EMOTIONAL DISTURBANCES DURING PREGNANCY & POSTPARTUM: A NATIONAL SURVEY OF AUSTRALIAN MIDWIVES & AN EDUCATIONAL RESOURCE

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Statement of Originality

The work in this thesis has been completed by the candidate. This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

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Cindy Jones

Synopsis

Pregnancy and the postpartum are critical stages in women's adjustment to motherhood and can have a significant impact on childbearing women's overall psychological well-being (Chokka, 2002; Stocky & Lynch, 2000). According to the *National Midwifery Guidelines for Consultation and Referral* (ANMC, 2006), the physical, emotional, social and cultural aspects for both women and their infant(s) need to be addressed as part of best practice standards in maternity care. To accomplish this, midwives need to be well-educated, competent and resourced in these areas of practice. Midwives are reported to provide poor intrapartum and postpartum emotional care to childbearing women that could in part, be attributed to low self-efficacy and knowledge inadequacies in regards to the provision of emotional care (Brown, Davey & Bruinsma, 2005; Bruinsma, Brown, & Davey, 2003; Gamble, Creedy, & Moyle, 2004b; Rudman, El-Khouri, & Waldenström, 2007a, 2007b). However, very few studies have been undertaken to both determine and improve Australian midwives' knowledge of emotional care issues and address their professional development needs (Eden, 1989; Buist et al., 2006). Therefore, the aims of this research study were to:

1. Determine knowledge levels, attitudes and self-reported practices of midwives in relation to emotional disorders (i.e. antenatal and postnatal depression and anxiety disorders) during pregnancy and postpartum.
2. Develop, implement and evaluate an educational resource to improve the knowledge, attitudes and practices of midwives in the provision of emotional care.

In addressing these aims, two research phases were undertaken. The first phase was a scoping study in the form of a national survey to examine midwives' knowledge of perinatal emotional disorders and their attitudes and self-reported practices in

providing emotional care to childbearing women. Information gathered from the first phase informed the development of an online educational resource designed to enhance midwives' knowledge and abilities in this neglected area of midwifery practice so as to improve childbearing women's emotional health needs and overall well-being. Thus, the second phase was to examine the efficacy of this online educational resource which was piloted and evaluated with a small group of Master of Midwifery students.

Results of the national survey identified that midwives acknowledged their role in the provision of emotional care and support to childbearing women with perinatal emotional disorders. However, knowledge deficits in relation to incidence rate, onset period, assessment and treatment options for both antenatal and postnatal depression as well as the use of the Edinburgh Postnatal Depression Scale in practice were also highlighted. Results from the Phase 2 study suggested that the online educational resource was useful in improving midwives' knowledge of perinatal emotional disorders. Nevertheless, revisions are needed to further enhance the overall quality of the online educational resource with emphasis given to the translation of knowledge into practice and improving midwives' self-efficacy in emotional care work. In view of the increasing importance on the provision of emotional care to childbearing women, it is essential that midwives develop their knowledge and understanding of perinatal emotional disorders and ways to assess and manage childbearing women affected by these disorders in order to provide better support and emotional care.

Presentations derived from this research

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Abbreviations

ACM	Australian College of Midwives
AHWAC	Australian Health Workforce Advisory Committee
AND	Antenatal Depression
ANMC	Australian Nursing and Midwifery Council
ANOVA	Analysis of Variance
APA	American Psychiatric Association
BDI	Beck Depression Inventory
CBT	Cognitive Behavioural Therapy
DSM-III-R	Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition-Revised
DSM-IV-TR	Diagnostic and Statistical Manual of Mental Disorders, 4th Edition-Text Revision
ECNs	Early Childhood Nurses
EPDS	Edinburgh Postnatal Depression Scale
FLAS	Flexible Learning and Access Services
GAD	Generalised Anxiety Disorder
GPs	General Practitioners
HRSD	Hamilton Rating Scale for Depression
HTML	Hyper Text Markup Language
ICD-10	International Classification of Diseases
IPT	Interpersonal Psychotherapy Treatment
MASQ	Modified Antenatal Screening Questionnaire
MCHNs	Maternal Child Health Nurses
MMid	Master of Midwifery
NA	Not Applicable
OCD	Obsessive Compulsive Disorder
PASS	Power and Sample Size
PDF	Acrobat Portable Document File
PDPI	Postpartum Depression Predictors Inventory
PDRI	Postnatal Depression Risk Index
PDSS	Postpartum Depression Screening Scale
PED	Postpartum Emotional Disorder
PND	Postnatal Depression

PRIME-MD, PHQ	Primary Care Evaluation of Mental Disorders Patient Health Questionnaire
PTSD	Post Traumatic Stress Disorder
RDC	Research Diagnostic Criteria
SPSS	Statistical Package for Social Science
SSRIs	Selective Serotonin Reuptake Inhibitors
TCAs	Tricyclic Antidepressants
UK	United Kingdom

CHAPTER 1

Introduction

1.1 Research background

Pregnancy and childbirth for women are customarily perceived to be a period of relative psychological well-being and happiness. Nevertheless, pregnancy and the postpartum have been acknowledged as times when women can experience dramatic physical changes as well as emotional upheaval resulting in adverse consequences for the woman, her children and family (Chokka, 2002; Stocky & Lynch, 2000). Whilst the onset of severe psychiatric disorder is unlikely to occur during pregnancy (Vesga-Lopez et al., 2008), it is common for women to experience emotional distress such as anxiety and depression (Andersson et al., 2003; Heron et al., 2004). Furthermore, childbirth signifies a period when women are susceptible to the development of psychiatric disturbances (Eberhard-Gran, Tambs, Opjordsmoen, Skrondal, & Eskild, 2003; Munk-Olsen, Laursen, Pedersen, Mors, & Mortensen, 2006).

According to the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition-Text Revision (DSM IV-TR), childbearing women experiencing major depression often have feelings of despair, hopelessness, worthlessness as well as suicidal ideation that can dramatically impair their ability to function in work and social roles (APA, 2000). Depression has been shown to be the leading psychological problem among women aged 18 to 44 years (Kasen, Cohen, Chen, & Castille, 2003; Kessler, 2003; Noble, 2005). It is therefore not surprising that depression is commonly seen in women during pregnancy and the postpartum.

Antenatal depression (AND) can affect approximately 7 to 20% of women (Bennett, Einarson, Taddio, Koren & Einarson, 2004b; Faisal-Cury & Menezes, 2007). Not only are the estimates of prevalence for depression during pregnancy considerably higher in women of lower socio-economic status (Bennett et al., 2004b), it is also comparable to rates of postnatal depression (PND) (Austin, 2004; Evans, Heron, Francomb, Oke, & Golding, 2001). While an estimated 10 to 15% of women suffer from PND (Robertson, Grace, Wallington, & Stewart, 2004), there is a wide variation of prevalence rates reported both nationally and internationally (Leahy-Warren & McCarthy, 2007) suggesting difficulties of prevalence estimation, which have been linked to the method of assessment and length of postpartum being examined (Gorman et al., 2004). Higher prevalence rates are associated with the use of self-report instruments and longer periods of assessment, whereas lower prevalence rates are associated with the use of interview-based measures and shorter periods of assessment (Gorman et al., 2004). This is reflected in prevalence rates of PND in Australia which range from 6.4 to 16.9% (Brown & Lumley, 2000; Matthey, Barnett, Ungerer, & Waters, 2000; Morse, Durkin, Buist, & Milgrom, 2004).

