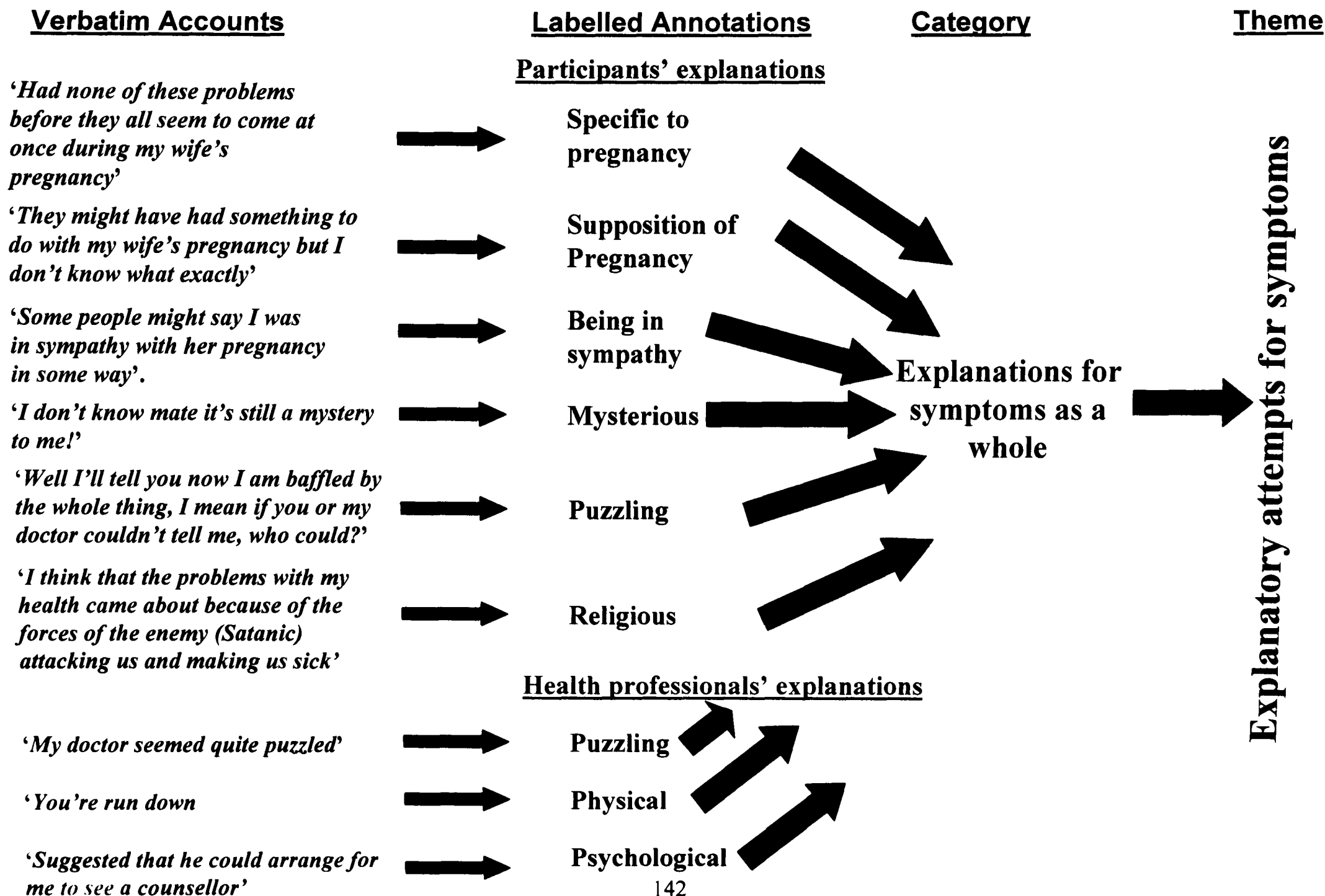


Figure 6b. Sequence of Data Interpretation for Theme III

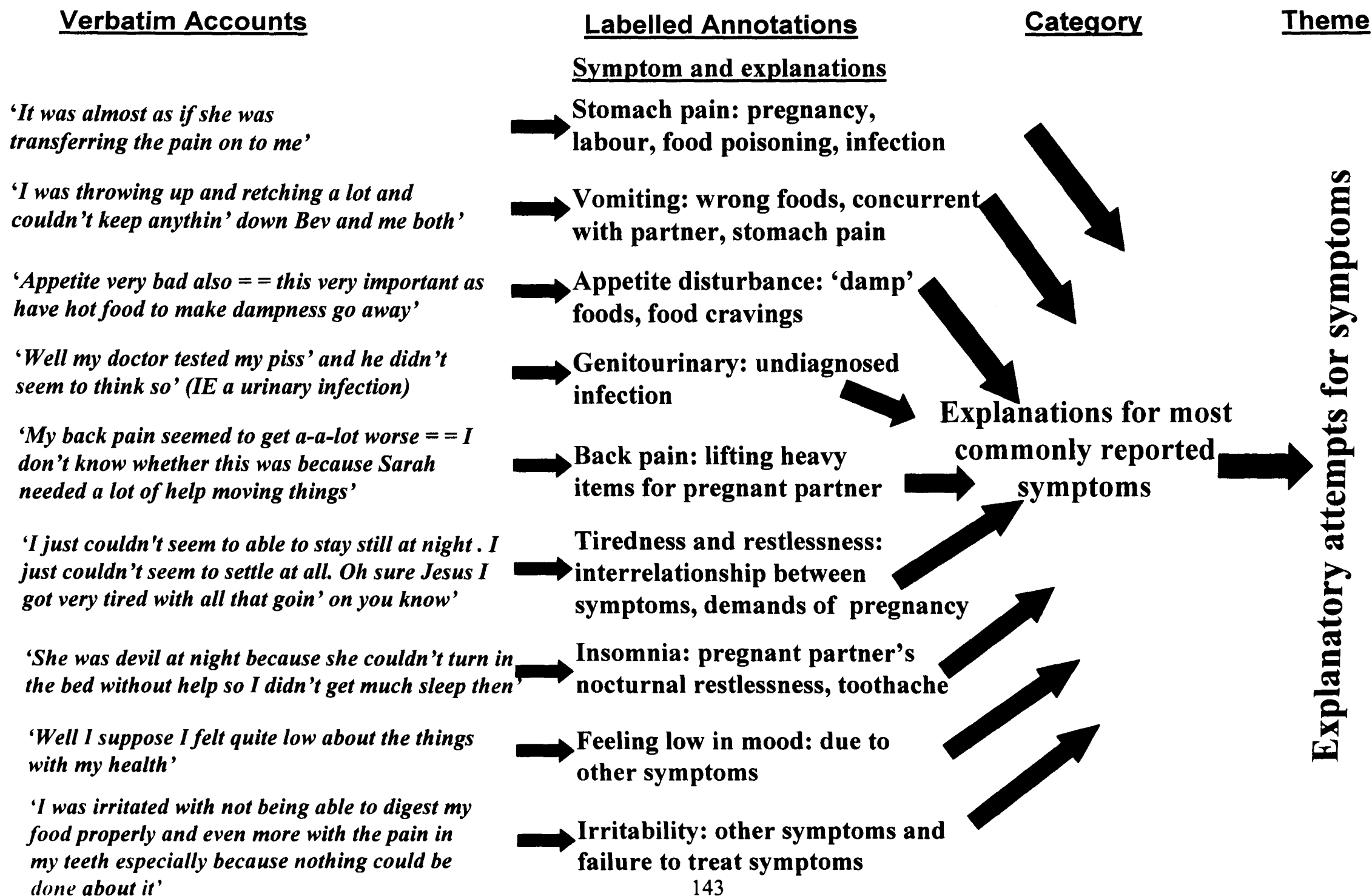


Figure 6c. Sequence of Data Interpretation for Theme III

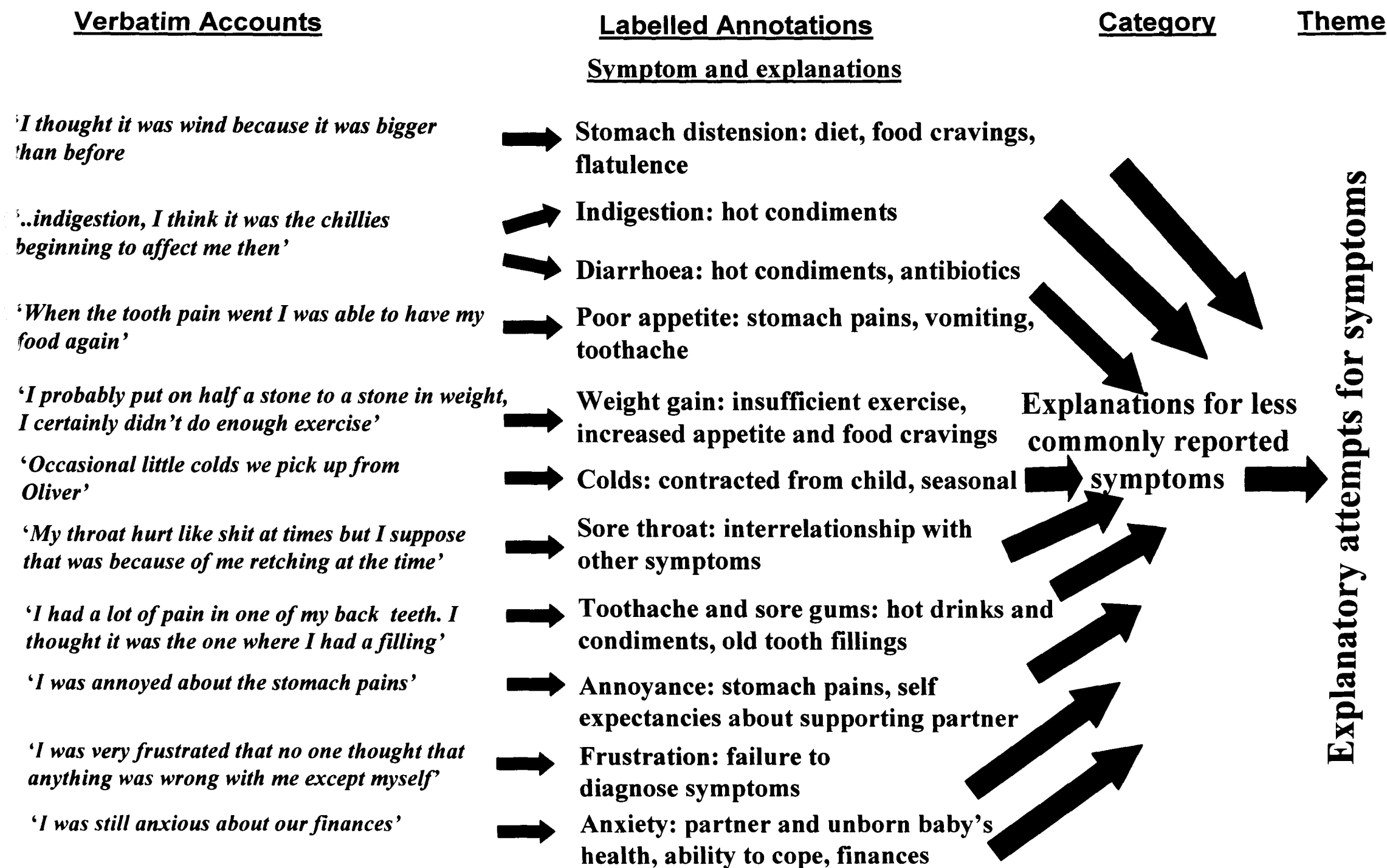


Figure 7. Phase I: Conceptual Overview of the Relationship between Analytic categories, Sub-categories and Higher Order Themes

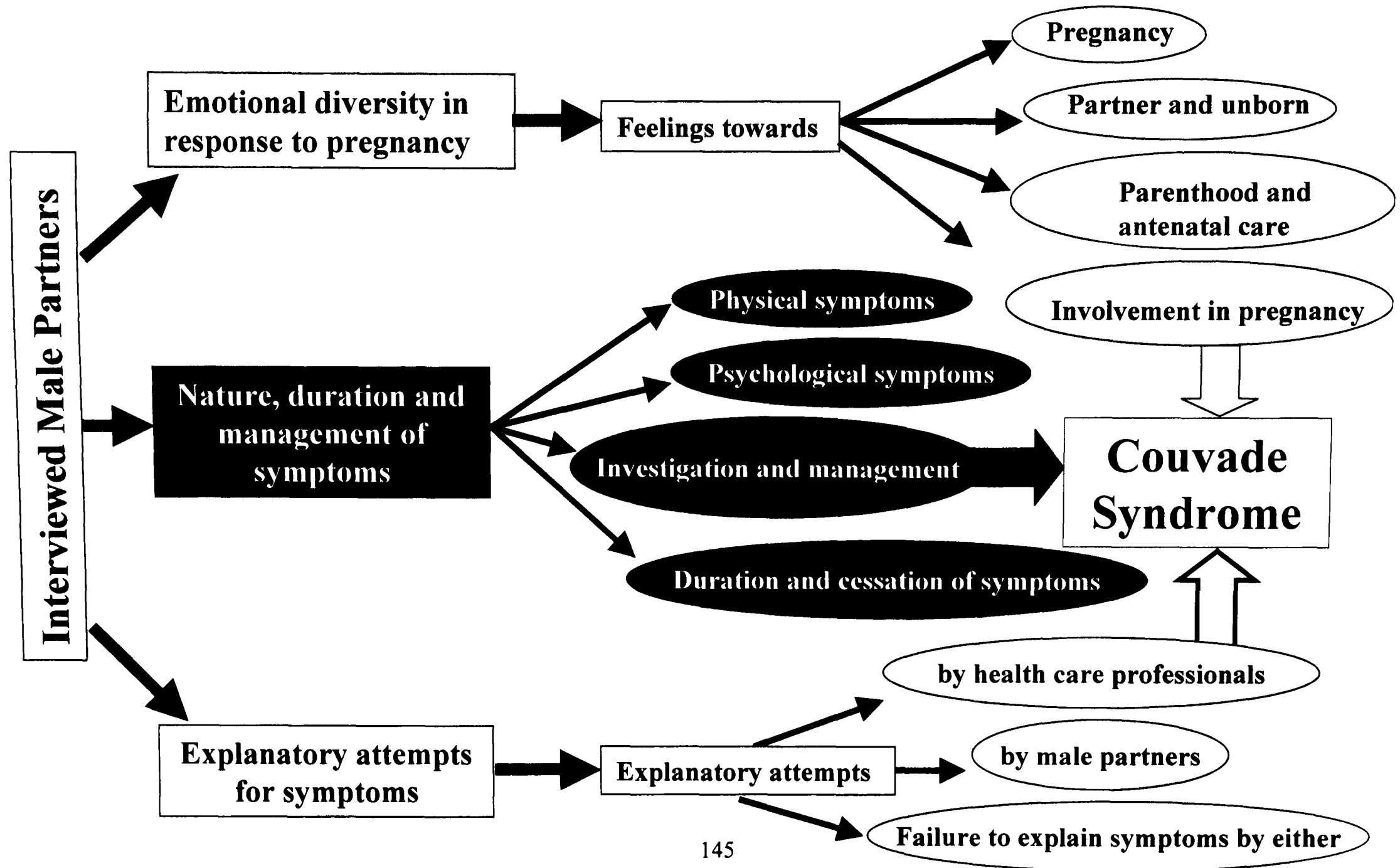


Figure 8. Presentational Sequence of the Results for the Men's Health Questionnaire

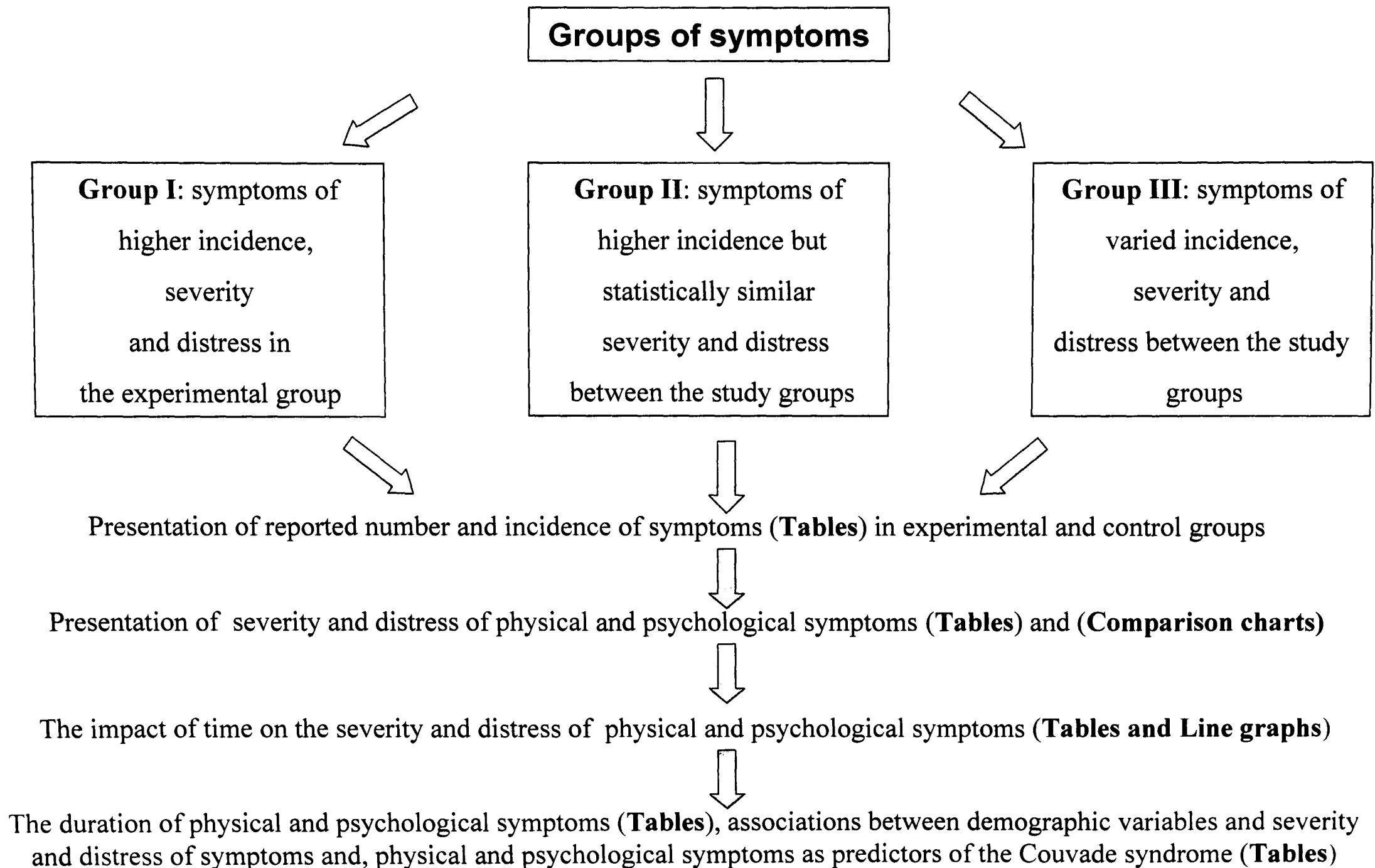
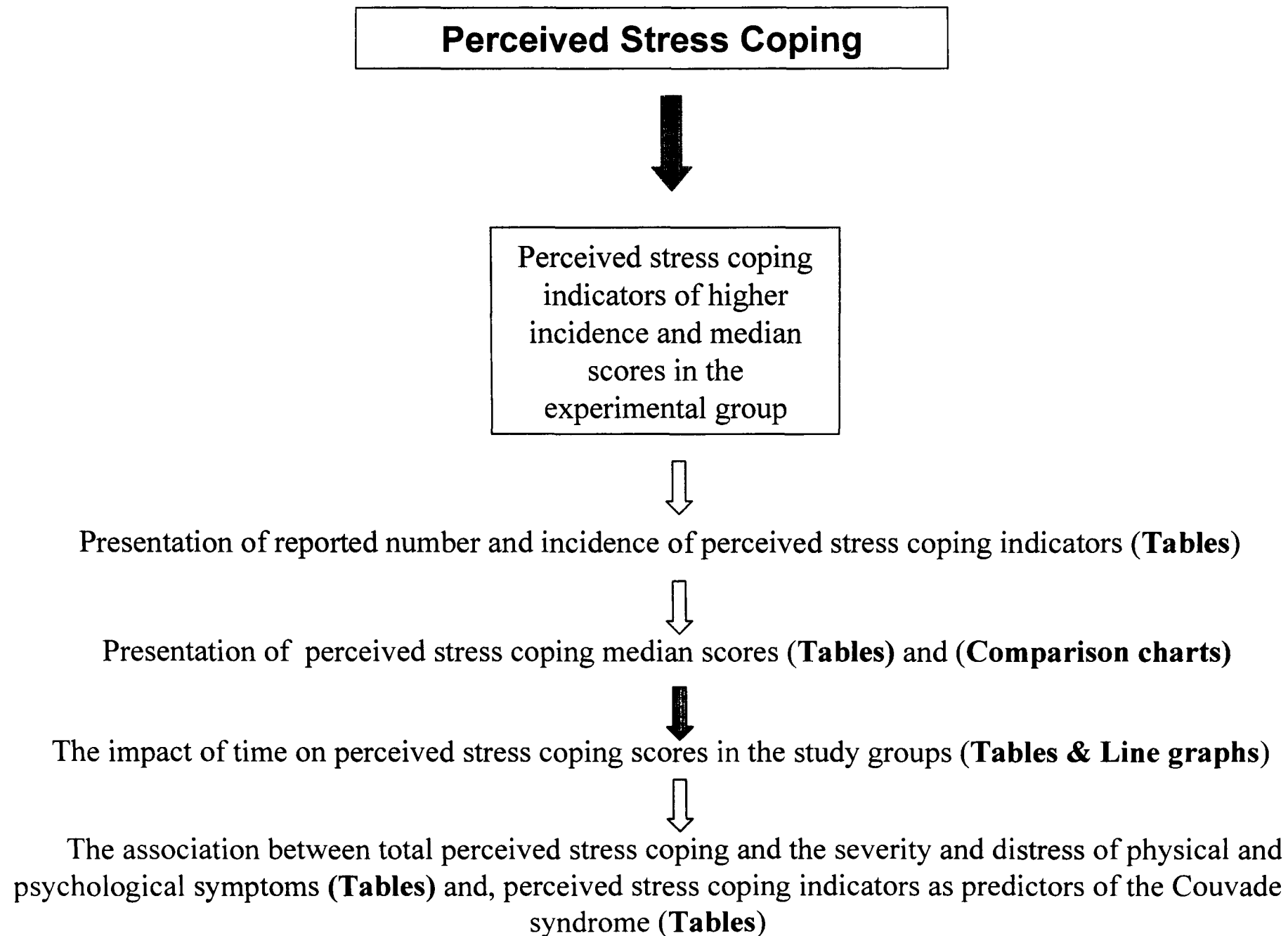


Figure 9. Presentational Sequence of the Results for the Perceived Stress Coping Scale Questionnaire



5.2 Incidence, severity, distress of physical and psychological symptoms of pregnancy

From the qualitative study 3 themes emerged where men identified the pregnancy-related symptoms they had experienced during their partners' pregnancy. This led on to the quantitative investigation, which firstly examined the reported percentage and incidence of symptoms. Men's physical and psychological symptoms of pregnancy were systematically arranged into three classificatory groups on the basis of statistical differences or similarities in their median severity and distress scores. Group I consisted of symptoms of a higher incidence, median severity and distress. Group II comprised symptoms of a higher incidence and similar median severity and distress. Group III included symptoms of varied incidence and median severity and distress.

5.2.1 Symptoms of higher incidence, severity and distress in the experimental group

Group I comprised physical symptoms of a gastrointestinal, metabolic, respiratory, genito-urinary, dental/oral, and musculo-skeletal nature as well as one miscellaneous symptom. The psychological symptoms included those related to sleep and mood disturbance, emotional affect, cognition and coping (miscellaneous symptom). Both types of symptoms within this group showed a higher reported percentage in the experimental compared to the control group as shown on Tables 17 and 18. The numbers of reported physical and psychological symptoms were accumulated over the 1st and 3rd trimesters and the postpartum period for the experimental group and over the 3 and 6-month comparative time period for the control group.

Table 17. Higher reported percentage of group I physical symptoms in the experimental group

Symptom	Experimental Group <i>n</i> = 182	Control Group <i>n</i> = 181
Stomach pains/cramps	168 (47%)	65 (19%)
Heartburn	153 (43%)	87 (26%)
Stomach distension	144 (41%)	34 (10%)
Indigestion	149 (42%)	94 (28%)
Unable to keep food down	69 (19%)	15 (4%)
Vomiting	88 (25%)	20 (6%)
Increased appetite	120 (34%)	55 (16%)
Poor appetite	95 (27%)	34 (10%)
Weight gain	148 (42%)	84 (25%)
Weight loss	86 (24%)	36 (11%)
Breathlessness	52 (15%)	32 (9%)
Pain while urinating	59 (17%)	6 (2%)
Urinating more than usual	131 (37%)	31 (9%)
Toothache	120 (34%)	39 (12%)
Back pain	173 (49%)	81 (24%)
Leg cramps	153 (43%)	31 (9%)
Tiredness	256 (72%)	194 (57%)

**Table 18. Higher reported percentage of group I psychological symptoms
in the experimental group**

Symptom	Experimental Group <i>n</i> = 182	Control Group <i>n</i> = 181
Sleeping less than usual	215 (61%)	98 (29%)
Early morning waking	213 (60%)	147 (43%)
Feeling low in mood	143 (40%)	76 (22%)
Mood swings	70 (20%)	39 (11%)
Feeling annoyed	178 (50%)	108 (32%)
Feeling frustrated	181 (51%)	114 (34%)
Feeling irritable	206 (58%)	114 (34%)
Feeling stressed	219 (62%)	161 (47%)
Feeling anxious	210 (59%)	108 (32%)
Preoccupied	131 (37%)	63 (18%)
Lack of motivation	116 (33%)	70 (21%)
Loss of concentration	178 (50%)	49 (14%)
Distracted	126 (36%)	54 (16%)
Unable to cope with daily life	45 (13%)	10 (3%)

The Chi-square test also confirmed highly statistically significant differences in the incidence of physical on Table 19 and psychological symptoms on Table 20 in the experimental group ($n=182$) over the 1st and 3rd trimesters of pregnancy compared to the control group ($n=181$) over a 3 and 6-month period.

Table 19. Comparison of incidence of group I physical symptoms between the study groups

Symptom	Yes		No		P-value
	Experimental	Control	Experimental	Control	
Stomach pains/cramps	168	65	185	274	0.0001
Heartburn	153	87	200	252	0.0001
Stomach distension	144	34	209	305	0.0001
Indigestion	149	94	204	245	0.0001
Unable to keep food down	69	15	284	324	0.0001
Vomiting	88	20	265	319	0.0001
Increased appetite	120	55	219	284	0.0001
Poor appetite	95	34	258	305	0.0001
Weight gain	148	84	205	255	0.0001
Weight loss	86	36	267	303	0.0001
Breathlessness	52	32	301	307	0.0001
Pain while urinating	59	6	294	333	0.0001
Urinating more than usual	131	31	222	308	0.0001
Toothache	120	39	233	300	0.0001
Back pain	173	81	180	258	0.0001
Leg cramps	153	31	200	308	0.0001
Tiredness	256	194	97	145	0.0001

**Table 20. Comparison of incidence of group I psychological symptoms
between the study groups**

Symptom	Yes		No		P-value
	Experimental	Control	Experimental	Control	
Sleeping less than usual	215	98	138	241	0.0001
Early morning waking	213	147	140	192	0.0001
Feeling low in mood	143	76	210	263	0.0001
Mood swings	70	39	283	300	0.0001
Feeling annoyed	178	108	175	231	0.0001
Feeling frustrated	181	114	172	225	0.0001
Feeling irritable	206	114	147	225	0.0001
Feeling stressed	219	161	134	178	0.0001
Feeling anxious	210	108	143	231	0.0001
Preoccupied	131	63	222	276	0.0001
Lack of motivation	116	70	237	269	0.0001
Loss of concentration	178	49	175	290	0.0001
Distracted	126	54	227	285	0.0001
Unable to cope with daily life	45	10	308	329	0.0001

The Mann-Whitney *U*-test of group I physical symptoms shown on Table 21 and seven of which are illustrated in Figure 10 showed statistically significant differences in the median severity and distress scores between the study groups. In particular, the severity scores for some gastrointestinal, genito-urinary, oral/dental, musculo-skeletal and miscellaneous symptoms were highly significant. The median severity scores for physical symptoms in the experimental group ranged from 1.5-4.0. The median distress values of these symptoms also showed statistically significant differences between the

study groups although they were marginally lower than those of severity scores. The median distress scores for physical symptoms ranged from 1.5-3.0.

Table 21. Group I physical symptoms showing statistically higher median severity and distress scores in experimental group

Symptom	Severity Median Scores		P-Value	Distress Median Score		P-Value
	Experimental (n=182)	Control (n=181)		Experimental (n=182)	Control (n=181)	
Stomach pain/cramps	2.6	1.5	0.001	2.4	1.3	0.001
Heartburn	2.1	1.6	0.001	1.9	1.5	0.02
Stomach distension	2.4	1.2	0.001	2.2	1.2	0.001
Indigestion	2.0	1.6	0.01	1.9	1.4	0.01
Unable to keep food down	1.5	1.1	0.01	1.5	1.1	0.05
Vomiting	1.8	1.1	0.001	1.8	1.2	0.01
Increased appetite	2.0	1.6	0.01	1.9	1.4	0.01
Poor appetite	1.7	1.2	0.001	1.5	1.1	0.05
Weight gain	2.2	1.5	0.001	1.9	1.4	0.05
Weight loss	1.8	1.2	0.001	1.5	1.0	0.05
Breathlessness	1.5	1.2	0.05	1.4	1.2	0.05
Pain while urinating	1.5	1.0	0.02	1.6	1.0	0.01
Urinating more than usual	2.1	1.2	0.001	1.8	1.1	0.001
Toothache	2.3	1.4	0.001	2.2	1.3	0.001
Back pain	2.6	1.6	0.001	2.4	1.4	0.001
Leg cramps	2.2	1.2	0.001	2.1	1.1	0.001
Tiredness	4.0	2.6	0.001	3.0	2.0	0.01

■ Gastro-intestinal symptoms

■ Respiratory symptoms

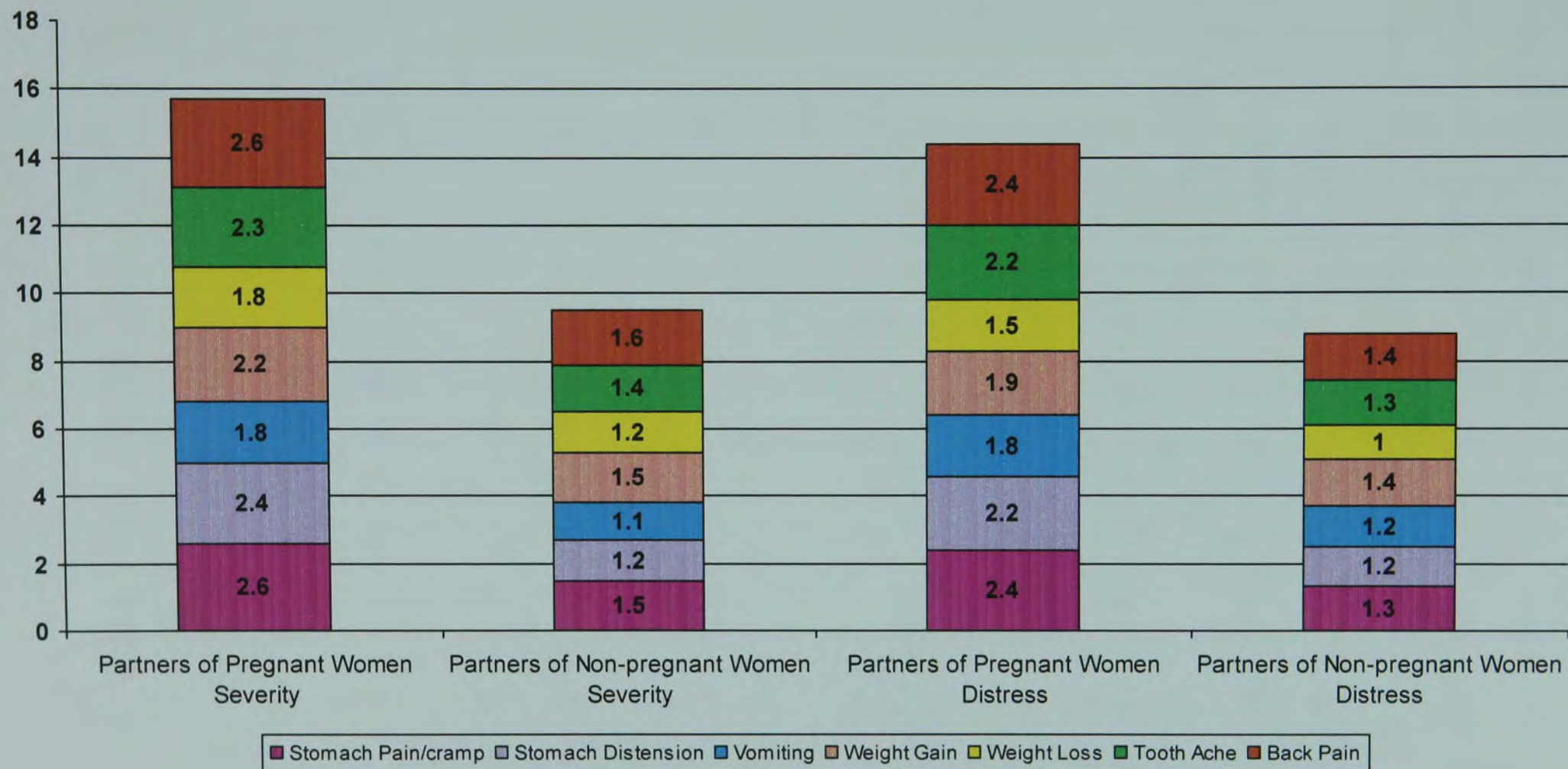
■ Genito-urinary symptoms

■ Oral/dental symptoms

■ Musculo-skeletal symptoms

■ Miscellaneous symptoms

Figure 10. Median Score Comparison of Group I Physical Symptoms between Partners of Pregnant and Non-pregnant women



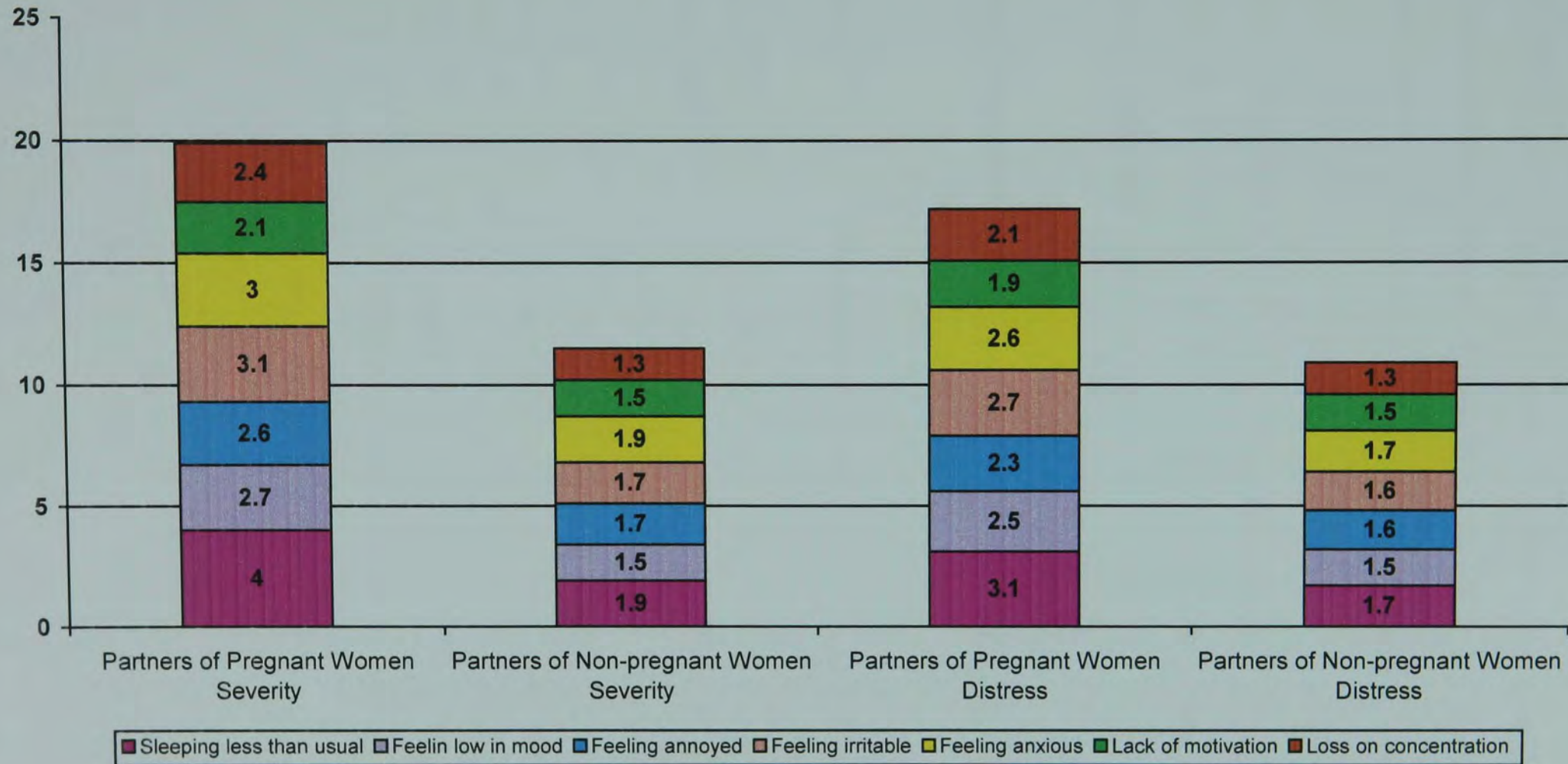
The Mann-Whitney *U*-test of group I psychological symptoms shown on Table 22 and with seven of these illustrated in Figure 11 showed statistically significant differences in median severity and distress scores between the study groups. However, compared to the severity scores for some of the physical symptoms they were not as highly significant. The median severity scores for psychological symptoms in the experimental group ranged from 1.4-4.0. The distress values of these symptoms also showed statistically significant differences between the study groups. The median distress scores for psychological symptoms ranged from 1.4-3.4.

Table 22. Group I psychological symptoms showing statistically higher median severity and distress scores in the experimental group

Symptom	Severity Median Scores		P-Value	Distress Median Scores		P-Value
	Experimental (n=182)	Control (n=181)		Experimental (n=182)	Control (n=181)	
Sleeping less than usual	4.0	1.9	0.001	3.1	1.7	0.007
Early morning waking	3.0	1.9	0.02	2.5	1.5	0.008
Feeling low in mood	2.7	1.5				
	2.7	1.7	0.007	2.5	1.5	0.01
Mood swings	1.5	1.2	0.05	1.5	1.2	0.05
Feeling annoyed	2.6	1.7	0.01	2.3	1.6	0.01
Feeling frustrated	2.4	1.8	0.02	2.1	1.7	0.03
Feeling irritable	3.1	1.7	0.01	2.7	1.6	0.01
Feeling stressed	3.8	2.5	0.01	3.4	2.3	0.01
Feeling anxious	3.0	1.9	0.02	2.6	1.7	0.01
Preoccupied	1.9	1.4	0.05	1.7	1.3	0.05
Lack of motivation	2.1	1.5	0.01	1.9	1.5	0.05
Loss of concentration	2.4	1.3	0.005	2.1	1.3	0.01
Distracted	1.7	1.3	0.05	1.6	1.2	0.05
Unable to cope with daily life	1.4	1.1	0.05	1.4	1.1	0.05

- Symptoms of sleep disturbance
 Symptoms of mood disturbance
 Symptoms of emotional affect
- Cognitive symptoms
 Miscellaneous symptoms

Figure 11 Median Score Comparison of Group I Psychological Symptoms between Partners of Pregnant and Non-pregnant women



5.2.2 Symptoms of higher incidence and statistically similar median severity and distress scores between the study groups

Group II comprised physical symptoms of a gastrointestinal, respiratory and oral nature as well as two miscellaneous symptoms. The psychological symptoms included those related to sleep disturbance, emotional affect and one cognitive symptom. Both types of symptoms within this group showed a higher reported percentage in the experimental group compared to the control group as shown on Tables 23 and 24. However, the two physical symptoms of “sore throat” and “headache” showed a higher reported percentage in the control group.

Table 23. Higher reported percentage of group II physical symptoms in the experimental group

Symptom	Experimental Group <i>n</i> = 182	Control Group <i>n</i> = 181
Constipation	81 (23%)	51 (15%)
More colds than usual	49 (14%)	39 (11%)
Sore throat	76 (21%)	89 (26%)
Nose bleeds	24 (7%)	12 (3%)
Sore gums	48 (13%)	34 (10%)
Mouth ulcers	63 (18%)	52 (15%)
Headache	142 (40%)	152 (45%)
Fainting	7 (2%)	2 (1%)

Table 24. Higher reported percentage of group II psychological symptoms in the experimental group

Symptom	Experimental Group <i>n</i> = 182	Control Group <i>n</i> = 181
Sleeping more than usual	35 (10%)	28 (8%)
Feeling restless	98 (28%)	54 (16%)
Loss of memory	46 (13%)	23 (7%)

Chi-square test also confirmed highly statistically significant differences in the incidence of physical on Table 25 and psychological symptoms on Table 26 in the experimental group (*n*-182) over the 1st and 3rd trimesters of pregnancy compared to the control group (*n*-181) over a 3 and 6-month period. The only exceptions were the symptoms of “sore throat” and “headache” which showed a higher incidence in the control group.

Table 25. Comparison of incidence of group II physical symptoms between the study groups

Symptom	Yes		No		P-value
	Experimental	Control	Experimental	Control	
Constipation	81	51	272	288	0.0001
More colds than usual	49	39	304	300	0.001
Sore throat	76	89	277	250	0.001
Nose bleeds	24	12	329	327	0.0001
Sore gums	48	34	305	305	0.001
Mouth ulcers	63	52	290	287	0.001
Headache	142	152	211	187	0.001
Fainting	7	2	346	337	0.0001

**Table 26. Comparison of incidence of group II psychological symptoms
between the study groups**

Symptom	Yes		No		P-value
	Experimental	Control	Experimental	Control	
Sleeping more than usual	35	28	318	311	0.001
Feeling restless	98	54	255	285	0.0001
Loss of memory	46	23	307	316	0.0001

The Mann-Whitney *U* test of Group II severity and distress scores for physical and psychological symptoms on Tables 27 and 28, (Refer Appendix 16) were all non-significant between the study groups. The median severity scores for physical and psychological symptoms in the experimental group ranged from 1.1-1.9 and 1.2-1.6 respectively. The median distress scores for physical symptoms ranged from 1.1-1.8 and those for psychological symptoms 1.2-1.5.

5.2.3 Symptoms of varied incidence, severity and distress scores between the study groups

Group III comprised two physical symptoms of a gastrointestinal and respiratory nature. The first of these “diarrhoea” showed a higher reported percentage in the experimental group compared to the control group on Table 29. Conversely, there was a higher reported percentage of “cough” in the control group.

Table 29. Varied reported percentage of group III physical symptoms in the study groups

Symptom	Experimental Group <i>n</i> = 182	Control Group <i>n</i> = 181
Diarrhoea	83 (23%)	71 (21%)
Cough	47 (13%)	85 (25%)

Chi-square test confirmed a higher incidence of the symptom of “diarrhoea” in the experimental group (*n*-182) over the 1st and 3rd trimesters of pregnancy and a higher incidence of “cough” in the control group (*n*-181) over a 3 and 6-month period on Table 30.

Table 30. Comparison of incidence of group III physical symptoms between the study groups

Symptom	Yes		No		P-value
	Experimental	Control	Experimental	Control	
Diarrhoea	83	71	270	268	0.001
Cough	47	85	306	254	0.0001

The Mann-Whitney *U*-test for group III severity and distress scores for these physical symptoms displayed on Table 31 showed variation between the study groups. The median severity score for the symptom of “diarrhoea” was non-significant between the study groups but the distress mean score was significant. The symptom of “cough” showed a reverse trend where its severity score was significant but its distress score was not.

Table 31. Group III physical symptoms showing statistically varied median severity and distress scores between the study groups

Symptom	Severity Median Scores		P-Value	Distress Median Scores		P-Value
	Experimental (n=182)	Control (n=181)		Experimental (n=182)	Control (n=181)	
Diarrhoea	1.6	1.4	NS	1.6	1.3	0.05
Cough	1.3	1.6	0.05	1.3	1.4	NS

■ Gastrointestinal symptom

■ Respiratory symptom

5.2.4 The impact of time on the severity and distress of physical and psychological symptoms

For the experimental group the Kruskal-Wallis test revealed statistically significant differences for all severity median scores of physical symptoms shown on Table 32 and Figure 12 over the trimesters of pregnancy and the postpartum period. A similar trend was evident for distress scores shown on Table 33 and Figure 13 except for, “vomiting”, “sore gums” and “mouth ulcers” which were non-significant. Between the 1st and 3rd trimesters of pregnancy the severity scores for the majority of physical symptoms showed an increase except for “diarrhoea”, “more colds than usual”, “cough”, “sore throat” and “pain while urinating” which decreased. In the postpartum period all severity scores decreased except for “tiredness” which increased. Between the 1st and 3rd trimesters of pregnancy the distress scores for the majority of physical symptoms also increased except for “constipation”, “diarrhoea”, “more colds than usual”, “cough”, “sore throat”, “sore gums” and “headache” which decreased. In the postpartum period all median distress scores showed a decrease except for “tiredness” which increased.

Table 32. Physical symptoms median severity scores in the experimental group over time

Symptom	Severity Median Scores			P-Value
	1 st Trimester	3 rd Trimester	Postpartum	
Stomach pain/cramps	2.81	3.68	1.16	0.001
Heartburn	2.23	2.68	1.20	0.001
Stomach distension	2.61	3.40	1.13	0.001
Indigestion	2.20	2.58	1.27	0.001
Unable to keep food down	1.55	1.93	*	0.001
Vomiting	2.03	2.37	*	0.001
Constipation	1.69	1.74	1.07	0.001
Diarrhoea	1.97	1.81	1.05	0.001
Increased appetite	1.96	2.65	1.16	0.001
Poor appetite	2.02	2.07	1.25	0.001
Weight gain	2.12	3.16	1.28	0.001
Weight loss	1.84	2.14	1.23	0.001
More colds than usual	1.76	1.33	1.15	0.001
Cough	1.61	1.25	1.12	0.001
Sore throat	1.94	1.36	1.13	0.001
Breathlessness	1.57	1.78	1.05	0.001
Nosebleeds	1.12	1.24	1.04	0.039
Pain while urinating	1.66	1.95	1.10	0.05
Urinating more than usual	2.19	2.83	1.07	0.001
Toothache	2.58	3.15	1.11	0.001
Sore gums	1.41	1.34	1.05	0.001
Mouth ulcers	1.41	1.43	1.18	0.034
Back pain	2.92	3.43	1.30	0.001
Leg cramps	2.44	2.91	1.04	0.001
Headache	2.18	1.91	1.63	0.001
Tiredness	3.12	4.30	4.59	0.001
Fainting*	-	-	-	-

Gastro-intestinal symptoms
 Respiratory symptoms
 Genito-urinary symptoms
 Oral/Dental symptoms
 Musculo-skeletal symptoms
 Miscellaneous symptoms

* Insufficient reporting of the symptoms of “unable to keep food down”, “vomiting” and “fainting” did not allow for statistical analysis across the trimesters of pregnancy or the postpartum period.

Figure 12. Line Graph of the Severity of Physical Symptoms in the Experimental Group over Time

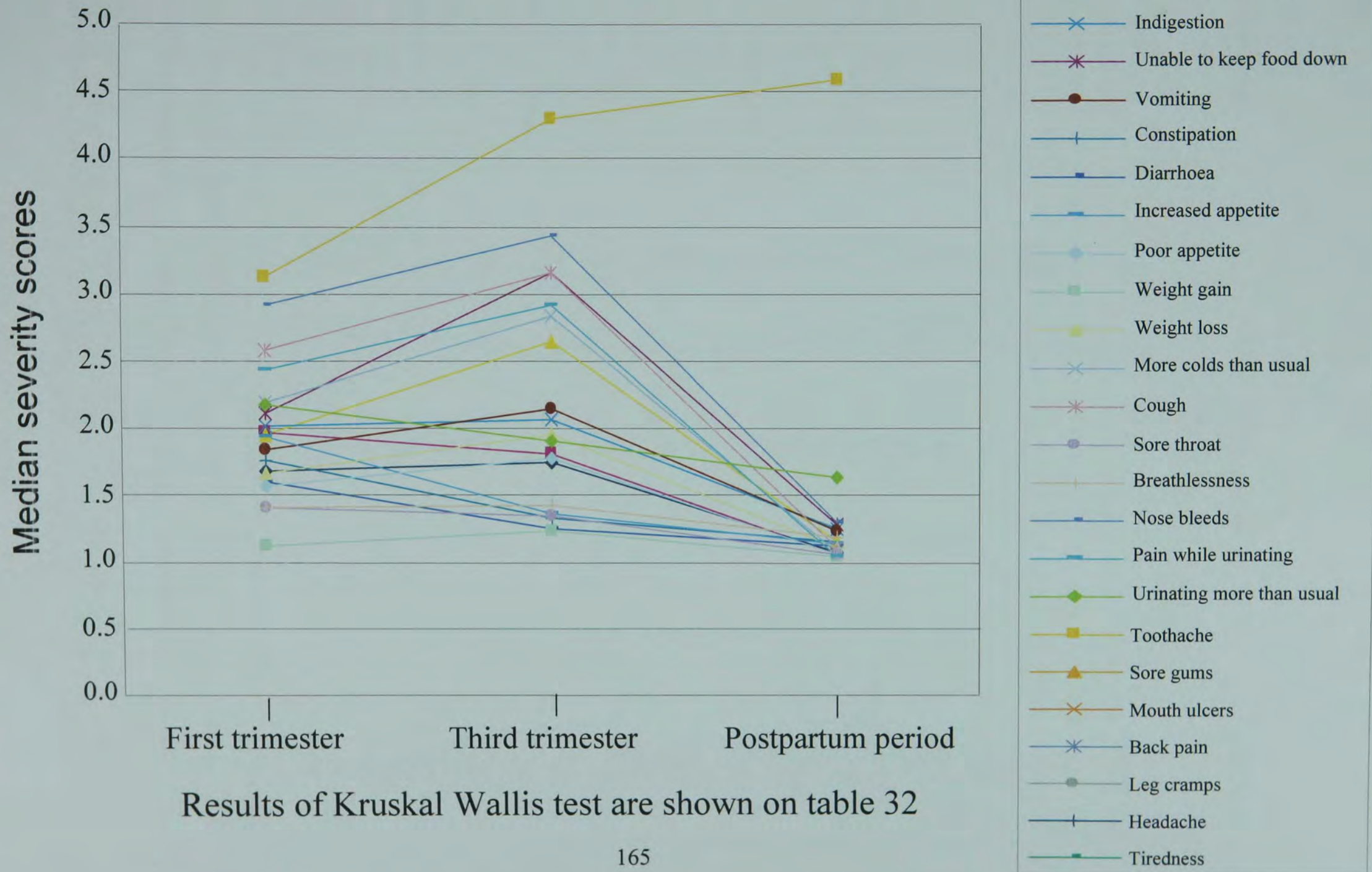


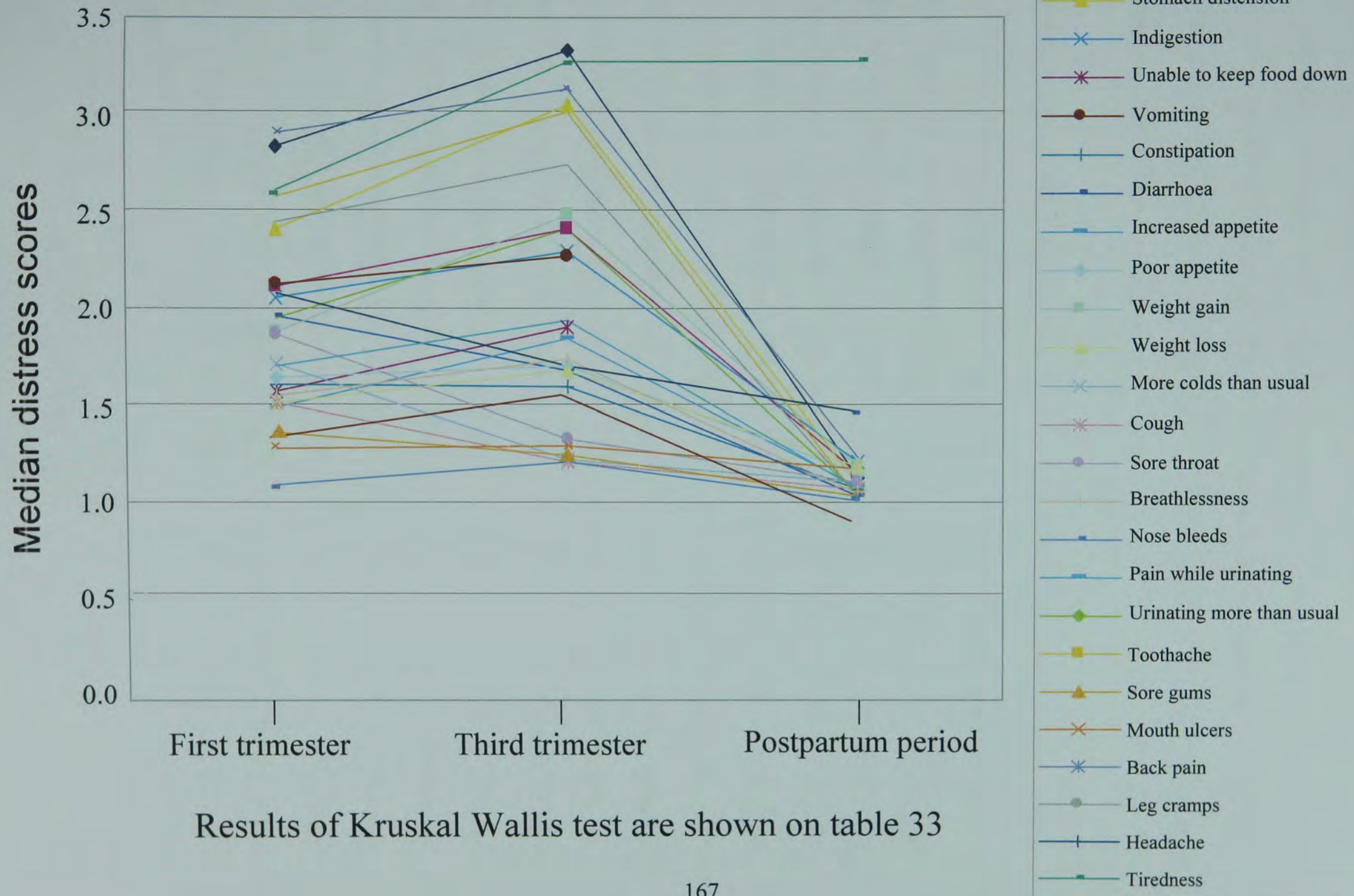
Table 33. Physical symptoms median distress scores in the experimental group over time

Symptom	Distress Median Scores			P-Value
	1 st Trimester	3 rd Trimester	Postpartum	
Stomach pain/cramps	2.82	3.31	1.13	0.001
Heartburn	2.11	2.40	1.16	0.05
Stomach distension	2.40	3.03	1.10	0.01
Indigestion	2.05	2.29	1.21	0.05
Unable to keep food down	1.57	1.93	*	0.02
Vomiting	2.12	2.26	*	NS
Constipation	1.61	1.60	1.07	NS
Diarrhoea	1.96	1.68	1.04	0.05
Increased appetite	1.49	1.84	1.09	0.05
Poor appetite	1.64	1.70	1.15	NS
Weight gain	1.88	2.47	1.19	0.001
Weight loss	1.52	1.68	1.19	0.05
More colds than usual	1.71	1.23	1.11	0.01
Cough	1.52	1.21	1.07	0.02
Sore throat	1.87	1.33	1.11	0.001
Breathlessness	1.55	1.74	1.05	0.01
Nosebleeds	1.10	1.21	1.02	0.03
Pain while urinating	1.70	1.94	1.07	0.05
Urinating more than usual	1.95	2.40	1.05	0.01
Toothache	2.57	3.00	1.03	0.01
Sore gums	1.36	1.25	1.04	NS
Mouth ulcers	1.28	1.30	1.18	NS
Back pain	2.89	3.32	1.24	0.05
Leg cramps	2.44	2.73	1.04	0.05
Headache	2.08	1.70	1.47	0.01
Tiredness	2.60	3.25	3.28	0.01
Fainting*	-	-	-	-

- Gastro-intestinal symptoms ■ Respiratory symptoms ■ Genito-urinary symptoms
■ Oral/Dental symptoms ■ Musculo-skeletal symptoms ■ Miscellaneous symptoms

* Insufficient reporting of the symptoms of “unable to keep food down”, “vomiting” and “fainting” did not allow for statistical analysis across the trimesters of pregnancy or the postpartum period.

Figure 13. Line Graph of the Distress of Physical Symptoms in the Experimental Group over Time



For the control group the Mann-Whitney *U* test revealed non-significant median severity scores for physical symptoms between 3 and 6-month comparative time periods which are displayed and illustrated on Table 34 and Figure 14 (Refer Appendix 16) and distress scores shown and illustrated on Table 35 and Figure 15 (Refer Appendix 16). The only exception was the symptom of “sore gums” which revealed a statistically significant decrease between these periods.

For the experimental group the Kruskal Wallis test revealed that there were statistically significant differences for three-quarter of the median severity scores of psychological symptoms for the experimental group over the trimesters of pregnancy and the postpartum period displayed on Table 36 and Figure 16. However, six symptoms were non-significant namely, “feeling low in mood”, “mood swings”, “feeling annoyed”, “feeling irritable”, “loss of memory” and “unable to cope with daily life”. An identical trend was evident for distress scores shown on Table 37 and Figure 17. Between the 1st and 3rd trimesters of pregnancy the severity scores for the majority of psychological symptoms showed an increase except for “sleeping less than usual”, “feeling restless” and “loss of memory” which decreased. Between these time periods the distress scores for “sleeping more than usual”, “feeling low in mood”, “mood swings”, “loss of memory” and “unable to cope with daily life” were non-significant. In the postpartum period all severity scores decreased except for “sleeping less than usual”, “early morning waking” and “feeling stressed” whose median scores increased. Many of the distress scores during this period also showed the same trend except for “sleeping less than usual”, “mood swings”, “feeling annoyed”, “loss of memory” and “unable to cope with daily life”.

Table 36. Psychological symptoms median severity scores in the experimental group over time

Symptom	Severity Median Scores			P-Value
	1 st Trimester	3 rd Trimester	Postpartum	
Sleeping less than usual	2.80	3.95	5.29	0.001
Early morning waking	2.65	2.80	3.63	0.001
Sleeping more than usual	1.45	1.12	1.12	0.001
Feeling low in mood	2.41	3.00	2.65	NS
Mood swings	1.57	1.68	1.32	NS
Feeling annoyed	2.37	2.92	2.43	NS
Feeling frustrated	2.43	3.23	1.47	0.01
Feeling irritable	2.60	3.38	3.21	NS
Feeling stressed	2.87	4.09	4.65	0.05
Feeling anxious	2.56	3.35	3.07	0.002
Feeling restless	1.91	1.77	1.12	0.05
Preoccupied	1.98	2.38	1.27	0.02
Lack of motivation	2.15	2.41	1.82	0.05
Loss of memory	1.36	1.25	1.10	NS
Loss of concentration	2.31	2.81	1.92	0.05
Distracted	1.87	2.05	1.17	0.02
Unable to cope with daily life	1.38	1.51	1.45	NS






 Symptoms of sleep disturbance
  Symptoms of mood disturbance
  Symptoms of emotional affect
 Cognitive symptoms
  Miscellaneous symptoms

Figure 16. Line Graph of Psychological Symptoms Severity Scores in Experimental Group over Time

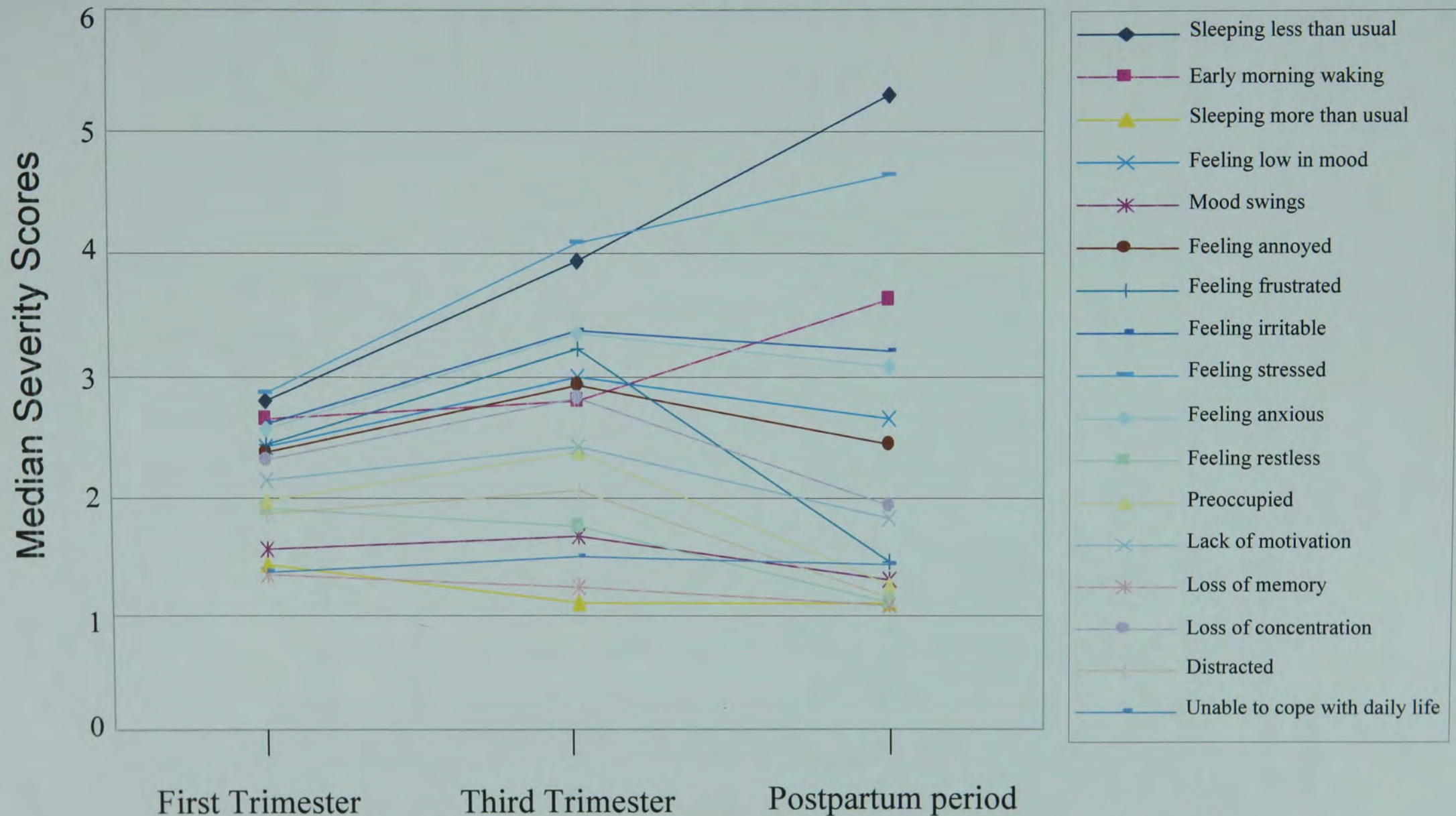


Table 37. Psychological symptoms median distress scores in the experimental group over time

Symptom	Distress Median Scores			P-Value
	1 st Trimester	3 rd Trimester	Postpartum	
Sleeping less than usual	2.53	3.16	3.61	0.01
Early morning waking	2.35	2.38	2.62	NS
Sleeping more than usual	1.36	1.07	1.04	0.05
Feeling low in mood	2.26	2.74	2.35	NS
Mood swings	1.62	1.62	1.29	NS
Feeling annoyed	2.21	2.63	2.13	NS
Feeling frustrated	2.17	2.69	1.40	0.02
Feeling irritable	2.24	3.06	2.81	0.02
Feeling stressed	2.60	3.71	3.89	0.01
Feeling anxious	2.31	2.88	2.71	0.02
Feeling restless	1.72	1.62	1.11	0.05
Preoccupied	1.82	2.07	1.17	0.01
Lack of motivation	1.92	2.71	1.64	0.02
Loss of memory	1.32	1.23	1.10	NS
Loss of concentration	2.07	2.49	1.78	0.01
Distracted	1.75	1.84	1.12	0.01
Unable to cope with daily life	1.37	1.50	1.43	NS

■ Symptoms of sleep disturbance ■ Symptoms of mood disturbance ■ Symptoms of emotional affect
■ Cognitive symptoms ■ Miscellaneous symptoms

Figure 17. Line Graph of the Distress of Psychological Symptoms in the Experimental Group over Time



Results of Kruskal Wallis test are shown on Table 37

For the control group the Mann-Whitney *U* test revealed non-significant median severity scores for psychological symptoms between 3 and 6-month comparative time periods displayed on Table 38 and Figure 18 (Refer Appendix 16) and distress scores shown on Table 39 and Figure 19 (See Appendix 16).

5.2.5 The duration of physical and psychological symptoms in the study groups

In the first trimester, the most frequently reported physical symptom in terms of duration was “stomach pains/cramps” experienced up to 28 days and reported by 49 (27%) participants. “Back pain was also experienced up to 28 days and reported by 46 (25%) participants. Next was “toothache” experienced $2 \leq 7$ days and reported by 48 (26%) respondents, Tiredness was experienced $2 \leq 7$ days and reported by 46 (25%) men. Other symptoms were also encountered for $2 \leq 7$ days but reported by a marginally lower number of men. For example, “sore throat” was reported for the same duration by 43 (24%) participants, “heartburn” and headache were reported by 41 (23%) participants and “indigestion” by 40 (22%) participants. In the control group at 3-months the only physical symptoms of any worthy comparison were all experienced $2 \leq 7$ days namely, “tiredness” reported by 53 (29%) participants, “headache” reported by 37 (20%) respondents and “sore throat” reported by 32 (18%) of men and displayed on Tables 40a, b, c and d.

During the 3rd trimester, there were eight symptoms of prominence in the amount of participants reporting their duration. Those of the longest duration of > 28 days were “weight gain” reported by 47 (26%) men and “stomach distension” reported by 46 (25%). Next those symptoms of a duration of $7 \geq 28$ days which included “tiredness” reported by 73 (40%) respondents, “stomach pain/cramps” and “diarrhoea” reported by

66 (25%) participants, “urinating more than usual” reported by 46 (25%) men and “back pain” reported by 45 (24%) of the participants. The symptom of shortest duration $2 \leq 7$ days during this trimester was “toothache” but reported by 54 (30%) men. During the 6-month comparative time period the control group only two symptoms of any sizeable comparison were those whose duration was $2 \leq 7$ days. These included “tiredness” reported by 40 (22%) participants and “headache” reported by 38 (21%) men. In the postpartum period the reporting of many symptoms *per se* lessened considerably except for two in respect of the numbers reporting their duration. These were “tiredness” experienced for $7 \geq 28$ and reported by 64 (35%) men and “headache” experienced for ≤ 1 day reported by 34 (19%) participants and shown on Tables 40a, b, c and d.

Table 40a. Duration of physical symptoms in the study groups

Symptom Duration 1 ≤ 1 day 2 ≤ 7 days 3 ≤ 28 days 4 > 28 days	Experimental Group 1st Trimester	Control Group 3 months	Experimental Group 3rd Trimester	Control Group 6 months	Experimental Group Postpartum period
Stomach pain/cramps ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	8 20 49 6	13 13 3 3	1 5 66 13	17 11 1 2	1 6 1 1
Heartburn ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	13 41 20 2	19 17 7 3	3 40 30 3	15 21 5 1	4 11 1 0
Stomach distension ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	1 11 36 24	9 8 0 4	1 5 23 46	7 5 2 0	0 0 2 2
Indigestion ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	14 40 20 1	17 23 6 2	3 40 30 2	17 22 7 0	4 14 2 0
Unable to keep food down ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	4 18 8 0	5 3 0 0	1 13 22 1	4 3 0 0	0 0 0 0
Vomiting ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	7 22 14 1	9 3 0 0	2 18 23 1	5 4 0 0	0 0 0 0
Constipation ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	5 26 11 1	7 17 2 0	5 17 14 2	8 12 5 0	3 5 1 0

Table 40b. Duration of physical symptoms in study groups (Cont.)

Symptom Duration 1 ≤ 1 day 2 ≤ 7 days 3 ≤ 28 days 4 > 28 days	Experimental Group 1st Trimester	Control Group 3 months	Experimental Group 3rd Trimester	Control Group 6 months	Experimental Group Postpartum period
Diarrhoea ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	7 29 14 1	21 21 1 1	1 5 66 13	15 13 0 0	1 3 0 0
Increased appetite ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	6 17 23 11	5 17 4 3	2 10 31 19	4 15 7 2	0 6 3 2
Poor appetite ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	2 27 21 4	3 10 5 0	0 6 30 5	2 10 1 1	0 16 2 0
Weight gain ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	1 7 30 29	11 6 13 14	2 6 26 47	8 7 16 10	3 2 5 6
Weight loss ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	0 5 27 14	3 4 5 7	1 0 15 24	3 1 4 8	0 3 11 2
More colds than usual ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	1 11 16 6	1 11 6 1	0 9 6 0	1 6 9 1	1 4 3 0
Cough ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	2 23 6 5	6 27 13 3	0 10 3 9	3 20 8 2	1 4 3 0

■ Gastro-intestinal symptoms

■ Respiratory symptoms

Table 40c. Duration of physical symptoms in the study groups (Cont.)

Symptom Duration 1 ≤ 1 day 2 ≤ 7 days 3 ≤ 28 days 4 > 28 days	Experimental Group 1st Trimester	Control Group 3 months	Experimental Group 3rd Trimester	Control Group 6 months	Experimental Group Postpartum period
Sore throat ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	5 43 7 8	6 32 6 1	3 9 10 0	7 30 5 1	1 7 1 0
Breathlessness ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	2 11 10 3	8 5 2 1	0 6 19 3	3 7 2 3	0 0 1 0
Nose bleeds ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	6 7 0 0	3 2 0 0	1 9 1 0	3 2 1 0	0 2 0 2
Pain while urinating ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	4 19 14 2	2 1 0 0	0 5 23 3	3 0 0 0	0 0 3 0
Urinating more than usual ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	2 28 24 6	5 9 1 1	0 18 46 8	3 5 4 3	0 3 2 0
Toothache ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	4 48 5 1	7 12 3 1	1 54 5 1	4 9 2 0	0 2 3 9
Sore gums ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	4 22 4 0	2 12 5 5	1 13 4 0	3 5 0 3	0 3 0 0

■ Respiratory symptoms

■ Genito-urinary symptoms

■ Oral-dental symptoms

Table 40d. Duration of physical symptoms in the study groups (Cont.)

Symptom Duration 1 ≤ 1 day 2 ≤ 7 days 3 ≤ 28 days 4 > 28 days	Experimental Group 1st Trimester	Control Group 3 months	Experimental Group 3rd Trimester	Control Group 6 months	Experimental Group Postpartum period
Mouth ulcers ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	5 25 2 2	7 19 3 1	2 26 1 1	4 16 2 0	3 13 1 0
Back pain ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	6 20 46 18	1 6 18 11	2 15 45 21	8 19 12 1	1 8 5 2
Leg cramps ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	12 28 26 10	7 7 1 3	2 24 41 10	3 6 3 1	2 0 2 0
Headache ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	27 41 7 1	34 37 3 1	31 30 5 0	32 38 2 1	34 24 1 1
Tiredness ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	8 46 39 27	15 53 22 14	5 15 73 42	10 40 29 8	1 5 64 44
Fainting ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	2 2 1 0	1 1 0 0	1 1 0 0	1 1 0 0	0 0 0 0

■ Oral-dental symptoms

■ Musculo-skeletal symptoms

■ Miscellaneous symptoms

What was striking about the duration of psychological symptoms in the 1st trimester was the predominant reporting of symptoms of emotional affect apart from “sleeping less than usual” whose duration was $7 \geq 28$ days, reported by 44 (24%) of participants. All symptoms of emotional affect spanned over $2 \leq 7$ days. “Feeling stressed” was reported by 48 (26%) participants, “feeling annoyed” was reported by 44 (24%) respondents, “feeling anxious and irritable” were reported by 43 (23%) men and “feeling frustrated” was reported by 40 (21%) participants. During the comparative 3-month period the control group revealed an identical trend in the duration and types of symptoms reported apart from “early morning waking” whose duration was $7 \geq 28$ days, reported by 31 (17%) of participants. Like the experimental group all symptoms of emotional affect had a duration of $2 \leq 7$ days. These included “feeling stressed” reported by 42 (23%) participants, “feeling frustrated” and “feeling anxious” reported by 37 (20%) respondents and “feeling irritable” reported by 36 (19%) men and displayed on Tables 41 a, b and c.

During the third trimester symptoms of sleep disturbance and emotional affect persisted for those in the experimental group but the duration of all the latter increased to $7 \geq 28$ days. “Sleeping less than usual” whose duration was $7 \geq 28$ days was reported by the largest number of men 77 (42%). Next was “feeling stressed” reported by 69 (37%) participants, followed by “feeling irritable” reported by 64 (35%) respondents. “Early morning waking” was reported by 57 (31%) men and “feeling low in mood” was reported by 51 (28%) respondents. During the comparative 6-month period symptoms of emotional affect and their duration of $2 \leq 7$ days continued for the control group but were reported by less men. For example, “feeling stressed” was reported by 39 (22%) respondents and “feeling irritable” was reported by 30 (17%) participants. In the

postpartum period the largest number of men compared to any of the trimesters of pregnancy reported a duration of $7 \geq 28$ days for three symptoms in particular. These were “early morning waking” reported by 80 (44%) men, “sleeping less than usual” reported by 80 (43%) respondents and “feeling stressed” reported by 75 (41%) participants and shown on Tables 41 a, b and c.

Table 41a. Duration of psychological symptoms in the study groups

Symptom Duration 1 ≤ 1 day 2 ≤ 7 days 3 ≤ 28 days 4 > 28 days	Experimental Group 1 st Trimester	Control Group 3 months	Experimental Group 3 rd Trimester	Control Group 6 months	Experimental Group Postpartum period
Sleeping less than usual ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	2 24 44 24	4 16 23 10	2 12 77 32	2 15 19 9	1 6 80 45
Early morning waking ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	4 34 40 24	10 21 31 18	3 33 57 17	5 22 25 11	1 30 82 18
Sleeping more than usual ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	1 15 11 1	2 11 1 2	1 5 2 0	2 6 3 1	1 4 3 0
Feeling low in mood ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	5 25 27 14	13 27 7 1	2 7 51 12	8 12 9 2	1 2 39 6
Mood swings ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	5 15 11 4	8 9 3 3	2 13 16 3	4 9 1 2	0 6 7 1
Feeling annoyed ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	15 44 24 5	15 29 9 3	2 41 47 4	18 28 4 1	6 29 31 1
Feeling frustrated ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	8 40 26 7	14 37 9 4	3 32 47 18	13 26 7 3	4 11 6 2



Symptoms of sleep disturbance



Symptoms of mood disturbance



Symptoms of
emotional affect

**Table 41b. Duration of psychological symptoms in the study groups
(Cont.)**

Symptom Duration 1 ≤ 1 day 2 ≤ 7 days 3 ≤ 28 days 4 > 28 days	Experimental Group 1st Trimester	Control Group 3 months	Experimental Group 3rd Trimester	Control Group 6 months	Experimental Group Postpartum period
Feeling irritable ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	12 43 32 6	14 36 9 2	2 40 64 7	12 30 8 2	2 33 52 6
Feeling stressed ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	7 48 37 10	13 42 22 10	3 16 69 30	8 39 20 7	1 11 75 25
Feeling anxious ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	8 43 31 13	7 37 10 0	5 45 47 18	9 27 7 3	1 51 23 4
Feeling restless ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	5 31 17 4	3 20 4 2	4 13 20 4	4 14 2 2	1 2 5 0
Preoccupied ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	7 24 20 9	8 17 8 1	2 22 38 8	6 15 5 3	0 6 8 0
Lack of motivation ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	4 18 26 12	8 15 13 5	2 6 35 13	4 14 7 4	1 6 21 3

■ Symptoms of emotional affect
 ■ Cognitive symptoms
 ■ Miscellaneous symptoms

**Table 41c. Duration of psychological symptoms in the study groups
(Cont.)**

Symptom Duration 1 ≤ 1 day 2 ≤ 7 days 3 ≤ 28 days 4 > 28 days	Experimental Group 1st Trimester	Control Group 3 months	Experimental Group 3rd Trimester	Control Group 6 months	Experimental Group Postpartum period
Loss of memory ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	7 11 8 3	2 6 2 1	4 6 6 1	1 6 2 2	1 2 4 0
Loss of concentration ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	12 38 24 11	5 14 5 3	4 29 48 12	4 13 3 1	1 12 26 2
Distracted ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	9 32 17 2	8 14 7 2	4 26 29 7	6 15 2 1	4 6 3 0
Unable to cope with daily life ≤1 day 2 ≤ 7 days 7 ≥ 28 days > 28 days	5 9 8 2	2 2 1 0	1 4 14 2	1 1 2 1	0 1 9 4

■ Cognitive symptoms

■ Miscellaneous symptoms

5.2.6 Association between age and severity and distress scores of physical and psychological symptoms

For the experimental group, the Eta correlation coefficient test showed no statistically significant associations between age and the severity and distress scores of physical symptoms shown on Table 42. However, there were ‘weak associations’ (17 for severity and 16 for distress of physical symptoms and age) using the arbitrary levels of association for this test defined by SPSS.

Table 42. Association between age and severity and distress scores of physical symptoms in the experimental group

Symptom	Eta Scores				Arbitrary Levels of Association for both Values	
	Severity	Age	Distress	Age	Severity and Age	Distress and Age
<0.190 = no association ≥ 0.190 - ≤ 0.390 = weak association ≥ 0.390 = good association						
Stomach pains/cramps	0.415	0.270	0.458	0.299	Good association	Weak association
Heartburn	0.344	0.201	0.298	0.169	Weak association	No association
Stomach distension	0.351	0.278	0.370	0.331	Weak association	Weak association
Indigestion	0.414	0.246	0.370	0.170	Weak association	No association
Unable to keep food down	0.506	0.272	0.427	0.159	Weak association	No association
Vomiting	0.428	0.336	0.456	0.225	Weak association	Weak association
Constipation	0.410	0.261	0.406	0.168	Weak association	No association
Diarrhoea	0.383	0.247	0.331	0.209	Weak association	Weak association
Increased appetite	0.344	0.142	0.338	0.172	No association	No association
Poor appetite	0.345	0.234	0.328	0.103	Weak association	No association
Wight gain	0.372	0.129	0.414	0.097	No association	No association
Weight loss	0.340	0.158	0.357	0.157	No association	No association
More colds than usual	0.437	0.134	0.403	0.240	No association	Weak association
Cough	0.536	0.279	0.564	0.240	Weak association	Weak association
Sore throat	0.433	0.278	0.467	0.213	Weak association	Weak association
Breathlessness	0.489	0.186	0.504	0.269	No association	Weak association
Nosebleeds	0.346	0.125	0.295	0.157	No association	No association
Pain while urinating	0.372	0.226	0.374	0.277	Weak association	Weak association
Urinating more than usual	0.411	0.198	0.354	0.244	Weak association	Weak association
Toothache	0.399	0.194	0.400	0.210	Weak association	Weak association
Sore gums	0.349	0.182	0.345	0.247	No association	Weak association
Mouth ulcers	0.383	0.144	0.357	0.138	No association	No association
Back pain	0.412	0.208	0.386	0.179	Weak association	No association
Leg cramps	0.390	0.190	0.363	0.273	Weak association	Weak association
Headache	0.377	0.378	0.366	0.284	Weak association	Weak association
Tiredness	0.401	0.184	0.402	0.210	No association	Weak association
Fainting	0.369	0.201	0.352	0.209	Weak association	Weak association

■ Gastro-intestinal symptoms

■ Respiratory symptoms

■ Genito-urinary symptoms

■ Oral/Dental symptoms

■ Musculo-skeletal symptoms

■ Miscellaneous symptoms

For the experimental group, the Eta correlation coefficient test showed no statistically significant associations between age and severity and distress of psychological symptoms shown on Table 43. However, there were 9 ‘weak associations’ between the severity scores of psychological symptoms and age and 11 for the distress scores of physiological symptoms and age.