Symptoms of antenatal and postnatal depression are similar to a major depressive episode as defined by DSM-IV-TR (APA, 2000). Research evidence is divided as to whether perinatal symptoms are more or less severe than depression at other times (Hendrick, Altshuler, Strouse, & Grosser, 2000; Kessler, 2003; Stewart, 2005). The term ‘perinatal’ in the context of mental health refers to the period throughout pregnancy and one year postpartum (Black Dog Institute, 2008). According to DSM-IV-TR, women suffering from depression usually report two weeks of dysphoric mood where they feel depressed or are unable to experience interest or pleasure in usual activities, and display at least four of nine symptoms of depression.

Symptoms include sleep disturbance, fatigue, guilt, impaired concentration, appetite disturbance, psychomotor activation or retardation, low self-esteem, feelings of hopelessness and worthlessness and suicidal ideation (APA, 2000). A criterion for postpartum onset is that the depressive episode occurs within 4 weeks after childbirth (APA, 2000). These depression symptoms can sometimes be accompanied by a high level of anxiety where obsessional symptoms or morbid preoccupations concerning the baby are exhibited (Saunders, 2003).

While PND is recognised as a major public health issue, symptoms of anxiety and stress tend to be ignored. Although anxiety and depression commonly co-exist, a recent Australian study identified a further 10% of women had symptoms of anxiety and stress without depression (Miller, Pallant, & Negri, 2006). The term *postnatal distress* is inclusive of depression, anxiety and stress and represents a more complete picture of affective disturbance following childbirth (Miller et al., 2006). Women are more likely to develop anxiety disorders than men (Howell, Castle, & Yonkers, 2006; Kessler et al., 2005a; Kinrys & Wygant, 2005). A systematic literature review conducted by Ross and McLean (2006) on anxiety disorders during pregnancy and the postpartum found that anxiety disorders are common during the perinatal period, with reported rates of obsessive compulsive disorder (OCD) and generalised anxiety disorder (GAD) being higher in postpartum women than in the general population. It is suggested that female reproductive hormones may have a potential role in the development, course and outcome of anxiety disorders in women (Ross & McLean, 2006).

Comorbid depression and anxiety disorder has been acknowledged in the literature. In the 2005 US National Comorbidity Survey Replication study, high rates of comorbid depression were found in people diagnosed with anxiety disorder (Kessler,

Chiu, Demler, & Walters, 2005b). Furthermore, nearly 60% of people diagnosed with major depression were found to have an anxiety disorder. Amid these sufferers, the rate of comorbidity with GAD was 17.2%. Comordid depression not only elevates the overall severity of mental distress experienced by individuals, it can also further complicate the treatment process. In addition, the presence of anxiety in people with major depression has been associated with an increased suicide risk (Rubinchik, Kablinger, & Gardner, 2005).

According to DSM-IV-TR, individuals suffering from GAD report more than six months of excessive anxiety and worry (apprehensive expectation) about a number of events or activities and display three (or more) of the following six symptoms: restlessness; fatigue; irritability; muscle tension; sleep disturbance; and excessive sweating. This disturbance is not to be the resulting physiological effect of substance abuse or a medical condition and should cause clinically significant distress or impairment in social, occupational, or other important areas of functioning (APA, 2000). Anxiety disorders can be characterised by the unwarranted, sudden and relentless terror associated with a sense of impending doom and may be induced by the presence or anticipation of a specific object or situation (Rubinchik et al., 2005). Symptoms of anxiety include shortness of breath, heart palpitations, chest pain, light-headedness, tremulousness, paresthesias, diaphoresis, nausea, sweating, fear of losing control or "going crazy", fear of dying, and a sense of impending doom (Gjerdingen, 2004; Saunders, 2003).

The comorbidity between depression and anxiety disorders during pregnancy and the postpartum has been established in a recent community study of 8323 pregnant women in England (Heron et al., 2004). Results showed that a respective 11% and 13%

of the surveyed women suffered from anxiety and depression during pregnancy and the postpartum. In the majority of cases, postnatal depression and anxiety were preceded by antenatal depression and anxiety. Furthermore, after controlling for AND, antenatal anxiety was found to predict the development of PND. Findings indicate that anxiety and depression frequently occur concurrently in childbearing women. Not only does anxiety during pregnancy increase the likelihood of PND, several meta-analyses as well as recent studies have shown that depression during pregnancy (i.e. AND) is the strongest predictor of PND (Leigh & Milgrom, 2008; Milgrom et al., 2008; Robertson et al., 2004).

Health professionals (e.g. obstetricians, midwives, social workers, psychologists) can play an important role in the prevention, detection, early intervention and treatment of emotional disorders in childbearing women (Watt, Sword, Krueger, & Sheehan, 2002). Evaluations of the provision of antenatal care for childbearing women indicated that childbearing women are concerned about their physical and emotional health and well-being during early pregnancy (Hildingsson, Waldenström, & Radestad, 2002). Whilst satisfaction with care during pregnancy is linked to health professionals' attitudes such as 'friendliness' as well as their clinical and technical competency (Janssen & Wiegers, 2006; Tumblin & Simkin, 2001); dissatisfaction with care during pregnancy has been associated with the lack of (1) information and explanation (Tumblin & Simkin, 2001; Waldenström, Hildingsson, Rubertsson, & Radestad, 2004; Waldenström, Rudman, & Hildingsson, 2006); (2) care content; and (3) continuity of caregiver (Biro, Waldenström, Brown, & Pannifex, 2003; Teijlingen, Hundley, Rennie, Graham, & Fitzmaurice, 2003; Waldenström et al., 2004). These factors were confirmed by Hildingsson and Radestad (2005) who investigated Swedish women's satisfaction with their antenatal care. The strongest predictor of dissatisfaction with the emotional

aspects of antenatal care was midwives' inability to provide emotional support (Hildingsson & Radestad, 2005). Support provided by health professionals during pregnancy not only positively affects childbearing women's satisfaction with antenatal care, it can also improve maternal psychosocial outcomes such as reduced antenatal anxiety (Hodnett & Fredericks, 2003) and have positive long-term effects on health outcomes (Hodnett, Gates, Hofmeyr, & Sakala, 2004; Rosen, 2004).

In addition, the provision of emotional support to childbearing women in the postpartum by health professionals can significantly improve women's emotional health and well-being (Koniak-Griffin & Turner-Pluta, 2001), contribute positively in the reduction of stress, trauma and depression symptoms in the postpartum as well as enhance maternal outcomes (Gamble et al., 2005). Women have reported wanting an opportunity to discuss their childbirth-related experiences with a supportive health professional (Cooke & Stacey, 2003; Gamble et al., 2005; Priest, Henderson, Evans, & Hagan, 2003; Small, Lumley, Donohue, Potter, & Waldenström, 2000). Midwives often have first point of contact, if not the most contact, with postpartum women. Midwives could be regarded as the most appropriate health professional to identify, care and assist women suffering from postpartum distress (Elliott, Ross-Davie, Sarkar, & Green, 2007; Ross-Davie, Elliott, Sarkar, & Green, 2006). Childbearing women's coping efforts and positive feelings about their labour and birth can be enhanced via the provision of responsive care by midwives (Davey, Brown, & Bruinsma, 2005; Nystedt, Högberg, & Lundman, 2005; Rudman et al., 2007a). The redesign of maternity care such that it is midwife-led, flexible and women-centred may assist women's adaptation to their mothering role, improve their mental health, and reduce depression and anxiety during the postpartum (MacArthur et al., 2002).