Table 43. Association between age and severity and distress scores of psychological symptoms in the experimental group

Symptom	Eta Scores				Arbitrary Levels of Association for both Values <0.190 = no association ≥0.190-≤0.390 = weak association ≥0.390 = good association	
	Severity	Age	Distress	Age	Severity and Age	Distress and Age
Sleeping less than usual	0.356	0.159	0.341	0.186	No association	No association
Early morning waking	0.331	0.160	0.452	0.243	No association	Weak association
Sleeping more than usual	0.452	0.279	0.390	0.129	Weak association	No association
Feeling low in mood	0.480	0.284	0.455	0.293	Weak association	Weak association
Mood swings	0.532	0.233	0.520	0.215	Weak association	Weak association
Feeling annoyed	0.376	0.162	0.387	0.193	No association	Weak association
Feeling frustrated	0.437	0.195	0.412	0.230	Weak association	Weak association
Feeling irritable	0.403	0.141	0.404	0.235	No association	Weak association
Feeling stressed	0.413	0.195	0.397	0.202	Weak association	Weak association
Feeling anxious	0.409	0.176	0.419	0.187	No association	No association
Feeling restless	0.407	0.183	0.393	0.162	No association	No association
Preoccupied	0.398	0.206	0.379	0.162	Weak association	No association
Lack of motivation	0.429	0.307	0.443	0.333	Weak association	Weak association
Loss of memory	0.382	0.218	0.304	0.202	Weak association	Weak association
Loss of concentration	0.429	0.233	0.398	0.233	Weak association	Weak association
Distracted	0.428	0.146	0.410	0.097	No association	No association
Unable to cope with daily life	0.374	0.161	0.361	0.219	No association	Weak association

■ Symptoms of sleep disturbance ■ Symptoms of mood disturbance ■ Symptoms of emotional affect
■ Cognitive symptoms ■ Miscellaneous symptoms

5.2.7 Association between social class and severity and distress scores of physical and psychological symptoms

The Chi-square statistic showed only one statistically significant association ($P=0.050$) between social class and the severity score of “poor appetite” in the experimental group displayed on Table 44. The severity scores for all the remaining physical symptoms and social class were non-significant. There were no statistically significant associations between social class and the distress scores of physical symptoms at all shown on Table 45.

Table 44. Association between social class and severity scores of physical symptoms in the experimental group

Symptom	χ^2 Statistic	df	P-Value
Stomach pain/cramps	27.94	32	0.673 (NS)
Heartburn	36.01	32	0.286 (NS)
Stomach distension	25.48	32	0.786 (NS)
Indigestion	36.48	32	0.131 (NS)
Unable to keep food down	30.74	28*	0.329 (NS)
Vomiting	40.65	32	0.140 (NS)
Constipation	31.91	32	0.471 (NS)
Diarrhoea	25.85	28*	0.581 (NS)
Increased appetite	22.11	24*	0.573 (NS)
Poor appetite	41.55	28*	0.050
Weight gain	24.49	28*	0.655 (NS)
Weight loss	21.05	24*	0.636 (NS)
More colds than usual	31.35	28*	0.302 (NS)
Cough	19.04	28*	0.879 (NS)
Sore throat	33.45	32	0.395 (NS)
Breathlessness	19.93	20*	0.462 (NS)
Nosebleeds	24.83	16*	0.073 (NS)
Pain while urinating	31.27	28*	0.305 (NS)
Urinating more than usual	23.44	24*	0.494 (NS)
Toothache	32.88	28*	0.240 (NS)
Sore gums	22.04	20*	0.339 (NS)
Mouth ulcers	26.23	24*	0.625 (NS)
Back pain	38.81	28*	0.084 (NS)
Leg cramps	32.05	24*	0.126 (NS)
Headache	23.03	24*	0.518 (NS)
Tiredness	26.42	24*	0.332 (NS)
Fainting	14.18	16*	0.585 (NS)

■ Gastro-intestinal symptoms

■ Respiratory symptoms

■ Genito-urinary symptoms

■ Oral/Dental symptoms

■ Musculo-skeletal symptoms

■ Miscellaneous symptoms

* Smaller degrees of freedom due to unreported levels of severity in some social classes.

Table 45. Association between social class and distress scores of physical symptoms in the experimental group

Symptom	χ^2 Statistic	df	P-Value
Stomach pain/cramps	25.08	32	0.803 (NS)
Heartburn	32.04	28*	0.273 (NS)
Stomach distension	34.40	36*	0.545 (NS)
Indigestion	37.23	28*	0.114 (NS)
Unable to keep food down	29.55	32	0.591 (NS)
Vomiting	33.70	32	0.385 (NS)
Constipation	29.93	28*	0.367 (NS)
Diarrhoea	37.15	32	0.244 (NS)
Increased appetite	34.02	28*	0.200 (NS)
Poor appetite	30.80	28*	0.326 (NS)
Weight gain	19.18	28*	0.893 (NS)
Weight loss	19.91	24*	0.713 (NS)
More colds than usual	28.96	32	0.621 (NS)
Cough	28.23	32	0.688 (NS)
Sore throat	34.31	36	0.549 (NS)
Breathlessness	26.93	28*	0.522 (NS)
Nosebleeds	14.88	20*	0.783 (NS)
Pain while urinating	39.70	36*	0.309 (NS)
Urinating more than usual	39.74	36*	0.307 (NS)
Toothache	35.54	32*	0.305 (NS)
Sore gums	22.56	28*	0.755 (NS)
Mouth ulcers	29.41	28*	0.392 (NS)
Back pain	30.59	32	0.538 (NS)
Leg cramps	33.07	28*	0.233 (NS)
Headache	27.28	24*	0.291 (NS)
Tiredness	35.73	32	0.297 (NS)
Fainting	17.22	20*	0.638 (NS)

■ Gastro-intestinal symptoms

■ Respiratory symptoms

■ Genito-urinary symptoms

■ Oral/Dental symptoms

■ Musculo-skeletal symptoms

■ Miscellaneous symptoms

* Smaller degrees of freedom due to unreported levels of distress in some social classes. Higher degrees of freedom due to more respondents reporting zero levels of distress in some social classes.

There were statistically significant associations between social class and severity scores of “early morning waking” (P=0.047), “feeling frustrated” (P=0.048) and “feeling stressed” (P=0.042) in the experimental group displayed on Table 46. The severity scores for all the remaining psychological symptoms and social class were non-significant. There were also statistically significant associations between social class and the distress scores of “sleeping less than usual” (P=0.047) and “feeling frustrated” (P=0.008) shown on Table 47.

Table 46. Association between social class and severity scores of psychological symptoms in the experimental group

Symptom	χ^2 Statistic	df	P-Value
Sleeping less than usual	28.72	28*	0.427 (NS)
Early morning waking	46.55	32	0.047
Sleeping more than usual	27.26	24*	0.293 (NS)
Feeling low in mood	32.91	28*	0.239 (NS)
Mood swings	34.37	24*	0.078 (NS)
Feeling annoyed	19.95	24*	0.700 (NS)
Feeling frustrated	41.50	28*	0.048
Feeling irritable	39.61	28*	0.072 (NS)
Feeling stressed	46.99	32	0.042
Feeling anxious	19.32	24*	0.735 (NS)
Feeling restless	29.83	28*	0.372 (NS)
Preoccupied	31.56	24*	0.138 (NS)
Lack of motivation	33.75	32	0.383 (NS)
Loss of memory	25.34	20*	0.189 (NS)
Loss of concentration	36.11	28*	0.140 (NS)
Distracted	35.29	24*	0.064 (NS)
Unable to cope with daily life	14.45	20*	0.807 (NS)

■ Symptoms of sleep disturbance ■ Symptoms of mood disturbance ■ Symptoms of emotional affect
■ Cognitive symptoms ■ Miscellaneous symptoms

* Smaller degrees of freedom due to unreported levels of severity in some social classes.

Table 47. Association between social class and distress scores of psychological symptoms in the experimental group

Symptom	χ^2 Statistic	df	P-Value
Sleeping less than usual	46.45	32	0.047
Early morning waking	29.04	32	0.841 (NS)
Sleeping more than usual	18.98	24*	0.753 (NS)
Feeling low in mood	35.51	28*	0.156 (NS)
Mood swings	38.86	32	0.188 (NS)
Feeling annoyed	30.55	32	0.540 (NS)
Feeling frustrated	54.58	32	0.008
Feeling irritable	36.86	28*	0.122 (NS)
Feeling stressed	39.20	32	0.178 (NS)
Feeling anxious	34.87	32	0.333 (NS)
Feeling restless	34.36	28*	0.189 (NS)
Preoccupied	16.72	20*	0.671 (NS)
Lack of motivation	36.90	28*	0.121 (NS)
Loss of memory	20.93	28*	0.828 (NS)
Loss of concentration	34.75	32	0.338 (NS)
Distracted	29.26	28*	0.399 (NS)
Unable to cope with daily life	25.09	24*	0.401 (NS)

■ Symptoms of sleep disturbance ■ Symptoms of mood disturbance ■ Symptoms of emotional affect
■ Cognitive symptoms ■ Miscellaneous symptoms

* Smaller degrees of freedom due to unreported levels of severity in some social classes.

5.2.8 Association between the previous number of children and severity and distress of physical and psychological symptoms

There were statistically significant associations between previous number of children and severity scores of “unable to keep food down” ($P=0.001$), “cough” ($P=0.001$), “sore throat” ($P=0.035$), “pain while urinating” ($P=0.001$), “toothache” ($P=0.050$), “sore gums” ($P=0.028$) and “mouth ulcers” ($P=0.047$) in the experimental group shown on Table 48.

The associations between previous number of children and the severity scores for all remaining symptoms were non-significant. There were statistically significant associations between previous number of children and the distress scores of “stomach pain/cramps” ($P=0.018$), “indigestion” ($P=0.009$), “cough” ($P=0.016$), “urinating more than usual” ($P=0.030$) and “sore gums” ($P=0.001$) displayed on Table 49.

Table 48. Association between the previous number of children and severity scores of physical symptoms in the experimental group

Symptom	χ^2 Statistic	df	P-Value
Stomach pain/cramps	28.34	32	0.652 (NS)
Heartburn	23.62	32	0.858 (NS)
Stomach distension	29.90	32	0.573 (NS)
Indigestion	40.37	28*	0.061 (NS)
Unable to keep food down	59.07	28*	0.001
Vomiting	25.29	32	0.794 (NS)
Constipation	27.27	32	0.705 (NS)
Diarrhoea	28.12	28*	0.458 (NS)
Increased appetite	12.37	24*	0.975 (NS)
Poor appetite	22.25	28*	0.770 (NS)
Weight gain	28.90	28*	0.417 (NS)
Weight loss	21.58	24*	0.604 (NS)
More colds than usual	17.21	28*	0.944 (NS)
Cough	63.69	28*	0.001
Sore throat	47.96	32	0.035
Breathlessness	19.13	20*	0.513 (NS)
Nosebleeds	3.58	16*	0.999 (NS)
Pain while urinating	63.89	28*	0.001
Urinating more than usual	29.99	24*	0.185 (NS)
Toothache	41.77	28*	0.050
Sore gums	33.67	20*	0.028
Mouth ulcers	36.70	24*	0.047
Back pain	24.76	28*	0.641 (NS)
Leg cramps	18.30	24*	0.788 (NS)
Headache	23.54	24*	0.488 (NS)
Tiredness	24.03	24*	0.460 (NS)
Fainting	5.74	16*	0.991 (NS)

■ Gastro-intestinal symptoms

■ Respiratory symptoms

■ Genito-urinary symptoms

■ Oral/Dental symptoms

■ Musculo-skeletal symptoms

■ Miscellaneous symptoms

* Smaller degrees of freedom due to unreported levels of severity with some categories of previous number of children.

Table 49. Association between the previous number of children and distress scores of physical symptoms in the experimental group

Symptom	χ^2 Statistic	df	P-Value
Stomach pain/cramps	51.03	32	0.018
Heartburn	25.75	28*	0.587 (NS)
Stomach distension	41.05	36*	0.259 (NS)
Indigestion	48.82	28*	0.009
Unable to keep food down	38.27	32	0.206 (NS)
Vomiting	24.12	32	0.840 (NS)
Constipation	29.75	28*	0.375 (NS)
Diarrhoea	33.27	32	0.405 (NS)
Increased appetite	7.66	28*	0.995 (NS)
Poor appetite	14.38	28*	0.984 (NS)
Weight gain	17.77	28*	0.932 (NS)
Weight loss	22.12	24*	0.572 (NS)
More colds than usual	19.75	32	0.956 (NS)
Cough	15.45	32	0.016
Sore throat	50.06	36*	0.060 (NS)
Breathlessness	24.83	28*	0.637 (NS)
Nosebleeds	7.46	20*	0.995 (NS)
Pain while urinating	49.03	36*	0.069 (NS)
Urinating more than usual	52.56	36*	0.030
Toothache	33.07	32	0.415 (NS)
Sore gums	73.04	28*	0.001
Mouth ulcers	30.12	28*	0.035 (NS)
Back pain	29.04	32	0.571 (NS)
Leg cramps	31.30	28*	0.304 (NS)
Headache	32.28	24*	0.120 (NS)
Tiredness	22.89	32	0.882 (NS)
Fainting	6.74	20*	0.991 (NS)

Gastro-intestinal symptoms
 Respiratory symptoms
 Genito-urinary symptoms
 Oral/Dental symptoms
 Musculo-skeletal symptoms
 Miscellaneous symptoms

* Smaller degrees of freedom due to unreported levels of distress in categories of previous number of children. Higher degrees of freedom due to more respondents reporting zero levels of distress in some categories of previous number of children.

There were statistically significant associations between previous number of children and severity scores of “sleeping less than usual” ($P=0.047$) and “unable to cope with daily life” ($P=0.007$) in the experimental group shown on Table 50. The severity scores for all the remaining symptoms and previous number of children were non-significant. There were also statistically significant associations between previous number of children and the distress scores of “early morning waking” ($P=0.023$) and “unable to cope with daily life” ($P=0.001$) displayed on Table 51.

Table 50. Association between the previous number of children and severity scores of psychological symptoms in the experimental group

Symptom	χ^2 Statistic	df	P-Value
Sleeping less than usual	46.56	32	0.047
Early morning waking	37.63	32	0.227 (NS)
Sleeping more than usual	21.61	24*	0.603 (NS)
Feeling low in mood	14.63	28*	0.982 (NS)
Mood swings	20.37	24*	0.676 (NS)
Feeling annoyed	20.03	24*	0.675 (NS)
Feeling frustrated	30.84	28*	0.324 (NS)
Feeling irritable	22.22	28*	0.771 (NS)
Feeling stressed	24.11	32	0.841 (NS)
Feeling anxious	22.81	24*	0.531 (NS)
Feeling restless	22.79	28*	0.743 (NS)
Preoccupied	13.87	24*	0.950 (NS)
Lack of motivation	24.43	32	0.829 (NS)
Loss of memory	11.44	20*	0.934 (NS)
Loss of concentration	22.10	28*	0.777 (NS)
Distracted	23.11	24*	0.513 (NS)
Unable to cope with daily life	38.95	20*	0.007

■ Symptoms of sleep disturbance
 ■ Symptoms of mood disturbance
 ■ Symptoms of emotional affect
■ Cognitive symptoms
 ■ Miscellaneous symptoms

* Smaller degrees of freedom due to unreported levels of severity in some categories of previous number of children. Higher degrees of freedom due to more respondents reporting zero levels of severity in some categories of previous number of children.

Table 51. Association between the previous number of children and distress scores of psychological symptoms in the experimental group

Symptom	χ^2 Statistic	df	P-Value
Sleeping less than usual	42.16	32	0.108 (NS)
Early morning waking	54.74	36*	0.023
Sleeping more than usual	22.49	24*	0.550 (NS)
Feeling low in mood	10.60	28*	0.991 (NS)
Mood swings	14.37	32	0.987 (NS)
Feeling annoyed	21.20	32	0.927 (NS)
Feeling frustrated	33.50	32	0.395 (NS)
Feeling irritable	35.72	28*	0.150 (NS)
Feeling stressed	25.57	32	0.782 (NS)
Feeling anxious	25.62	32	0.780 (NS)
Feeling restless	19.19	28*	0.892 (NS)
Preoccupied	10.54	20*	0.957 (NS)
Lack of motivation	22.62	28*	0.752 (NS)
Loss of memory	14.60	28*	0.982 (NS)
Loss of concentration	32.06	32	0.464 (NS)
Distracted	24.82	28*	0.638 (NS)
Unable to cope with daily life	53.88	24*	0.001

■ Symptoms of sleep disturbance ■ Symptoms of mood disturbance ■ Symptoms of emotional affect
■ Cognitive symptoms ■ Miscellaneous symptoms

* Smaller degrees of freedom due to unreported levels of distress in some categories of previous number of children. Higher degrees of freedom due to more respondents reporting zero levels of distress in some categories of previous number of children.

5.2.9 Physical and psychological symptoms as predictors of the Couvade syndrome

Binary logistic regression revealed five physical symptoms as strong predictors in addition to four symptoms as relatively weak or unreliable predictors of the Couvade syndrome, with overall low R^2 values. The Wald statistic was higher for the following indicators, “cough”, “leg cramps”, “headache” and “diarrhoea” all ($P=0.001$) and “pain while urinating” ($P=0.002$). However, it was lower for “breathlessness” ($P=0.01$), “poor appetite” and “stomach dissension” both ($P=0.02$) and finally, “indigestion” ($P=0.05$) displayed on Tables 52a and 52b.

Table 52a. Model summary for binary logistic regression of physical symptoms

Number of Symptoms Contributing to the Equation	-2 Log Likelihood	Cox and Snell R Square	Nagelkeche R Square
9 Physical symptoms	52.06	0.364	0.581

Table 52b. Binary logistic regression analysis of physical symptoms as predictors of the Couvade syndrome

Symptom	Wald	P-Value
Cough	18.183	0.001
Leg cramps	15.436	0.001
Headache	13.426	0.001
Diarrhoea	12.372	0.001
Pain while urinating	9.208	0.002
Breathlessness	5.615	0.01
Poor appetite	5.232	0.02
Stomach distension	5.215	0.02
Indigestion	3.294	0.05

Gastro-intestinal symptoms
 Respiratory symptoms
 Genito-urinary symptoms
 Oral/Dental symptoms
 Musculo-skeletal symptoms
 Miscellaneous symptoms

Binary logistic regression also revealed three psychological symptoms as strong predictors in addition to four variables that were weak or unreliable predictors of the Couvade syndrome, with relatively low R^2 values. The Wald statistic was higher for the following indicators, “loss of concentration”, “sleeping less than usual” and “lack of motivation” all ($P=0.001$). However, it was lower for “feeling frustrated” ($P=0.04$), “unable to cope with daily life” ($P=0.01$), “feeling stressed” ($P=0.01$) and “feeling irritable” ($P=0.03$) shown on Tables 53a and 53b.

Table 53a. Model summary for binary logistic regression of psychological symptoms

Number of Symptoms Contributing to the Equation	-2 Log Likelihood	Cox and Snell R Square	Nagelkeche R Square
7 Psychological symptoms	66.82	0.261	0.419

Table 53b. Binary logistical regression analysis of psychological symptoms as predictors of the Couvade syndrome

Symptom	Wald	P-Value
Loss of concentration	39.896	0.001
Sleeping less than usual	35.341	0.001
Lack of motivation	12.279	0.001
Feeling frustrated	8.322	0.04
Unable to cope with daily life	6.286	0.01
Feeling stressed	5.476	0.01
Feeling irritable	4.594	0.03



Cognitive symptoms



Symptoms of sleep disturbance



Symptoms of emotional affect

5.3 Perceived stress coping indicators of higher incidence and median scores in the experimental group

There was a higher reported percentage of all indicators of perceived stress coping in the experimental group compared to the control group shown on Table 54. The numbers of reported perceived stress coping indicators were accumulated over the 1st and 3rd trimesters and the postpartum period for the experimental group and over the 3 and 6-month comparative time period for the control group.

Table 54. Higher reported percentage of perceived stress coping indicators in the experimental group

Perceived Stress Coping Indictors	Experimental Group <i>n</i> = 182	Control Group <i>n</i> = 181
Upset because of something that happened unexpectedly	285 (81%)	259 (76%)
Unable to control the important things in your life	277 (78%)	231 (68%)
Felt nervous and stressed	321 (91%)	286 (84%)
Felt confident about your ability to handle your personal problems	193 (55%)	178 (52%)
Felt that things were going your way	296 (84%)	255 (75%)
Found that you could not cope with all the things you had to do	299 (84%)	269 (79%)
Able to control irritations in your life	278 (79%)	222 (65%)
Felt you were on top of things	294 (83%)	253 (74%)
Angered because of things that were outside of your control	322 (91%)	276 (81%)
Felt difficulties were piling up so high that you could not overcome them	273 (77%)	230 (67%)

The Chi-square test revealed highly statistically significant differences in the incidence of all perceived stress coping indicators between the study groups displayed on Table 55 in the experimental group ($n=182$) over the 1st and 3rd trimesters of pregnancy compared to the control group ($n=181$) over a 3 and 6-month period.

Table 55. Comparison of incidence of perceived stress coping indicators between the study groups

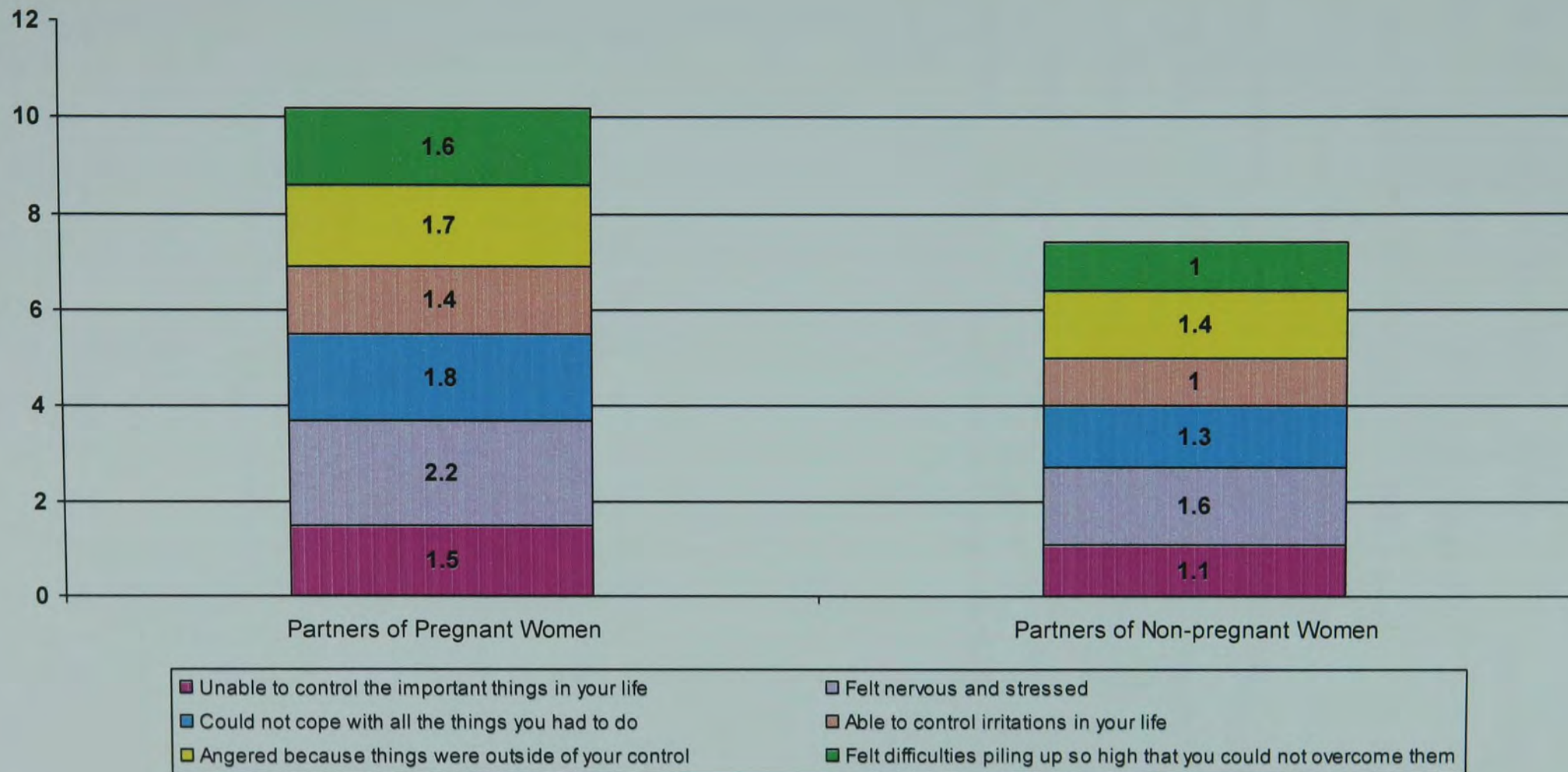
Perceived Stress Coping Indicators	Yes		No		P-value
	Experimental	Control	Experimental	Control	
Upset because of something that happened unexpectedly	285	259	68	80	0.001
Unable to control the important things in your life	277	231	76	108	0.0001
Felt nervous and stressed	321	286	32	53	0.0001
Felt confident about your ability to handle your personal problems	193	178	160	161	0.001
Felt that things were going your way	296	255	57	84	0.0001
Found that you could not cope with all the things you had to do	299	269	54	70	0.0001
Able to control irritations in your life	278	222	75	117	0.0001
Felt you were on top of things	294	253	59	86	0.0001
Angered because of things that were outside of your control	322	276	31	63	0.0001
Felt difficulties were piling up so high that you could not overcome them	273	230	80	109	0.0001

The Mann-Whitney *U* test for perceived stress coping indicators displayed on Table 56 with six of these illustrated in Figure 20 showed statistically significant differences between the study groups with higher median scores in the experimental group. The only exception was “felt confident about your ability handle your personal problems” which was non-significant. The median (PSCS) scores in the experimental group ranged from 0.8-2.2 and those in the control group from 0.8-1.6.

Table 56. Statistically higher median scores of perceived stress coping indicators in the experimental compared to the control group

Perceived Stress Coping Indicators	Median Scores		P-Value
	Experimental (n=182)	Control (n=181)	
Upset because of something that happened unexpectedly.	1.5	1.3	0.05
Unable to control the important things in your life.	1.5	1.1	0.01
Felt nervous and stressed.	2.2	1.6	0.01
Felt confident about your ability to handle your personal problems.	0.8	0.8	NS
Felt that things were going your way.	1.4	1.1	0.05
Found that you could not cope with all the things you had to do.	1.8	1.3	0.01
Able to control irritations in your life.	1.4	1.0	0.01
Felt you were on top of things.	1.5	1.3	0.05
Angered because of things that were outside of your control.	1.7	1.4	0.01
Felt difficulties were piling up so high that you could not overcome them.	1.6	1.0	0.01

Figure 20. Median Score Comparison of Perceived Stress Coping Indicators between Partners of Pregnant and Non-pregnant women



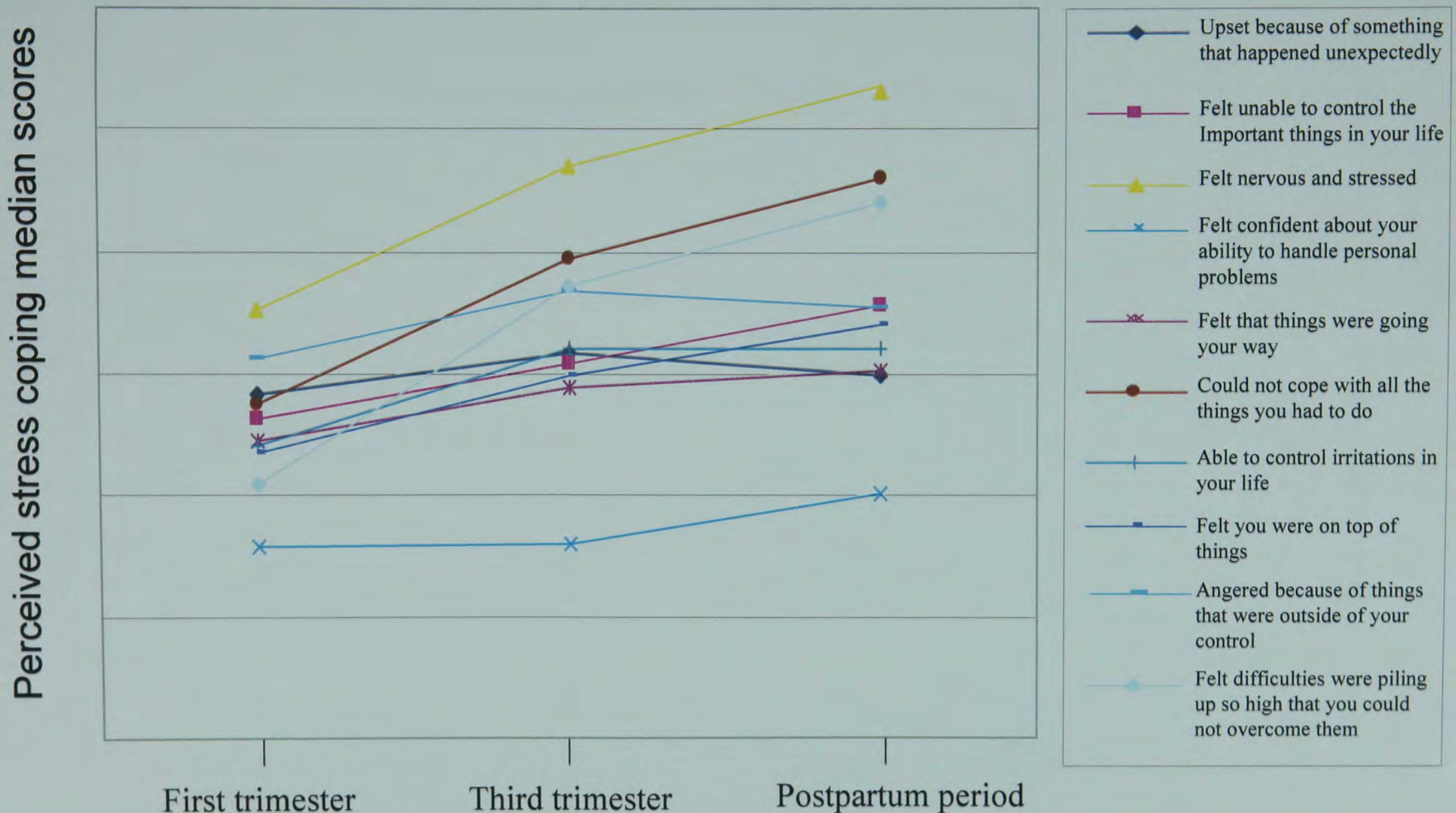
5.3.1 The impact of time on perceived stress coping

For the experimental group the Kruskal-Wallis test revealed statistically significant differences for all perceived stress coping median scores except “upset because of something that happened unexpectedly” which was non-significant over the trimesters of pregnancy and the postpartum period. This is shown on Table 57 and Figure 21. Between the 1st and 3rd trimesters of pregnancy the median scores for all perceived stress coping indicators showed an increase. In the postpartum period the median scores for seven perceived stress coping indicators increased except for “upset because of something that happened unexpectedly” and “angered because of things that were outside of your control” which decreased. The median scores for the PSC indicator “able to control irritations in your life” remained constant between the third trimester and the postpartum period.

Table 57. Perceived stress coping median scores in the experimental group over time

Perceived Stress Coping Indicators	Median Scores			P-Value
	1 st Trimester	3 rd Trimester	Postpartum	
Upset because of something that happened unexpectedly.	1.42	1.59	1.50	NS
Unable to control the important things in your life.	1.32	1.55	1.79	0.02
Felt nervous and stressed.	1.77	2.35	2.68	0.001
Felt confident about your ability to handle your personal problems.	0.79	0.80	1.01	0.05
Felt that things were going your way.	1.23	1.45	1.52	0.05
Found that you could not cope with all the things you had to do.	1.38	1.98	2.30	0.01
Able to control irritations in your life.	1.21	1.61	1.61	0.05
Felt you were on top of things.	1.18	1.50	1.71	0.02
Angered because of things that were outside of your control.	1.57	1.85	1.78	0.02
Felt difficulties were piling up so high that you could not overcome them.	1.05	1.87	2.21	0.01

Figure 21. Line Graph of Perceived Stress Coping in the Experimental Group over Time



Results of Kruskal-Wallis test are shown on table 57

For the control group the Mann-Whitney U test revealed that all the median scores of perceived stress coping were non-significant between 3 and 6-month comparative time periods shown and illustrated on Table 58 and Figure 22 (Refer Appendix 16).

5.3.2 Association between total perceived stress coping and severity of physical and psychological symptoms

For the experimental group, the Eta test of the association between total perceived stress coping scores and the severity scores for physical symptoms shown on Table 59 showed no statistically significant relationships. However, there were a total of one ‘good association’ and five ‘weak associations’ using the arbitrary levels of association defined for this test by SPSS. The relationship between total perceived stress coping and severity of “tiredness” showed a ‘good association’. ‘Weak associations’ of symptom severity and total perceived stress coping included “stomach pains/cramps”, “indigestion”, “breathlessness”, “mouth ulcers” and “headache”.

Table 59. Association between total perceived stress coping and severity scores of physical symptoms in the experimental group

Symptom	Eta Scores		Arbitrary Level of Association for both Values <0.190 = no association ≥ 0.190 - ≤ 0.390 = weak association ≥ 0.390 = good association
	Perceived stress	Symptom severity	
Stomach pains/cramps	0.205	0.292	Weak association
Heartburn	0.173	0.265	No association
Stomach distension	0.179	0.292	No association
Indigestion	0.197	0.279	Weak association
Unable to keep food down	0.175	0.267	No association
Vomiting	0.145	0.275	No association
Constipation	0.163	0.263	No association
Diarrhoea	0.152	0.298	No association
Increased appetite	0.145	0.251	No association
Poor appetite	0.165	0.276	No association
Wight gain	0.180	0.324	No association
Weight loss	0.125	0.199	No association
More colds than usual	0.101	0.247	No association
Cough	0.144	0.260	No association
Sore throat	0.090	0.225	No association
Breathlessness	0.225	0.286	Weak association
Nosebleeds	0.058	0.213	No association
Pain while urinating	0.146	0.283	No association
Urinating more than usual	0.185	0.295	No association
Toothache	0.122	0.274	No association
Sore gums	0.160	0.303	No association
Mouth ulcers	0.212	0.271	Weak association
Back pain	0.156	0.281	No association
Leg cramps	0.203	0.229	Weak association
Headache	0.137	0.324	No association
Tiredness	0.475	0.521	Good association
Fainting	0.103	0.269	No association

Gastro-intestinal symptoms
 Respiratory symptoms
 Genito-urinary symptoms
 Oral/Dental symptoms
 Musculo-skeletal symptoms
 Miscellaneous symptoms

For the experimental group, the Eta test of the association between total perceived stress coping scores and the severity of psychological symptoms shown on Table 60 also showed no statistically significant associations. However, compared to physical symptoms, the severity of psychological ones and total perceived stress coping scores showed a total of nine 'good' and four 'weak associations'. 'Good associations' included "sleeping less than usual", "early morning waking", "feeling low in mood", "feeling annoyed", "feeling irritable", "feeling stressed", "feeling anxious", "lack of motivation" and "unable to cope with daily life". 'Weak associations' included "mood swings", "feeling frustrated", "preoccupied" and "loss of concentration". The total scores for perceived stress coping and severity scores of the remaining symptoms showed no associations at all.

Table 60. Association between total perceived stress coping and severity scores of psychological symptoms in the experimental group

Symptom	Eta Scores		Arbitrary Level of Association for both Values <0.190 = no association ≥ 0.190 - ≤ 0.390 = weak association ≥ 0.390 = good association
	Perceived stress	Symptom severity	
Sleeping less than usual	0.470	0.530	Good association
Early morning waking	0.396	0.430	Good association
Sleeping more than usual	0.105	0.271	No association
Feeling low in mood	0.484	0.552	Good association
Mood swings	0.257	0.344	Weak association
Feeling annoyed	0.443	0.487	Good association
Feeling frustrated	0.345	0.396	Weak association
Feeling irritable	0.592	0.614	Good association
Feeling stressed	0.687	0.706	Good association
Feeling anxious	0.529	0.579	Good association
Feeling restless	0.158	0.240	No association
Preoccupied	0.272	0.343	Weak association
Lack of motivation	0.390	0.502	Good association
Loss of memory	0.135	0.287	No association
Loss of concentration	0.365	0.430	Weak association
Distracted	0.179	0.305	No association
Unable to cope with daily life	0.407	0.649	Good association

- Symptoms of sleep disturbance
 Symptoms of mood disturbance
 Symptoms of emotional affect
- Cognitive symptoms
 Miscellaneous symptoms

5.3.3 Perceived stress coping indicators as predictors of the Couvade syndrome

Binary logistic regression revealed five perceived stress coping indicators as weak or unreliable predictors of the Couvade syndrome with very low R^2 values. However, the Wald statistic was relatively high for the following indicators, “felt difficulties piling up so high that you could not overcome them” and “upset because of something that happened unexpectedly” both ($P=0.01$). These also included, “able to control irritations in your life” ($P=0.05$), “felt confident about you’re ability to handle personal problems” ($P=0.05$) and “angered because of things that were outside of your control” ($P=0.05$) shown on Tables 61a and 61b.

Table 61a. Model summary for binary logistic regression of perceived stress coping indicators

Number of Perceived Stress Coping Indicators Contributing to the Equation	-2 Log Likelihood	Cox and Snell R Square	Nagelkeche R Square
5 Perceived stress coping indicators	1111.29	0.044	0.059

Table 61b. Binary logistic regression analysis of perceived stress coping indicators as predictors of the Couvade syndrome

Perceived Stress Coping Indicators	Wald	P-Value
Felt difficulties piling up so high that you could not overcome them	32.707	0.01
Upset because of something that happened unexpectedly	19.833	0.01
Able to control irritations in your life	7.500	0.05
Felt confident about your ability to handle personal problems	6.842	0.05
Angered because of things that were outside of your control	4.131	0.05

CHAPTER 6

DISUSSION OF RESULTS

Chapter 6

Discussion of Results

6. Introduction

This chapter presents the discussion of results for the respective phases of the study and also their clinical implications and respective limitations. The discussion centres on the themes generated in the qualitative phase including, the emotional aspects of pregnancy for male partners, men's physical and psychological symptoms, consultation and management of symptoms and attempts at explaining them. The discussion relating to the experimental phase of the study focuses on the comparison of the reported percentage and incidence of physical and psychological symptoms in the experimental and control groups. A comparison of the severity and distress of symptoms between the groups is then considered. This is followed by a discussion of the impact of time on symptom severity and distress in both groups. The duration of physical and psychological symptoms in the study groups is then considered. The association between age, social class and previous number of children with physical and psychological symptom severity and distress in the experimental group is also discussed. Symptom predictors of the Couvade syndrome are also examined.

The discussion then considers the reported percentage and incidence of perceived stress coping in the study groups. A comparison of perceived stress coping median scores for both groups follows. The impact of time on perceived stress coping scores in the study groups is then considered. The relationship between total perceived stress coping and physical and psychological symptom severity scores is also discussed. Perceived stress

coping indicators predictors of the Couvade syndrome are examined. Finally, the study limitations and clinical implications for healthcare practice are then considered.

6.1 The diversity of men's emotional responses to pregnancy

Phase I was the only qualitative study of its kind exploring the characteristics of the Couvade syndrome within the UK. It went beyond mere identification of the syndrome's symptoms and men's experiences and extended its scope to include their context and most importantly their meanings. The study also addressed previously neglected areas of research such as how the syndrome is perceived, managed and explained by those afflicted and health professionals and others consulted.

Pregnancy triggered a mixed range of emotions for the men in the study, especially at the news of their partners' conceptions. Men expecting their first child unsurprisingly exhibited initial feelings of excitement but others displayed ambivalence, feelings of shock and reluctance precipitated by an unexpected or unplanned pregnancy. Lewis, (1982) acknowledges this diverse display by proposing that news of the partner's pregnancy often evokes a broad range of emotions in men. The ambivalence displayed by some men in the first trimester accords with the findings of Bartlett (2004). As the pregnancy progressed so too did its reality, significance and impact on the conjugal relationship, its physical and emotional demands, and the realisation of prospective parenthood triggered by different aspects of its care and related health concerns. These, unsurprisingly, led to a myriad of different feelings and opposing emotional responses some of which men kept covert from their partners. Men may have felt that expressing these openly with their partners would have caused them further distress at a time when they were emotionally labile. Nevertheless, evidence from the field notes analysis for a

number of participants, most particularly those from Asian and Afro-Caribbean backgrounds, indicated a propensity to be reluctant to discuss their positive feelings about their partners' pregnancy with the interviewer. They also expressed their feelings in abstract terms or were elusive about them. This might reflect a cultural reticence about emotional expression or constitutional reservedness, which the interviewing researcher recorded in the field notes. In other cases, men displayed anger when questioned about their feelings. However, a record in the interview reflective summary that was surprising was a Chinese participant's openness in relation to his partner's pregnancy. According to those of Chinese background, from whom the researcher sought advice about the level of disclosure concerning personal affairs such as, marriage, pregnancy and birth, these are considered very private and not often revealed openly. Elsewhere, men's emotional response to pregnancy-related financial demands generated worries for those men who were unemployed or on low-income salaries.

Men's varied feelings about prospective parenthood, its roles, responsibilities and demands, were most likely influenced by first-time parenthood or previous parenting experience. Certainly those who were first-time parents were more apprehensive and uncertain but whether this made them more susceptible to a transitional crisis and thereafter the syndrome, as psychosocial theories suggest (Jordan 1990 and Klein 1991), is unclear. Nevertheless, it was curious that all men displayed known features of the syndrome whatever their parenthood status.

Men did not always feel that antenatal preparation was inclusive for them but one needs to consider the evidence carefully to determine whether this arose out of choice or fact. During antenatal classes, some felt marginalised because of the attention their partners

received, or felt on the periphery because of what they perceived as a specific gender focus on women, while others showed a reluctance to participate in them. Exclusion out of choice probably reflected cultural or traditional expectancies of gender roles and caused some men to question and curtail the level of their participation accordingly. These feelings of exclusion, for whatever reasons, may have contributed to men's susceptibility to the syndrome as suggested by some psychoanalytical theories (Mayer and Kapfhammer 1993 and Masoni *et al* 1994).

Men's feelings about ultrasound scans were mixed for a variety of reasons but those in relation to the gender confirmation of the unborn appeared to be the result of cultural pressures or expectancies. For a number of men ultrasound confirmed the reality of their babies where previously this was vicarious. The ultrasound scans also unveiled men's innermost concerns about the health of the unborn children. Indeed, their degree of attachment to the unborn may have rested conditionally on this confirmation through ultrasound, although there was no direct evidence for this in the study. Weaver and Cranley, (1983) have acknowledged this as part of the process where men, through technological visualisation, attempt to make contact with their unborn child, which in itself constitutes a significant indicator of paternal attachment and involvement. Men's involvement, as well as the reality of imminent fatherhood, was also demonstrated when prospective fathers attempted to listen for signs of the unborn baby's kicking during the period of the woman's "*quickening*". Since the majority of men did demonstrate involvement and varying degrees of attachment to their unborn children, this may have been related to the onset of the Couvade syndrome as Weaver and Cranley, (1983) have shown.

6.1.1 The nature, duration and management of men's physical and psychological symptoms

Many of the physical symptoms which men experienced were identical to those of the Couvade syndrome confirmed in a number of investigations (Chalmers and Meyer 1996, Tsai and Chen 1997 and Thomas and Upton 2000). Men's stomach pains and vomiting, in particular, compare with those most commonly displayed by pregnant women. Evidence for their concurrence between both partners seems suggestive of men's attunement to, or identification with, each other's display of them (Fawcett and York 1987, Mayer and Kapfhammer 1993 and Magalini and Magalini 1997). Alternatively, men's vomiting might simply have occurred because of smelling or hearing the sound of their partners vomiting which caused them to do likewise. This may have been feasible in the first trimester but it would not explain its persistence in the third when the pregnant woman's morning sickness ceases. The finding of an alternative occurrence of increased and decreased appetite for some men replicates a similar trend reported by Conner and Denson (1990) and Khanobdee *et al* (1993).

Some men indicated that their increased appetite was linked to food cravings while decreased appetite might have arisen because of vomiting and anxiety. The less commonly reported symptom of abdominal distension, especially in the third trimester, coincided with a time when women are most heavily pregnant but weight gain was the most probable cause. Alternatively, it might have indicated pseudocyesis or "*phantom pregnancy*" which includes a progressive swelling of the abdomen and whose presence has been linked to the Couvade syndrome (Mayer and Kapfhammer 1993 and Koić *et al* 2004).

The most commonly reported psychological symptom was insomnia, which men explained resulted from worries and anxieties concerning their physical symptoms and the pregnancy itself. Its reoccurrence in the third trimester may have been additionally affected by their partner's nocturnal restlessness due to being heavily pregnant at that time. Feelings of depression are difficult to compare or contrast with other work given the dearth of literature on antenatal paternal depression. However, there was some evidence to suggest that the number and distress of men's physical symptoms led to feelings of depression. Few men reported anxiety, which was surprising as this finding contrasted with other studies confirming its prominence and relationship with the syndrome (Strickland 1987 and Brown 1988). However, this finding concurs with Thomas and Upton (2000), whose results showed that only 25 men reported anxiety out of a sample of 141. Overall, the physical and psychological symptoms, which men experienced compared closely with those of the Couvade syndrome reported in the literature. In addition, their presence across a heterogeneous and culturally diverse small sample was confirmed which might support the universality of the syndrome (Klein 1990).

Consultation and accounts of symptom management were partially influenced by socio-cultural and religious beliefs. The fact that many men consulted their GPs suggests that they perceived their physical symptoms as serious and/or distressing. However, none consulted for psychological symptoms. This does not mean that they were perceived as less serious but most likely reflected reticence to admit them because of social or cultural taboos. The timing of consultations mainly in the first and third trimesters confirmed similar trends for those of the Couvade syndrome in the studies by Lipkin and Lamb (1982) and Quill *et al* (1984). However, the sizable number of participants who

did consult has not been corroborated by Verbrugge (1980) who found that men often delay seeking diagnosis and care for symptoms, even when they are serious. The failure to diagnose specifically or show a physiological basis for physical symptoms is consistent with the defining criteria of the syndrome identified in other studies (Klein 1991 and Mason and Elwood 1995). Its failure to be diagnosed as a psychiatric or psychological disorder, except in one case, might lend support for Enoch *et al's* (1967) view of it as an “*uncommon psychiatric syndrome*” and also for its absence in the DSM-Version 1V, (American Psychiatric Association 2000). The onset and cessation periods for symptoms within the study also demonstrate consistency with the syndrome’s defining criteria (Trethowan and Conlon 1965 and Clinton 1987). Certainly the time course of symptoms replicated the pattern described by Schodt (1989). One obvious reason for men’s cessation of symptoms at birth, or shortly afterwards, is that women’s also cease here. However, the persistence of sleeping problems and tiredness for some men into the postpartum period was unsurprising given the likelihood of the newborn baby’s nocturnal crying.

6.1.2 Explanatory attempts for symptoms

Analysis of the explanation for symptoms and their meaning attempted to aspire to the hermeneutical tradition by examining participants’ narratives and the meanings gleaned from them. The findings show that male partner’s attempts to explain and provide meanings for their Couvade symptoms were influenced by lay, cultural and religious beliefs, which have not been considered in other related studies. A number of men possessed contextual insights concerning the relationship of their symptoms to pregnancy or made attempts to understand them in this way. The inability of some men, and those whom they consulted, to explain their symptoms confirms the widely

acknowledged idiopathic nature of the Couvade syndrome (Klein 1991 and Brennan *et al* 2007a,b). The fact that many health professionals were unable to enlighten those who sought help diagnostically may have further impeded men's understanding of symptoms. This was evident for those who even in hindsight still found their symptoms both “*mysterious*” and “*baffling*” whilst continuing to search for reasons for them. Both reflective analytical field notes and interview reflective summaries recorded that some participants who could not explain their symptoms and continued to find them enigmatic actually questioned the interviewing researcher for his attributions in such cases. It was interesting to note that none of the GPs consulted offered a hormonal explanation to those affected or pursued this line of investigation. Similarly, scientific research into the biology of the Couvade syndrome as one of its potential causes also appears to be neglected.

When explanations were offered the most credible was that one symptom gave rise to another. The problem with this, however, is the likelihood of men and women confusing reproductive, digestive and urinary symptoms because the body systems overlap (Verbrugge 1980). In this case Thompson in Moody (1990), notes that disagreements between participant and researcher interpretations are inevitable and should not be avoided but should be reflected in the study findings. On occasions participant interpretations of the cause(s) for their symptoms were in agreement, or at odds with, those of the researcher's, which were acknowledged but were not overtly expressed within the interviews. This was especially the case for religious explanations, particularly those of an evangelical nature, which the researcher found credible because of his similar religious beliefs. The explanation offered by the gentleman in question reflected a widely held belief in evangelical circles that ill-health is not God's will but

rather can be a time of “*testing*” or the product of demonic attack. This is illustrated on countless occasions in the Bible. In another instance, the researcher given his medical background held reservations about the credibility of dietary explanations for symptoms articulated by a Chinese participant, but did not openly disagree with these during the interviews. However, despite this the researcher remained open to these and showed a willingness to include them in his interpretations. In doing so he again took account of Thompson’s (1990) view that disagreement is inevitable in researcher-participant discourse and that the researcher’s perceptions where challenged need to be revealed. Walsh, (1996) highlights the benefits of this by arguing that such revelations extend the range of vision sought in hermeneutical research. In resorting to a dietary explanation for gastrointestinal symptoms the Chinese gentleman concerned and his herbalist both made reference to the “*energetics of food*” and its classification of “*tonifying*” and “*regulating*” foods based on the age-old traditions of Chinese medicine. Even in contemporary medicine the link between dietary factors and health is increasingly being acknowledged.

6.2 Reported percentage and incidence of physical and psychological symptoms

In Phase II of the study physical and psychological symptoms were divided into three groups for the purpose of the results and discussion. Group I and II comprising 25 physical and 17 psychological symptoms were identified as having a higher reported percentage and statistically higher incidence in the experimental group. Many of these symptoms were prominently associated with the Couvade syndrome. Group III consisted of a mere 2 physical symptoms, which showed varied reported percentage and incidence between the study groups. The types of symptoms identified in the group I and II

included those of a gastrointestinal nature most particularly (“stomach pains”, “stomach distension”, “vomiting”, “appetite disturbances” and “weight problems”) widely reported in the literature. They also included genitourinary symptoms: (“painful micturition” and “polyurea”) also confirmed in previous studies by Fawcett and York (1987) and Conner and Denson (1990). There was also a higher incidence of dental symptoms (“toothache”, “sore gums” and “mouth ulcers”). While “toothache” has received wide acknowledgement as a symptom of the syndrome by Benvenuti *et al* (1989), Conner and Denson (1990) and Sizaret *et al* (1991), “sore gums” and “mouth ulcers” have not. Musculo-skeletal symptoms: (“back pain” and “leg cramps”) have also been confirmed in previous reports within the literature. Of notable interest was the similarity with the findings of the qualitative phase of the study where “stomach pains”, “vomiting”, “appetite disturbances” and “back pain” featured prominently among the more commonly reported symptoms. The literature also corroborates those symptoms of lower reported percentage difference between the study groups many of whom had little or no known association with the syndrome such as, “constipation”, “diarrhoea” “breathlessness”, “more colds than usual”, “cough”, “sore throat”, “nosebleeds”, “headache” and “fainting”.

A number of interpretations can be offered for the higher reported percentage and statistically significant differences in incidence of physical symptoms between the study groups. The first is “abdominal distension”, most probably suggestive of “pseudocyesis” or “*phantom pregnancy*” whose presence has been linked to the Couvade syndrome (Mayer and Kapfhammer 1993 and Koić *et al* 2004). Alternatively, this symptom could have been related either to “increased appetite” or “weight gain”, given their markedly higher reported percentage and incidence in the experimental group. The higher

incidence of “vomiting” in the experimental group confirms one of the most common symptoms of the syndrome reported in other studies by Trethowan and Conlon (1965), Benvenuti *et al* (1989), Conner and Denson (1990), Sizaret *et al* (1991), Khanobdee *et al* (1993), Tsai and Chen (1997) and Thomas and Upton (2000). The interpretation for “vomiting” could be similar to that provided in the qualitative study i.e. male partners hearing or smelling their female partners vomiting especially in the early stages of the pregnancy (Brennan *et al* 2007b).

Another interesting symptom of marked reported contrast and incidence between the study groups was “toothache”, euphemistically known as “*love pain*” in historical times (Shakespeare 1600). This could have occurred either coincidentally or as a consequence of the male partner’s “*symptom attunement*” to his pregnant partner’s display of the same symptom, as suggested by (Hugosson and Koch 1979, Fawcett and York 1986a and Holditch-Davis *et al* 1994). However, this explanation of symptom identification between partners during gestation has been refuted by Drake *et al* (1988). The higher reporting and incidence of “back pain” in the experimental group reflects its extensive reporting within the literature by Liebenberg (1967), Drake *et al* (1988), Schodt (1989), Conner and Denson (1990), Brady-Freitag (1994), Chalmers and Meyer (1996) and Tsai and Chen (1997). Its cause may be related to the physical demands upon male partners as the gestational period progressed such as lifting weighty items in support of a heavily pregnant partner.

Those symptoms of lower reported percentage difference between the study groups most particularly those of a respiratory nature such as, “more colds than usual”, “cough”, “sore throat” might be explained by seasonal variations. Similarly, “nosebleeds”,

“headache” may have been symptomatic of hypertension affecting a number of men in the experimental and control groups alike. The lower reported percentage difference of “fainting” between the study groups was unsurprising given its very low reporting in both. However, the fact that the incidence of three of these symptoms was statistically higher in the experimental group was surprising given their little known association with the Couvade syndrome. Alternatively, two of the symptoms “sore throat” and “headache” showed a higher statistical incidence in the control group.

There was a higher reported percentage and incidence of all psychological symptoms in the experimental compared to the control group. Those most commonly reported which were consistent with the literature included sleep disturbance: (“sleeping less than usual” and “early morning waking”) both of which have been reported extensively by Trethowan and Conlon (1965), Conner and Denson (1990), Masoni *et al* (1994), Chalmers and Meyer (1996), Tsai and Chen (1997) and Thomas and Upton (2000). An interesting similarity between the findings of this phase of the investigation and the qualitative study is that “insomnia” and “feeling depressed” were among the most commonly reported psychological symptoms associated with the syndrome. Others included mood disturbance: (“feeling low in mood”), emotional affect: (“feeling annoyed”, feeling frustrated and in particular, “feeling irritable”). “Anxiety” and “feeling stressed” showed a sizeable reported percentage difference in the experimental compared to the control group, which was also consistent with the findings of the qualitative phase as well as other reports in the literature (Trethowan and Conlon 1965, Lukesch 1977 and Bogren 1983). The cognitive symptoms of “loss of concentration”, “preoccupied” and “feeling distracted” showed a similar trend.

Interpretations of psychological symptoms being of the highest reported percentage difference and incidence between the study groups, such as “sleep disturbance” and “early morning waking” may have arisen due to the men’s pregnancy-related anxieties or nocturnal restlessness of their pregnant partners as gestation progressed. “Feeling low in mood” another prominent symptom of the syndrome in the study and also reported by Longobucco and Freston (1989), Conner and Denson (1990), Raskin *et al* (1990), Goodman (1992) and Tsai and Chen (1997). This symptom may have occurred because of unplanned pregnancy and/or feelings of hopelessness due to the man’s lack of control over this life event as suggested by Barclay *et al* 1996. Expectant men’s “anxiety” and “feeling stressed” may have centred on pregnancy-related health and financial worries and the impending responsibilities of future parenthood, especially in first-time fathers. Alternatively it might lend support to Cutrona’s (1996) theory of the interrelationship of anxiety between conjugal partners. However, caution with these interpretations is advised, given the fact that “anxiety” might also have been constitutional for some men. The most probable explanation for symptoms of emotional affect such as, “feeling annoyed” and “feeling irritable” and “feeling irritable” was as a response to the increased and multiple demands of the pregnancy. While “feeling frustrated” may have reflected men’s exacerbation at the failure of health professional to explain their symptoms as evidenced in the qualitative phase or their sense of being marginalized during the pregnancy.

Those symptoms of lower reported percentage difference between the study groups, such as, “mood swings” and “feeling frustrated” might be explained by their occurrence in general population. However, this would not explain their statistically higher incidence in the experimental group. The symptom of lowest reported percentage difference

between the study groups was “unable to cope with daily life” probably because of a reticence to report it lest it be seen as a personal failing. This symptom has rarely been reported within the literature, having no known association with the syndrome, but its higher incidence in the experimental group may have arisen due to some men’s difficulty in adapting to the increased socio-emotional and financial demands of pregnancy (Barclay *et al* 1996).

The measurement of severity and distress of symptoms in the experimental and control groups addresses a much neglected area of research. The few investigations, which have attempted to include similar measures, are Bogren’s (1983) Swedish study, which measured global ratings of discomfort, and Clinton’s (1987) study that explored the seriousness of symptoms. The absence of severity and distress measures of symptoms across the majority of studies may have had an impact on the level of reporting of these symptoms and patterns of consultation with health care professionals.

6.2.1 The severity and distress of physical and psychological symptoms

A sizeable number of physical (17) and psychological symptoms (14) showed statistically significant higher severity and distress in the experimental group compared to the control group. However, the relationship between symptom incidence, severity and distress showed some inconsistent findings. The majority of physical (23) and all of the psychological symptoms (17) showed a statistically significantly higher incidence in the experimental group but six of the physical symptoms (“constipation”, “more colds than usual”, “nose bleeds”, “sore gums”, “mouth ulcers” and “fainting”) showed non-significant median severity and distress scores between the groups. Moreover, there was a higher incidence of “sore throat” and “headache in the control group which showed no

statistically significant differences in median severity and distress scores between the study groups. Furthermore, the symptom of “diarrhoea” showed a higher incidence in the experimental group but its severity median scores were non-significant and its distress median scores were significant between the study groups. While the symptom of “cough” also showed a higher incidence but a reverse trend in the significance of its median severity and distress scores. These findings might cast doubt on the interrelationship between symptom incidence, severity and distress. For the most part the median severity scores for each symptom were similar to those of distress. However, this does not mean that one was related to the other since the physical symptom of “increased appetite” might be severe but not necessarily distressing. The findings do, however, suggest that the physical symptoms, particularly those of a gastro-intestinal, genitourinary, dental and musculo-skeletal nature were confirmed as significantly more severe and distressing for those in the experimental group who experienced them. Psychological symptoms, including those of sleep disturbance, mood disturbance, emotional affect, cognitive function and miscellaneous confirmed likewise with the exception of “sleeping more than usual”, “feeling restless” and “loss of memory whose severity and distress median scores were non-significant between the groups.

6.2.2 The impact of time on the severity and distress of physical and psychological symptoms

While past investigations have identified the types of symptom experienced over the trimesters of pregnancy and the postpartum period they have not researched variations in their severity and distress of these over the time periods. In doing so, this study addresses important research questions previously overlooked. Symptom severity and distress for the majority of physical symptoms for those in the experimental group revealed statistically significant differences between the 1st and 3rd trimesters of

pregnancy and the postpartum period except for distress of (“vomiting”, “constipation”, “poor appetite” “sore gums” and “mouth ulcers”). Conversely, the control group showed no statistically significant differences for physical symptoms between a 3 and 6-month comparative time period except for the severity (“sore gums”). The same trend was evident for psychological symptoms except for (“feeling low in mood”, “mood swings”, “feeling annoyed”, “feeling irritable”, “loss of memory” and “unable to cope with daily life”) which were non-significant in the experimental group. The results support the view that Couvade symptoms are time-specific over the 1st and 3rd trimesters of pregnancy, as the literature suggests (Trethown and Conlon 1965, Schodt 1989 and Magalini and Magalini 1997). The studies of Lipkin and Lamb (1982) and Quill *et al* (1984), lend further support to this since both confirmed that men with the syndrome consulted health professionals for symptoms during the 1st and 3rd trimesters of gestation. This finding might suggest that the presence of symptoms in men with the syndrome remain constant during these periods but that their severity and distress increase progressively. Interestingly, evidence from the qualitative phase of the study partially supports this. In the postpartum period all symptoms decreased in severity and distress for those in the experimental group except for three psychological ones, “sleeping less than usual”, “early morning waking” and “feeling stressed”. This was not a surprising finding given the demands of the newborn baby, including nocturnal crying and men’s transition and adaptation to parenthood, especially those who were first-time parents. However, the persistence of these three symptoms into the postpartum period did not concur with previous definitions of the syndrome offered by Benevenuti *et al* (1989) and Magalini and Magalini (1997).

6.2.3 The duration of physical and psychological symptoms

Few studies have investigated the duration in days of specific physical and psychological symptoms of the syndrome across the trimesters of pregnancy and the postpartum period. In the first trimester the physical symptoms of the longest duration up to 28 days and reported by the largest number of participants were “stomach pains/cramps” and “back pain. Interestingly, Chalmers and Meyer (1996) identified “back pain” as one of the most prominent physical symptoms in their study. This was followed by “toothache” experienced $2 \leq 7$ days and reported by 48 (26%) respondents which Sizaret *et al* (1991) corroborates in their study. These three symptoms collectively are renowned for their occurrence in the Couvade syndrome. During the third trimester two symptoms of the longest duration (> 28 days) and reported by the largest number of men were “weight gain” and stomach distension”. These may well be related and due to “food cravings” or “increased appetite”. Alternatively, they may constitute evidence of pseudocyesis proposed by (Mayer and Kapfhammer 1993 and Koić *et al* 2004). In the postpartum period the symptom of “tiredness” whose duration spanned $7 \geq 28$ days and reported by 64 (35%) men was unsurprising given the increased demands of the recovering partner and newborn baby.

In the first trimester the psychological symptoms of emotional affect were of a short duration $2 \leq 7$ days but were reported by the largest number of men including, “feeling stressed”, “feeling annoyed”, “feeling anxious and irritable”. These may have reflected men’s mixed feelings to the pregnancy. On one hand, “feeling stressed and anxious” about fulfilling the demands of future parenthood especially in cases where it was the first child. On the other hand, “annoyance” and “irritability” at the efforts that such demands might entail. There was certainly some evidence for this in the qualitative

phase of the study in Chapter 5: Section 5.1. During the third trimester “sleeping less than usual” was of the longest duration spanning $7 \geq 28$ days and reported by 77 (42%) participants. This finding accords with Tsai and Chen’s (1997) study where sleeplessness was one of the most prominent psychological symptoms in the third trimester. The most probable explanation for this is similar to that offered in the qualitative phase of the discussion where pregnant partners’ nocturnal restlessness and developing size causing discomfort kept some male partners awake. It was interesting to observe that the duration of symptoms of emotional affect increased from $2 \leq 7$ days in the first trimester to $7 \geq 28$ days in the third trimester. This was particularly evident in the case of “feeling stressed” reported by 69 (37%) participants as the time drew closer to parturition. Odent, (1999) suggests that parturition is a time of great stress for the man. In the postpartum period the symptoms of the longest duration reported by the largest number of men in the pregnancy were “early morning waking”, “sleeping less than usual” and “feeling stressed”. Again it is likely that the first two symptoms here arose due to the newborn baby’s nocturnal and early morning waking for feeding while “feeling stressed” may have signalled financial and parental concerns.

6.2.4 Association between socio-demographic factors and the severity and distress of physical and psychological symptoms

While many studies have investigated the broad relationship between socio-demographic factors and the Couvade syndrome, few have examined associations between these factors and the severity and distress of the syndrome’s specific symptoms. No statistically significant associations between age and the severity and distress scores of physical and psychological symptoms were found. However, using the arbitrary levels of association defined by SPSS and outlined in Chapter 3: Section 3.7.2 there was one good

association between age and severity of “stomach pain/cramps” while the severity and distress of many of the remaining symptoms and age showed either weak or no associations at all. A similar trend was found with the association between age and the severity and distress of all psychological symptoms. The non-significant associations between age and the severity and distress of physical and psychological symptoms could reflect methodological inconsistencies in previous studies outlined in Chapter 2: Section 2.4.6 and verified by (Brown 1983, Clinton 1986, Strickland 1987 and Bogren 1989). Moreover, comparisons with previous findings are difficult given the notable absence of severity and distress measures of symptom quantification mentioned previously.

There was a statistically significant association between social class and the severity of only one physical symptom namely, “poor appetite” while none were evident for the severity and distress of all remaining physical symptoms. There were significant associations between social class and the severity scores of a number of psychological symptoms including, “early morning waking”, “feeling frustrated” and “feeling stressed”. Significant associations were also evident with the distress scores of “sleeping less than usual” and “feeling frustrated”. The association between the severity scores of “early morning waking” and those in the lower social classes may be accounted for by occupational demands or worries arising due to financial pressures which possibly interrupted sleeping pattern. The association between social class and severity scores of “feeling frustrated” and “feeling stressed” whose scores incidentally were high in social classes I and V may be partially explained if the individuals in these classes were first-time parents and found the prospect of future parenthood daunting or if it conflicted with their career/occupational goals. Alternatively, it may have been the case that a number of men in these classes did not want to have children and thus, had higher scores in the

severity of these symptoms as a consequence. There were also significant associations between social class and the distress scores of “sleeping less than usual” and “feeling frustrated” for the same, reasons perhaps. Looking at these results collectively it is interesting to note that Strickland (1987) reported that working class men and those in the higher social classes experienced a significantly higher number of somatic and psychological symptoms compared to those who were middle class.

There were significant associations between the previous number of children and the severity scores of physical symptoms including “unable to keep food down”, “cough”, “sore throat”, “pain while urinating”, “toothache”, “sore gums” and “mouth ulcers”. The respiratory symptoms here might be explained by fathers contracting them from other children in their families who were immunologically susceptible. However, the association between previous number of children and the severity and distress of genito-urinary are much more difficult to interpret and remain somewhat of an enigma in this context. The association with oral/dental symptoms (sore gums and moth ulcers) could be physical manifestations of stress related to the prospect of having an additional child. There were two significant associations between previous number of children and the severity scores of psychological symptoms including “sleeping less than usual” and “unable to cope with daily life”. There were also significant associations with the distress scores of “early morning waking” and “unable to cope with daily life”. It may been the case that sleeping and coping difficulties were more commonly associated with those who had a lesser number of previous children and therefore less parental experience compared to those who had a greater number of children. Collectively considered, the fact that there were some significant associations between some of these demographic variables and the severity and distress of Couvade symptoms contradict the

findings of Khanobdee *et al* (1993) and Thomas and Upton (2000) who found no relationships between social class, previous number of children and Couvade symptoms.

6.2.5 Physical and psychological symptom predictors of the Couvade syndrome

No previous study has assessed physical and psychological symptoms as predictors of the Couvade syndrome using binary logistic regression model analysis. The current investigation using this statistic for all physical symptoms revealed five of these, which strongly predicted its presence. These were: “cough”, “leg cramps”, “headache”, “diarrhoea” and “pain while urinating”. The analysis also indicated another four symptoms that were weaker predictors, which included, “breathlessness”, “poor appetite”, “stomach distension” and “indigestion”. Some of these symptoms have been reported to figure prominently in the syndrome such as, leg cramps, diarrhoea and poor appetite (Tsai and Chan 1997). However, other symptoms have also been reported in previous studies, e.g. stomach distension (Mayer and Kapfhammer 1993 and Koić *et al* 2004) and indigestion (Benvenuti *et al* 1989), which surprisingly were only weak predictors in the model. It was unexpected to see the symptoms of “headache” and “breathlessness” contributing significantly to the equation as these are not commonly reported in the Couvade syndrome. Three psychological symptoms significantly contributed to the model and predicted the syndrome. These were, “loss of concentration”, “sleeping less than usual” and “lack of motivation”. The symptoms of “feeling frustrated”, “unable to cope with daily life”, “feeling stressed” and “feeling irritable” constituted additional but relatively weak predictors. Loss of concentration, sleep disturbance and emotional symptoms as an integral part of the syndrome receive corroboration by Khanobdee *et al* (1993), Chalmers and Meyer (1996) and Tsai and Chen (1997). However, the inclusion of “unable to cope with daily life” in the equation

while having relevance in the study did not concur with its infrequent reporting in past investigations. This might suggest that this symptom was previously included under the broad heading of stress.

6.3 Reported percentage and incidence of perceived stress

This part of the discussion addresses an area where there is a gap in knowledge and confusion within the literature. Few studies have measured stress and the Couvade syndrome together. Some studies have, however, measured anxiety but use this term interchangeably with stress. There is also the conundrum of the “*chicken and egg*” argument in the relationship with anxiety and the syndrome indicated in Chapter 2: Section 2.4.4. Ten perceived stress coping indicators were identified as having a higher reported percentage and statistically higher incidence in the experimental compared to the control group. However, one must be cautious about these findings, as it is important to remember that the Perceived Stress Coping Scale was not originally designed for pregnancy. The expectant men completing the scale may still have viewed its questions in the context of this life event nevertheless. The findings do indicate that pregnancy is perceived as stressful by male partners and supports Terry et al’s (1991) and Odent’s (1999) opinion of the same.

6.3.1 Perceived stress coping scores between the study groups

There were statistically higher median scores of all perceived stress coping indicators in the experimental compared to the control group except for, “felt confident about your ability to handle personal problems” (a coping indicator), which was non-significant. Those perceived stress coping indicators which were more strongly significant ($P=0.01$) included, “unable to control the important things in your life”, “felt nervous and

stressed”, “found you could not cope with all the things you had to do”, “angered because of things that were outside of your control” and “unable to cope with all the things you had to do” are all in keeping with Cowan and Cowan’s (1992) view that prospective fatherhood is potentially pathological, disruptive and involves many interpersonal struggles. The findings might also suggest that the demands of the pregnancy outweighed the material and emotional resources for a substantial proportion of men in the experimental group. Alternatively, they might indicate that the stressors associated with pregnancy may be experienced more frequently compared to those encountered in daily life for men without pregnant partners.

6.3.2 The impact of time on perceived stress coping

There was a significant increase in the median scores of all indicators of perceived stress coping for those in the experimental group between the 1st and 3rd trimesters of pregnancy and the postpartum period except for, “upset because of something that happened unexpectedly” which was non-significant. This contrasted with the control group where the median scores for all perceived stress items were non-significant between comparative 3 and 6-month time periods. Interestingly these results largely correspond with those of the severity and distress median scores of physical and psychological symptoms over the same time periods presented in Chapter 5: Section 5.2.4. This might indicate a relationship between Couvade symptom severity and distress and a corresponding increase in perceived stress for men in the experimental group. In the postpartum period the median scores for eight items of perceived stress showed a progressive increase, thus supporting transitional crisis theory which suggests that this is a stressful time for men adapting to parenthood because of changing roles, responsibilities and demands (Klein 1991, Cowan and Cowan 1992, Terry *et al* 1991,

Clarke and Popay in Popay *et al* 1998 and Polomeno 1998). These findings which reveal a statistical increase in the median scores of perceived stress between the 1st and 3rd trimesters of pregnancy and for some, extending into the postpartum period, demonstrate equivalence with many studies which show an increase in mean anxiety scores with the onset of, and across, pregnancy (Libenberg 1967, Gerzi and Berman 1981, Quill *et al* 1984, Strickland (1987), Masoni *et al* 1994 and Barclay *et al* 1996).

6.3.3 Association between total perceived stress coping and severity scores of physical and psychological symptoms of the Couvade syndrome

There were no statistically significant associations between total perceived stress and the severity scores of physical and psychological symptoms and so these findings do not warrant commentary here. It was of interest to note nevertheless, in contrast to the two ‘weak associations’ with the severity of physical symptoms using the arbitrary levels of association as defined by SPSS, there were ‘good associations’ between perceived stress coping and the severity of 9 psychological symptoms.

6.3.4 Perceived stress coping indicators as predictors of the Couvade syndrome

Like physical and psychological symptom predictors no past investigation has ever attempted to predict the Couvade syndrome on the basis of perceived stress coping indicators. Binary Logistic Regression analysis for all perceived stress coping indicators only revealed five of these, which were unreliable predictors of the Couvade syndrome. These included, “felt difficulties piling up so high that you could not overcome them”, “upset because of something that happened unexpectedly”, “able to control irritations in your life”, “felt confident about your ability to handle personal problems” and “angered

because of things that were outside of your control”. The first perceived stress coping indicator in the equation was similar to “unable to cope with daily life” which was also a weak psychological symptom predictor of the syndrome. The perceived stress coping indicator “angered because of things that were outside of your control” may indicate men’s emotional reaction to the overwhelming demands of the pregnancy and compares with the psychological symptoms of the syndrome such as, “feeling irritable” and “feeling annoyed” but which were statistically significant. The inclusion of the perceived stress coping indicator, “felt confident about your ability to handle personal problems” in the equation as a weak predictor was unsurprising given that its median scores were not statistically significant between the experimental and control groups as indicated in Table 57 in Chapter 5: Section 5.3. Overall these findings suggest that perceived stress coping indicators *per se* are unreliable as predictors of the Couvade syndrome.

6.4 Clinical implications for healthcare practice

Following Lopez and Willis’s (2004) suggestion and in keeping with the principles of the hermeneutical approach the first phase of the study generated interpretations of the meanings of the findings to enrich the clinical practice implications. In doing so every attempt was made to create culturally informed health care knowledge. Studies appraised in the literature review showed that, while the majority focused on identification of symptoms associated with the Couvade syndrome, few considered its clinical ramifications or how it should be assessed and dealt with. From a theoretical standpoint the feelings that men experienced in response to, and during, pregnancy highlight their emotional vulnerability during this period. The event of pregnancy signals many changes in men’s lives, some of which are perceived apprehensively. Health professionals need to be mindful of the socio-cultural and emotional contexts of antenatal care for male

partners who are confronted with the reality of prospective fatherhood, including concerns about its roles and responsibilities and attitudes to the gender confirmation of the unborn child. If men's emotions are overlooked in antenatal care this might contribute to, or exacerbate, somatic symptoms, a view suggested by the psychoanalytic and psychosocial theories discussed in Chapter 2: Sections: 2.4.1 and 2.4.2. Men's active involvement in the pregnancy does not necessarily serve as a protective factor but may make them as susceptible to those less involved. Expectant men's physical and psychological health needs need to be addressed in current antenatal care provision. A greater awareness of the syndrome is warranted given its consequences not only for the man but also his pregnant partner who requires support to ensure a good pregnancy outcome.

Future attempts to understand, explain and manage the syndrome may be best served if socio-cultural and psychological contexts are considered as they have been in this study. This entails health professionals' taking account of those of a dietary and religious nature when male partners are assessed and incorporated into treatment accordingly. One way in which this might be accomplished is through the integration of complementary therapies into conventional health treatments. Future clinical interventions from complementary and medical traditions should nevertheless aim at increasing men's understanding of the transitory nature of symptoms and their spontaneous disappearance despite their severity and distress. The first phase of the study also revealed a predominant biomedical focus in the way the syndrome was assessed and managed by physicians and dentists. If the syndrome is somatic as the literature suggests, then it might be best if health or reproductive psychologists dealt with it in the future.

The clinical practice implications arising from the experimental phase of the study are similar to those of the qualitative phase but with some additions. The Couvade syndrome presents diagnostic challenges to those whom men are referred as its symptoms can be indicative of more serious mental disorder and differential diagnosis may be important in this context. Clinical depression is a prime example where symptoms similar to those of the syndrome may manifest such as, insomnia, early morning waking, anxiety, poor concentration, lethargy and feelings of being unable to cope (DSM: Version IV: American Psychiatric Association 2000). Those in the dental profession may be faced with similar challenges when dealing with toothache, a widely reported symptom of the syndrome, which may be discounted when having no pathological basis. However, one of the most important findings in this study was the 5 physical and 3 psychological symptoms, which regression analysis identified as reliable predictors of the Couvade syndrome. This should be incorporated into diagnostic criteria for the syndrome in the future.

The experimental phase of the study also showed that the male partners of pregnant women do experience greater severity and distress of physical and psychological symptoms compared to men whose partners are not pregnant. This research finding needs to be addressed at a clinical level where all too often men with the syndrome and its symptoms are dismissed and ridiculed, both publicly and privately. One way of redressing this is the use of a rationale-empirical approach to effect change in traditional hegemonic expectancies of masculine and feminine roles and behaviours during pregnancy and reproduction outlined in Chapter 2: Section 2.4.3, which could influence these attitudes during professional consultations. Men's health in this context must be treated sensitively and empathetically. A greater awareness of the syndrome is needed,

along with appreciation of the severity and distress of its symptoms without being alarmist for those who experience it. Obstetricians, GPs, psychiatrists and psychologists should challenge whether the syndrome is an “*illness*” or “*disease*” as the medical label suggests but rather see it as an uncommon and perhaps, normal response to a major life event. While the onset of the syndrome may arise as a consequence of men’s failings in coping with, or adapting to, pregnancy and future parenthood, as some theories and studies suggest, it may also signify their deeper level of realisation and involvement in this reproductive process and its aftermath. Finally, there is no doubt that the clinical insights acquired in the overall study yield many potential benefits to the healthcare system outlined in Table 62 overleaf.

Table 62. Potential benefits of the study findings to the UK healthcare system

Identified Areas	Study Findings	Anticipated Benefits
Assessment	<p>Empirical confirmation of the existence of the Couvade Syndrome.</p> <p>Symptoms of the syndrome may give rise to similar symptoms indicative of more serious physical and mental disorders.</p> <p>The syndrome is idiopathic with biomedical assessment revealing no pathological basis</p>	<p>Identification of the syndrome and its symptoms which if included in clinical nosologies will enable accurate assessment. May also reduce professional scepticism and affect current attitudinal change.</p> <p>May enable more accurate differential diagnosis in assessment by the identification of more serious illnesses if present.</p> <p>Conservation of NHS resources in assessment.</p>
Nature of Syndrome	<p>Current definitions of the syndrome are questionable.</p> <p>The syndrome is involuntary.</p>	<p>May not be a syndrome or illness in the strict sense of the term but rather a normal but uncommon response of men to their partner's pregnancy. This may allay the pregnant woman's anxiety about her partner's symptoms as gestational anxiety can affect her relationship with the unborn child and foetal health.</p> <p>May cause health professionals in antenatal and postnatal care and the public to re-examine their opinions that this condition is attention seeking.</p>
Time Pattern of the Syndrome	<p>Commencement and cessation of Couvade symptoms have a very defined time pattern in relation to the stages of pregnancy.</p>	<p>Dissemination of this knowledge to those afflicted may enhance their understanding of, and coping with, the symptoms of the syndrome thus creating less dependence on the NHS.</p>
Context	<p>The syndrome affects men and is chronologically connected to gestation.</p> <p>The syndrome occurs in a genderised context in mainly affecting men but also crosses gender boundaries in its relationship with pregnancy, the domain of women.</p> <p>It may also occur within a cultural context.</p>	<p>Greater inclusion of male partners in antenatal care may contribute to a successful pregnancy outcome.</p> <p>Education of midwives and health visitors that pregnancy not only affects the health of women but also men.</p>
Consultation	<p>Symptoms of the syndrome are severe and distressing and men frequently seek consultation especially for physical symptoms.</p>	<p>Will alert health professionals to the likelihood of men with the syndrome seeking professional advice and help from NHS Direct and Accident and Emergency triage services.</p>
Explanations and Treatment	<p>Physicians and those afflicted experience difficulties in explaining and treating the syndrome.</p> <p>Regression analysis has identified definitive physical and psychological symptoms that predict the syndrome.</p>	<p>Identifies need for greater knowledge of the syndrome among health professionals who in turn can educate those afflicted to understand and manage their symptoms.</p> <p>Reproductive or health psychologists may now be better equipped to diagnose and treat syndrome.</p>

6.5 Limitations of the study

The study had a number of potential and actual limitations associated with each of its respective phases. These related to sampling, data collection and the interpretations of some of the findings. Firstly, there was an under-representation of Chinese men in the samples. This may have arisen because of a low distribution of this ethnic group within the geographical area where the study was carried out. Secondly, the genuineness of the respondents may have been questioned with use of Internet sampling but was circumvented by the use of a diagnostic questionnaire as part of the selection process. Another limitation of the sampling concerned the timing of recruitment of the twenty-three men (100%) who participated in the pilot study. Fourteen (61%) of these had also participated in the qualitative phase of the investigation which meant that they completed the pilot questionnaires after their the birth of their infant compared to the remaining nine gentleman (39%) who completed it during the pregnancy which could have led to some problems of recall. The use of non-probability convenience samples for the experimental phase of the investigation is renowned for being the weakest form of sampling and least likely to be representative thus, affecting the generalisability of the results. However, this potential limitation was addressed by the fact that the samples were of sufficiently large size and heterogeneous which enhanced external validity. Another sampling problem was that those in the control group were recruited from the staff and student members of two higher educational institutions who were likely to be more educated compared to some men in the experimental group. This may have been one of the reasons for the higher comparative response rates in the former group.

In relation to data collection it was highly fortunate that the preliminary exploratory work for the first phase of the study revealed a number of biases in the pilot interviews all of which were taken into account for the main interviews. These have been described in Chapter 3: Section 3.4.3. In the main interviews “*dross*” or unusable data was a problem for two participants who provided irrelevant information related to some of the issues being explored despite repeated attempts to get them to focus on what was being asked. Consequently their responses in such circumstances were expunged from the data. Demographic influences such as culture, social class and parental history on symptom perception and reporting were likely to be influential and, in some cases, may have led to the underreporting of psychological symptoms because of social taboos particularly in the qualitative phase of the study. Selective recall of distressing symptoms is also likely to have affected reporting, a common methodological problem in symptom reporting research, acknowledged by Pennebaker (1982). Indeed, the researcher’s analytical field notes did confirm two participants who expressed concerns about their level of recall concerning aspects of their partner’s pregnancy.