While women have reported general satisfaction with the provision of antenatal care by health professionals (e.g. obstetricians and midwives) (Hildingsson & Radestad, 2005; Janssen & Wiegers, 2006; Teijlingen et al., 2003), midwives have been criticised for the poor intrapartum and postpartum emotional care provided to women (Brown et al., 2005; Bruinsma et al., 2003; Gamble et al., 2004b; Rudman et al., 2007a, 2007b). Midwives are reported to spend little time engaging in the provision of emotional support following birth. In practice, there is little engagement between midwives and childbearing women in the discussion of issues relating to the unique nature and feelings associated with childbirth (Creedy, Shochet, & Horsfall, 2000; Gamble & Creedy, 2004; Singh, 2001). Women have reported wanting midwives to offer emotional support to help them cope with their emotional distress (Cooke & Stacey, 2003). Although midwives acknowledge the importance of emotional support in assisting childbearing women's psychological adaptation to motherhood (Gamble, Creedy, & Moyle, 2004a), they are concerned that ineffective emotional support such as poor quality or inappropriate postpartum counselling can have the potential to exacerbate existing emotional distress experienced by childbearing women and create new problems (Hammett, 1997). It is argued, however, that these concerns may be more of a reflection of midwives' anxiety and uncertainty as well as a perceived lack of ability in the provision of emotional support for childbearing women (Hammett, 1997).

Therefore, affective distress experienced by childbearing women can be exacerbated by a lack of emotional care provided by health professionals (e.g. midwives). Midwives are well placed to provide relevant information and basic counselling services and support social networking for women at risk of or suffering from emotional disorders during pregnancy and the postpartum. They also have a role in assisting women make informed choices in relation to treatment options. In order to

accomplish this, midwives need to be well-educated, competent and resourced in the areas of mental health assessment, provision of emotional support and monitoring of well-being.

1.2 Research problem

An estimated 50% of women suffering depression and/or anxiety during pregnancy and the postpartum remain undetected (Andersson et al., 2003; Bennett et al., 2004b). Midwives are well-placed to provide antenatal care and assist in the provision of timely, appropriate and adequate health information and psychosocial support to pregnant women. Furthermore, they are ideally placed to prevent the development of PND in childbearing women through the early identification of and intervention with women at-risk of PND as well as the detection and treatment of postnatally depressed women.

There has been extensive research into the predictors, associated risk factors and screening approaches for depression during pregnancy and the postpartum but few studies have assessed health professionals' (particularly midwives') knowledge, attitudes and management of emotional disorders during pregnancy and the postpartum. Findings from the limited available research examining midwives' knowledge of depression indicate that midwives possess relatively little knowledge about the identification and management of PND (Eden, 1989; Keng, 2005). Although midwives have a relatively high level of depression awareness, depression was more likely to be considered in the postpartum rather than the antenatal period and their knowledge of PND was lower than both maternal child health nurses (MCHNs) and general practitioners (GPs) (Buist et al., 2006). To date, no research has assessed midwives' knowledge of anxiety disorders.

Research has found that midwives want to know more about perinatal mental disorders and associated treatment techniques (e.g. counselling) so that they can effectively care and manage perinatally depressed women (Stewart & Henshaw, 2002). An education intervention has been found to be effective in enhancing student nurses' knowledge and skills to provide emotional care in their practice (Cutcliffe & Cassedy, 1999). This suggests that education programs have the potential to improve midwives' skills and knowledge and enable them to address the emotional distress experienced by some childbearing women. Therefore, it is likely that the discrepancy in the quantity and the quality of emotional care provided to childbearing women by midwives is partly related to a lack of knowledge, confidence and specific skills to provide this care.

1.3 Research aims and rationale

There is a gap between the reported needs of childbearing women and what midwives offer. This could possibly be a result of knowledge and skills inadequacies and/or negative attitudes based on insecurities about counselling skills and knowledge in midwives (Gamble et al., 2004a; Hammett, 1997). No recent research has been conducted to examine Australian midwives' knowledge, attitudes and management of anxiety disorders during pregnancy and the postpartum. Furthermore, published literature that addresses applicable educational strategies or models in preparing midwives to improve knowledge, skills and attitudes is also absent. Therefore, in view of the comorbidity that exists between depression and anxiety as well as the strong association between antenatal and postnatal depression, the aims of this research are to:

1. Determine knowledge levels, attitudes and self-reported practices of midwives in relation to emotional disorders (i.e. antenatal and postnatal depression and anxiety disorders) during pregnancy and postpartum.

2. Develop, implement and evaluate an educational resource to improve the knowledge, attitudes and practices of midwives in the provision of emotional care.

1.4 Significance

Pregnancy and the postpartum have been identified as critical stages for women's adjustment to motherhood as well as a time of risk for women's overall psychological well-being (Stocky & Lynch, 2000). Perinatal depression and anxiety disorders are major health concerns which can affect childbearing women (Heron et al., 2004; Ross & McLean, 2006). In the first three months following childbirth, women are more likely to require psychiatric admission than during pregnancy and any other time in the postpartum. This risk increases again for first-time mothers (Munk-Olsen et al., 2006). These findings strongly suggest that women are highly vulnerable to childbirth-related psychological disturbances during pregnancy and the postpartum.

There are extensive immediate and long-term adverse consequences of maternal depression for the women themselves, their children and important relationships (Bonari et al., 2004). Depression during pregnancy has been linked to adverse physical outcomes and poor health behaviours in childbearing women. For example, the altered excretion of vasoactive hormones resulting from depression have been associated with increased risk for pregnancy-induced hypertension contributing to pre-eclampsia in childbearing women (Kurki, Hiilesmaa, Raitasalo, Mattila, & Ylikorkala, 2000; Qiu, Sanchez, Lam, Garcia, & Williams, 2007). Furthermore, AND has also been linked to gestational bleeding (Preti et al., 2000) and diminished uterine artery blood flow (Teixeira, Fisk, & Glover, 1999). Antenatal depression can also affect pregnancy outcomes. A study reviewing the literature on the perinatal risks associated with

untreated AND indicated that AND can lead to poor birth outcomes such as fetal death, preterm birth and labour, small infants for gestational age, low birth weight, low Apgar scores and increased risk of neonatal special care and intensive care unit admission (Bonari et al., 2004).

Childbearing women who screen positive for depression or anxiety during the first trimester of pregnancy have been found to display significantly higher levels of functional impairment compared to childbearing women who did not (Birndorf, Madden, Portera, & Leon, 2001). This finding, however, is limited to a small sample group of upper middle-class women in the early stage of pregnancy and may not be generalised to the majority of childbearing women. In another Finnish study of 391 women, the combined prevalence rate of depression and substance abuse in obstetric patients was estimated to be 6.4% (Pajulo, Savonlahti, Sourander, Helenius, & Piha, 2001). Specifically, depression during pregnancy has been found to be associated with an increase in smoking and drinking as well as marijuana and cocaine use (Hanna, Faden, & Dufour, 1994; Lee et al., 2007; Zhu & Valbo, 2002). These findings suggest that depression is associated with substance abuse throughout pregnancy. Depression during pregnancy may also increase the potential for adverse health behaviours as pregnant women may engage in these behaviours to help them cope with their symptoms.

In the 1990s, two UK studies revealed that children, particularly boys, of mothers who suffered from PND performed significantly less competently on cognitive tasks at 18 months of age compared to children of mothers who were mentally well (Murray, 1992; Murray, Fiori-Cowley, Hooper, & Cooper, 1996). Later studies of postnatally depressed mothers from socio-economically disadvantaged populations in

London found the same effect in children between the ages of 4 to 5 years (Cogill, Caplan, Alexandra, Robson, & Kumar, 1986; Sharp et al., 1995). Furthermore, in a follow-up study of children's adjustments in the context of school, 5-year-old children of postnatally depressed mothers were more likely to be rated by their teachers as behaviourally disturbed compared to 5-years-old children of mothers who did not experience PND (Sinclair & Murray, 1998). Since then, the impact of maternal PND on infancy and childhood development has continued to be the subject of several research studies.

Childbirth-related emotional disorders such as PND were found to engender extensive adverse cognitive, behavioural, emotional and physical development for the infant (Grace, Evindar & Stewart, 2003; Milgrom, Westley & Gemmill, 2004; Murray, Cooper & Hipwell, 2003; Rahman, Iqbal, Bunn, Lovel & Harrington, 2004). Furthermore, research on mother-infant attachments (i.e. emotional adjustments) in the context of PND shows that infants and pre-schoolers of depressed mothers were more likely to develop insecure attachments compared to those of non-depressed mothers (Hammen & Brennan, 2003; Martins & Gaffan, 2000; Milgrom et al., 2004; Murray et al., 2003). Specifically, Hammen & Brennan (2003) accentuated the need to take into consideration the severity and chronicity of maternal impairment when determining the relationship between maternal depression and attachment security in young children.

Despite the availability of instruments to assess functional emotional status for conditions such as depression, midwives do not routinely use such instruments in practice. They have been criticised for their lack of provision of emotional care to childbearing women in midwifery practice which could be partly attributed to low self-efficacy and knowledge inadequacies in regards to the provision of emotional care

(Brown et al., 2005; Bruinsma et al., 2003; Gamble et al., 2004b; Rudman et al., 2007a, 2007b). Few studies have been undertaken to both determine and improve Australian midwives' knowledge of emotional care issues and address their professional development needs. Hence, outcomes from the needs analysis will inform the development of an education intervention designed to enhance midwives' abilities in this neglected area of practice.

1.5 Structure of thesis

Chapter 1 of the dissertation provided an overview of the research background, problem, rationale, aims and significance. Chapter 2 will present a comprehensive literature review on (1) emotional disorders during pregnancy and the postpartum; (2) predictors or risk factors, screening instruments and treatment approaches for AND; (3) predictors or risk factors, screening instruments, prevention and treatment approaches for PND; and (4) health professionals' roles in the management of emotional disorders as well as their knowledge, attitudes and management of emotional disorders. It will be argued that midwives' confidence in providing emotional care can be, in part, explained through the application of Bandura's self-efficacy theory to midwifery practice development.

The Phase 1 study is presented in Chapter 3 in three parts. Part I outlines the methodological considerations for the study (i.e. a national survey) that investigates midwives' knowledge, attitudes and self-reported practices towards childbearing women's antenatal and postnatal emotional health needs. This includes the design, sample, data collection instruments, procedures, data analysis and ethical issues associated with the research. Part II reports on the survey results, while Part III presents outcomes of the survey by comparing and contrasting these findings with those obtained

from previous research. Limitations of this study and implications of results for the proposed educational intervention will also be discussed.

The Phase 2 study is presented in Chapter 4 and is also divided into three parts. Part I describes the method used to develop an online educational resource that aims to assist midwives to recognise emotional responses to childbirth, understand factors that place women at risk for emotional distress, develop knowledge and skills required for a psycho-social assessment and apply best available evidence in the care of childbearing women. Details regarding the design, sample, content of the online educational module, data collection instruments, procedures, data analysis and ethical issues associated with this evaluation study will be provided. Results on the implementation and evaluation of the on-line educational resource will be detailed in Part II. Part III discusses the outcomes of Phase 2 study together with the information gathered from midwives' evaluation of the online educational module. Study limitations will be discussed and implications of the findings for midwifery education will also be presented.

Chapter 5 concludes by providing a précis of both phases of the study within the context of the contemporary literature and Bandura's self-efficacy framework. Recommendations from this research, for midwifery education, research and practice will be identified within this chapter. Finally, conclusions are drawn as to why the provision of education is important to enhance midwives' knowledge of emotional disorders (i.e. antenatal and PND and anxiety disorders) during pregnancy and the postpartum, as well as enhance their attitudes and management of childbearing women's emotional health needs.

CHAPTER 2

Literature Review

This chapter reviews the spectrum of emotional disorders that may occur during pregnancy and the postpartum. Predictors or risk factors, instruments for screening and assessment and treatment approaches for depression during pregnancy will be addressed. A review of the predictors and risk factors associated with PND as well as screening and detection instruments for PND will be discussed. Pharmacological and psychological interventions for the prevention and treatment of PND will also be examined. Finally, this chapter reviews existing research on midwives' role in the management of emotional disorders during pregnancy and the postpartum as well as their knowledge, attitudes and management regarding emotional disorders during pregnancy and the postpartum

The literature review was conducted though a search of the major research databases (CINAHL 1981 – 2008; Cochrane; Embase; Proquest; PsychLit; PubMed; SocioFile). English language publications were retrieved using the following combinations of key search terms: (a) antenatal, prenatal or perinatal with anxiety and depression; (b) perinatal, postnatal or postpartum with anxiety, blues, depression, psychosis, panic disorder, obsessive compulsive disorder and post-traumatic stress disorder; (c) antenatal, prenatal, perinatal, postnatal or postpartum depression with risk factors, predictors, screening, detection, prevention and treatment; as well as (d) health practitioners or midwives with perinatal emotional care, role, knowledge, skills, attitudes, management and education. Reference lists of all relevant articles obtained were checked and additional potential relevant articles retrieved. Personal contact was made with experts and authors in these areas to obtain papers presented in conference

proceedings. In general, research studies addressing emotional disorders during pregnancy and the postpartum were included in the review with emphasis placed on research (a) undertaken between 1998 and 2008; (b) that focused on childbearing women; and (c) addressed emotional care provided by midwives. The goal was to retrieve all research articles meeting these criteria that used any type of research design.

2.1 Overview of emotional disorders during pregnancy

Depression and anxiety are two common psychological and mood disturbances during pregnancy (Andersson et al., 2003; Heron et al., 2004). Women in comparison to men have been found to be more vulnerable to depression and anxiety disorders (Howell et al., 2006; Kessler et al., 2005a; Kinrys & Wygant, 2005). Reproductive events may be possible triggers in the onset of depression and anxiety disorders (Lbad et al., 2005; Noble, 2005; Ross & McLean, 2006). Therefore, it is possible for both depression and anxiety disorders to occur during pregnancy or the postpartum. However, many pregnant women suffering from depression and anxiety may not be diagnosed or treated (Andersson et al., 2003; Bennett et al., 2004b).