The questionnaire method of data collection in the second phase of the study is often associated with the potential problem of reliability of responses. However, strategies to offset this were implemented. For example, test, re-test of the questionnaire in the piloting process revealed high reliability and consistency of responses and numerous wording amendments were made to the items in the study instrument in the light of participants’ commentary. Another strategy to reduce the likelihood of “*desirable responses*” was to indicate to those completing the questionnaires that there were no right or wrong answers. Furthermore, those factors which influence or inhibit the way people respond were accounted for including, age, literacy and sight. Another issue was

the absence of symptom measurement in the second trimester of pregnancy, which might be questioned. However, this was justified given that it had already been explored in the qualitative phase and that the temporary disappearance of symptoms during this period has been consistently shown, and widely confirmed, in the literature. Furthermore, administering a further two questionnaires covering the second trimester would have increased the level of commitment to the study among those in the experimental group who would then have to complete a total of 8 questionnaires as opposed to 6 thus, culminating in high attrition. The perceived stress coping scale was originally designed for the demands of daily life and not those of pregnancy. Consequently, it may have failed to distinguish between the different kinds of stressors associated with both in its measures.

The interpretations of the findings for the two phases of the investigation were not without their shortcomings. In terms of the amount of symptoms reported, men may have indicated more of these because they volunteered for the study while those less commonly reported may have arisen within sample sub-groups. Moreover, men might have experienced and reported the more common symptoms such as stomach pains, vomiting and appetite disturbances simply because their pregnant partners did. Indeed, Greenberg (1985) argues that men undergo significant physical and psychological changes which in part echo those of their pregnant female partner. Alternatively, as Benvenuti *et al* (1989) point out, the display of some of these may just have reflected the high prevalence of these symptoms in the general population anyway. If the experimental phase had correlated the types of symptoms male and female partners experienced this might have revealed the involuntary nature of men's symptoms and the

fact that they do not consciously mimic those of their pregnant partners as a number of other authors have suggested.

The overall results were compared with literature on the Couvade syndrome some of which was dated for legitimate reasons mentioned earlier in Chapter 2: Section 2.1. The interpretations of the findings, which at times may have been speculative, were also grounded in evidence lending support to the presence of the syndrome in the male partners of pregnant women. The nature, time course, consultation outcomes and explanations for symptoms compare favourably with those documented for the Couvade syndrome and its criteria, but others might cast doubt on this, interpreting these instead as men's normal responses to pregnancy. This takes account of Thompson's (1990) argument in Moody (1990) that disagreement in interpretation is inevitable and should not be avoided, but should be reflected in the discussion of study findings as they have been here. The symptom of vomiting and its relationship to the Couvade syndrome provides a prime example of divergence in interpretation. This symptom might be alternatively interpreted as the male partner smelling or hearing the sound of their pregnant partner vomiting which caused him to do likewise. Interpretation of the symptom of anxiety might also have been problematical especially since there was no distinction made between "*State*" and "*Trait*" anxiety thus, some men may just have been constitutionally anxious as opposed to it being a feature of the syndrome.

CHAPTER 7

CONCLUSION

Chapter 7

Conclusion

7. Introduction

This chapter concludes by highlighting the links between the two phases of the study and the ways in which both were integrated. The ways in which the study objectives were achieved in relation to the design and methods sections of the two phases of the investigation are then outlined. The contributions of the study to the universal body of knowledge in the area are then considered in the light of new findings and insights. Finally, a conclusion is offered which synthesises the findings of the overall study and makes suggested directions for future research in the area.

7.1 Integration between the study phases

One of the principal links that were evident between the phases of the study was the development of the pilot questionnaire derived from the interview data. Men in the qualitative study identified a range of physical and psychological symptoms where the most commonly reported were incorporated and measured in the questionnaire used for the pilot and experimental studies. The accounts of many male partners in the interviews confirmed the perception of their physical and psychological symptoms as severe and distressing thus, endorsing the inclusion of both these measures in the study instrument. Men also identified the frequency of the symptoms they experienced in relation to the stages of their partner's pregnancy, which subsequently influenced the time periods to be measured in the second phase of the investigation. The fact that few symptoms were reported during the second trimester in the qualitative study was also important in negating the need to measure this time period in the experimental phase of the

investigation. If they had been reported, then men in the experimental group would be required to complete a total of eight questionnaires thus, increasing the likelihood of attrition further. This therefore, influenced the study design in the experimental phase. The research paradigms, theoretical perspectives, designs and methods while different between the phases of the investigation were nevertheless complimentary in that the methodological limitations of one phase were offset by the methodological strengths of the other.

The integration of the two study phases provided an ideal basis for the comparison of their findings. Similarities in these were evident in the more commonly reported physical symptoms across both phases most particularly, for gastrointestinal and musculo-skeletal symptoms. The same was true for some psychological symptoms including those of sleep disturbance and emotional affect. The U-shaped time pattern of symptoms including their severity and distress median scores over the trimesters of pregnancy also showed similarities in both study phases, as did their patterns of temporary and permanent cessation.

7.2 Achievement of the overall study objectives

The first overall study objective was to identify the nature of men's involvement in their partners' pregnancy, their experience of related symptoms and how these were managed. The objective also sought to determine the time course for symptoms including, their onset and cessation and explanations for them and their meaning. This objective was achieved by using a phenomenological approach to explore men's feelings and perceptions of their partners' pregnancy as well as their lived experiences of physical and psychological symptoms and the ways in which these were managed. Focusing on

men's lived experience gave meaning to their perceptions which the objective sought elicit. The sampling method and the use of a diagnostic entry criteria ensured that those men who were selected were genuine having prominent symptoms of the Couvade syndrome, which were identified from the literature. The use of purposive sampling also ensured that those selected would be information-rich informants able to answer the research questions related to the objectives. The use of the interview method of data collection allowed for depth, and probing of, a poorly understood phenomenon and men's explanations for it. The continual immersion in participants' accounts with reference made to their socio-cultural context enabled personal and contextual meaning to emerge in keeping with this study objective. Moreover, the use of an inductive analytical method also used men's lived experiences and continual cross-checking and verification of data to ensure accuracy of interpretation and meaning.

The second objective was to develop and validate a study instrument informed by the literature review and the interviews in the qualitative study and to quantify the physical and psychological symptoms of the syndrome including, their severity, distress and time course over pregnancy and the postpartum period. In keeping with this objective the literature was also used to develop the questionnaire from the symptoms identified in previous studies of the syndrome and the lack of standardisation of study instruments to measure these. Men in the qualitative study identified a range of physical and psychological symptoms most prominently associated with the Couvade syndrome. These were then incorporated and measured in the questionnaire used for the pilot and experimental studies. The pilot questionnaire was administered repeatedly over two time periods with a time interval of 4 weeks between repeated measures which allowed for test, re-test statistics to be performed while offsetting the likelihood of "*practice effects*".

The validation of the questionnaire as part of this objective was achieved through the use of standard statistical tests of reliability and validity and further refined and amended by way of respondents' commentary. Thus, this paved the way for the use of the questionnaire in the experimental phase of the study.

The final objective was to compare the incidence, severity, distress, time course and duration of physical and psychological symptoms and perceived stress coping (PSC) in an experimental group (men with pregnant partners) and a control group (men without pregnant partners). Furthermore, to examine associations between socio-demographic factors and Couvade symptoms and PSC in the experimental group and to identify predictors of the syndrome. This objective was partially accomplished by the selection of a large heterogeneous sample comprising the two groups of men. The large size and heterogeneity of the sample was important to examine the associations between different age, social class groups and numbers of previous children with symptom severity and distress. Part of the sampling process included a strict inclusion/exclusion criteria which controlled for confounding symptoms similar to those of the syndrome but arising due to some other medical conditions.

In order to monitor the incidence, severity and distress of physical and psychological symptoms in both groups as indicated in the objective the questionnaire was scored nominally for the presence (yes) or absence (no) of each symptom and numerically on a scale of 1-9 for their levels of severity and distress. Monitoring the time course of symptoms and perceived stress coping in the study groups was achieved by the administration of the questionnaires during the 1st and 3rd trimesters of gestation and four weeks into the postpartum period for the experimental group and at a 3 and 6-month

comparative time period for those in the control group. These time periods were also reflected in the prospective study design chosen and illustrated in Figure 2.

The method of analysis was also important in the attainment of this final objective. Non-parametric tests were used to determine incidence, severity, distress and time course of symptoms and perceived stress since it was unlikely that the Couvade syndrome was normally distributed. Specific statistical tests were also required for the nominal and ordinal nature of the data when testing associations between socio-demographic factors and severity and distress of symptoms and PSC e.g. ETA non-linear test of association. Symptom predictors of the syndrome were confirmed through the Binary logistic Regression statistic and accomplished as part of the objective but perceived stress coping indicators as reliable predictors was not.

7.3 Contributions to the body of knowledge

Both phases of the investigation addressed gaps in past literature as well as omissions and limitations in past studies thus, adding to the universal body of knowledge in the area. The literature review addressed the notable absence of sociological theories in explaining the syndrome. Related issues such as the medicalisation of pregnancy, feminist perspectives of the marginalisation of male partners within the realms of antenatal care, the “*new man*” and “*new father*” discourse, socio-cultural constructions of fatherhood, gender roles and their relationship to health were all addressed. Moreover, the syndrome was shown to pose a threat to traditional hegemonic masculine roles thus, widening its appeal to those of the feminist school. The literature review also emphasised the dearth of studies offering a biological basis for the syndrome and did consider the only two, which had been conducted to date. Shortcomings in past studies

were identified such as, occasional inconsistencies in the defining criteria for the Couvade syndrome which compromised sampling in these investigations. Other acknowledged limitations included the use of homogeneous samples primarily Caucasian and the failure to include measures of psychological symptoms of the syndrome. Moreover, the use of multiple measures of the syndrome and their lack of standardisation was another problem making the comparison of international studies notoriously difficult as were those which failed to make the distinction between anxiety and stress.

Attempts were made to address many of these omissions and discrepancies in the design and methods sections of both phases of this investigation where there was a notable dearth of qualitative and pilot studies. A stringent defining criteria for the Couvade syndrome was developed as part of the entry procedure for sampling in the qualitative and pilot phases as well as the inclusion of a highly heterogeneous study population. All phases of the investigation explored and measured the psychological symptoms of the syndrome, which was not the case in some past studies. The use of multiple measures of the syndrome previously indicated was addressed by the pilot study where a new instrument was developed which demonstrated a high degree of reliability and validity, which hopefully will standardise the measurement of the syndrome in future investigations.

The first phase of the study was one of the few on record to have used a qualitative methodology to explore the Couvade syndrome and in doing so yielded many valuable insights into its characteristics. These included pregnancy-related feelings increasing men's susceptibility to the syndrome, the reaffirmation of its symptoms and the ways in

which these were managed and investigated, and their time course in relation to the woman's gestation and labour. The findings showed that the syndrome occurs in a genderised context since it principally affects men but that it also crosses over gender boundaries given its relationship with pregnancy, the domain of women. This is one of the principal reasons why the syndrome might be ridiculed and not taken seriously. The embodied experience of the syndrome's symptoms provided a language for the male partners of pregnant women to understand and express what was happening to them. Among the clinical insights that were revealed was the finding that its symptoms were perceived as severe and distressing in both phases of the investigation and that the majority of men consulted their GPs, a trend which may continue into the future. A further insight emerged from men's accounts concerning the investigation and management of their symptoms which revealed a predominantly biomedical focus whose outcomes confirmed physician's inability to diagnose them. This was an endorsement of the syndrome's idiopathic nature. Men's explanations for symptoms were socio-culturally informed which occasionally influenced whom they consulted and how symptoms were managed.

The experimental phase of the investigation was the largest of its kind in the UK since the Trethowan and Conlon study back in 1965, which addressed this under-researched area of men's health. It took account of the failing of many past studies, which neglected to make a comparison of symptom incidence between expectant and non-expectant men using experimental approaches. Past investigations often used descriptive designs and self-selected groups of men with pregnancy-related symptoms whose incidence were not compared with the general population as they were in this study. In data collection the experimental study addressed the severity and distress of the syndrome's symptoms

overlooked in previous research except for Bogren's (1983) Swedish and Clinton's (1987) American investigations, which included similar measures such as, global ratings of symptom discomfort and perceived seriousness respectively. The data collection process also acknowledged the difference between anxiety and stress a common methodological problem associated with the measurement of these psychological symptoms in past investigations (Pennebaker 1982). While many studies have examined the association between socio-demographic characteristics and the Couvade syndrome broadly, the experimental investigation was one of the few which investigated associations between the severity and distress of its specific symptoms with these characteristics yielding varied results. A novel contribution of this study was its identification of 5 physical and 3 psychological symptoms, as reliable predictors of the Couvade syndrome, thus enabling clarity and accuracy of its diagnosis in the future.

Not only has this investigation contributed to the body of knowledge internationally in the scientific community but also, the lay community. It has increased public awareness of the Couvade syndrome by raising its profile within the UK and other countries through its results being widely reported in the international media. What this shows is the media's unequivocal interest in the Couvade syndrome but poses the question why this might be so? One reason may be the human-interest appeal of a highly unusual phenomenon, which crosses gender boundaries in the area of reproduction. A common but misinformed perception of the syndrome often perpetrated by the media is "*men trying to get in on the act*" or being "*attention seeking*". This and other erroneous perceptions have persisted as a consequence of the notable dearth of studies investigating it in the UK. Now research evidence has been generated which scientifically proves its existence, symptoms, time course and possible causal factors. It

is this empirical verification of a phenomenon previously discerned unscientifically that has attracted media attention and the fact that the study was conducted at a high profile teaching hospital in London. However, the downside of the syndrome's notoriety through media publicity is the way in which it has been reported, which may have compromised the scientific robustness of the investigation.

7.4 Recommendations for future research

Suggested directions for future research and post-doctoral opportunities might include a closer comparison of the types of physical and psychological symptoms of gestational women and their male partners. This would resolve the contradictions in the literature about the Couvade syndrome being involuntary or whether men consciously mimic their gestational partners' symptoms. It might also determine whether synchronicity of symptoms between cohabiting partners is the case in this context. Since only two studies to date have examined a biological basis for the syndrome further investigation is needed to monitor hormonal levels of cortisol, testosterone, prolactin, oestrogen and progesterone in men at periods during their partners' pregnancy. Another under-researched area is the exclusivity of the syndrome to men as many definitions in the literature suggest and where there has been only one case-study on a Couvade syndrome equivalent in twin sisters one of whom was pregnant. This line of research might lend itself to the study of cohabiting women one of whom is pregnant and lesbian couples also. One area of research that might appeal to psychologists is the relationship between male personality types and the syndrome.

7.5 Conclusion

This was a 2-phase study exploring the Couvade syndrome in the male partner's of

pregnant women in the London area. The qualitative phase revealed that a purposive sample of 14 male partners demonstrated a mixed display of emotional responses to gestation and varied involvement in it. Men experienced a range of physical and psychological symptoms and made reference to their reality, distress, duration and the ways in which they managed. Men's accounts of the investigation and management of symptoms confirmed that health professionals treated them seriously but failed to find a pathological basis and diagnose them definitely. In some cases consultation and management of symptoms were influenced by cultural and religious beliefs. This was also true for explanatory attempts for symptoms where some men resorted to lay, cultural and religious beliefs in making sense of them while others had contextual insights into their relationship with pregnancy. There were also those who experienced difficulties in explaining symptoms sometimes resorting to supposition or conjecture in the process, as did health professionals who were unable to diagnose them.

In Phase II a structured questionnaire based on the findings of the qualitative study and the literature review was developed to assess the physical and psychological symptoms of the syndrome in 23 male partners of pregnant women. The questionnaire was completed repeatedly over two time periods. The Cronbach Alpha Coefficient of reliability test for the total scale was 0.89. Other tests of internal consistency showed high reliability and validity, except for nine items, which were subsequently removed from the final amended questionnaire.

In the experimental phase the incidence, severity, distress, time course and duration of pregnancy-related physical and psychological symptoms were assessed as well as perceived stress coping in an experimental group of men with pregnant partners ($n=182$)

over the 1st and 3rd trimesters of gestation and 4-weeks into the postpartum period. This was compared with a control group ($n = 181$) whose partners were not pregnant over a 3 and 6-month comparative time period. Results indicated a higher incidence of 26 physical symptoms associated with the Couvade syndrome in the experimental group including those of a gastrointestinal, respiratory, genitourinary, dental, musculo-skeletal and miscellaneous nature. There was also a higher incidence of 17 psychological symptoms such as, sleep disturbance, mood disturbances, emotional affect, cognitive functioning and miscellaneous. The incidence of those physical and psychological symptoms, which were similar between the groups might suggest their occurrence in the general population or have doubtful association with the syndrome. The severity and distress for the majority of physical and psychological symptoms were statistically higher for men with pregnant partners compared to those whose partners were not expectant.

In the experimental group the severity and distress median scores for the majority of physical symptoms showed significant differences over the trimesters of pregnancy and the postpartum period. Between the 1st and 3rd trimesters of pregnancy the severity and distress median scores for the majority of physical symptoms showed an increase except for the severity of 5 and distress of 7 symptoms, which decreased. In the postpartum period all severity and distress scores decreased except for “tiredness” which increased. By contrast, for the control group there were no statistically significant differences in the severity and distress scores for physical and psychological symptoms except for “sore gums” over the 3 and 6-month comparative time periods. The severity and distress median scores for three-quarter of the psychological symptoms revealed significant differences over the trimesters of pregnancy and the postpartum period. Between the 1st

and 3rd trimesters of pregnancy the severity and distress median scores for the majority of psychological symptoms showed an increase except for the severity and distress of 3 symptoms which decreased and a further one whose scores remained constant. In the postpartum period many psychological severity and distress median scores decreased except for “sleeping less than usual”, “early morning waking” and “feeling stressed” which increased while “sleeping more than usual” remained constant. By contrast, for the control group there were no statistically significant differences in the severity and distress scores for psychological symptoms over the 3 and 6-month comparative time periods.

In the experimental group the physical symptoms of the longest duration in the 1st trimester were “stomach pain/cramps and “back pain” experienced up to 28 days and reported by the largest number of men in the experimental group. In the third trimester those of the longest duration of > 28 days were “weight gain” and “stomach distension” reported by the largest number of male partners. In the postpartum period “tiredness” was the symptom of the longest duration experienced for $7 \geq 28$ days and reported by the largest number of respondents. In the first and third trimesters the psychological symptom of the longest duration was “sleeping less than usual” reported by the largest number of men and lasting $7 \geq 28$ days. In the postpartum period the symptom of the longest duration $7 \geq 28$ days and reported by the largest number of male partners was “early morning waking”.

No statistically significant associations were found to exist between age and the severity and distress scores of physical and psychological symptoms for those in the experimental group. There was only one statistically significant association between

social class and the severity score of the physical symptom of “poor appetite”. However, there were statistically significant associations between social class and the severity scores of three psychological symptoms including, “early morning waking”, “feeling frustrated” and “feeling stressed”. There were also statistically significant associations between social class and the distress scores of “sleeping less than usual” and “feeling frustrated”. Previous number of children and severity and distress of physical symptoms revealed the greatest number of associations for the severity of 7 and the distress of 4 of these. However, only two psychological symptoms were associated with previous number of children and these were the severity of “sleeping less than usual” disturbance” and “unable to cope with daily life” and the distress of the preceding symptom and “early morning waking”.

Binary logistic regression revealed five physical symptoms as strong predictors of the Couvade syndrome namely, “cough”, “leg cramps”, “headache” and “diarrhoea” and “pain while urinating” and four, which were weak or unreliable predictors with low R^2 values. There were also three psychological symptoms, which were revealed as strong predictors of the syndrome including “loss of concentration”, “sleeping less than usual” and “lack of motivation” and a further four, which were weak predictors.

There was a higher reported number and incidence of all perceived stress coping indicators in the experimental group compared to the control group. There were also statistically significant differences between the study groups for all perceived stress coping indicators with higher median scores in the experimental group except, “felt confident about your ability to handle your personal problems” which was non-significant. There were also statistically significant differences for all perceived stress

coping median scores over the trimesters of pregnancy and the postpartum period except “upset because of something that happened unexpectedly” which was non-significant. Between the 1st and 3rd trimesters of pregnancy the median scores of all perceived stress coping indicators increased. In the postpartum period seven perceived stress coping indicators increased while a further only two decreased and one remained constant. By contrast, for the control group there were no statistically significant differences in the perceived stress coping median scores over the 3 and 6-month comparative time periods.

For the experimental group, the association between total perceived stress coping scores and the severity scores for physical and psychological symptoms showed no statistically significant relationships at all which was surprising. Binary logistic regression revealed five perceived stress coping indicators as unreliable predictors of the Couvade syndrome with very low R^2 values.

The clinical implications of these results suggest that the event of pregnancy affects men physically and psychologically. It is important, therefore, that the health of men is accorded a greater profile in antenatal care than is currently provided. Male health screening and education are important steps in this process. Symptoms of the Couvade syndrome are not imaginary but an experienced reality perceived as severe, disabling and distressing. The impact of these symptoms on male partners may resonate to pregnant women who require physical and emotional support at this time. Greater awareness of the syndrome is needed if health professionals are to make a correct diagnosis while facilitating a change of reactionary attitudes of scepticism and ridicule toward it. Those afflicted by the syndrome are likely to be reassured by an understanding of its symptoms and their transient nature.

References

- Adler, D. A., Drake, R. E., Teague, G. B. (1990): 'Clinicians' Practices in Personality Assessment: Does Gender Influence the use of the DSM-111 Axis 11'. *Comprehensive Psychiatry*, 31 (2), pp.125-133.
- American Psychiatric Association. (2000): *Diagnostic Statistical Manual of Mental Disorders IV*. Washington, D.C: 6thedn, American Psychiatric Association.
- American Psychiatric Association. (2004): *Treating Patients with Acute Stress Disorder and Post-Traumatic Stress Disorder: A Quick reference Guide*. Washington, D.C: American Psychiatric Association.
- Annandale, E. and Hunt, K. (1990): 'Masculinity, Femininity and Sex: An Exploration of their Relative Contribution to Explaining Gender Differences in Health'. *Sociology of Health and Illness*, 12 (1), pp.24-46.
- Annandale, E. and Clark, J. (1996): 'What is Gender? Feminist Theory and the Sociology of Human Reproduction'. *Sociology of Health and Illness*, 18 (1), pp.17-44.
- Anaya, R. (1996): 'I'm the King': The Macho Image', in Gonzales R. (ed.) *Muy Macho*. New York: Doubleday, pp.57-73.
- Annells, M. (1996): Hermeneutic Phenomenology: Philosophical Perspectives and Current Use in Nursing Research. *Journal of Advanced Nursing*, 23 (4), pp.705-713.
- Argyrous, G. (2005): *Statistics for Research*. London: 2ndedn, Sage Publications.
- Ashworth, P. (1999): 'Bracketing' in Phenomenology: Renouncing Assumptions in Hearing about Student Cheating'. *Qualitative Studies in Education*, 12, pp.707-721.
- Aylesworth, G. E. (1991): 'Dialogue, Text, Narrative: Confronting Gadamer and Ricoeur', in Silverman, H. J. (ed.): *Gadamer and Hermeneutics*. New York: Routledge Publishers, pp.63-81.

Barclay L., Donovan J., Genovase, A. (1996): 'Men's Experiences during their Partner's First Pregnancy: A Grounded Theory Analysis'. *Australian Journal of Nursing*, 13 (3), pp.12-24.

Barclay, L. and Lupton, D. (1999): 'The Experience of New Fatherhood: A Socio-cultural Analysis'. *Journal of Advanced Nursing*, 29, pp.1013-1020.

Barrera, M. (1981): 'Social Support in the Adjustment of Pregnant Adolescents', in Gattlieb, B. H. (ed.): *Social Networks and Social Support*. California: Sage. Beverly Hills, pp.69-96.

Barry H. R. and Alder S. P. (1980): 'The Pregnant Father', in Blum, B. L, Fosshage, J. L., Frank, K. A., Grayson, H., Loew, C. L, Lowenheim, H. (ed.): *Psychological aspects of Pregnancy, birthing, and bonding*. London: Human Sciences Press, pp.220-226.

Barsky, A. J., Peekna, H. M., Borus, J. B. (2001): 'Somatic Symptom Reporting in Women and Men'. *Journal of General Internal Medicine*, 16 (4), pp.226-275.

Barlett, E. E. (2004): 'The Effects of Fatherhood on the Health of Men: A Review of the Literature'. *Journal of Men's Health and Gender*, 1 (2-3), pp.159-169.

Beck, A. T., Ward, C. H., Mendelson, M., Mock J., Erbaugh, J. (1961): 'An Inventory for Measuring Depression'. *Archives of General Psychiatry*, 4, pp.561-571.

Behi, R. and Nolan, M. (1996): 'Quasi-experimental Designs'. *British Journal of Nursing*, 5 (17), pp.1079-1081.

Bem, S. L. (1974): 'The Measure of Psychological Androgyny'. *Journal of Consulting and Clinical Psychology*, 42 (2), pp.155-162.

Bem, S. L. (1979): 'Theory and Measurement of Androgyny: A Reply to the Pedhazur-Tetebaum and Locksley-Cohen Critiques'. *Journal of Personality and Social Psychology*, 37, pp.1047-1054.

- Benvenuti, P., Marxhetti, G., Tozzi, G., Pazzagli, A. (1989): 'Psychological and Psychopathological Problems of Fatherhood'. *Journal of Psychosomatics, Obstetrics and Gynaecology*, pp. 10, pp.35-41.
- Berg, S. J. and Wynne-Edwards, K. E. (2001): 'Changes in Testosterone, Cortisol, and Estradiol Levels in Men Becoming Fathers'. *Mayo Clinic Proceedings*, 76, pp.582-592.
- Berger, P. L. and Luckmann, T. (1966): *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*. Garden City, New York: Anchor Books.
- Berman, P. and Pedersen, F. (1987): *Men's Transitions to Parenthood: Longitudinal Studies of Early Family Experience*. Hillside, New York: Lawrence Erlbaum Associates.
- Blum, G. S. (1949): 'A Study of the Psychoanalytic Theory of Psychosexual Development'. *Genetic Psychology Monographs*, 39, pp.3-39.
- Bogren, L. Y. (1983): 'Couvade'. *Acta Psychiatric Scandinavia*, 68 (1), pp.55-65.
- Bogren, L. Y. (1984): 'The Couvade Syndrome: Background Variables'. *Acta Psychiatrica Scandinavica*, 70 (4), pp.316-320.
- Bogren, L. Y. (1986): 'The Couvade Syndrome'. *International Journal of Family Psychiatry*, 7 (2), pp.123-136.
- Bogren, L. Y. (1989): 'Pregnancy Symptoms in the Expectant Man'. *Journal of Psychosomatic Obstetrics and Gynaecology*, 10, pp.43-51.
- Bohan, J. S. (1993): 'Regarding Gender: Essentialism, Constructionism and Feminist Psychology'. *Psychology of Women Quarterly*, 17, pp.5-21.
- Bohem, F. (1930): 'The Femininity-complex in Men'. *International Journal of Psychoanalysis*, 11 (4), pp.444-469.
- Bontekoe, R. (1996): *Dimensions of the Hermeneutic circle*. Atlantic Heights, New Jersey: Humanities Press.

Borkan, J. M. (2004): 'Mixed Methods Studies: A Foundation for Primary Care Research'. *Annals of Family Medicine*, 2 (1), pp.994-6.

Borkan, J. M. (2004): 'Mixed Methods Studies: A Foundation for Primary Care Research'. *Annals of Family Medicine*, 2 (1), pp.994-6.

Bowen, K. A. (1996): *The Sin of Omission Punishable by Death to Internal Validity: An Argument for Integration of Qualitative and Quantitative Research Methods to Strengthen Internal Validity*. Available at:

<http://www.trochim.human.cornell.edu/gallery/bowen/hss691.htm> (Accessed: 18th June 2006).

Boyarin, D. (1994): 'Jewish Masochism: Couvade, Castration, and Rabbis in Pain'. *Americam Imago*, 51 (1), pp.3-36.

Brady-Freitag, N. L. (1994): 'Physiological and Psychological Correspondence between Parental Pairs in the Third Trimester'. Marquette University, Milwaukee, Wisconsin: Doctoral Dissertation.

Brennan, A. (1996): 'A Correlational Study of Attitudes to Ultrasound Scans, Maternal/Paternal Anxiety and Foetal Attachment'. City University, London: Unpublished MSc Thesis.

Brennan, A. and Marshall-Lucette, S. (2004): '*An Exploration of the Couvade Syndrome: The Pregnant Male*'. Libro De Ponencias, V111 Encuentro de Investigación en Enfermería, pp.17-20 November 2004. ISBN: 84-688-8934-2.

Brennan, A., Ayers, S., Marshall-Lucette, S., Ahmed, H. (2007a): 'A Critical Review of the Couvade Syndrome: The Pregnant Male'. *Journal of Reproductive and Infant Psychology*, 25 (3), pp.173-189.

Brennan, A., Marshall-Lucette, S., Ayers, S., Ahmed, H. (2007a): 'A Qualitative Exploration of the Couvade Syndrome in Expectant Fathers'. *Journal of Reproductive and Infant Psychology*, 25 (1), pp.18-39.

Brittan, A. (1989): *Masculinity and Power*. Oxford: Blackwell Scientific Publications.

- Bronstein, P. and Cowan, C. P. (1988): *Fatherhood Today: Men's Changing Role in the Family*. New York: Wiley Interscience.
- Brown, M. A. (1983): 'Social Support and Symptomatology: A Study of First Time Expectant Parents'. *Dissertation Abstracts International*, 44 (1), p.111B.
- Brown, M. A. (1988): 'A Comparison of Health Responses in Expectant Mothers and Fathers'. *Western Journal of Nursing Research*, 10 (5), pp.527-549.
- Budur, K., M. Mathews., M. Mathews. (2005): 'Case-Report: Couvade Syndrome Equivalent?' *Psychosomatics*, 46 (1), pp.71-72.
- Burgess, A. (1997): *Fatherhood Reclaimed: The Making of the Modern Father*. London: Vermillion.
- Burnard, P. (1991): 'A Method of Analysing Interview Transcripts in Qualitative Research'. *Nurse Education Today*, 11, pp.461-466.
- Caracelli, V. and Greene, J. (1993): 'Data Analysis Strategies for Mixed-Method Evaluation Designs'. *Educational Policy and Analysis*, 15 (2), p196.
- Cattell, R. B. and Scheier I. H. (1976): 'IPAT Anxiety Scale Questionnaire Self-Analysis Scale (Hebrew version)'. Tel Aviv, Israel: School of Education, University of Tel Aviv.
- Cavenar, J. O. and Butts N. T. (1977): 'Fatherhood and Emotional Illness'. *American Journal of Psychiatry*, 134, pp.429-430.
- Chalmers B. and Meyer D. (1996): 'What Men Say about Pregnancy, Birth and Parenthood'. *Journal of Psychosomatic Obstetrics and Gynaecology*, 17 (1), pp.47-52.
- Clarke, S. and Popay, J. (1998): 'I'm just he Bloke who's had Kids': 'Men and Women on Parenthood', in Popay, J., Hearn, J., Edwards, J. (ed.): *Men, Gender Divisions and Welfare*. London: Routledge, pp.196-230.
- Clinton, J. (1985): 'Couvade: Patterns, Predictors and Nursing Management': A Research Proposal Submitted to the Division of Nursing'.

Clinton, J. F. (1986): 'Expectant Fathers at Risk of Couvade'. *Nursing Research*, 30, pp.281-284.

Clinton, J. F. (1987): 'Physical and Emotional Responses of Expectant Fathers throughout Pregnancy and the Early Postpartum Period'. *International Journal of Nursing Studies*, 24 (1), pp.59-68.

Cohen, J. (1992): 'A power Primer'. *Psychological Bulletin*, 12, pp.155-159.

Cohen, T. F. (1993): 'What do Fathers Provide?: Reconsidering the Economic and Nurturant Dimensions of Men as Parents', in Hood, J. C. (ed.): *Men, Work, and Family*. California: Sage Publications, pp.219-237.

Cohen, S., Kamarck, T., Mermelstein, R. (1983): 'A Global Measure of Perceived Stress'. *Journal of Health and Social Behaviour*, 24, pp.386-396.

Cohen, M. and Omery, A. (1994): 'Schools of Phenomenology: Implications for Research', in Morse, J. (ed.): *Critical Issues in Qualitative Research*. Newbury Park, California: Sage Publications, pp.136-156.

Cohen, S. and Williamson, G. (1988): 'Perceived Stress in a Probability Sample of the United States', in Spacapan, S. and Oskamp, S. (ed.): *The Social Psychology of Health: Claremont Symposium on Applied Social Psychology*. Newbury Park, California: Sage Publications, pp.31-67.

Cohen, J, Cohen, P., West, S. G., Aiken, L. S. (2003): *Applied Multiple Regression/Correlation Analysis for the Behavioural Sciences*. Hillsdale, New Jersey: 3rdedn, Erlbaum Publishers.

Colaizzi, P. (1978): 'Psychological Research as the Phenomenologist view's it'. *Qualitative Studies in Education*, 12, pp.707-721.

Cole, S. R. (1999): 'Assessment of Differential Item Functioning in the Perceived Stress Scale'. *Journal of Epidemiology and Community Health*, 53 (5), pp.319-320.

Collins, D. (2007): 'Pregnant ladies: Men can feel your pain literally!' *The Irish Examiner*, Friday 15th June 2007, p.15.

Condon J. T. (1987): 'Psychological and Physical Symptoms during Pregnancy: A Comparison of Male and Female Expectant Parents'. *Journal of Reproductive and Infant Psychology*, 5, pp.207-219.

Congalton, A. (1963): 'Occupational Status in Australia'. School of Sociology, University of New South Wales, Sydney.

Connell, R. W. (1987): *Gender and Power: Society, the Person and Sexual Politics*. Cambridge: Polity Press.

Connell, R. W. (1995): *Masculinities*. Berkeley, California: University of California Press.

Conner, G. K. and Denson, V. (1990): 'Expectant Fathers' Response to Pregnancy: Review of the Literature and Implications for Research in High-risk Pregnancy'. *Journal of Perinatal and Neonatal Nursing*, 4 (2), pp.32-42.

Conroy, S. A. (2003): 'A Pathway for Interpretive Phenomenology'. *International Journal of Qualitative Methods*, 2 (3), Article 4.

<http://www.ualberta.ca/ijqm/english/engframeset.html> (Accessed: 18th May 2006).

Cooper, S. (2005): 'A Rite of Involvement: Men's Transition to Fatherhood'.

Durham Anthropology Journal, 13 (2), pp. 1-24. Available at:

<http://www.dur.ac.uk/anthropology.journal/vol13/ISS2/cooper.html> (Accessed: 12th May 2006).

Cornwell, J. (1984): *Hard-earned Lives: Accounts of Health and Illness from East London*. London: Tavistock Publications.

Courtenay, W. H. (1998): 'Better to Die than Cry: A Longitudinal and Constructionist Study of Masculinity and the Health Risk Behaviour of Young American Men'. *Dissertation Abstracts International*, p.5908 A.

Courtenay, W. H. (2000): 'Constructions of Masculinity and their Influence on Men's Well-being: A Theory of Gender and Health'. *Social Science and Medicine*, 50, pp.1385-1401.

Courtney-Smith, N (2007): 'Dads are pregnant'. *The Daily Mirror*, Thursday, 14th June 2007, p.21.

Cowan, P. A. and Cowan, C. P. (1983): 'Quality of Couple Relationships and Parenting Stress in Beginning Families'. Detroit, Michigan: Presented at meeting of the Society for Research in Child Development.

Cowan, C. P. and Cowan, C. P. (1992): *When partners become parents: The big life change for couples*. New York: Basic Books.

Cox, D. R. and Snell, E. J. (1989): *The Analysis of Binary Data*. London: 2nd Edition, Chapman and Hall.

Cranley, M. S. (1979): 'The Impact of Perceived Stress and Social Support on Maternal-foetal Attachment in the Third Trimester'. University of Wisconsin-Madison: Unpublished doctoral dissertation.

Cranley, M. S. (1981): 'Development of a Tool for the Measurement of Maternal-foetal Attachment in Pregnancy'. *Nursing Research*, 30 (5), pp.281-284.

Creswell, J. W. (2003): *Research Design: Qualitative and Quantitative and Mixed Methods Approaches*. Thousand Oaks, California: 2nd edn, Sage Publications.

Crookes, P and Davies, S. (1998): *Research into Practice*. London: Balliere Tindall.

Crotty, M. (1998): *The Foundations of Social Science Research*. St. Leonards, New South Wales: Allen and Unwin Publishers.

Curtis, J. L. (1955): 'A Psychiatric Study of 55 Expectant fathers'. *United States Armed Forces Medical Journal*, 6 (7), pp.937-950.

Cutrona, C. E. (1996): *Social Support in Couples*. California: Sage Publications.

Daly, L. E., Bourke, G. J., McGilvray, J. (1991): *Interpretation and uses of Medical statistics*. Oxford: 4th ed. Blackwell Science

Daly, K. J. (1995): 'Reshaping Fatherhood: Finding the Models', in Marsiglio, W. (ed.): *Fatherhood: Contemporary Theory, Research and Social Policy*. London: Sage Publications, pp.21-40.

Daniel, A. (1983): *Power, Privilege and Prestige: Occupations in Australia*. Melbourne, Australia: Longman Cheshire.

David, M. (1985): 'Motherhood and Social Policy: A matter of Education'? *Critical Social Policy*, 12, pp.28-43.

Davies, A. R., and Ware, J. E. (1981): *Measuring Health Perceptions in the Health Insurance Experiment*. Santa Monica, California: Rand Publishers.

Deater-Deckard, K., Pickering, K., Dunn, J. F., Golding, J. (1998): 'Family Structure and Depressive Symptoms in Men Preceding and Following the Birth of a Child'. *American Journal of Psychiatry*, 155 (6), pp.818-823.

Deater-Deckard, K. (1998): 'Parenting Stress and Child Adjustment: Some Old Hypotheses and New Questions'. *Science and Practice*, 5, pp.314-332.

Dekker, T. and Webster, J. (1607): 'Westward Ho', in Bowers, F. (ed.), (1955): *The Dramatic Works of Thomas Dekker*. New York: Cambridge University Press, pp.183-188.

Denzin, N. K. and Lincoln, Y. S. (2005): *The Sage Handbook of Qualitative Research*. London: 3rd edn, Sage Publications.

Dermott, E. (2003): 'The Intimate Father: Defining Paternal Involvement'. *Sociological Research* 8 (4), pp.17-31.

Department of Health (1991): *Local Research Ethics Committees*. London: Department of Health.

Department of Health (2001): *Research Governance Framework for Health and Social Care*. London: 1st ed. Department of Health.

Department of Health (2003): *National Statistics-Socio-economic Classification (NS SEC)*. London: Department of Health.

Department of Health (2003): *National Statistics-Socio-economic Classification (NS SEC)*. London: Department of Health.

Department of Health (2005): *Research Governance Framework for Health and Social Care*. London: 2nd ed. Department of Health.

DeVault, M. L. (1990): 'Talking and Listening from Women's Standpoint: Feminist Strategies for Interviewing and Analysis'. *Social Problems*, 37, pp.96-116.

Dickens, G. and Trethowan, W. A. (1971): 'Cravings and Aversions during Pregnancy'. *Journal of Psychosomatic Research*, 15, pp.259-268.

Di Renzo, G. C., Bruni, R., Villoti, C., Bimi, P., Boselli, S., Ricchi, A., Vecchi, S., Montanari, G. D. (1981): '*Clima Psicologico in Sala Parto, Gli Ospedali della Vita*'. *Supplement* 27, pp.65-84.

Dilthey, W. (1988): *Introduction to the Human Science: An Attempt to lay the Foundation for the study of History and Society*. Detroit, Michigan: Wayne State University Press (Translated: Betzanos, R. J.).

Douglas, M. (1984): *Purity and Danger: An Analysis of Concepts of Pollution and Taboo*. London: Routledge.

Drake, M. L., Verhulst, D., Fawcett, J. (1988): 'Physical and Psychological Symptoms Experienced by Canadian Women and their Husbands during Pregnancy and the Postpartum'. *Journal of Advanced Nursing*, 13 (4), pp.436-440.

Draper, J. (2003a): 'Men's Passage to Fatherhood: An Analysis of the Contemporary Relevance of Transition Theory'. *Nursing Inquiry*, 10 (1), pp.66-78.

Draper, J. (2003b): 'Blurring, Moving and Broken Boundaries: Men's Encounters with the Pregnant Body'. *Sociology of Health and Illness*, 25 (7), pp.743-767.

Draucker, C. B. (1999): 'The Critique of Heideggerian Hermeneutical Nursing Research'. *Journal of Advanced Nursing*, 30 (2), pp.360-373.

Dwayne Medical Centre, RYT Hospital, USA. Available at:
<http://www.malepregnancy.com/science/> (Accessed 18th July 2003).

Edwards, P., Roberts, I., Clarke, M., DiGuesppi, C., Prata, S., Wentz, R., Kwan, I. (2002): 'Increasing Response Rates to Postal Questionnaires: Systematic Review'. *British Medical Journal*, 324, pp.1183-1185.

Enoch, M. D., Trethowan, W. H., Barker, J. C. (1967): *Some Uncommon Psychiatric Syndromes*. Bristol: John Wright and Sons.