2.1.1 Pregnancy and anxiety disorders

Anxiety disorders are common among women (Howell et al., 2006). Little is known, however, about the prevalence and clinical presentation of anxiety disorders during pregnancy. A community study of 8,323 pregnant women in England found that 21.9% had clinically significant symptoms of anxiety (Heron et al., 2004). In the general population, anxiety disorders may present during the childbearing years. With the exception of GAD where its onset typically occurs in women aged over 35 (Carter, Garrity-Rokous, Chazan-Cohen, Little, & Briggs-Gowan, 2001), the onset of other anxiety disorders in women peaks during the mid- to late-20s which coincides with the

onset of childbearing (Pigott, 2003). It is therefore not surprising for some women to exhibit symptoms of anxiety during pregnancy. In light of this, it is imperative that midwives recognise the existence of antenatal anxiety and are able to identify women vulnerable to the development of anxiety disorders during pregnancy.

Several factors are known to be associated with the development of anxiety disorders. Women who are unmarried; come from an ethnic minority group; or with lower educational and income levels have a higher likelihood of developing anxiety during pregnancy (Faisal-Cury & Menezes, 2007). In addition, a consistent association exists between alcohol use and abuse and psychological distress during pregnancy (Alati et al., 2005). Women with a history of alcohol abuse may have varying degrees of unrecognised and untreated psychological disturbance prior to pregnancy and be more prone to the development of anxiety symptoms during pregnancy. Women who report low levels of social support and marital satisfaction are more likely to report anxiety symptoms in the second and third trimester (Lee et al., 2007). Similarly, women with low self-esteem are less likely to cope with the multitude of developmental challenges and stressors of pregnancy and report anxiety symptoms. Lastly, primigravida women are more likely to develop anxiety symptoms at the beginning of their pregnancy while younger women are prone to the development of anxiety symptoms at both the beginning and last trimester of their pregnancy.

There is evidence to suggest that pregnancy can be associated with improvement in panic-related anxiety symptoms in childbearing women (Altshuler, Hendrick, & Cohen, 2000; Bandelow et al., 2006). During pregnancy, psychosocial influences such as the joyous anticipation of the baby (Bandelow et al., 2006), hormonal changes (Klein, Skrobala, & Garfinkel, 1995) and progesterone metabolites, which possess

barbiturate-like activity (Majewska, Harrison, Schwartz, Barker, & Paul, 1986), are considered to have anxiolytic effects. Furthermore, the amelioration of panic symptoms in some women may possibly be explained by physiologic transformations that occur during pregnancy. Studies have reported a reduction in sympathetic arousal to a variety of physiological stimuli such as an attenuation of heart rate and norepinephrine release in response to postural changes in women who are pregnant (Barron et al., 1986 as cited in Altshuler et al., 2000; Nissel et al., 1985 as cited in Altshuler et al., 2000).

In addition to the comorbid relationship between depression and anxiety disorders during pregnancy (Heron et al., 2004), antenatal anxiety is also an important precursor for PND (Austin, Tully, & Parker, 2007; Heron et al., 2004) and has been found to be adversely associated with children's behavioural and emotional developments (O'Connor, Heron, Glover, & The ALSPAC Study Team, 2002). Despite this, perinatal anxiety has received considerably less research attention compared with other perinatal emotional disorders (Ross & McLean, 2006).

2.1.2 Predictors or risk factors for antenatal depression

A major focus of perinatal research has been on the identification of predictors or risk factors for depression during pregnancy and the importance of efficient screening of women at risk for AND (Marcus, Flynn, Blow, & Barry, 2003). As reflected in Table 2.1, research studies have identified several biological and psychosocial risk factors for AND which include personal and family history of mood disorders, marital conflict, marital status, domestic violence, younger age and limited social support with greater number of children. Depression during pregnancy has also been linked to low income, lower educational levels, unemployment, alcohol use and smoking. Most importantly, a prior history of depression is not only considered to be a risk factor for AND, it has also

been found to be consistently related to depression in the postpartum (Leigh & Milgrom, 2008; Milgrom et al., 2008; Robertson et al., 2004). Thus, women with a past history of depression should be targeted for more intensive assessment by midwives during early pregnancy to prevent or better manage the development of both antenatal and postnatal depression.

Table 2.1

Summary of risk factors for antenatal depression

Author (s)	**Research purpose**	**Research Design / Sample**	**Instrument**	**Reliability and Validity**	**Findings** *(only outcomes relating to the risk factors for AND are presented)*
Leigh & Milgrom, 2008	To identify risk factors for AND, PND and parenting stress in Australia	Time-series study (n = 367)	▪ Edinburgh Postnatal Depression Scale ▪ Beck Depression Inventory ▪ Beck Anxiety Inventory ▪ Attributional style Questionnaire ▪ Rosenberg Self-Esteem Scale ▪ Social Provisions Scale ▪ Parenting Stress Index	▪ NA ▪ NA ▪ NA ▪ NA ▪ NA ▪ NA ▪ NA	▪ Risk factor for AND included low self esteem, low income, antenatal anxiety, social support, negative cognitive style and a history of abuse.
Faisal-Cury & Menezes, 2007	To estimate the prevalence and risk factors for antenatal anxiety (AA) and antenatal depression (AND) in Sao Paulo.	Cross-sectional study (n = 432)	▪ Spielberg State-Trait Anxiety Inventory ▪ Beck Depression Inventory	▪ Cronbach's alpha 0.86-0.95 ▪ NA	▪ AND was associated with low family income, low education level, younger age, being unmarried or lack of partner and greater number of previous abortions.

Lau & Keung, 2007	Investigate the correlates of antenatal depressive symptoms among Hong Kong Chinese women during their second trimester.	Cross-sectional, exploratory, quantitative design (n = 2178)	▪ Edinburgh Postnatal Depression Scale ▪ Dyadic Adjustment Scale ▪ Stryker Adjustment Checklist	▪ Cronbach's alpha 0.81 ▪ Cronbach's alpha 0.91 – 0.93 ▪ Cronbach's alpha 0.80 – 0.88	▪ Depression was correlated with age, marital status, employment, total income, residence, employment, total monthly income, living condition, personal and family psychiatry history, intended pregnancy, history of menstruation discomfort, mood changes, previous loss, marital conflict and conflict with mother-in-law. ▪ Younger women, unplanned pregnancy, women with personal or family history of psychiatry and women with menstruation discomfort all reported more severe depression.

Lee et al., 2007	To estimate the prevalence and course of AND across different stages of pregnancy, risk factors, and relationship between antenatal anxiety and depression as well as PND in Hong Kong	Prospective-longitudinal study (n = 357)	▪ Edinburgh Postnatal Depression Scale ▪ Hospital Anxiety and Depression Scale	▪ NA ▪ NA	▪ Young women who have a history of drinking displayed more depressive symptomatology. ▪ Unwanted pregnancy, low self-esteem, low perceived level of social support, low marital satisfaction were also associated with an increase risk for AND.
Bacchus, Mezey, & Bewley, 2004	To examine the prevalence of domestic violence (DV) and its associations with obstetric complications and psychological health in women on antenatal and postnatal in UK.	Cross-sectional study (n = 200)	▪ Edinburgh Postnatal Depression Scale ▪ Abuse Assessment Screen	▪ NA	▪ Significant correlation was found between women who had a high EPDS score and (a) a history of domestic violence; (b) being single and separated/non-cohabiting; and (c) with selected obstetric complications. ▪ Clinical cases of depression were associated with being single and separated/non-cohabiting but not with domestic violence or selected obstetric complications.