Erikson, E. H. (1959): 'Identity and Life Cycle'. New York: *Psychological Issues Monographs* 1. International Universities Press.

Erickson, M. (1967): 'Method for Frequent Assessment of Symptomatology during Pregnancy'. *Psychological Reports*, 20, pp.447-450.

Eisenstein, Z. R. (1988): *The Female Body and the Law*. Berkeley, California: University of California Press.

Evans, W. N. (1951): 'Simulated Pregnancy in a Male'. *Psychoanalytic Quarterly*, 20, pp.165-178.

Eysenbach, G. and Till, J. E. (2001): 'Ethical Issues in Qualitative Research on Internet Communities'. *British Medical Journal*, 323, pp.1103-1105.

Falkum, E. and Larsen, O. (1999): 'What Shapes People's Notions of Health and Illness?' *Tidsskr Nor Laegeforen*, 119 (30), pp.4488-4491.

Fawcett, J., and York, R. (1986a): 'Spouses' Physical and Psychological Symptoms during Pregnancy and Postpartum'. *Nursing Research*, 35, pp.144-148.

Fawcett, J. and York, R. (1986b): 'Spouses' Body Image Changes during and after Pregnancy: A Replication and Extension'. *Nursing Research* 36, pp.220-243.

- Fawcett, J. and York, R. (1987): 'Spouses' Strength of Identification and Reports of Symptoms during Pregnancy and the Postpartum'. *Florida Nursing Review*, 2 (2), pp.1-10.
- Feetham, S. and Humenick, S. S. (1982): 'The Feetham Family Functioning Survey', in Humenick, S. S. (ed.): *Analysis of Current Assessment Strategies in the Health care of Young Children and Childbearing Families*. Norwalk, Connecticut: Appleton-Century-Crofts.
- Ferketich, S. L., and Mercer, R. T. (1989): 'Men's Health Status during Pregnancy and Early Fatherhood'. *Research in Nursing and Health*, 12 (1), pp.137-148.
- Field, P. A. and Morse, J. M. (1996): *Nursing Research: The Application of Qualitative Approaches*. London: 2nd ed. Chapman and Hall.
- Fitts, W. H. (1965): *Tennessee Self-Concept Scale Manual*. Nashville, Tennessee: State Department of Mental Health.
- Fleming, N. (2007): 'Men do suffer sympathy pains during pregnancy'. *The Daily Telegraph*, Thursday, 14th June, p.10.
- Fontana, A. and Frey, J. H. (2000): 'The Interview: From Structured Questions to Negotiated Text', in Denzin N. K. and Lincoln Y. S. (ed.): *Handbook of Qualitative Research*. Thousand Oaks, California: 2nd edn, Sage Publishers, pp.645-672.
- Fowler, F. J. (2002): *Survey Research Methods: Applied Social Research Methods*. London: 3rd edn, Sage Publications.
- Gadamer, H. G. (1975): *Truth and Method*. London: Sheed and Ward.
- Gadamer, H. G. (1981): *Reason in the age of Science*. Cambridge, Massachusetts: MIT Press.
- Geanellos, R. (2000): 'Exploring Ricoeur's Hermeneutic Theory of Interpretation as a Method of Analysing Research Texts'. *Nursing Inquiry*, 7 (2), pp.112-119.

- Gerson, M. J. (1989): 'Tomorrow's Fathers: The Anticipation of Fatherhood', in Cath, S. H. Gurwitt, A. Gunsberg, L. (ed.): *Fathers and their Families*. New Jersey: The Analytic Press, pp.127-144.
- Gerzi, S. and Berman, E. (1981): 'Emotional Reactions of Expectant Fathers to their Wives' First Pregnancy'. *British Journal of Medical Psychology*, 54, pp.259-265.
- Gijsbers van Wijk, C. M. T. (1991): 'Symptom Sensitivity and Sex Differences in Physical Morbidity: A Review of Health Surveys in the United States and the Netherlands'. *Women and Health*, 17 (1), pp.91-124.
- Gillis, J. R. (2000): 'Marginalisation of Fatherhood in Western Countries'. *Childhood*, 7 (2), pp. 225-238.
- Gjerdingen, D. K. and Centre, B. A. (2003): 'First-time Parents Prenatal to Postpartum Changes in Health, and the Relation of Postpartum Health to Work and Partner Characteristics'. *Journal of the American Board of Family Practice*, 16, pp.304-311.
- Glaser, G. (1989): 'Anxiety and Stressors of Expectant Fathers'. *Western Journal of Nursing Research*, 11 (1), pp.47-59.
- Golombok, S. and Fivush, R. (1994): *Gender Development*. Cambridge: Cambridge University Press.
- Goodman, C. A. (1992): 'When Men get Pregnant: The Couvade Syndrome and Transition to Parenthood'. *Dissertation Abstracts International*, 54 (2), p.731B.
- Gough, H. G. (1986): *California Personality Inventory*. Palo Alto, California: Consulting Psychologists Press.
- Greenberg, M. (1985): *The Birth of a Father*. New York: Continuum.
- Greenhalgh, T. and Taylor, R. (1997): 'Papers that Go Beyond Numbers (Qualitative Research)'. *British Medical Journal*, 31, pp.740-743.
- Guba, E. G. and Lincoln, Y. S. (1989): *Fourth Generation Evaluation*. Beverly Hills, California, Sage Publishers.

Guba, E. G. and Lincoln, Y. S. (1994): 'Competing Paradigms in Qualitative Research', in Denzin, K. and Lincoln, Y. S. (ed.): *Handbook of Qualitative research*. Thousand oaks, California: Sage Publications, pp.105-117.

Gubruim, J. F. and Holstein, J. A. (1997): *The New Language of Qualitative Method*. New York: Oxford University Press.

Hacking, I. (1999): *The Social Construction of What?* Harvard: Harvard University Press.

Hanson, S. M. H. and Bozett, F. W. (1995): *Dimensions of Fatherhood*. 3rd edn. Beverly Hills, California: Sage Publications.

Harrison, J., Chin, J., Ficarroto, T. (1992): 'Warning: Masculinity may be Dangerous to your Health', in Kimmel, M. and Messner, M. (ed.): *Men's Lives*. New York: Macmillan Publishers, pp.296-309.

Hathaway, S. R. and McKinley, J. C. (1942): *The Minnesota Multiphasic Personality Inventory (MMPI)*. Minnesota: University of Minnesota Press.

Hawkins, A. J., Christiansen, S. K., Sargent, K. P., Hill, E. J. (1993): 'Rethinking Fathers Involvement in Child Care: A Developmental Perspective'. *Family Issues*, 14, pp.531-549.

Hayward, J. and Chalmers, B. (1990): Obstetricians' and Mothers' Perceptions of Obstetric Events. *Journal of Psychosomatic Obstetrics and Gynaecology*, 11 (1), pp.57-71.

Healy, M. and Perry, C. (2000): 'Comprehensive Criteria to judge Validity and Reliability of Qualitative Research within the Realism Paradigm'. *Qualitative Market Research: An International Journal*, 3 (3), pp.118-126.

Heidegger, M. (1962): *Being and Time*. (Macquarrie, J. and Robinson, E. trans.) New York: Harper and Row. (Original work published in 1927).

Heinowitz, J. (1977): 'Becoming a Father for the First time: A Phenomenological Study'. School for Professional Psychology, California: Doctorial Dissertation.

- Herzog, J. M. (1982): 'Prematurity and the Birth of the Father', in Cath, S. H. Gurwitt, A. R. Ross, J. M. (ed.): *Father and Child*. Boston: Little Brown, pp.162-173.
- Higgins, J. E. and Endler, N. S. (1995): Coping, Life Stress and Psychological and Somatic Stress. *European Journal of Personality*, 9, pp.231-304.
- Higgs, J. (2001): 'Charting Standpoints in Qualitative Research', in Byrne-Armstrong, H., Higgs, J., Horsfall, D. (ed.): *Critical Moments in Qualitative Research*. Oxford, UK: Butterworth-Heinemann, pp.44-67.
- Holditch-Davis, D., Black, B. P., Harris, B. G., Sandelowski M., Edwards, L. (1994): 'Beyond Couvade: Pregnancy Symptoms in Couples with a History of Infertility'. *Health Care for Women International*, 15 (6), pp.537-548.
- Hoskins, C. N. and Mariano, C. (2004): *Research in Nursing and Health: Understanding and Using Quantitative and Qualitative Methods*. New York: 2ndedn, Springer Publishing Co Inc.
- Hott, J. R. (1981): 'The Relationship between Tightness of Self-wife-parent Concept Clusters and Self-reported Physical Symptoms of Husbands of Primiparas'. *Adelphi Report*, 4, pp.121-137.
- Hudson, W. W. (1982): *The Clinical Measurement Package*. Homewood, Illinois: Dorsey Press.
- Hunter, R. A and Macalpine, I. (1963): *Three Hundred Years of Psychiatry (1535-1860)*. London: Oxford University Press.
- Husserl, E. (1952): *Ideas: General Introduction to Pure Phenomenology*. New York: Macmillan Publishers (Original work published in 1913).
- Huston, T. (1983): 'The Topography of Marriage: A Longitudinal Study of Change in Husband-Wife Relationships over the First Year'. Madison, Wisconsin: Plenary address to the International Conference on Personal Relationships, July 1983.

Hyland, M. F. and Sodergren, S. C. (1996): 'Development of a New Type of Global Quality of Life Scale, and Comparison of Performance and Preference for 12 Global Scales'. *Quality Life Research*, 5, pp.469-480.

Hyland, M. F. and Sodergren, S. C. (1996): 'Development of a New Type of Global Quality of Life Scale, and Comparison of Performance and Preference for 12 Global Scales'. *Quality Life Research*, 5, pp.469-480.

Im, E. O. and Chee, W. (2002): 'Issues in the Protection of Human Subjects in Internet Research'. *Nursing Research*, 51(4), pp. 266-269.

Imle, M. A. (1990): 'Third Trimester Concerns of Expectant Parents in Transition to Parenthood'. *Holistic Nursing Practice*, 4, pp.25-35.

Ip, W. Y. (2000): 'Relationship between Partner's Support during Labour and Maternal Outcomes'. *Journal of Clinical Nursing*, 9 (2), pp.265-272.

Ireton, H. R. (1980): 'A Personal Inventory'. *Journal of Family Practice*, 11, pp.137-140.

Johnson, M. P. (2002): 'The Implications of Unfulfilled Expectations and Perceived Pressure to Attend the Birth on Men's Stress Levels Following Birth Attendance: A Longitudinal Study'. *Journal of Psychosomatic Obstetrics and Gynaecology*, 23 (3), pp.173-182.

Johnson, M. P. (2002): 'An Exploration of Men's Experience and Role at Childbirth'. *Journal of Men's Studies*, 10, pp.165-182.

Jordan, P. L. (1990): 'Labouring for Relevance: Expectant and New Fatherhood'. *Nursing Research*, 39, pp.11-16.

Jupp, V. (2006): *Sage Dictionary of Social Research Methods*. London. Sage Publications

Khanobdee, C., Sukratanachaiyakul, V., Templeton, G. J. (1993): 'Couvade Syndrome in Expectant Thai Fathers'. *International Journal of Nursing Studies*, 30 (2), pp.125-131.

- Kiernan, K. (2006): 'Non-residential Fatherhood and Child Involvement: Evidence from the Millennium Cohort Study'. *Journal of Social Policy*, 35 (4), pp.1-19.
- Kimmel, M. (1995): *Manhood in America: A Cultural History*. New York: Free Press.
- Kitzinger, S. (1980): *Pregnancy and Childbirth*. London: Michael Joseph.
- Klein, H. (1991): 'Couvade Syndrome: Male Counterpart to Pregnancy'. *International Journal of Psychiatry in Medicine*, 21 (1), pp.57-69.
- Koch, T. (1995): 'Interpretive Approaches in Nursing Research: The Influence of Husserl and Heidegger'. *Journal of Advanced Nursing*, 21 (5), pp.827-836.
- Koch, T. (1996): 'Implementation of a Hermeneutic Inquiry in Nursing: Philosophy, Rigour and Representation'. *Journal of Advanced Nursing*, 24, pp.174-184.
- Koch, T. and Harrington, A. (1998): 'Reconceptualising Rigour: the Case for Reflexivity'. *Journal of Advanced Nursing*, 28 (4), pp.882-890.
- Koch, T. (1999): 'An Interpretive Research Process: Revisiting Phenomenological and Hermeneutic Approaches'. *Nurse Researcher*, 6 (3), pp.20-34.
- Koić, E., Filakovic, P., Dordevic, V., Muzinic, L. (2004): 'Pseudocyesis: Case Report (Serbo-Croatian)'. *Socijalna Psihijatrija*, 32 (2), pp.83-89.
- Krauss, S. E. (2005): 'Research Paradigms and Meaning Making: A Primer'. *The Qualitative Report*, 10 (4), pp.758-770.
- Kuckartz, U. (1999): *WinMax Professional (Software for Qualitative Analysis, BSS Berlin, Germany) Scientific Text Analysis for the Social Sciences: User's Guide*. London: Scolari, Sage Publications.
- Kurina, L. M. Schneider, B. Waite, L. J. Sloan, A. P. (2005): Stress, Symptoms of Depression and Anxiety, and Cortisol Patterns in Working Parents. *Neuropsychopharmacology*, 30, pp.821-832.
- Kurtz, R. M. (1969): 'Sex Differences and Variations in Body Attitudes'. *Journal of Consulting and Clinical psychology*, 33, pp.625-629.

Lamb, M., Pleck, J., Levine, R. (1987): 'Effects of Increased Paternal Involvement on Fathers and Mothers', in Lewis, C. and O' Brien, M. (ed.): *Reassessing Fatherhood: New Observations on Fatherhood and the Modern Family*. Thousand Oaks, California: Sage Publications, pp.109-125.

Lamb, M. (1987): *The Father's Role: Cross Cultural Perspectives*. Hillside, New Jersey: Lawrence Erlbaum,

La Rossa, R. (1997): *The Modernisation of Fatherhood: A Social and Political History*. Chicago: University of Chicago Press.

Laws, T. (2006): *A Handbook of Men's Health*. London: Elsevier Churchill Livingstone.

Lazarus, R. S. (1981): 'The Stress and Coping Paradigm', in Esdorfer, C., Cohen, D., Kleinman, A., Maxim, P. (ed.): *Models for Clinical Psychopathology*. New York: Spectrum, pp.177-214.

Lazarus, R. S. and Folkman, S. (1984): *Stress, Appraisal and Coping*. New York: Springer.

Lazowick, L. M. (1955): 'On the Nature of Identification'. *Journal of Abnormal and Social Psychology*, 51, pp.175-183.

Leifer, M. (1980): *Psychological Effects of Motherhood: A Study of First Pregnancy*. New York: Praeger.

Leininger, M. M. (1990): 'Ethnomethods: The Philosophic and Epistemic Bases to Explicate Transcultural Nursing Knowledge'. *Journal of Transcultural Nursing*, 1, pp.40-51.

Le May, A. (2001): *Making Use of Research*. London: Distance Learning Centre, South Bank University.

Lewis, C. (1982): 'A Feeling You Can't Scratch': The Effect of Pregnancy and Birth on Married Men. London: Junction Books.

Levant, R. F. and Kelley, J. (1989): *Between Father and Child*. New York: Viking Publications.

Levant, R. F. (1992): 'Toward the Reconstruction of Masculinity'. *Journal of Family Psychology*, 5 (3-4), pp.379-402.

Levant, R. F. and Pollack, W. S. (1995): *A New Psychology of Men*. New York: Basic Books.

Levine, F. M. and DeSimone, L. L. (1991): 'The Effects of Experimenter Gender on Pain Report in Male and Female Subjects'. *Pain*, 44, pp.69-72.

Liebenberg, B. (1967): 'Expectant Fathers'. *American Journal of Orthopsychiatry*, 37, pp.358-359.

Light, H. and Frenster, C. (1974): 'Maternal Concerns during Pregnancy'. *American Journal of Obstetrics and Gynaecology*, 118 (1), pp.46-50.

Lincoln, Y. S. and Guba, E. G. (1985): *Naturalistic Inquiry*. Beverly Hills, California: Sage Publications.

Lindquist, R. (1991): 'Don't forget the Pilot work!' *Heart and Lung*, 20, pp.91-92.

Lipkin, M., and Lamb, G. S. (1982): 'The Couvade Syndrome: An Epidemiological Study'. *Annals of Internal Medicine*, 96, pp.509-511.

Locke, H. and Wallace, K. (1959): 'Short Marital Adjustment and Prediction tests: Their Reliability and Validity'. *Marriage and Family living*, 21, pp.251-255.

Long, J. S. (1997): *Regression models for categorical and limited dependent variables*. Sage, Thousand Oaks, California.

Longobucco, D. C. and Freston, M. S. (1989): 'Relation of Somatic Symptoms to Degree of Paternal-role Preparation of First-time Expectant Fathers'. *Journal of Obstetric, Gynaecological, and Neonatal Nursing*, 18 (6), pp.484-488.

Lopez, K. A. and Willis, D. G. (2004): 'Descriptive Versus Interpretive Phenomenology: Their Contributions to Nursing Knowledge'. *Qualitative Health Research* 14 (5), pp.726-735.

Lukesch, H. (1977): 'Das Auftreten Von Couvade-Symptomen'. *Weinscher Medical Wochenscher*, 127, pp.198-201.

MacArthur, J. D. and MacArthur, C. T. (1998): *Perceived Stress Scale*. MacArthur Research Network on Socioeconomic Status and Health. Available at: <http://www.macses.ucsf.edu/research/overview> (Assessed on 3rd February 2003).

Magalini, S. I. and Magalini, S. C. (1997): *Dictionary of Medical Syndromes*. 4thedn. Philadelphia: Lippincott-Raven.

Malthie, A. A., Cavenar, J. O., O' Shanick, G. J., Valou, M. R. (1980): 'A Couvade Syndrome Variant: Case Report'. *North Carolina Medical Journal*, 41 (2), pp.90-92.

Marilov, A. A., (1997): 'The Couvade Syndrome (Russian)'. *Zhurnal Nevrologii i Psikhiiatrii Imeni*, 97 (12), pp.65-67.

Marshall-Lucette, S. (1999): 'A Qualitative Study of the Continued Professional Learning of Project 2000 Diplomates'. University of Surrey, Surrey: Unpublished Doctoral Thesis.

Martin, C. L. (1995): 'Stereotypes about traditional and non-traditional gender roles'. *Sex Roles*, 33 (11-12), pp.727-751.

Mason, C. and Elwood, R. (1995): 'Is there a Physiological Basis for the Couvade and the Onset of Paternal Care?' *International Journal of Nursing Studies*, 32 (2), pp.137-142.

Mason, M. C. (1993): *Male Infertility: Men Talking*. London: Routledge.

Masoni, S., Maio, A., Trimarchi, G., de Punzio, C., Fioretti, P. (1994): 'The Couvade Syndrome'. *Journal of Psychosomatic Obstetrics and Gynaecology*, 15 (3), pp.125-131.

- May, K. A. (1975): 'Psychological Involvement in Pregnancy by Expectant Fathers'. *Journal of Obstetric, Gynaecological and Neonatal Nursing* 4 (2), pp.40-42.
- May, K. A. (1980): 'A Typology of Detachment/Involvement Styles Adopted during Pregnancy by First-time Expectant Fathers'. *Western Journal of Nursing Research*, 2 (2), pp.445-453.
- May, K. A. (1982): 'Three Phases of Father Involvement in Pregnancy'. *Nursing Research*, 31 (6), pp.337-342.
- May, K. A. and Perrin, S. P. (1995): 'Prelude: Pregnancy and Birth', in Hanson, S. M. H. and Bozett F. W. (ed.): *Dimensions of Fatherhood*. Beverly Hills, California: 3rd edn, Sage Publications, pp.64-91.
- Mayer, C. and Kapfhammer, H. P. (1993): 'Couvade Syndrome, An Illness in the Transition to Fatherhood'. *Fortschirt Der Neurologie-Psychiatrie*, 61 (10), pp.354-360.
- Mayle, P. (1977): *How to be a pregnant father*. New Jersey: Lyle Stuart Publishing.
- Mays, N. and Pope, C. (1995): 'Rigour and Qualitative Research'. *British Medical Journal*, 311, pp.109-112.
- Meerabeau, L. (1991): 'Husbands' Participation in Fertility Treatment: They Only Serve Those Who Stand and Wait'. *Sociology of Health and Illness*, 13, pp.396-410.
- Mehrabian, A. and Epstein, N. (1972): 'A Measure of Emotional Empathy'. *Journal of Personality*, 40, pp.525-543.
- Meigs A. S. (1976): 'Male Pregnancy and the Reduction of Sexual Opposition in a New Guinea Highlands Society'. *Ethnology*, 15, pp.393-407.
- Mercer, R. T., Ferketich, S., May, K. A., DeJoseph, J., Sollid, D. (1988): 'Further Exploration of Maternal and Paternal-foetal Attachment'. *Research in Nursing and Health*, 11, pp.83-95.

- Miles, M. B. and Huberman, A. M. (1994): *Qualitative Data Analysis: An Expanded Source Book*. Thousand Oaks, California: 2nd ed. Sage publications.
- Morse, J. (1991): 'Approaches to Qualitative-Quantitative Methodological Triangulation'. *Nursing Research*, 40 (1), pp.120-123.
- Morse, J. M. and Field, P. A. (1995): *Qualitative Research Methods for Health Professionals*. London: Sage Publications.
- Morse, J. M., Barrett, M., Mayan, M., Olson, K., Spiers, J. (2002): 'Verification Strategies for establishing Reliability and Validity in Qualitative Research'. *International Journal of Qualitative Methods*, 1 (2), pp.1-19.
- Muller, M. E. (1991): 'A Critical Review of Prenatal Attachment Research'. *Scholarly Inquiry for Nursing Practice International Journal*, 6 (1), pp.5-26.
- Muller, M. E. (1993): 'Development of the Prenatal Attachment Inventory'. *Western Journal of Nursing Research*, 15 (2), pp.199-215.
- Munroe, R. L. and Munroe, R. H. (1971): 'Male Pregnancy Symptoms and Cross-Sex Identity in Three Societies'. *Journal of Social Psychology*, 84, pp.11-25.
- Munroe, R. L., Munroe, R. H., Nerlove, S. B. (1973): 'Male Pregnancy Symptoms and Cross-Sex Identity: Two Replications'. *Journal of Social Psychology*, 89, pp.47-148.
- Nagelelkerke, N. J. D. (1991): A Note on General Definition of the Coefficient of Determination. *Biometrika*, 78 (3), pp.691-692.
- Norbeck, J. S. (1984): 'Modification of Life Event Questionnaires for Use with Female Respondents'. *Research in Nursing and Health*, 7, pp.61-71.
- Nykvist, K., Kjellberg, A., Bildt, C. (2002): 'Causal Explanations for Common Somatic Symptoms Among Women and Men'. *International Journal of Behavioural Medicine*, 9 (3), pp.286-300.

O'Donohue, W. and Ferguson, K. E. (2003): *Handbook of Professional Ethics for Psychologists: Issues, Questions and Controversies*. Thousand Oaks, California: Sage Publications.

Oliver, P. (2003): *The Student's Guide to Research Ethics*. Buckingham: Open University Press.

Oppenheim, A. N. (1992): *Questionnaire Design and Attitude Measurement*. 2ndedn. London: Continuum International Publishers Group.

Osofsky, H. (1982): 'Expectant and New Fatherhood as a Developmental Crises'. *Bulletin of the Menninger Clinic*, 46 (3), pp.209-230.

Osofsky, H. J., and Culp R. E. (1989): 'Risk Factors in the Transition to Fatherhood', in Cath, S. H. Gurwitt, A.; & Gunsberg, L. (ed.): *Fathers and their Families*. Hillsdale, New Jersey: The Analytic Press, pp.145-165.

Oswald, L. M., Zandi, P., Nestadt, G., Potash, J. B., Kalaydjian, E., Wand, G. S. (2001): 'Relationship between cortisol responses to stress and personality'. *Psychoneuroendocrinology*, 26, pp.711-720.

Packer, M. J. (1985): 'Hermeneutic Inquiry in the study of Human Conduct'. *Psychologist*, 40 (10), pp.108-193.

Parahoo, K. (2006): *Nursing Research: Principles, Process and Issues*. Basingstoke: 2nd ed. Palgrave Macmillan.

Paterson, M. and Higgs, J. (2005): 'Using Hermeneutics as a Qualitative Research Approach in Professional Practice'. *The Qualitative Report*, 10 (2), pp.339-357.

Patton, M. Q. (1992): *Qualitative Research and Evaluation Methods*. London: 3rdedn, Sage Publications.

Pearlin, L. I., and Schooler, C. (1978): 'The Structure of Coping'. *Journal of Health and Social Behaviour*, 19, pp.2-21.

Pennebaker, J. (1982): *The Psychology of Physical Symptoms*. New York: Springer-Verlag.

Pfeffer, N. (1985): 'The Hidden Pathology of the Male Reproductive System', in Hormans, H. (ed.) *The Sexual Politics of Reproduction*. Aldershot: Gower, pp.30-45.

Pleck, J. H. (1993): 'Are Family Supportive Employer Policies Relevant to Men'? in Hood, J. C. (ed.): *Work, Family and Masculinities*. Beverly Hills, California: Sage Publications, pp.217-237.

Pleck, J. H. (2003): 'The Gender Role Strain Paradigm: An Update', in Levant, R. F. and Pollack, W. S. (ed.): *A New Psychology for Men*. 2nd edn. New York: Basic Books, pp.11-32.

Plot, R. (1677): *The Natural History of Oxfordshire*. Oxford: Oxford University Museum of Natural History.

Poland, B. D. (1995): 'Transcript Quality as an Aspect of Rigor in Qualitative Research'. *Qualitative Inquiry*, 1, pp.290-310.

Polomeno, V. (1998): 'Health Promotion for Expectant Fathers: Part 1. Documenting the Need'. *The Journal of Perinatal Education*, 7 (1), pp.1-8.

Pope, C., Ziebland, S., Mays, N. (2000): 'Qualitative research in Health care: Analysing Qualitative Data'. *British Medical Journal*, 320, pp.114-116.

Potts, M. K., Burnam, M. A., Wells, K. B. (1991): 'Gender Differences in Depression Detection: A Comparison of Clinician Diagnosis and Standard Assessment'. *Psychological Assessment*, 3, pp.609-615.

Quill, D. M., Lipkin M., Lamb, G. S. (1984): 'Health-care seeking by Men in Their Spouses' Pregnancy'. *Psychosomatic Medicine*, 46 (3), pp.277-283.

Radloff, L. (1977): 'The CES-D Scale: A Self-report Depression Scale for Research in the General Population'. *Journal of Applied Psychological Measurement*, 1, pp.385-401.

Ramcharan, P. and Cutcliffe, J. R. (2001): 'Judging the Ethics of Qualitative Research: Considering the 'Ethics as Process' Model'. *Health and Social Care in the Community*, 9 (6), pp.356-366.

Rapheal-Leff, J. (1991): *Psychological Process of Childbearing*. London: Chapman and Hall.

Raskin, V. D., Richman, J. A., Gaines, C. (1990): 'Patterns of Depressive Symptoms in Expectant and New Parents'. *American Journal of Psychiatry*, 147 (5), pp.658-660.

Ray, M. (1994): 'The Richness of Phenomenology: Philosophical Theoretical and Methodological Concerns' in Morse, J. M. (ed.): *Critical Issues in Qualitative Methods*. Thousand Oaks, California: Sage publications.

Read, B. (2007): 'Dads are pregnant'. *Daily Mirror*, Thursday 14th June, p.21.

Rich, A. (1992): *Of Women Born*. London: 2nd edn, Virago.

Richardson, J. T. E. (2002): *Handbook of Qualitative Research Methods for Psychology and the Social Sciences*. London: 5th edn, Blackwell Scientific Publications.

Robbins, J. M. and Kirmayer, L. J. (1991): 'Attributions of Common Somatic Symptoms'. *Psychological Medicine*, 21, pp.1029-1045.

Rolf, G. (2004): 'Validity, Trustworthiness and Rigour: Quality and the idea of Qualitative Research'. *Journal of Advanced Nursing*, 53 (3), pp.304-310.

Romalis, C. (1981): *Childbirth Alternatives to Medical Control*. Austin, Texas: University of Texas Press.

Roopnarine, J. L. and Miller, B. C. (1995): 'Transitions to Fatherhood', in Hanson, M. H. and Bozett, F. W. (ed.): *Dimensions of Fatherhood*. 3rd edn. Beverly Hills, California: Sage Publications, pp.49-63.

Rosenberg, M. (1979): *Conceiving the Self*. New York: Basic Books.

Rosmond, R., Dallman, M. F., and Björntorp, P. (1998): 'Stress-related Cortisol Secretion in Men: Relationships with Abdominal Obesity and Endocrine, Metabolic and Hemodynamic Abnormalities'.

Journal of Clinical Endocrinology and Metabolism, 83 (6), pp.1853-1859.

Sabo, D. and Gordon, D. F. (1995): *Men's Health and Illness: Gender, Power and the Body*. London: Sage Publications.

Salkind, N. J. (2004). *Statistics for People who Hate Statistics*. London: Sage Publications.

Sampath, S. (2005): *Sampling Theory and Methods*. Middlesex: Alpha Science International Ltd.

Sandelowski, M. (1993): 'Rigour or rigour Mortis: the Problem of Rigour in Qualitative Research Revisited'. *Advances in Nursing Science*, 16 (2), pp.1-18.

Sandelowski, M. (1994): 'Separate, but Less Equal: Foetal Ultrasonography and the Transformation of Expectant Mother/Fatherhood'. *Gender and Society*, 8 (2), pp.230-245.

Sandelowski, M. and Barroso, J. (2002): 'Reading Qualitative Studies'.

International Journal of Qualitative Methods, 1 (1), Article 5. Available at:

<http://www.ualberta.ca/ijqm/> (Assessed on 2nd June 2006).

Schodt, C. M. (1989): 'Paternal-foetal Attachment and Couvade: A Study of Patterns of Human-environment Integrality'. *Nursing Science Quarterly*, 2 (2), pp.88-97.

Schumn, W. R., Paff-Bergen, L. A., Hatch, R. C. (1986): 'Concurrent and Discriminant Validity of the Kansas Marital Satisfaction Scale'. *Journal of Marriage and Family*, 5, pp.345-355.

Scopesi, A. and Repetto, I. (1990): 'Becoming a Father: A Critical Stage?' *Journal of Reproductive and Infant Psychology*, 8, pp.283-284.

Shaffir, W. B. and Stebbins, R. A. (1991): *Experiencing Fieldwork: An Insiders View of Qualitative Research*. Newbury Park, California: Sage Publications.

- Shakespeare, W. (1600): *Much Ado about Nothing*. London: Valentine Simmes.
- Shapiro, J. L. (1987): 'The Expectant Father'. *Psychology Today*, 21 (1), pp.36-42.
- Silverman, D. (2005): *Doing Qualitative Research*. London: 2nd edn, Sage Publications.
- Silverstein, L. B. (1996): 'Fathering is a Feminist Issue'. *Psychology of Women Quarterly* 20, pp.3-37.
- Sims, P. (2007): 'Men really do have phantom pregnancies'. *Daily Mail*, Thursday, 14th June, p.23.
- Sizaret, P., Degiovanni, A., Gaillard, P., Benichou, C. (1991): 'A Survey on the Somatic Symptoms of the Couvade'. *Annals of Medical Psychology*, 149 (3), pp.230-233.
- Smith, R. (2007): 'Pregnancy can be just as painful for fathers'. *Evening Standard*, Wednesday, 13th June 2007, p.25.
- Spielberger, C., Gorsuch, R., Lushene, R., Vagg, P. R., Jacobs, G. A. (1983): *The State-Trait Anxiety Inventory*. Palo Alto, California: Consulting Psychologists Press.
- Standford Encyclopaedia of Philosophy*. Available at:
<http://www.plato.stanford.edu/entries/phenomenology/> (Accessed: 10th May 2005).
- Stanley, R. (2004): *Nurses and the Ethics of Clinical Research*.
 London: Unpublished Open Learning Pack, 4th ed. Faculty of Health and Social Care Sciences, Kingston University and St. George's, University of London.
- Steinberg, S., Kruckman, L., Steinberg, S. (2000): 'Reinventing Fatherhood in Japan and Canada'. *Social Science and Medicine*, 50 (9), pp.1257-1272.
- Storey, A. E., Walsh, C. J., Quinton, R. L., Wynne-Edwards, K. E. (2000): 'Hormonal Correlates of Paternal Responsiveness in New and Expectant Fathers'. *Evolution and Human Behaviour*, 21 (2), pp.79-95.
- Strickland, O. L. (1987): 'The Occurrence of Symptoms in Expectant Fathers'. *Nursing Research*, 36, pp.184-189.

Summersgill, P. (1993): Couvade: 'The Retaliation of Marginalised Fathers', in Alexander, J., Levy, V., Roch, S. (ed.): *Midwifery Practice: A Research-based Approach*. London: MacMillan Press, pp.91-109.

Symonds, A. and Hunt, S. (1996): *The Midwife and Society: Perspectives, Policies and Practice*. London: MacMillan Press.

Taylor, M. C. and Hall, J. A. (1982): 'Psychological Androgyny: Theories, Methods, and Conclusions'. *Psychological Bulletin*, 92, pp.347-366.

Tenyi, T., Trixler, M., Jadi, F. (1996): 'Psychotic Couvade: 2 Case Reports'. *Psychopathology*, 29 (4), pp.252-254.

Terry, D., McHugh, T., Noller, P. (1991): 'Role Dissatisfaction and the Decline in Marital Quality across the Transition to Parenthood'. *Australian Journal of Psychology*, 43 (3), pp.129-132.

Thomas, S. G. and Upton, D. (2000): 'Expectant Fathers Attitudes toward Pregnancy'. *British Journal of Midwifery*, 8 (4), pp.218-221.

Trethowan, W. H. and Conlon, M. F. (1965): 'The Couvade Syndrome'. *British Journal of Psychiatry*, 111, pp. 57-66.

Trethowan, W. H. (1968): 'The Couvade Syndrome: Some Further Observations'. *Journal of Psychosomatic Research*, 12, pp.107-115.

Trethowan, W. H. (1972): 'The Couvade Syndrome', in Howells, J. G (ed.): *Perspectives in International Child Psychiatry*. Edinburgh: Oliver and Boyd, pp.67-93.

Trevett, N. (2002): *Mind the Gender Gap*. Available at:
<http://www.hda-online.org.uk/hdt/0102/evidence.html> (Accessed 8th July 2005).

Tsai, S. and Chen, C. (1997): 'Somatic Symptoms, Stress and Social Support of Expectant Fathers (Chinese)'. *Nursing Research*, 5 (5), pp.439-451.

Twiggs, F. (1987): 'Expectant Fathers: Couvade Syndrome and Stress'. *Dissertation Abstracts International*, 48 (7) p.2112B.

Tylor, E. B. (1865): *Researches into the Early History of Mankind and the Development of Civilization*. London: 2nd edn, John Murray.

van Donegan, M., Frinking, G., Jacobs, M. (1995): *Changing Fatherhood: An Interdisciplinary Perspective*. Amsterdam: Thesis Publishers.

van Leeuwen, K. (1965): 'Pregnancy Envy in the Male'. *International Journal of Psychoanalysis*, 47, pp.319-324.

van Manen, M. (1997): *Researching Lived Experience: Human Science for an Action Sensitive Pedagogy*. London: 2nd ed. Althouse Press.

van Teijlingen, E. R., Rennie, A. M., Hundley, V., Graham, W. (2001): 'The Importance of Conducting and Reporting Pilot Studies: The example of the Scottish Births Survey'. *Journal of Advanced Nursing*, 34 (3), pp.289-295.

Verbrugge, L. M. (1980): 'Sex Differences in Complaints and Diagnoses'. *Journal of Behavioural Medicine*, 3 (4), pp.327-355.

Verbrugge, L. M. (1985): 'Gender and Health: An Update on Hypotheses and Evidence'. *Journal of Health and Social Behaviour*, 26, pp.156-182.

Verbrugge, L. M. and Wingard, D. L. (1987): 'Sex Differentials in Health and Mortality'. *Women and Health*, 12 (2), pp.103-145.

Volling, B. and Belsky, J. (1991): 'Multiple Determinants of Father Involvement during Pregnancy in Dual-earner and Single-earner Families'. *Journal of Marriage and the Family*, 53, pp.461-474.

Walton, C. M. (1982): 'Expectant Fatherhood: An Investigation of the Couvade Syndrome and an Exploration of Anticipating Childbirth for Fathers'. *Dissertation Abstracts International*, 44 (1), p.332B.

Wapner, J. H. (1975): 'An Empirical Approach to the Attitudes, Feelings and Behaviours of Expectant Fathers'. *Dissertation Abstracts International*, 36, pp.3633B-3634B.

- Wapner, J. H. (1976): 'The Attitudes, Feelings and Behaviours of Expectant Fathers Attending Lamaze Classes'. *Birth and Family Journal*, 3, pp.5-13.
- Ware, J. E. (1976): 'Scales for Measuring General Health Perceptions'. *Health Services Research*, 11, pp.396-415.
- Ware, J. E., Snow, K. K., Kosinski, M., Gandek, B. (1993): *SF-36 Health Survey: Manual and Interpretation Guide*. New England Medical Center, Boston: The Health Institute.
- Weaver R. H., and Cranley M. S. (1983): 'An Exploration of Paternal-foetal Attachment Behaviour'. *Nursing Research*, 32 (2), pp.68-72.
- Wengraf, T. (2004): *Qualitative Research Interviewing*. 3rd edn. Thousand Oaks, California: Sage Publications.
- White, N. R. (1994): 'About Fathers: Masculinity and the Social Construction of Fatherhood'. *Australian and New Zealand Journal of Sociology*, 30 (2), pp.119-131.
- Wilkins, G. (1609): *The Miseries of Enforced Marriage*. London: The Malone Society Reprints (1964).
- Williams, C. L. and Heikes, E. J. (1993): 'The Importance of Researcher's Gender in the In-depth Interview: Evidence from Two Case Studies of Male Nurses'. *Gender and Society*, 7 (2), pp.280-291.
- Wolf, O. T., Schommer, N. C., Hellhammer, D. H., McEwen, B. S., Kirschbaum, C. (2006): 'The Relationship between Stress-induced Cortisol Levels and Memory Differences between Men and Women'. *Neuropsychopharmacology*, 31, pp.1583-1591.
- Woolcott, H. F. (1994): *Transforming Qualitative Data: Description, Analysis and Interpretation*. Thousand Oaks, California: Sage Publications.
- World Health Organisation, (1993) *International Classification of Diseases*. Geneva: 10th edn, WHO.

Zuckerman, M. and Lubin, B. (1965): *Manual for the multiple Affect Adjective Checklist*. San Diego: Educational and Industrial Testing Service.

Zuckerman, M. and Lubin, B. (1985): *Manual for the Multiple Affect Adjective Checklist Revised*. San Diego: Educational and Industrial Testing Service.

Bibliography

- Appleton, J. V. (1995): 'Analysing Qualitative Interview Data: Addressing Issues of Validity and Reliability'. *Journal of Advanced Nursing*, 22, pp.993-997.
- Babbie, E. (1983): *The Practice of Social Research*. Belmont, 3rdedn, California: Wadsworth Publishers.
- Barclay, L., Donovan, J., Genovase, A. (1990): 'Becoming a Father: A Critical Stage'. *Journal of Reproductive and Infant Psychology*, 8, pp.283-284.
- Barry H. R. (1980): 'Attitudes Toward the Pregnant Body', in Blum, B. L, Fosshage, J. L., Frank, K. A., Grayson, H., Loew, C. L, Lowenheim, H. (ed.): *Psychological aspects of Pregnancy, birthing, and bonding*. London: Human Sciences Press, pp.227-234.
- Beck, C. T. (1993): 'Qualitative Research: The Evaluation of its Credibility, Fittingness and Auditability'. *Western Journal of Nursing Research*, 15 (2), pp.263-266.
- Bedford, V. A. and Johnson, N. (1988): 'The Role of the Father'. *Midwifery*, 4, pp.190-195.
- Bland, M. (2000): *An Introduction to Medical Statistics*. Oxford: 3rdedn, Oxford University Press.
- Bogner, H. R. and Gallo, J. J. (2004): 'Are Higher Rates of Depression in Women Accounted for by Differential Symptom Reporting?' *Social Psychiatry and Psychiatric Epidemiology*, 39 (2), pp.126-132.
- Boyask, R. (2004): 'A Summary of Quality in Qualitative Evaluation: A Framework for Assessing the Evidence'. *Journal of Economic and Social Research Council (Teaching and Learning Research Programme)*, 8, ISSN: 1475-4193.
- Britten, N. (2000): 'Qualitative Interviews in Health Research'. In Pope C. & Mays, N. (ed): *Qualitative Research in Healthcare*. London: 2ndedn, British Medical Association, pp.11-19.
- Brooker, E. (1994): 'One Bump or Two'? *The Guardian*, April 12th, p.16.

Broido, E. M. and Manning, K. (2002): 'Philosophical Foundations and Current Theoretical Perspectives in Qualitative Research'. *Journal of College Student Development*, 43 (4), pp.434-445.

Cartwright, A. (1986): 'Some Experiments with Factors that Might Affect the Response to a Postal Questionnaire'. *Statistics in Medicine*, 5, pp.607-617.

Chan, K. K. L. and Paterson-Brown, S. (2002): 'How Do Fathers Feel after Accompanying their Partners in Labour and Delivery?' *Journal of Obstetrics and Gynaecology*, 22 (1), pp.11-15.

Cicourel, A. (1964): *Method and Measurement in Sociology*. New York: Free Press.

Coffey, A. and Atkinson, P. (1996): *Making Sense of Qualitative Data: Complimentary Research strategies*. Thousand oaks California: Sage publications.

Collier, P. (1982): 'Understanding Couvade: A Practioner's Comments on Research Findings'. *American Journal of Maternal Child Nursing*, 7, pp.114-115.

Collier, P. (1982): 'A Practitioner Comments on Research Findings'. *American Journal of Maternal Child Nursing*, 7, pp.114-115.

Conroy, S. A. (1999): *Heidegger in Research Methodologies*. Oxford. Institute of Nursing, Royal College of Nursing.

Cowan, C. P., Cowan, P. A., Heming, G., Garrett ., Coysh, W. S., Curtis-Boles, H., Boles, A. J. (1985): 'Transitions to Parenthood: His, Hers, and Theirs'. *Journal of Family Issues*, 6 (4), pp.451-481.

Cresswell, J. W., Feters, M. D., Ivankova, N. V. (2004): 'Designing a Mixed Methods Study in Primary Care'. *Annals of Family Medicine*, 2, pp.7-12.

Davis, O. S. (1978): 'Mood and symptoms of Expectant Fathers during the Course of Pregnancy: A Study of the Crises Perspective of Expectant Fatherhood'. *Dissertation Abstracts International*, 38, p.5741A.

Denzin, N. K. and Lincoln, Y. S. (1994): *Handbook of Qualitative Research*. Thousand oaks, California: Sage Publications.

Donkin, A. and Lee, Y. H. (2002): 'Implications of Changes in the UK Social and Occupational Classification in 2001 for Vital Statistics'. *Population Trends*, 107, pp.23-29.

Donkin, A. and Daniels, N. (2003): 'Implications for Vital Statistics of the Changes from SOC90 to SOC2000 Occupation Coding'. *Health Statistics Quarterly*, 18, pp.25-32.

Draper, J. (2002): 'It's the First Scientific Evidence: Men's Experience of Pregnancy Confirmation?' *Journal of Advanced Nursing*, 39 (6), pp.563-570.

Dyer, E. D. (1963): 'Parenthood as crises: A re-study'. *Marriage and Family Living*, 25, pp.196-201.

Dzurec, L. C. and Coleman, P. (1995): 'Abstract: A Hermeneutic Analysis of the Process of doing Interviews'. *Image: Journal of Nursing Scholarship*, 27, p.245.

Field, P. A. and Morse, J. M. (1989): *Nursing Research: the Application of Qualitative Approaches*. London: Chapman and Hall.

Fielding, N. and Thomas, H. (1994): 'Qualitative Interviewing', in Gilbert, N. (ed.): *Researching Social Life*. London: Sage Publications, pp.123-144.

Forchuk, C. and Roberts, J. (1993): 'How to Critique Qualitative Research Articles'. *Canadian Journal of Nursing Research*, 25 (4), pp.47-55.

Gadamer, H. G. (1976): *Philosophical Hermeneutics*. Berkeley, California: University of California Press.

Gilbert, N. (1994): *Researching Social Life*. London: 2nd edn, Sage Publications.

Gomez, E. A., Sandlin, P., Adams, G. L. (1982): 'The Couvade Syndrome: Its psychophysiological, Neurotic and Psychotic Manifestations', in Fann, W. E., Karacan, I., Pokorny, A. D., Williams, R. L. (ed.): *Phenomenology and Treatment of Psychophysiological Disorders*. Lancaster, England: MTP Press Ltd, pp.129-141.

Gottlieb, S. and Wessel, M. A. (1982): 'Gastro-intestinal Symptoms among Expectant Fathers'. *Connecticut Medicine*, 46 (12), pp.715-717.

Gurwitt, A. (1989): 'Flight from Fatherhood', in Cath, S. T., Gurwitt, A., Gunsberg, L. (ed.): *Fathers and their Families*. Hillsdale, New Jersey: The Analytic Press, pp.167-188.

Hammersley, M. and Atkinson, P. (1995): *Ethnography: Principles and Practice*. London. 2nd edn, Routledge.

Highfield, R. (2006): 'Fathers-to-be may pile on weight in sympathy'. *The Daily Telegraph* (February 1st), p.18.

Hoffart, N. (1991): "A Member Check Procedure to Enhance Rigor in Naturalistic Research". *Western Journal of Nursing Research*, 13, pp.522-534.

Hosmer, D. W. and Lemishow, S. (2000): *Applied logistic Regression*. New York, John Wiley and Sons.

Lacoursiere, R. B. (1972): 'Fatherhood and Mental Illness: A Review and New Material'. *Psychiatric Quarterly*, 46 (1), pp.109-124.

Leininger, M. M. (1994): 'Evaluation Criteria and Critique Qualitative Research Studies', in Morse, J. M. (ed.): *Critical Issues in Qualitative Research Methods*. Newbury Park, California: Sage Publications, pp.95-116.

LeVasseur, J. J. (2003): 'The Problems of Bracketing in Phenomenology'. *Qualitative Health Research*, 13 (3), pp.408-420.

McAllen, D. B. (1996): *Why do Some Men Experience Pregnancy Symptoms such as Vomiting and Nausea when their Wives are Pregnant?* Available at:
http://www.scientificamerican.com/print_version.cfm.articleID=0002FB96-5234-10
(Accessed: 10th March 2006).

More, S. D. (1998): 'The Pregnant Man: An Oxymoron'. *Journal of Gender Studies*, 7 (3), pp.319-328.

Morse, J. M. (1991): *Qualitative Nursing Research: A Contemporary Dialogue*. London: Sage Publications.

Munroe, B. H. ((2001): *Statistical Methods for Health Care Research*. New York: 4th Edition, Lippincott Publishers.

National Health Service (2005): *NHS Maternity Services Quantitative Research (October) Prepared by TNS System Three for Kate Hawkins*. London: DOH.

Niven, C. A. and Cronk, M. (1992): *Psychological Care for Families: Before, during and after Birth*. London: Butterworth Heinemann.

Pope, C. and Mays, N. (2000): *Qualitative Research in Health Care*. London: 2nd ed. BMJ Books.

Schwant, T. (1994): 'Constructionist, Interpretivist approaches to Human Inquiry', in Denzin, N. K. and Lincoln, Y. S. (ed): *Handbook of Qualitative Research*. Sage Publishers: Thousand Oaks, California, pp.118-137.

Shtatland, E. S., Moore, S., Barton, M. B. (2000): Why we need an R^2 measure of (and not only one) in Proc Logistic and Proc Genmod? SGUU Proceedings: SAS Institute Inc, pp. 1338-1343.

Silverman, D. (1993): *Interpreting Qualitative Data: Methods for Analysing Talk, Text and Interaction*. London: Sage Publishers.

St John, W. and Johnson, P. (2000): 'The Pros and Cons of Data Analysis Software for Qualitative Research'. *Journal of Nursing Scholarship*, 32 (4), pp.393-397.

Strange, K. C. and Zyzanski, S. J. (1989): 'Integrating Qualitative and Quantitative Research Methods'. *Annals of Family Medicine*, 21, pp.448-451.

Teresi, D. (1994): 'How to get a Man Pregnant'. *The New York Times Magazine*, (November 24th), p.6.

Thompson, J. L. (1990): 'Hermeneutical Inquiry' in Moody, E. (ed.): *Advancing Nursing Science Through Research*. Newbury Park, California: Sage Publishers.

Tonti, M. (1979): 'Transition to Fatherhood: Tasks, Stresses and Supports'. *Dissertation Abstracts International*, AAC7924995.

Verbrugge, L. M. (1980): 'Sex Differences in Complaints and Diagnosis.' *Journal of Behavioural Medicine*, 3 (4), pp.327-355.

Walsh, K. (1996): Philosophical Hermeneutics and the Prospect of Hans Gadamer: Implications for Nursing Research. *Nursing Inquiry*, 3, pp.231-237.

West, C. (1996): 'Ethnography and Orthography: A Modest Proposal'. *Journal of Contemporary Ethnography*, 25, pp.327-352.

Williams, C. L. and Heiks, E. J. (1993): The Importance of Researcher's Gender in the In-depth Interview: Evidence from Two Case studies of Male Nurses. *Gender and Society*, 7(2), pp.280-291.

Winston, R. (1999): *The Definitive Guide to Assisted Reproductive Techniques*. London: Vermillion.

World Health organisation (1998): *Gender and Health: Introduction*. Available at: <http://www.who.int/reproductive-health/publications/WHD-98-gender-and-health-technical-paper/WHD-98-16abstract.en> (Accessed 15th May 2006).

Zalk, S. R. (1980): 'Psychosexual Conflicts in Expectant Fathers', in Blum, B. L. (ed.): *Psychological Aspects of Pregnancy, Birthing, and Bonding*. New York: Human Sciences Press, pp.84-93.

APPENDIX 1

**List of Publications, Conferences
TV appearances, National and International
Newspapers and Magazines, Radio interviews
reporting the study**

LIST OF PUBLICATIONS RELATED TO THE STUDY

Brennan, A. and Marshall-Lucette, S. (2004): '*An Exploration of the Couvade Syndrome: The Pregnant Male*'.

Libro Den Ponencias, VIII Encuentro De Investigación en Enfermería, Seville, Spain, November de 2004, pp. 217-219. ISBN: 84-688-8934-2.

Brennan, A., Marshall-Lucette, S., Ayers, S., Ahmed, H. (2007a): 'A Qualitative Exploration of the Couvade Syndrome in Expectant Fathers'.

Journal of Reproductive and Infant Psychology, 25 (1), 18-39.

Brennan, A., Marshall-Lucette, S., Ayers, S., Ahmed, H. (2007b): 'A Critical Review of the Couvade Syndrome: The Pregnant Male'.

Journal of Reproductive and Infant Psychology, 25 (3), 173-189.

LIST OF CONFERENCE PRESENTATIONS OF THE STUDY

1. Reproductive and Infant Psychology Conference, Aston University,

Birmingham, March 2003: The Couvade Syndrome.

2. Father Figures Conference, Liverpool John Moore's University,

Liverpool, October 2003: A Critical Review of the Couvade Syndrome.

3. Libro De Ponencias, V111 Encuentro de Investigación en Enfermería,

Seville, November 2004: An Exploration of the Couvade Syndrome: The Pregnant Male.

4. St. Bartholomew's School of Nursing and Midwifery, City University,

London, May 2005: Couvade Syndrome: Sympathetic Pregnancy.

5. Nursing Research Conference: "Research into Practice", Kingston University, Surrey, June 2006: A Qualitative Exploration of the Couvade Syndrome in Men.
6. 7th Annual Interdisciplinary Research Conference, Trinity College, Dublin, November 2006: A Qualitative Exploration of Pregnancy-Related Symptoms Suggestive of the Couvade Syndrome in Expectant Men.
7. 7th Annual Conference: 'Toward Globalisation', Conference Centre, Westminster, London, April 2007: A Prospective Investigation of the Couvade Syndrome in the Male Partners of Pregnant Women.
8. 2nd Annual Nursing Research Conference: "Research into Practice", Kingston University, Surrey, June 2007: A Longitudinal Investigation of the Couvade Syndrome (Pregnancy Psycho-somatic Symptoms) in the Male Partners of Gestational Women.
9. 8th Annual Interdisciplinary Research Conference, Trinity College, Dublin, November 2007: A Quantitative Comparative Prospective Study of the Couvade Syndrome in the Male Partners of Pregnant Women in the UK.

LIST OF TV APPEARANCES RELATED TO THE STUDY

1. Living T.V. Sky Channel, November 2003: Documentary on the Couvade Syndrome (Arthur Brennan Interviewed).
2. BBC Breakfast, June 2007: Phantom Pregnancy in Men. (Arthur Brennan Interviewed).
3. ITV This Morning, August 2007: The Couvade Syndrome (Arthur Brennan Interviewed).

LIST OF NATIONAL AND INTERNATIONAL NEWSPAPERS, MAGAZINES REPORTING THE STUDY

1. Rebecca Smith (Health Editor): 'Pregnancy can be just as painful for fathers'.
Evening Standard, Wednesday, 13th June 2007, p.25.
2. Helen Husbands (Health Correspondent): 'Study reveals men suffer sympathy pains during pregnancy!'
Wandsworth Guardian, Wednesday, 13th June 2007.
3. Nic Fleming (Medical Correspondent): 'Men do suffer sympathy pains during pregnancy'.
The Daily Telegraph, Thursday, 14th June 2007, p.10.
4. Paul Sims (Health Correspondent): 'Men really do have phantom pregnancies'
The Daily Mail, Thursday, 14th June 2007, p.23.

5. Natasha Courtney-Smith (Feature editor): 'Dads are pregnant'
The Daily Mirror, Thursday, 14th June 2007, p.21.
6. Dan Collins: 'Pregnant ladies: Men can feel your pain literally!'
Irish Examiner, Friday, 15^h June 2007, p.15.
7. Sydney MX Newspaper (Australia): Junior a pain in dad's gut
14th June 2007.
8. The Courier Mail (Australia): Labour pains for dad-study shows Mr
mum a pregnancy phenomenon, 15th June 2007.
9. The Gold Coast Bulletin (Australia): Phantom of the rubble.
16th June 2007.
10. Sunday Herald (Australia): Pregnancy affects men too.
17th June 2007.
11. Robert Best (Health Correspondent): Men and pregnancy.
Trinidad and Tobago Express, Saturday, 7th July 2007.
12. Flávia Mantovani (Medical correspondent): Eles ficam grávidos: Síndrome de
couvades explica por que homens podem sentir enjôo, desejo e dores
durante a gravidez das comanheiras.
Folha San Paulo Equilíbrio, 9th August 2007.
13. Helen Husbands: Study reveals men suffer sympathy pains during
pregnancy.
Surrey Comet, 14th June 2007.
14. Hospital Doctor Magazine: Doctor spin, 17th June 2007.

LIST OF NATIONAL AND INTERNATIONAL RADIO INTERVIEWS REPORTING THE STUDY

1. BBC Radio 5 Live, June 2007: Arthur Brennan interviewed about his study on the Couvade Syndrome.
2. BBC Southern Counties Radio, June 2007: Arthur Brennan interviewed about his study on the Couvade syndrome.
3. BBC Radio Wales, June 2007: Arthur Brennan interviewed about his study on the Couvade syndrome.
4. ICN Network SM Radio (Bogotá, Columbia), June 2007: Arthur Brennan interviewed about pregnancy-related symptoms in men (translated into Spanish)
5. National Irish Radio News talk: The Moncrieff Show, June 2007:
Arthur Brennan interviewed about his study on pregnancy symptoms of the Couvade syndrome in men.
6. Cork Radio 103 FM (Irish), June 2007: Arthur Brennan interviewed about his study on pregnancy-related symptoms of the Couvade syndrome in men.
7. National Irish Radio: Drive time chat show: 'On the QT', June 2007:
Arthur Brennan interviewed about his study on male pregnancy symptoms of the Couvade syndrome.

8. Radio Kerry: 96-98 FM (Irish), June 2007:

Arthur Brennan interviewed about his experimental investigation of the Couvade syndrome.

9. Radio Cork: 96 FM (Irish), June 2007:

Arthur Brennan interviewed about his study of the Couvade syndrome.

10. Spin Radio Dublin: 97 FM (Irish), July 2007:

Arthur Brennan interviewed about his investigation of the Couvade syndrome.

11. Radio Europe Spain: 105 FM, August 2007:

Arthur Brennan interviewed about his investigation of the Couvade syndrome.

APPENDIX 2

**CD Rom of Systematic Review of Studies
Reporting Pregnancy-related Symptoms and/or
the Couvade Syndrome in Men (1951-2005)**

APPENDIX 5

Recruitment Poster



Would you as a future father be interested in participating in a study exploring men's physical and psychological health during your partner's pregnancy.

If so, please phone Arthur Brennan on 0208 547-8790 (answer phone) or email him at abrennan@hscs.sghms.ac.uk

APPENDIX 6

Diagnostic Criteria Selection Questionnaire

Diagnostic Selection Questionnaire

Please tick the appropriate boxes if you have experienced any of the following health problems during the first 3 months of your partners' pregnancy. Some of the questions may seem very personal to you but are necessary to determine your suitability for the study. Please be assured that all your answers will remain strictly confidential.

Health within first three months of the pregnancy.

Please indicate in the appropriate boxes whether you have suffered from the following health problems within 1-12 weeks of the pregnancy: -

- | | |
|---------------------------------|--------------------------|
| Nausea | <input type="checkbox"/> |
| Vomiting | <input type="checkbox"/> |
| Heartburn | <input type="checkbox"/> |
| Indigestion | <input type="checkbox"/> |
| Bloating/distension of stomach | <input type="checkbox"/> |
| Stomach pain | <input type="checkbox"/> |
| Constipation | <input type="checkbox"/> |
| Diarrhoea | <input type="checkbox"/> |
| Feeling more hungry than normal | <input type="checkbox"/> |
| Feeling less hungry than normal | <input type="checkbox"/> |
| Craving for certain food (s) | <input type="checkbox"/> |
| Aversion for certain food (s) | <input type="checkbox"/> |
| Weight gain | <input type="checkbox"/> |
| Weight loss | <input type="checkbox"/> |
| Urinating more than normal | <input type="checkbox"/> |
| Pain when urinating | <input type="checkbox"/> |
| Irritation when urinating | <input type="checkbox"/> |
| More colds than normal | <input type="checkbox"/> |

More sore throats than normal

☐

Breathlessness

☐

Mouth ulcers

☐

Nose bleeds

☐

Cramps anywhere in the body If so where?

Generalised aches/pains

☐

Toothache

☐

Tiredness

☐

Fainting

☐

Nervousness

☐

Irritability

☐

Restlessness

☐

Feelings of anxiety

☐

Feelings of depression

☐

Sleeping more than normal

☐

Sleeping less than normal

☐

Feelings of anger

☐

Thank you very much for taking the time to complete this form.

APPENDIX 7

Socio-demographic Characteristics of Pilot Study Sample

Table 4. Socio-demographic characteristics of the Pilot Study Population (*n* =23)

Category	Sample	
	<i>n</i>	%
Age (years)		
19-25	2	(9%)
26-33	10	(43%)
34-40	5	(22%)
41-48	6	(26%)
Social Class		
Class I (Professional)	4	(17%)
Class II (Intermediate)	9	(39%)
Class III (Non-manual / Skilled; Non-manual)	5	(22%)
Class I (Manual / Skilled)	2	(9%)
Class V (Unskilled Manual)	1	(4%)
Unemployed	2	(9%)
Marital Status		
Married	15	(65%)
Cohabiting	8	(35%)
Number of Previous Children		
0	12	(52%)
1	8	(35%)
2	3	(13%)
Pregnancy Planning		
Planned	17	(74%)
Unplanned	6	(26%)
Ethnic group		
Caucasian	8	(35%)
Black African	2	(9%)
Black Caribbean	5	(22%)
Black other	1	(4%)
Asian	6	(26%)
Chinese	1	(4%)

APPENDIX 8

Interview Guide and Probes for Qualitative Study (Phase I)

Interview Guide

Code/Pseudonym: _____

Date: _____ location of interview: _____

Commencement time of interview: _____

Cessation time of interview: _____

Introduce interview

- ❖ Nature of the study.
- ❖ Procedure and purpose of the interview, also broad points that will be covered within it.
- ❖ Contextual details e.g. clarify exact stages of pregnancy to be explored.
- ❖ Pertinent participant demographic data e.g. chronological order of pregnancy.
- ❖ Data of interest in context for specific participant i.e. stage of partner's pregnancy and expected date of birth

1. Participants' experiences of 1st trimester (1st-3rd month) of the pregnancy.

- Feelings (positive/negative).
- Own attitudes.
- Other (personal only).
- Seek rationale for those identified.
- Explore father's level of involvement in the pregnancy e.g. Attendance at scans, antenatal classes, nursery preparation, practical, financial and emotional support offered to partner.

2. Participants' experiences of symptoms during the 1st trimester (1st-3rd month) of the pregnancy.

- Physical symptoms e.g. Gastric system, appetite, weight, genito-urinary system, respiratory system, aches and pains, oral system, levels of energy.
- Psychological symptoms e.g. mood state, motivation, anxiety, perceived coping ability, sleeping pattern, cognition, coping.
- Social impact of pregnancy at this stage.
- Commencement of symptoms in relation to the pregnancy.
- Duration of symptoms in relation to stage/trimester of pregnancy.
- Seek rationale for all symptoms identified.
- Consultation, assessment and management of any symptoms encountered.
- Establish if cessation of symptoms were evident here.

- 3. Participants' experiences of 2nd trimester (4th–6th month) of the pregnancy.**
 - Feelings (positive/negative).
 - Own attitudes.
 - Other (personal only).
 - Seek rationale for those identified.
 - Explore father's level of involvement in the pregnancy e.g. Attendance at scans, antenatal classes, nursery preparation, practical, financial and emotional support offered to partner.
- 4. Participants' experiences of symptoms during the 2nd trimester (4th–6th month) of the pregnancy.**
 - Physical symptoms e.g. Gastric system, appetite, weight, genito-urinary system, respiratory system, aches and pains, oral system, levels of energy.
 - Psychological symptoms e.g. mood state, motivation, anxiety, perceived coping ability, sleeping pattern, cognition, coping.
 - Social impact of pregnancy at this stage.
 - Commencement of symptoms in relation to the pregnancy.
 - Duration of symptoms in relation to stage/trimester of pregnancy.
 - Seek rationale for all symptoms identified.
 - Consultation, assessment and management of any symptoms encountered.
 - Establish if cessation of symptoms were evident here.
- 5. Participants' experiences of 3rd trimester (7th–9th month) of the pregnancy.**
 - Feelings (positive/negative).
 - Own attitudes.
 - Other (personal only).
 - Seek rationale for those identified.
 - Explore father's level of involvement in the pregnancy e.g. Attendance at scans, antenatal classes, nursery preparation, practical, financial and emotional support offered to partner.
- 6. Participants' experiences of symptoms during the 2nd trimester (4th–6th month) of the pregnancy.**
 - Physical symptoms e.g. Gastric system, appetite, weight, genito-urinary system, respiratory system, aches and pains, oral system, levels of energy.
 - Psychological symptoms e.g. mood state, motivation, anxiety, perceived coping ability, sleeping pattern, cognition, coping.
 - Social impact of pregnancy at this stage.
 - Commencement of symptoms in relation to the pregnancy.
 - Duration of symptoms in relation to stage/trimester of pregnancy.
 - Seek rationale for all symptoms identified.
 - Consultation, assessment and management of any symptoms encountered.
 - Establish if cessation of symptoms were evident here.

7. Participants' explanations for any physical/psychological symptoms during the pregnancy.

- Explanations for individual symptoms.
- Explanations for symptoms collectively.
- Explanations for symptoms by those consulted.
- Explanations for symptoms by others.
- Identify difficulties in explaining symptoms by participant, person consulted or others.
- Personal, social, religious, cultural meanings of symptoms

8. Finishing the interview.

- Summarise main issues which emerged.
- Offer participant opportunity to ask questions and provide any further information.
- Thank participant.

APPENDIX 9

Analytical Field Notes and Reflective Interview Summary Sheet for Qualitative Study (Phase I)

Interview Analytical field Notes

- 1. Description of the interview context.**
- 2. Interpersonal dynamics affecting level of interaction between both parties in the interview.**
- 3. The main issues or themes that emerged from this contact.**
- 4. Information that appeared to be easily forthcoming and information that was not.**
- 5. Researcher perception of information that was salient or important.**
- 6. Interpersonal relationship between interviewer and participant.**
- 7. Any “hidden” meanings or agendas that appeared to be evident to researcher.**
- 8. Quality of data in terms of participants’ communicative style, willingness of participants’ disclosure, congruence between verbal articulations and body language, affect and content of disclosure, level of probing and depth / richness of data yielded.**

Reflective Interview Summary Sheet

To be completed immediately after the interview.

- 1. Rate the overall reliability of the information obtained. Factors that may affect reliability include co-operativeness and natural ability to communicate.**

3 – Excellent	No reason to suspect data unreliable.	<input type="checkbox"/>
2 – Good	Factor(s) present that may adversely affect reliability.	<input type="checkbox"/>
1 – Fair	Factor(s) present that definitely reduce reliability.	<input type="checkbox"/>
0 – Poor	Very low reliability.	<input type="checkbox"/>

Note why you made the above rating:

- 2. Rate the overall validity of the information obtained. Factors that may effect the validity include conformity, honesty and social desirability.**

3 – Excellent	No reason to suspect data validity.	<input type="checkbox"/>
2 – Good	Factor(s) present that may adversely affect validity.	<input type="checkbox"/>
1 – Fair	Factor(s) present that definitely reduce validity.	<input type="checkbox"/>
0 – Poor	Very low validity.	<input type="checkbox"/>

Note why you made the above rating:

3. Was there any reason to believe that the information obtained may have been confounded by any factor(s) present in the interview? Please describe below:

4. Any additional comments.

APPENDIX 10

Pilot Study Questionnaire (CD rom) and Validation Results

**DAMAGED CDROM IN THE
ORIGINAL THESIS. THIS
COULD NOT BE
INCLUDED IN THIS DIGITAL
COPY**

Rationale

Many studies investigating the syndrome have not used questionnaires specifically designed to measure its symptoms but have resorted instead to general health questionnaires (Trethowan and Conlon, 1965; 1968, Twiggs, 1987; Longobucco and Freston, 1989; Sizaret *et al*, 1991; Goodman, 1992; Thomas and Upton, 2000). In doing so, it is likely that the specific symptoms of the syndrome and its other characteristics may be overlooked. In addition, the majority of studies do not include symptom severity and distress in their measures. Further impetus for the development and pilot testing of a new questionnaire study instrument for the syndrome emanates from the lack of standardisation of those used in other investigations. This of course makes national and international comparisons of the syndrome notoriously difficult.

Description of the pilot questionnaire and procedure

The item pool for the pilot questionnaire was developed from the data collected in the qualitative study as well as other published literature. The questionnaire contained a total of 50 items (See enclosed CD Rom). There were 31 questions on physical symptoms relating to 5 anatomical areas, namely gastrointestinal (13), respiratory (5), genitio-urinary (3), oral-dental (3) and musculo-skeletal (2). Five symptoms did not fall into any of the above categories and were classified as miscellaneous e.g. headache, tiredness, lack of energy, feeling unwell and fainting. Nineteen questions on psychological symptoms related to six areas. These included sleeping problems (2), mood disturbances (2), emotional affect (10), motivational level (1), cognitive problems (3) and coping ability (1). There were four response categories. The first of these identified whether study participants has experienced the symptom or not. The second consisted of a 10-point numerical rating scale of its severity. The third also

contained a 10-point numerical rating scale for the level of symptom distress. The fourth was the duration of the symptom specified in days and weeks.

Data collection for the pilot study took place over a period of three months from March 2004 to May 2004 and 23 men (100%) whose partners were pregnant participated. It is important to point out that 14 (61%) of these men had also participated in the qualitative phase of the investigation which meant that they completed the pilot questionnaires after their the birth of their infant as opposed to the remaining nine gentleman (39%) who completed it during the pregnancy. All participants were requested to complete the questionnaire repeatedly over two time periods with a time interval of 4 weeks between repeated measures. This time interval between the repeated measures took account of the likelihood of “*practice effects*” where responses may become practised because of familiarity with the questionnaire if the completion periods are too close together (Jupp 2006). Respondents were assured that there were no right or wrong answers and requested not to confer with anyone else in the completion of the questionnaires. They were asked to comment on format, sequencing, wording and clarity, appropriateness and comprehensiveness of the questions as well as any other points they might find inappropriate or difficult. They were also asked to make additional commentary on the clarity of the response option categories. The importance of full repeated completion of the questionnaires was emphasised to respondents. Stamped addressed return envelopes were provided for both questionnaires. Obviously the participants were known to the researcher but their responses were kept anonymous.

APPENDIX 11

Men's Health during Partner's Pregnancy Questionnaire

MENS' HEALTH DURING PARTNERS' PREGNANCY QUESTIONNAIRE

Please tick (✓) the appropriate box to indicate whether you experienced ANY of the following health problems in the last 3 months. If YES, please indicate HOW SEVERE, HOW DISTRESSING, AND HOW OFTEN by ticking the following appropriate boxes		YES	NO	If YES, How Severe was it?									If YES, How Distressing was it?									If YES, How Often?			
				1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1 day or less	2-7 days	14-28 days	More than 28 days
				Not at all severe			Moderately Severe			Extremely Severe			Not at all distressing			Moderately distressing			Extremely distressing						
1	Stomach Pains / Cramps																								
2	Heartburn																								
3	Stomach distension																								
4	Indigestion																								
5	Unable to keep food down																								
6	Vomiting																								
7	Constipation																								
8	Diarrhoea																								
9	Increased Appetite																								

Please tick (✓) the appropriate box to indicate whether you experienced ANY of the following health problems in the last 3 months. If YES, please indicate HOW SEVERE, HOW DISTRESSING, AND HOW OFTEN by ticking the following appropriate boxes		YES	NO	If YES, How Severe was it?									If YES, How Distressing was it?									If YES, How Often?			
				1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1 day or less	2-7 days	14-28 days	More than 28 days
				Not at all severe			Moderately Severe			Extremely Severe			Not at all distressing			Moderately distressing			Extremely distressing						
10	Poor appetite																								
11	Weight gain																								
12	Weight loss																								
13	More colds than usual																								
14	Cough																								
15	Sore throat																								
16	Breathlessness																								
17	Nose bleeds																								
18	Pain while urinating																								

Please tick (✓) the appropriate box to indicate whether you experienced ANY of the following health problems in the last 3 months. If YES, please indicate HOW SEVERE, HOW DISTRESSING, AND HOW OFTEN by ticking the following appropriate boxes		YES	NO	If YES, How Severe was it?									If YES, How Distressing was it?									If YES, How Often?			
				1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1 day or less	2-7 days	14-28 days	More than 28 days
				Not at all severe			Moderately Severe			Extremely Severe			Not at all distressing			Moderately distressing			Extremely distressing						
19	Urinating more than usual																								
20	Toothache																								
21	Sore gums																								
22	Mouth ulcers																								
23	Back pain																								
24	Leg cramps																								
25	Headache																								
26	Tiredness																								
27	Fainting																								

Please tick (✓) the appropriate box to indicate whether you experienced ANY of the following health problems in the last 3 months.

If YES, please indicate HOW SEVERE, HOW DISTRESSING, AND HOW OFTEN by ticking the following appropriate boxes

		YES	NO	If YES, How Severe was it?									If YES, How Distressing was it?									If YES, How Often?			
				1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1 day or less	2-7 days	14-28 days	More than 28 days
				Not at all severe			Moderately Severe			Extremely Severe			Not at all distressing			Moderately distressing			Extremely distressing						
28	Sleeping less than usual																								
29	Early morning waking																								
30	Sleeping more than usual																								
31	Feeling low in mood																								
32	Mood swings																								
33	Feeling annoyed																								
34	Feeling frustrated																								
35	Feeling irritable																								
36	Feeling stressed																								

Please tick (✓) the appropriate box to indicate whether you experienced ANY of the following health problems in the last 3 months. If YES, please indicate HOW SEVERE, HOW DISTRESSING, AND HOW OFTEN by ticking the following appropriate boxes		YES	NO	If YES, How Severe was it?									If YES, How Distressing was it?									If YES, How Often?			
				1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1 day or less	2-7 days	14-28 days	More than 28 days
				Not at all severe			Moderately Severe			Extremely Severe			Not at all distressing			Moderately distressing			Extremely distressing						
37	Feeling anxious																								
38	Feeling restless																								
39	Preoccupied																								
40	Lack of motivation																								
41	Loss of memory																								
42	Loss of concentration																								
43	Distracted																								
44	Unable to cope with daily life																								

APPENDIX 12

Perceived Stress Coping Scale (PSCS)

**John D. and Catherine T. MacArthur
Research Network on Socioeconomic Status and Health**

Perceived Stress Coping Scale- 10 Item

Instructions: The questions in this scale ask you about your feelings and thoughts during the last month. In each case, please indicate with a tick how often you felt or thought a certain way.

1. In the last month, how often have you been upset because of something that happened unexpectedly?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

2. In the last month, how often have you felt that you were unable to control the important things in your life?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

3. In the last month, how often have you felt nervous and "stressed"?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

4. In the last month, how often have you felt confident about your ability to handle your personal problems?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

5. In the last month, how often have you felt that things were going your way?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

6. In the last month, how often have you found that you could not cope with all the things that you had to do?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

7. In the last month, how often have you been able to control irritations in your life?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

8. In the last month, how often have you felt that you were on top of things?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

9. In the last month, how often have you been angered because of things that were outside of your control?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very

often

Perceived Stress Coping Scale

APPENDIX 13

Quantification of Data Segments within each Category for Qualitative Study (Phase I)

Quantification of Data Segments for Categories within Themes

QUANTIFICATION OF DATA SEGMENTS FOR CATEGORY WITHIN THEME 1 (Adapted from Colaizzi, 1978)

Label number	Annotated labels	Number of data segments per category	Category: 'Pregnancy-related feelings'
1	Conception	16	
2	Demands of pregnancy 1 st trimester 2 nd trimester 3 rd trimester	12 18 23	
3	Health of partner and unborn 1 st trimester 2 nd trimester 3 rd trimester labour	12 3 22 8	
4	Parenthood	11	
5	Antenatal care	28	
6	Involvement in pregnancy	24	

QUANTIFICATION OF DATA SEGMENTS FOR CATEGORIES WITHIN THEME II

Label number	Annotated labels	Number of data segments per category	Categories: 'Physical symptoms' and 'Psychological symptoms'
1	Gastrointestinal	61	Physical symptoms
2	Genitourinary	13	Physical symptoms
3	Musculo-skeletal	9	Physical symptoms
4	Miscellaneous	31	Physical symptoms
5	Sleep disturbance	32	Psychological symptoms
6	Mood disturbance	7	Psychological symptoms
7	Emotional affect	20	Psychological symptoms

QUANTIFICATION OF DATA SEGMENTS FOR CATEGORIES WITHIN THEME II (CONT.)

Label number	Annotated labels: 'Consultation and management' and 'Duration and cessation of symptoms'	Number of data segments per category	Categories: 'Consultation and management of symptoms' and 'Symptom time course and cessation'
1	Self-manage	7	Consultation and management of symptoms
2	Medical	11	Consultation and management of symptoms
3	Complimentary	1	Consultation and management of symptoms
4	Dental	3	Consultation and management of symptoms
5	Pastoral	1	Consultation and management of symptoms
6	Commencement 1 st trimester	61	Symptom time course and cessation
7	Cessation 2 nd trimester	11	Symptom time course and cessation
8	Duration 3 rd trimester	107	Symptom time course and cessation
9	Cessation birth	39	Symptom time course and cessation
10	Duration and cessation postpartum	7	Symptom time course and cessation

QUANTIFICATION OF DATA SEGMENTS FOR CATEGORIES WITHIN THEME III

Label number	Annotated Labels 'Participants explanations' and 'Health professionals explanations'	Number of data segments per category	Category 'Explanations for symptoms as a whole'
1	Specific to pregnancy	4	
2	Supposition of pregnancy	4	
3	Being in sympathy	2	
4	Mysterious	2	
5	Puzzling	2	
6	Religious	1	
7	Puzzling	1	
8	Physical	3	
9	Psychological	1	

QUANTIFICATION OF DATA SEGMENTS FOR CATEGORIES WITHIN THEME III (CONT.)

Label number	Annotated Labels 'Symptom and explanations'	Number of data segments per category	Category 'Explanations for most commonly reported symptoms'
1	Stomach pain: pregnancy, labour, food poisoning, infection	44	
2	Vomiting: wrong foods, concurrent with partner, stomach pain	38	
3	Appetite disturbance: 'damp' foods, food cravings	12	
4	Genitourinary: undiagnosed infection	3	
5	Back pain: lifting heavy items for pregnant partner	2	
6	Tiredness and restlessness: interrelationship between symptoms, demands of the pregnancy	12	
7	Insomnia: pregnant partner's nocturnal restlessness, toothache	6	
8	Feeling low in mood: due to other physical symptoms	2	
9	Irritability: other symptoms and failure to treat them	6	

QUANTIFICATION OF DATA SEGMENTS FOR CATEGORIES WITHIN THEME III (CONT.)

Label number	Annotated Labels 'Symptom and explanations'	Number of data segments per category	Category 'Explanations for less commonly reported symptoms'
1	Stomach distension: diet, food cravings, flatulence	6	
2	Indigestion: hot condiments	4	
3	Diarrhoea: hot condiments, antibiotics	3	
4	Poor appetite: stomach pains, vomiting, toothache	10	
5	Weight gain: insufficient exercise, increased appetite and food cravings	8	
6	Colds: contracted from child, seasonal	2	
7	Sore throat: interrelationship with other symptoms	2	
8	Toothache and sore gums: hot drinks and condiments, old tooth fillings	8	
9	Annoyance: stomach pains, self expectancies about supporting partner	6	
10	Frustration: failure to diagnose symptoms	1	
11	Anxiety: partner and unborn baby's health, ability to cope, finances	12	

APPENDIX 14

**Access Letters, Study Information Sheets and
Consent Forms for Qualitative, Pilot and
Experimental Studies (Phases I and II)**

Faculty of Health and Social Care Sciences
Kingston University
Kingston Hill
Kingston upon Thames
Surrey KT2 7LB
www.healthcare.ac.uk

My Dear ,

Thank you for agreeing to participate in this study. The study information pack which has been issued to you contains the following information which you should read carefully before signing the consent form to take part in the study:-

- A study information sheet.
- A consent form for your participation in the study (**please complete and return**).
- A short personal details form to determine your selection for the study (**please complete and return**).
- Men's Health During Partners' Pregnancy and Perceived Stress Questionnaires covering the 1st and 3rd trimesters of your partner's pregnancy period and four weeks after the birth of your infant respectively (**please complete and return**).

The aim of the study is to investigate men's physical and psychological health covering the above periods. This will require you having to complete the same 2 questionnaires during each of these three time periods. The questionnaires and stamped addressed return envelopes have been provided for this purpose. The estimated dates when the Men's Health during Partner's Pregnancy and Perceived Stress questionnaires should be returned are as follows:

Complete first set of Men's Health during Partner's Pregnancy and Perceived Stress questionnaires and return to the researcher by/...../.....

Complete the second set of questionnaires again and return to researcher by/...../.....

Complete the third set of questionnaires once again and return to researcher by/...../.....

Should you have any further queries about the study please do not hesitate to contact the researcher on 020 8547 8790 or you may email him at abrennan@hscs.sgul.ac.uk. May I take this opportunity to express my sincerest thanks again for your participation in this study.

With my eternal thanks and deepest gratitude,

Arthur Brennan

(Principal Researcher).

Faculty of Health and Social Care Sciences
Kingston University
Kingston Hill
Kingston upon Thames
Surrey KT2 7LB
www.healthcare.ac.uk

My Dear ,

Thank you for agreeing to participate in this study. The study information pack which has been issued to you contains the following information which you should read carefully before signing the consent form to take part in the study:-

- A study information sheet.
- A consent form for your participation in the study (**please complete and return**).
- A short personal details form to determine your selection for the study (**please complete and return**).
- Men's Health and Perceived Stress Questionnaires covering a 3-month and 6-month period respectively (**please complete and return**).

The aim of the study is to investigate men's physical and psychological health covering a 3-month and 6-month period respectively. This will require you having to complete the same 2 questionnaires during each of these two time periods. The questionnaires and internally addressed return envelopes have been provided for this purpose. The estimated dates when the Health and Perceived Stress questionnaires should be returned are as follows:

Complete the first set of Men's Health and Perceived Stress questionnaires and return to the researcher by/...../.....

Complete the second set of two questionnaires again and return to researcher by/...../.....

Should you have any further queries about the study please do not hesitate to contact the researcher on 020 8547 8790 or you may email him at abrennan@hscs.sgul.ac.uk. May I take this opportunity to express my sincerest thanks again for your participation in this study.

With my eternal thanks and deepest gratitude,

Arthur Brennan

(Principal Researcher).

Research study of Men's Experiences and Responses to their Partners' Pregnancy

What is the Study about?

Thank you for considering taking part in this research study. My name is Arthur Brennan and I am employed as a Senior Research Lecturer at Kingston University and St George's Hospital Medical School. I am currently conducting a study which aims to explore men's feelings, physical and psychological health during the 3 trimesters of their partner's pregnancy up to and including labour. It is anticipated that the study will help health professionals to have a better understanding of men's health during the period of pregnancy.