Marcus et al., 2003	To describe the prevalence of depressive symptomatology of pregnant women in Michigan who were seen in an obstetric setting and the extent of treatment in this population. Specific risk factors associated with mood symptoms in pregnancy was also examined.	Cross-sectional study (n = 3427)	▪ Centres for Epidemiological Studies Depression Scale ▪ Risk drinking	▪ Cronbach's alpha 0.84 ▪ NA	▪ Factors associated with elevated depressive symptomatology included lower education level, unemployment, single and living without with partner ▪ Maternal age, parity, gestational week and race/ethnicity were not found to be correlated with depressive symptomatology.
Zhu & Valbo, 2002	To examine the relationship between depression and smoking among pregnant women in Norwegian Hospitals.	Cross-sectional study (n = 487)	▪ Centres for Epidemiological Studies Depression Scale	▪ Cronbach's alpha 0.85	▪ Depressed pregnant women were four times more likely to be smoking than non-depressed women.
Pajulo et al., 2001	To explore the prevalence of depression and factors associated with depressive mood among pregnant women in Finland.	Cross-sectional explanatory study (n = 391)	▪ Edinburgh Postnatal Depression Scale ▪ Abuse Subtle Screening Inventory ▪ Social Support Questionnaire	▪ N/A ▪ Cronbach's alpha 0.90 – 0.95 ▪ Cronbach's alpha 0.73 – 0.83	▪ Factors associated with depression were: substance dependency; economic difficulties; lack of social support; and greater number of young children. ▪ Maternal depression was also linked to relational difficulties with partner, relatives and friends.

Bolton, Hughes, Turton, & Sedgwick, 1998	Literature review on AND and reports on a recent survey of depressive symptoms among women attending an inner London antenatal clinic.	Survey study (*n* = 407)	▪ Edinburgh Postnatal Depression Scale	▪ NA	▪ Depression during pregnancy was associated with being single; unmarried; cohabiting; unsupportive partner; unemployment; parity; and low educational level.
Hanna et al., 1994	To examine the relationship of depression, attitude towards pregnancy, socio-demographic variables and substance use by women of childbearing age prior to and after learning of their pregnancies in USA	Longitudinal study (*n* = 18,594)	▪ Centres for Epidemiological Studies Depression Scale	▪ NA	▪ Significant positive relationships were found between depression and drinking, smoking, marijuana use, cocaine use as well as attitude towards pregnancy.
Gotlib, Whiffen, & Mount, 1989	To examine the prevalence of depression among pregnant women in Canada	Cross-sectional study (*n* = 360)	▪ Beck Depression Inventory ▪ Schedule for Affective Disorders and Schizophrenia	▪ NA ▪ Cronbach's alpha 0.78	▪ Risk factors for AND included being a housewife, younger age, lower educated level and greater number of children. ▪ Depression during pregnancy is an indicator for PND.

2.1.3 Detection instruments for antenatal depression

The high costs and resource implications associated with making a clinical diagnosis of depression have led to the development of self-report questionnaires to detect probable depression in childbearing women (Boyd, Pearson, & Blehar, 2002). Among the various instruments for detecting probable AND, the Edinburgh Postnatal Depression Scale (EPDS), the Beck Depression Inventory (BDI) and the Primary Care Evaluation of Mental Disorders Patient Health Questionnaire (PRIME-MD, PHQ) are the three most commonly used screening instruments for AND. These instruments have been psychometrically assessed for detecting depression during pregnancy and are currently used in practice by midwives.

Validation of the EPDS for the detection of AND against a standardised psychiatric interview has found that a cut-off score of 12 or greater has a sensitivity of 0.50 and a specificity of 0.90 for detecting depressive symptoms during pregnancy in childbearing women (Murray & Cox, 1990). On the other hand, validation of the BDI against the National Institute of Mental Health Diagnostic Interview Schedule version III revealed that a cut-off score of 16, with a sensitivity of 0.83 and a specificity of 0.89, to be indicative of depression during pregnancy (Holcomb, Stone, Lustman, Gavard, & Mostello, 1996). Non-depressed pregnant women had higher BDI scores on physical items such as fatigue, sleep disturbance and loss of libido compared to pregnant women who were depressed. Hence, diagnosing pregnant women with a low to medium BDI score as being at risk for depression should be done so with caution given the high incidence of somatic complaints among pregnant women generally (Bennett, Einarson, Taddio, Koren & Einarson, 2004a; Bennett et al., 2004b). In fact, research has demonstrated that removal of the somatic symptom cluster did not reduce the psychometric stability of the BDI and the cognitive-affective cluster alone is as

sensitive to depression during pregnancy as the EPDS which measures pregnancy and postpartum changes (Spinelli & Endicott, 2003).

Lastly, PRIME-MD, PHQ is a self-administered 78-item questionnaire that assesses respondents' mental health symptoms, functional impairment and recent psychosocial stressors. Validity of PRIME-MD, PHQ has been established in a study of 3000 obstetric-gynaecological patients (Spitzer, Williams, Kroenke, Hornyak, & McMurray, 2000). Results show a high correlation for severity of depression symptoms between the PRIME-MD, PHQ and psychologist's diagnosis made via a telephone interview (r = .79). Overall, the PRIME-MD PHQ has been found to be a useful instrument for the assessment of mental disorders, functional impairment and recent psychosocial stressors in pregnant women.

2.1.4 Treatment strategies for antenatal depression

The treatment of depression during pregnancy is aimed at achieving mental and emotional stability without causing harm to the fetus (Hendrick & Altshuler, 2002). There is a need to balance the potential risks of treatment against the projected benefits to both mother and fetus (Buist, 2000). Pharmacological and psychological interventions are the two main treatment approaches for depression during pregnancy (Bennett et al., 2004a). However, childbearing women and midwives are reluctant to utilise pharmacological intervention in the treatment of depression during pregnancy due to the potentially harmful effects posed to both the mother and fetus (Altshuler et al., 2001; Bennett et al., 2004a; MacQueen & Chokka, 2004; Oren et al., 2002). Instead, they are more likely to advocate the use of non-pharmacological interventions. Evidence regarding the use of pharmacological and psychological interventions is important for

providing midwives with the information they need to make informed decisions regarding the management of emotional disorders during pregnancy.

2.1.4.1 Pharmacological interventions

Antidepressant medications are the standard pharmacological treatment for depression, particularly for more severe major depression (APA, 2000), and represent the most common form of treatment for major depression (Olfson, Marcus, Druss, & Pincus, 2002). Selective Serotonin Reuptake Inhibitors (SSRIs) and Tricyclic Antidepressants (TCAs) are two cost-effective and widely used medications in the treatment of depression (Barrett, Byford, & Knapp, 2005). Selective serotonin reuptake inhibitors include fluoxetine (Prozac), paroxetine (Paxil, Seroxat), escitalopram (Lexapro, Esipram), citalopram (Celexa), sertraline (Zoloft), and fluvoxamine (Luvox) (Hickie et al., 2000). On the other hand, TCAs are older forms of antidepressant agents that consist of nortriptyline (Allegron), clomipramine (Anafranil), dothiepin (Prothiaden, Dothep), imipramine (Tofranil) and amitriptyline (Tryptanol, Endep) (Hickie et al., 2000). These older antidepressant agents are effective in the treatment of severe depression but have more adverse side-effects than the newer antidepressant drugs (Anderson, 2000; Parker, 2001; Peretti, Judge & Hindmarch, 2000).

Traces of antidepressant medications have been found in the placenta, umbilical cord blood, amniotic fluid and fetal serum of pregnant women (Casper et al., 2003). This raises the need to examine the extent of fetal exposure to the drugs used in the treatment of depression in pregnant women. Researchers attempting to determine the safety of antidepressant medication during pregnancy have reported conflicting evidence. The majority of studies have not found links between the use of fluoxetine (Chambers, Johnson, Dick, Felix, & Jones, 1996; Cohen et al., 2000b), venlafaxin

(Einarson et al., 2001), fluvoxamine, sertraline, paroxetine, trazodone/nefazodone (Kulin et al., 1998), SSRIs (Hendrick et al., 2003) and TCAs (McElhatton et al., 1996) and major fetal malformations. Some prospective studies (Casper et al., 2003; Nulman et al., 2002; Simon, Cunningham, & Davis, 2002) did not find adverse effects on children's global intelligence, language, temperament or behavioural development when they are exposed to TCAs or fluoxetine in utero. However, a weakness of these prospective studies relates to small sample sizes, high attrition and lack of long term follow-up.

On the other hand, other studies have reported adverse outcomes associated with the use of antidepressant medications during pregnancy. Fetuses exposed to paroxetine, citalopram and fluoxetine during the last trimester of pregnancy are at higher risk of developing neonatal withdrawal symptoms such as irritability, excessive crying, shivering, difficulties with eating and sleeping, and seizures (Nordeng, Lindemann, Perminov, & Reikvam, 2001); neonatal complications such as respiratory distress, hypoglycaemia and jaundice (Costei, Kozer, Ho, Ito, & Koren, 2002); and congenital malformations (Cole, Ephross, Cosmatos, & Walker, 2007). However, neonatal withdrawal symptoms and complications are reported to subside rapidly in babies. Other reported adverse outcomes related to the gestational use of SSRIs and TCAs include altered neonatal acute pain response (Oberlander et al., 2002), higher rates of admission to special care nurseries (SCNs) (Cohen et al., 2000b), premature birth (Chambers et al., 1996; Kulin et al., 1998), miscarriages (Pastuszak et al., 1993) and minor anomalies (i.e. structural defects of no cosmetic or functional importance) (Chambers et al., 1996). Overall, there is a growing body of clinical evidence regarding the relative safety of the use of SSRIs and TCAs during the gestational period.

Nevertheless, evidence suggestive of negative side effects exists and additional large-scale studies are required.

2.1.4.2 Psychological interventions

Psychotherapies such as Cognitive Behavioural Therapy (CBT) and Interpersonal Psychotherapy Treatment (IPT) provide an alternative to childbearing women and health professionals who do not wish to utilise pharmacological interventions in the treatment of depression during pregnancy (Bennett et al., 2004a). Cognitive behavioural therapy is based on the concept that individuals' affective and behavioural responses are dependent on the way they perceive or interpret an experience (Ryan, Milis, & Misri, 2005). According to cognitive behavioural theory, psychiatric disorders are consequences of maladaptive beliefs and information processing mechanisms. The aim of CBT is to reduce distress and enhance coping efforts by assisting individuals to recognise and challenge systematic distortions in thinking and develop more effective cognitive and behavioural strategies for managing emotional distress (Ryan et al., 2005).

The exclusive use of CBT to treat women suffering from depression during pregnancy has yet to be trialed (Bledsoe & Grote, 2006; Ryan et al., 2005). Cognitive behavioural therapy has been found to be an effective treatment for depression and its effectiveness is comparable to antidepressants and IPT (Rupke, Blecke, & Renfrow, 2006). Cognitive behavioural therapy has proved to be beneficial in treating patients who have a poor response to antidepressant medications and reduces relapse rates in patients with depression. In addition, the combination of CBT and antidepressants has been shown to be effective in the management of severe or chronic depression.

Interpersonal psychotherapy treatment focuses on the link between depressive symptomatalogy onset and interpersonal problems and issues. Following an evaluation of the psychiatric/social history, appropriate strategies specific to the interpersonal difficulties are implemented as well as encouraging the person to acknowledge and consolidate therapeutic gains to counteract future depressive symptoms (Ryan et al., 2005). In a study of 38 female pregnant immigrants from the Dominican Republic, Spinelli and Endicott (2003) reported that IPT led to a significant improvement in scores on the EPDS, BDI and Clinical Global Impression when compared to a parenting education program. Concerns have been raised regarding the generalisability of these findings given the small sample size and unique characteristics of this immigrant sample. The majority of these women came from unstable backgrounds with nearly all reporting low levels of financial and social support, a history of child abuse (47%), sexual abuse (28%) and physical abuse (25%). Additionally, it is unknown if some factors such as cultural differences, culture preservation and social isolation affected their overall mental health. Therefore, IPT interventions for AND require further study with representative samples of pregnant women (Dennis, Ross & Grigoriadis, 2007).

Overall, given the lack of research on CBT interventions in treating depressed women during pregnancy and lack of evidence in regards to IPT (Dennis et al., 2007; Ryan et al., 2005), further research is required to derive statistically meaningful results and determine the efficacy of both IPT and CBT. Interpersonal psychotherapy treatment and CBT may not be economically viable due to their high costs and resource implications. Access to CBT may also be limited by the availability of skilled therapists to support women suffering depression during pregnancy (Bennett et al., 2004a). In addition, there is also insufficient evidence to support the use of other diverse

interventions (i.e. massage therapy or depression-specific acupuncture) in treating AND (Dennis & Allen, 2008).

Cognitive behavioural therapy and IPT have been clinically positioned as first-line evidence-based treatments for depression (Parker & Fletcher, 2007). Recent preliminary findings from a meta-analysis have suggested that CBT, IPT, and medication alone or with CBT, do hold promise in the treatment of perinatal non-psychotic depression (Bledsoe & Grote, 2006). Despite concerns over the use of antidepressant medications, CBT & IPT to treat depression in pregnant women, these treatment strategies should not be dismissed by midwives. Childbearing women and midwives needs to collaboratively assess the risk and benefits of these treatment strategies for AND in order to make an informed decision. Presently, *beyondblue* (2008) are developing guidelines to help clinicians, including midwives, know how to best manage and care for women with perinatal mental health disorders.