This research study does not evaluate you as a person or as a parent in any way. All the information you provide in the questionnaires will be treated in the strictest confidence.

Am I eligible to take part in the study?

You will be able to take part in this study if: -

- You are over 18 years old.
- Your partner is within the first (1-12 weeks) of her pregnancy.
- You can read, speak and understand English.
- You are willing to be interviewed.
- You are currently not being treated for a serious viral infection such as Herpes, Glandular Fever, HIV, Meningitis, ME; any form of Anaemia or Cancer, Inflammatory bowel disease, thyroid problem.
- You are currently not being treated for depression, anxiety disorder, schizophrenia, manic disorder.
- Your partner has no confirmed medical problems associated with her pregnancy.

What exactly will I have to do?

Firstly, you will have to complete a short questionnaire to determine your suitability for the study. If so, the study will involve you being interviewed for 60-90 minutes in your home. The interview will be tape-recorded.

What happens with my answers?

There are no right or wrong answers in the interview. All your answers will be strictly **confidential** and only be used for the purpose of the study. Your identity will remain completely anonymous and will only be known to the researcher.

What happens if I decide to withdraw from the study?

You are free to withdraw from the study at any time without giving reasons for doing so. Your decision to do so will be respected by the researcher.

Should you have any questions about this research please do not hesitate to contact Arthur Brennan on 020 85475790(Ans), Email: abrennan@hscs.sghms.ac.uk Website: pregnancyandfathers.com

Pilot Research Study of Men's Health during their Partners' Pregnancy

What is the Study about?

Thank you for considering taking part in this pilot research study. My name is Arthur Brennan and I am employed as a Senior Lecturer at Kingston University and St George's Hospital Medical School. The study aims to develop and test a questionnaire to explore men's physical and psychological health during their partner's pregnancy.

This research study does not evaluate you as a person or as a parent in any way. All the information you provide in the questionnaires will be treated in the strictest confidence.

Am I eligible to take part in the study?

You will be able to take part in this study if: -

- You are over 18 years old.
- Your partner is within the first (1-12 weeks) of her pregnancy.
- You can read, speak and understand English.
- You are willing to be interviewed.
- You are currently not being treated for a serious viral infection such as Herpes, Glandular Fever, HIV, Meningitis, ME; any form of Anaemia or Cancer, Inflammatory bowel disease, thyroid problem.
- You are currently not being treated for depression, anxiety disorder, schizophrenia, manic disorder.
- Your partner has no confirmed medical problems associated with her pregnancy.

What exactly will I have to do?

This study will involve you completing a short questionnaire during your partner's pregnancy. The questionnaire will be sent to your home address and should be completed within a 2-week period. You will then complete the same questionnaire exactly 3 weeks after completing the first. Stamped addressed envelopes will be provided for the return of the questionnaires for each time period indicated.

What happens with my answers?

There are no right or wrong answers. All your answers will be **strictly confidential** and only be used for the purpose of the study. You will be identified by a code so that all your details and answers within the questionnaires will remain completely anonymous.

What happens if I decide to withdraw from the study?

You are free to withdraw from the study at any time without giving reasons for doing so. Your decision to do so will be respected by the researcher and will not affect the care your partner receives. Should you have any questions about this research please do not hesitate to contact Arthur Brennan on 020 85475790 (Answerphone), Email: abrennan@hscs.sghms.ac.uk. Website: geocities.com/pregnancyandfathers/

Research Study of Men's Health during their Partners' Pregnancy

What is the Study about?

Thank you for considering taking part in this research study. My name is Arthur Brennan and I am employed as a Senior Research Lecturer at Kingston University and St George's Hospital Medical School. I am currently conducting a study which aims to explore men's physical and psychological health during the 1st and 3rd trimesters of their partner's pregnancy and four-weeks postnatally. It is anticipated that the study will help health professionals to have a better understanding of men's health during the period of pregnancy.

This research study does not evaluate you as a person or as a parent in any way. All the information you provide in the questionnaires will be treated in the strictest confidence.

Am I eligible to take part in the study?

You will be able to take part in this study if: -

- You are over 18 years old.
- Your partner is within the first (1-12 weeks) of her pregnancy.
- You can read and write English at a level sufficient for the completion of the questionnaires.
- You are currently not being treated for a psychiatric problem.
- You are currently not being treated for a serious viral infection such as Herpes, Glandular Fever, HIV, Meningitis, ME; any form of Anaemia or Cancer, thyroid problem.
- You are willing to complete questionnaires during the 1st and 3rd trimesters of the pregnancy and one at 4 weeks after the birth of your infant.

What exactly will I have to do?

This is a study, which will involve you completing two short questionnaires within the first, last three months of your partner's pregnancy and four weeks after the birth of your infant specified in the covering letter. Stamped addressed envelopes are provided for the return of the questionnaires for each time period indicated.

What happens with my answers?

There are no right or wrong answers for the questionnaires. All your answers will be strictly **confidential** and only be used for the purpose of the study. You will be identified by a code so that all your details and answers within the questionnaires will remain completely anonymous.

What happens if I decide to withdraw from the study?

You are free to withdraw from the study at any time without giving reasons for doing so.

Your decision to do so will be respected by the researcher.

Should you have any questions about this research please do not hesitate to contact Arthur Brennan on 020 85475790(Ans), Email: abrennan@hscs.sghms.ac.uk Website: geocities.com/pregnancyandfather

Research Study on Men's Health

What is the Study about?

Thank you for considering taking part in this research study. My name is Arthur Brennan and I am employed as a Senior Lecturer at Kingston University and St George's Hospital Medical School. I am currently conducting a study which aims to explore men's physical and psychological health at 3 and 6 monthly time intervals. Your input will really be important to the success of the study. It is anticipated that the study will help health professionals to have a better understanding of men's health.

This research study does not evaluate you as a person in any way. All the information you provide in the questionnaires will be treated in the strictest confidence.

Am I eligible to take part in the study?

You will be able to take part in this study if: -

- You are over 18 years old.
- You can read and write simple English.
- You are currently not being treated for a psychiatric problem.
- You are currently not being treated for a serious viral infection such as Herpes, Glandular Fever, HIV, Meningitis, ME; any form of Anaemia or Cancer, thyroid problem.
- You are willing to complete a questionnaire during the two specified time periods indicated by the researcher.

What exactly will I have to do?

This is a study, which will involve you completing the same two short questionnaires which the researcher has provided you in the covering letter. These will be the Men's Health Questionnaire and Perceived Stress Questionnaires. Stamped/Internal addressed envelopes are provided for their return.

What happens with my answers?

There are no right or wrong answers in the questionnaires. All your answers will be **strictly confidential** and only be used for the purpose of the study. I will identify you by a code so that all your details and answers within the questionnaires will remain completely anonymous.

What happens if I decide to withdraw from the study?

You are free to withdraw from the study at any time without giving reasons for doing so.

Your decision to do so will be respected by the researcher.

Should you have any questions about this research please do not hesitate to contact Arthur Brennan on 020 8547 5790, Email: abrennan@hscs.sgul.ac.uk

Faculty of Health and Social Care Sciences
Kingston University
Kingston Hill
Kingston upon Thames
Surrey KT2 7LB
www.healthcare.ac.uk

Subject Consent Form

Form of consent for participation in research study using audio-taping of interview(s) of patients / clients /volunteers.

Brief Title of Research Project: An Exploratory Research Study Investigating Men's Experiences of, and Responses to, their Partners' Pregnancy

I.....of.....
.....

Agree to participate in the research project described above. I agree to the interview(s) being conducted in my own home if I so wish and tape-recorded for the purpose of analysis by the researcher. I understand that the tape will be stored in a secure cupboard and safely destroyed after a specified period. I understand that any published findings will not identify me, and that the tape-recorded information will not be used for any other purpose.

The nature, purpose and possible consequences of the procedures involved have been explained to me by.....Arthur Brennan.....and are acceptable to me { }

I have read the **Study Information Sheet** supplied to me and have retained a copy.....{ }

I understand that I am entering the project of my own free will and am free to withdraw at any time, without giving reasons for doing so. In addition, my participation or non-participation in this study will in no way affect the care that either my partner or I receive.....{ }

I understand that any information I give will be kept confidential and that my identity will be protected when the results of the study are published unless I give consent.....{ }

Signature.....Date.....

Signature of the researcher in charge of the project:

Signature.....Date.....

Faculty of Health and Social Care Sciences
Kingston University
Kingston Hill
Kingston upon Thames
Surrey KT2 7LB
www.healthcare.ac.uk

Subject Consent Form

Form of consent for participation in research study for use by patients / clients / volunteers.

Brief Title of Research Project: Pilot Study of Men's Health during their Partners' Pregnancy

I.....of.....
.....

Agree to participate in the research project described above. I agree to complete the same questionnaire over a 3-week time period. I understand my completed questionnaires will be stored in a secure cupboard and safely destroyed after a specified period. I understand that any published findings will not identify me, and that the questionnaire information will not be used for any other purpose.

The nature, purpose and possible consequences of the procedures involved have been explained to me by.....Arthur Brennan.....and are acceptable to me { }

I have read the **Study Information Sheet** supplied to me and have retained a copy.....{ }

I understand that I am entering the project of my own free will and am free to withdraw at any time, without giving reasons for doing so. In addition, my participation or non-participation in this study will in no way affect the care that either my partner or I receive.....{ }

I understand that any information I give will be kept confidential and that my identity will be protected when the results of the study are published unless I give consent.....{ }

Signature.....Date.....

Signature of the researcher in charge of the project:

Signature.....

Faculty of Health and Social Care Sciences
Kingston University
Kingston Hill
Kingston upon Thames
Surrey KT2 7LB
www.healthcare.ac.uk

Subject Consent Form

Form of consent for participation in research study for use by patients/clients/volunteers.

Brief Title of Research Project: A Longitudinal Exploratory Study of Men's Health and Perceived Stress Coping during their Partners' Pregnancy and the Postpartum Period

I.....of.....
.....

Agree to participate in the research project described above.

The nature, purpose and possible consequences of the procedures involved have been explained to me by.....Arthur Brennan.....and are acceptable to me { }

I have read the **Study Information Sheet** supplied to me and have retained a copy.....{ }

I understand that I am entering the project of my own free will and am free to withdraw at any time, without giving reasons for doing so. In addition, my participation or non-participation in this study will in no way affect the care that either my partner or I receive.....{ }

I understand that any information I give will be kept confidential and that my identity will be protected when the results of the study are published unless I give consent.....{ }

Signature.....Date.....

Signature of the researcher in charge of the project:

Signature.....

Faculty of Health and Social Care Sciences
Kingston University
Kingston Hill
Kingston upon Thames
Surrey KT2 7LB
www.healthcare.ac.uk

Subject Consent Form

Form of consent for participation in research study for use by patients/clients/volunteers.

Brief Title of Research Project: A longitudinal Study of Men's Health and Perceived Stress Coping

I.....of.....
.....

Agree to participate in the research project described above.

The nature, purpose and possible consequences of the procedures involved have been explained to me by.....Arthur Brennan.....and are acceptable to me { }

I have read the **Study Information Sheet** supplied to me and have retained a copy.....{ }

I understand that I am entering the project of my own free will and am free to withdraw at any time, without giving reasons for doing so. In addition, my participation or non-participation in this study will in no way affect the professional relationship I have with the researcher/tutor.....{ }

I understand that any information I give will be kept confidential and that my identity will be protected when the results of the study are published unless I give consent.....{ }

Signature.....Date.....

Signature of the researcher in charge of the project:

Signature.....Date.....

APPENDIX 15

Socio-demographic Details Questionnaire

Personal Details Questionnaire

Please fill out all details for each section of this form. Some of the questions may seem very personal to you but are necessary to determine your suitability for the study. Please be assured that all your answers will remain strictly confidential. Please tick the appropriate box or boxes where indicated.

Section A: Personal Details.

Name (optional).....

Age.....

Occupation.....

Married

☐

Cohabiting

☐

Ethnic Origin:

White

☐

Indian

☐

Black-Caribbean

☐

Pakistani

☐

Black African

☐

Black Other (please describe).....

Bangladeshi

☐

Chinese

☐

Other (please describe).....

Section B: Fatherhood Details.

Please indicate whether you are: -

1st time father

☐

2nd time father

☐

Father with more than two children (please state how many).....

Section C: Details of pregnancy/birth.

With reference to your wife's/partner's current pregnancy, please indicate the expected birth date of your baby:

.....

Please indicate in the appropriate box whether the pregnancy has been confirmed as normal without any major medical problems: -

Yes

☐

No

☐

Don't know

☐

Section D: Father's Health Details.

Please indicate in the appropriate boxes whether you have suffered from the following physical illnesses requiring treatment since the pregnancy was confirmed: -

Glandular Fever

☐

Myalgic Encephalomyelitis (M.E.)

☐

Herpes Virus

☐

Meningitis

☐

Irritable Bowel Syndrome

☐

Chron's Disease

☐

Any form of Cancer

☐

Thyroid Problem

☐

Any form of Anemia

☐

Please indicate in the appropriate boxes whether you have suffered from the following psychological problems requiring treatment since the pregnancy was confirmed: -

Mood Disorder

☐

Anxiety Disorder

☐

Eating Disorder

☐

Schizophrenia

☐

Thank you very much for taking the time to complete this form.

APPENDIX 16

Supplementary Tables

(Tables 27-28, 34-35, 38-39 and 58)

(Figures 14-15, 18-19 and 22)

Table 27. Group II physical symptoms showing statistically similar median severity and distress scores between the study groups

Symptom	Severity Median Scores		P-Value	Distress Median Scores		P-Value
	Experimental (n=353)	Control (n=339)		Experimental (n=353)	Control (n=339)	
Constipation	1.6	1.3	NS	1.3	1.2	NS
More colds than usual	1.4	1.3	NS	1.4	1.2	NS
Sore throat	1.5	1.6	NS	1.4	1.4	NS
Nose bleeds	1.1	1.0	NS	1.1	1.0	NS
Sore gums	1.3	1.2	NS	1.2	1.2	NS
Mouth ulcers	1.3	1.3	NS	1.3	1.2	NS
Headache	1.9	2.0	NS	1.8	1.7	NS
Fainting	1.1	1.0	NS	1.1	1.0	NS

- Gastro-intestinal symptoms
- Respiratory symptoms
- Oral/dental symptoms
- Miscellaneous symptoms

Table 28. Group II psychological symptoms showing statistically similar median severity and distress scores between the study groups

Symptom	Severity Median Scores		P-Value	Distress Median Scores		P-Value
	Experimental (n=353)	Control (n=339)		Experimental (n=353)	Control (n=339)	
Sleeping more than usual	1.2	1.1	NS	1.2	1.0	NS
Feeling restless	1.6	1.4	NS	1.5	1.3	NS
Loss of memory	1.2	1.2	NS	1.2	1.2	NS

Symptoms of sleep disturbance symptoms

Symptoms of emotional affect

Cognitive

Table 34. Physical symptoms median severity scores in the control group over time

Symptom	Severity Median Scores		P-Value
	3 Months	6 Months	
Stomach pain/cramps	1.45	1.47	NS
Heartburn	1.56	1.69	NS
Stomach distension	1.22	1.19	NS
Indigestion	1.57	1.64	NS
Unable to keep food down	1.10	1.10	NS
Vomiting	1.14	1.12	NS
Constipation	1.24	1.35	NS
Diarrhoea	1.49	1.39	NS
Increased appetite	1.33	1.35	NS
Poor appetite	1.23	1.20	NS
Weight gain	1.49	1.57	NS
Weight loss	1.17	1.15	NS
More colds than usual	1.28	1.30	NS
Cough	1.59	1.54	NS
Sore throat	1.54	1.69	NS
Breathlessness	1.19	1.23	NS
Nosebleeds	1.04	1.04	NS
Pain while urinating	1.02	1.04	NS
Urinating more than usual	1.2	1.18	NS
Toothache	1.46	1.25	NS
Sore gums	1.34	1.09	0.007
Mouth ulcers	1.31	1.28	NS
Back pain	1.55	1.61	NS
Leg cramps	1.21	1.14	NS
Headache	1.89	2.06	NS
Tiredness	2.57	2.60	NS
Fainting*	-	-	-

- Gastro-intestinal symptoms
- Respiratory symptoms
- Genito-urinary symptoms
- Oral/Dental symptoms
- Musculo-skeletal symptoms
- Miscellaneous symptoms

* Insufficient reporting of the symptom of “fainting” did not allow for statistical analysis across the 3 and 6-month study periods.

Figure 14. Line Graph of the Severity of Physical Symptoms in the Control Group over Time

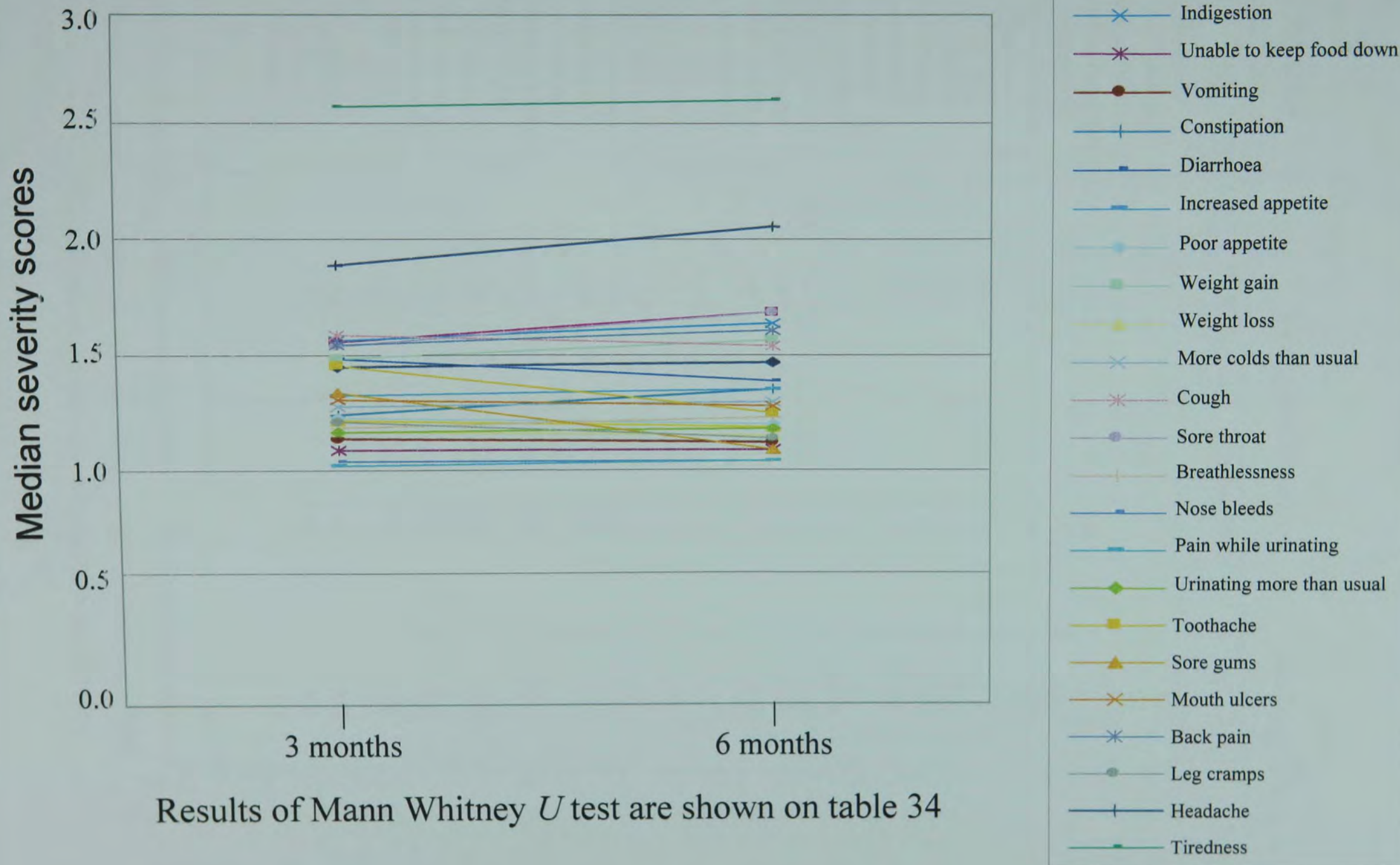


Table 35. Physical symptoms median distress scores in the control group over time

Symptom	Distress Median Scores		P-Value
	3 Months	6 Months	
Stomach pain/cramps	1.36	1.32	NS
Heartburn	1.44	1.53	NS
Stomach distension	1.25	1.16	NS
Indigestion	1.46	1.42	NS
Unable to keep food down	1.10	1.09	NS
Vomiting	1.17	1.14	NS
Constipation	1.18	1.28	NS
Diarrhoea	1.38	1.20	NS
Increased appetite	1.13	1.15	NS
Poor appetite	1.09	1.06	NS
Weight gain	1.47	1.39	NS
Weight loss	1.07	1.01	NS
More colds than usual	1.24	1.23	NS
Cough	1.40	1.38	NS
Sore throat	1.42	1.47	NS
Breathlessness	1.18	1.22	NS
Nosebleeds	1.04	1.01	NS
Pain while urinating	1.01	1.03	NS
Urinating more than usual	1.14	1.15	NS
Toothache	1.36	1.18	NS
Sore gums	1.29	1.06	NS
Mouth ulcers	1.22	1.24	NS
Back pain	1.39	1.50	NS
Leg cramps	1.14	1.13	NS
Headache	1.68	1.76	NS
Tiredness	1.93	2.00	NS
Fainting*	-	-	-

- Gastro-intestinal symptoms
- Respiratory symptoms
- Genito-urinary symptoms
- Oral/Dental symptoms
- Musculo-skeletal symptoms
- Miscellaneous symptoms

* Insufficient reporting of the symptoms of “fainting” did not allow for statistical analysis across the 3 and 6-month study periods.

Figure 15. Line Graph of the Distress of Physical Symptoms in the Control Group over Time

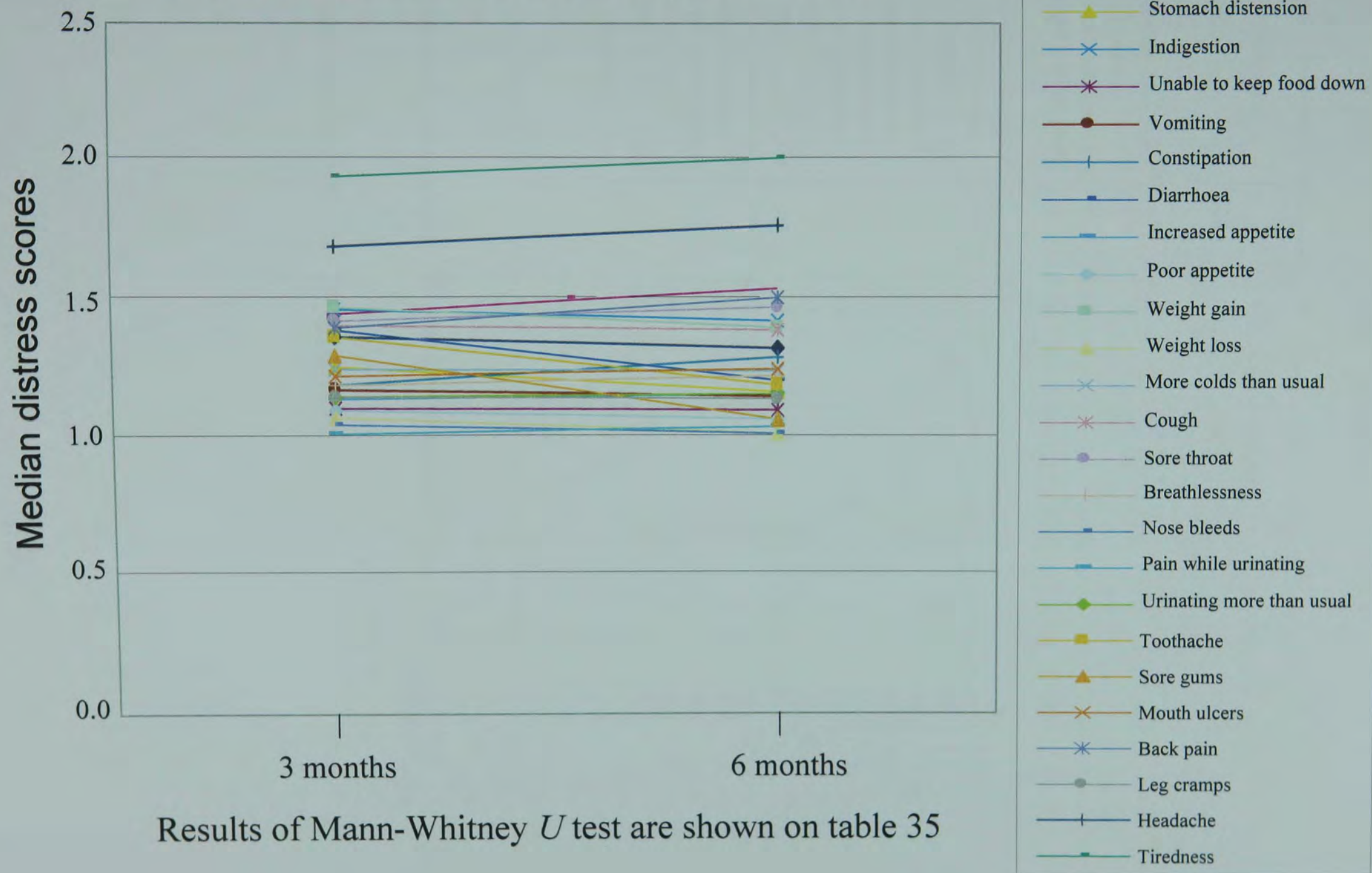


Table 38. Psychological symptoms median severity scores in the control group over time

Symptom	Severity Median Scores		P-Value
	3 Months	6 Months	
Sleeping less than usual	1.66	1.70	NS
Early morning waking	1.76	1.87	NS
Sleeping more than usual	1.13	1.06	NS
Feeling low in mood	1.59	1.46	NS
Mood swings	1.21	1.23	NS
Feeling annoyed	1.74	1.64	NS
Feeling frustrated	1.77	1.84	NS
Feeling irritable	1.75	1.73	NS
Feeling stressed	2.46	2.58	NS
Feeling anxious	1.84	1.90	NS
Feeling restless	1.43	1.32	NS
Preoccupied	1.40	1.40	NS
Lack of motivation	1.50	1.50	NS
Loss of memory	1.20	1.20	NS
Loss of concentration	1.37	1.23	NS
Distracted	1.35	1.22	NS
Unable to cope with daily life	1.07	1.11	NS

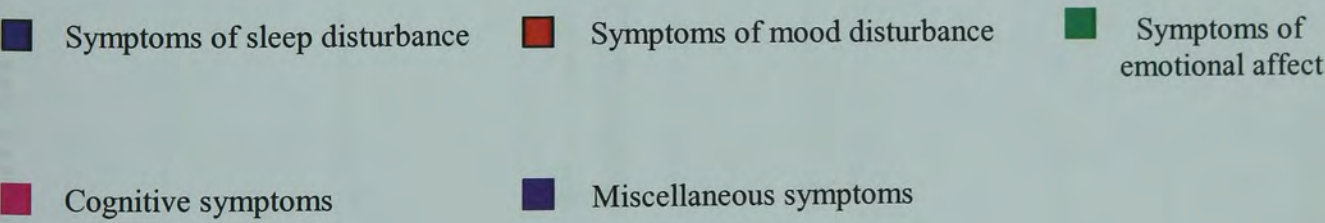
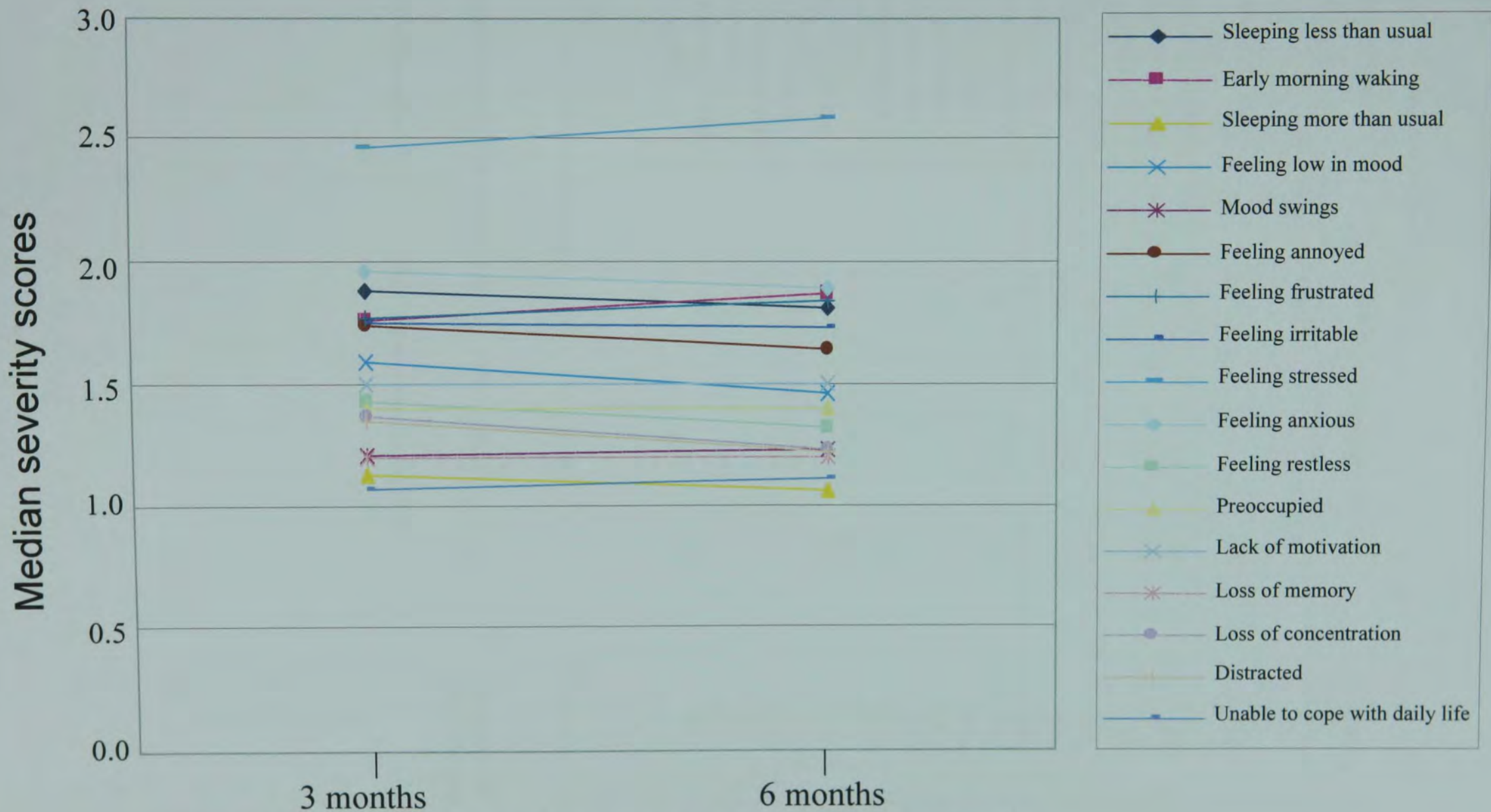


Figure 18. Line Graph of Psychological Symptoms Severity over Time in the Control Group



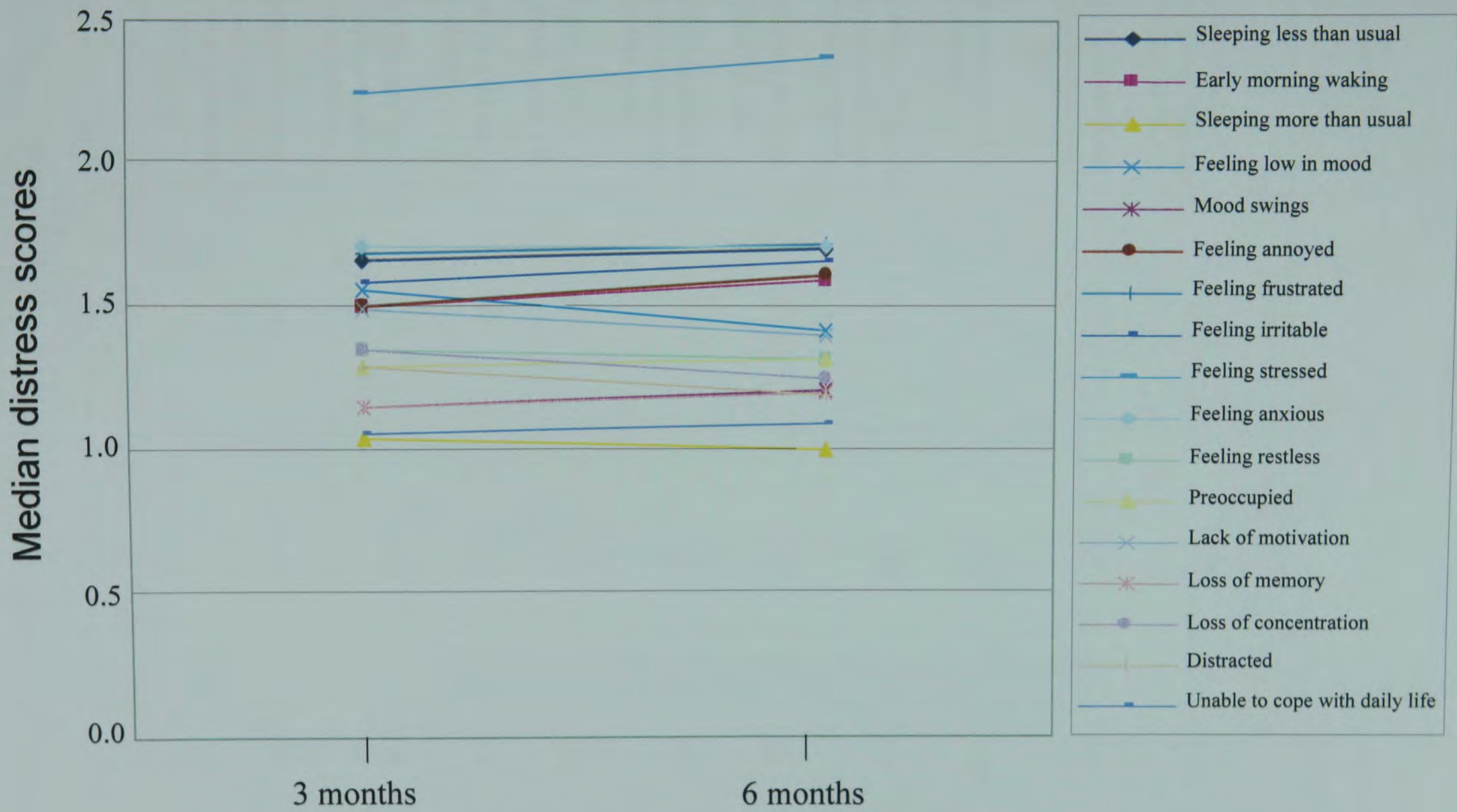
Results of Mann-Whitney U test are shown on table 38

Table 39. Mann-Whitney *U* test of psychological symptoms median distress scores in the control group over time

Symptom	Distress Median Scores		P-Value
	3 Months	6 Months	
Sleeping less than usual	1.66	1.70	NS
Early morning waking	1.50	1.59	NS
Sleeping more than usual	1.04	1.00	NS
Feeling low in mood	1.56	1.42	NS
Mood swings	1.15	1.21	NS
Feeling annoyed	1.50	1.61	NS
Feeling frustrated	1.68	1.72	NS
Feeling irritable	1.58	1.66	NS
Feeling stressed	2.23	2.36	NS
Feeling anxious	1.71	1.71	NS
Feeling restless	1.35	1.32	NS
Preoccupied	1.29	1.32	NS
Lack of motivation	1.49	1.40	NS
Loss of memory	1.15	1.20	NS
Loss of concentration	1.35	1.25	NS
Distracted	1.29	1.19	NS
Unable to cope with daily life	1.06	1.09	NS

- Symptoms of sleep disturbance
- Symptoms of mood disturbance
- Symptoms of emotional affect
- Cognitive symptoms
- Miscellaneous symptoms

Figure 19. Line Graph of Psychological Symptoms Distress over Time in the Control Group

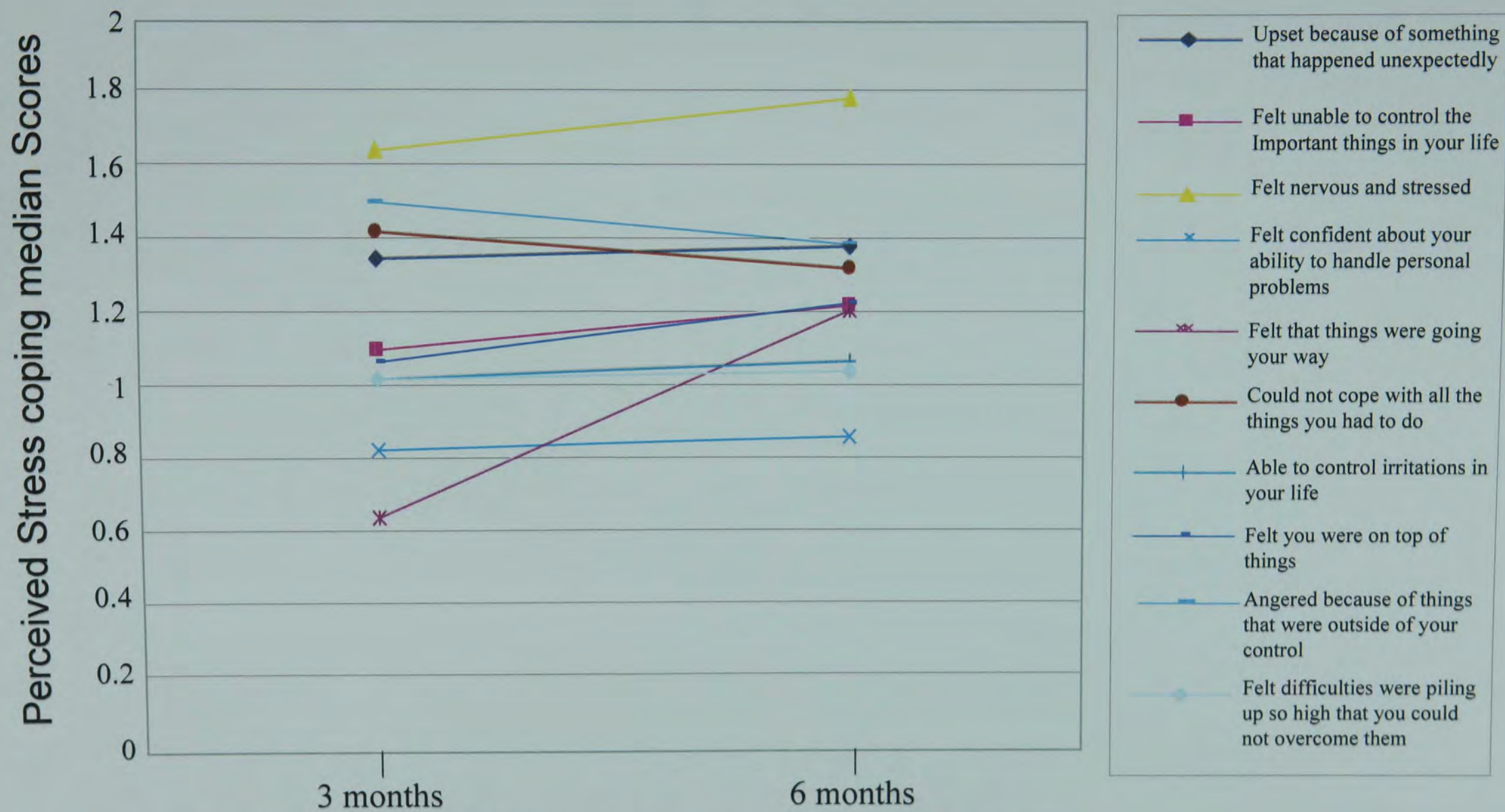


Results of Mann-Whitney *U* test are shown on table 39

Table 58. Perceived stress coping median scores in the control group over time

Perceived Stress Coping Indicators	Median Scores		P-Value
	3 Months	6 Months	
Upset because of something that happened unexpectedly.	1.35	1.38	NS
Unable to control the important things in your life.	1.10	1.22	NS
Felt nervous and stressed.	1.64	1.78	NS
Felt confident about your ability to handle your personal problems.	0.83	0.86	NS
Felt that things were going your way.	1.12	1.21	NS
Found that you could not cope with all the things you had to do.	1.42	1.34	NS
Able to control irritations in your life.	1.02	1.07	NS
Felt you were on top of things.	1.07	1.23	NS
Angered because of things that were outside of your control.	1.50	1.39	NS
Felt difficulties were piling up so high that you could not overcome them.	1.02	1.04	NS

Figure 22. Line Graph of Perceived Stress Coping in the Control Group over Time



Results of Mann-Whitney *U* test are shown on table 58