2.2 Overview of emotional disorders during the postpartum

There is a wide spectrum of postpartum psychological emotional disorders affecting childbearing women. The three most commonly known mood disturbances are maternity blues, PND and postpartum psychosis (Saunders, 2003). Researchers have also identified that anxiety disorders, including panic disorder (Altshuler et al., 2000; Bandelow et al., 2006; Ross & McLean, 2006), OCD (Abramowitz, Schwartz, Moore, & Luenzmann, 2003; Altshuler et al., 2000; Brandes, Soares, & Cohen, 2004; Ross & McLean, 2006) and post traumatic stress disorder (PTSD) (Adewuya, Ologun, & Ibigbami, 2006; Ayers & Pickering, 2001; Cohen, Ansara, Schei, Stuckless, & Stewart, 2004; Creedy et al., 2000; Gamble et al., 2005; Soet, Brack, & Dilorio, 2003; Wijma, Soderquist, & Wijma, 1997), are commonly experienced during the postpartum. Mood

and anxiety disorders can have harmful implications for mothers and their infants as well as a distinctive blend of symptoms.

2.2.1 Maternity blues

Maternity blues, also known as baby blues, is a common evanescent condition experienced by 50 to 80% of new mothers. It typically occurs within 3 to 5 days postpartum and lasts for a few hours to a few days. Symptoms of maternity blues include tearfulness, sudden mood swings, hypochondria, hypersensitivity to criticism, low spirits, irritability, poor concentration, indecisiveness and insomnia (Brockington, 1996; Saunders, 2003). The sudden radical change in hormone levels associated with pregnancy, labour and birth (i.e. oestrogen, progesterone and endorphins) together with the physical, mental and emotional effort of childbirth, are thought to be common contributors to maternity blues (Brockington, 1996).

One study linked the development of maternity blues with thyroid dysfunction (Ijuin, Douchi, Tamamoto, Ijuin, & Nagata, 1998). In a study of two groups of women (i.e. 20 women with maternity blues and 20 age-matched normal controls), serum levels of six kinds of thyroid hormones, cortisol, and prolactin (PRL) were compared. The serum-free tri-iodothyronine (FT3) level at 5 days puerperium was not only lower in the maternity blues group than in the control group, it was also lower in comparison to women at 37 weeks of pregnancy and at 1 month puerperium. The reverse tri-iodothronine (T3) and thyroid-stimulating hormone (TSH) levels at 5 days postpartum were higher in women with maternity blues than among the controls. Findings indicated that FT3 level and primiparity were significantly correlated with the development of maternity blues.

Whilst maternity blues can usually be effectively resolved by the provision of simple explanations and reassurance to new mothers, the key concern lies in distinguishing whether maternity blues symptoms are warning signs for the onset of a pending depressive disorder such as PND or postpartum psychosis (Saunders, 2003).

2.2.2 Postnatal depression

Postnatal depression is a form of non-psychotic depression with symptoms similar to a major depressive episode as defined by the DSM-IV-TR (APA, 2000). These symptoms are often aggravated by additional feelings of anxiety and loneliness and low levels of self-esteem and self-efficacy (Saunders, 2003). Diagnosing depression during the postpartum may be difficult in light of the normal emotional changes which may either mask depressive symptoms or be mistaken as depression. More importantly, it is difficult to differentiate whether the depressive symptoms displayed by women reflect major depressive disorders or are simply part of adjusting to the upheaval of having a new baby (Stocky & Lynch, 2000). Postnatal depression is discussed more fully in a later section.

2.2.3 Postpartum psychosis

Postpartum psychosis, also known as puerperal psychosis, is a rare and extremely severe form of psychiatric mental illness associated to childbirth. It is important to note that postpartum psychosis is not a severe form of PND but a distinct separate psychiatric disturbance on its own that occurs approximately in 1 to 2 per 1000 women after childbirth (APA, 2000). In acute cases, there are high suicidal and infanticide risks where hospitalisation may be required (Kennedy & Suttenfield, 2001). Given the threat posed to women and their infants, women diagnosed with postpartum psychosis should always be treated as a psychiatric emergency.

The onset of postpartum psychosis usually occurs in the first two weeks after childbirth. Symptoms of postpartum psychosis can develop very shortly after childbirth. Initially, women may display exaggerated symptoms of maternity blues such as sleep disturbance, insomnia, irritability, agitation and labile mood. With time, further defined clinical characteristics such as elated mood, disorganised behaviour, preoccupations, delusions, hallucinations and grandiosity evolve rapidly (Kennedy & Suttenfield, 2001; Saunders, 2003; Stocky & Lynch, 2000). For example, a woman may have delusional beliefs that the baby is "abnormal" or "evil".

An estimated 20% to 30% of women suffering bipolar disorder are diagnosed with postpartum psychosis (Brockington, 1996; Chaudron & Pies, 2003). Results from various family studies indicate a link between familial factors (i.e. genetic/biological) and an individual's predisposition to bipolar disorder and postpartum psychosis (Chaudron & Pies, 2003). Jones and Craddock (2001, 2002) found that familial factors are linked to the development of a puerperal episode in women with bipolar disorder. Women with a previous personal history or family history of psychotic illness are more exposed to the risk of postpartum psychosis. Furthermore, it is suggested that the majority of puerperal psychotic episodes are manifestations of an affective disorder diathesis with a puerperal trigger and that familial factors play a role in an individual's susceptibility to puerperal triggers.

2.2.4 Postpartum panic disorder

The occurrence of panic disorder in the postpartum, an extreme form of anxiety disorder characterised by shortness of breath, chest pain, sweating, and dizziness was first documented by Metz, Sichel and Goff (1988) (as cited in Beck, 1998). The prevalence rate of panic disorder for the general adult population is 5% (Rubinchik et

al., 2005). However, due to the lack of longitudinal and epidemiologic studies, there is insufficient evidence to determine the prevalence of panic disorder in childbearing women (Rubinchik et al., 2005).

For childbearing women with a history of anxiety, deterioration of symptoms during the postpartum has been found. Hertzberg & Wahlbeck (1999) reported that 83% of the 215 reviewed pregnancies exhibited onset or exacerbation of panic disorder in the postpartum. The changes in anxiety symptoms during the postpartum are often linked with psychosocial influences and hormonal changes (Altshuler et al., 2000; Bandelow et al., 2006). Psychosocial factors, possibly linked to increased anxiety during the postpartum, include the reduction in sleep time, increased workload, parenting difficulties and mothers' inability to form a secure relationship with their baby. It is argued that these psychosocial factors are present during pregnancy and, hence, a sudden adverse change in these factors from pregnancy to postpartum is less probable (Bandelow et al., 2006).

Beck (1998) interviewed six mothers suffering from postpartum panic disorder and identified six themes in relation to their experiences. The themes related to panic attacks were (1) lack of control due to the emotional and physical strain; (2) diminished cognitive functioning; (3) exhaustion due to pressure to maintain composure; (4) preoccupation with the need to avoid future panic attacks; (5) decreased self-esteem; and (6) being troubled by potentially damaging and harmful consequences on themselves and their families. As PND has been widely used as a clinical term for all postpartum emotional symptoms, it is possible that some childbearing women are misdiagnosed with PND when, in fact, they are suffering postpartum panic disorder (Beck, 1998).

2.2.5 Postpartum obsessive compulsive disorder

The prevalence of OCD in the general adult population stands at 2 to 3% (Angst, 1994). Women are at a higher risk of developing OCD than men (Arnold, 1999). However, there are insufficient studies to conclusively determine the prevalence of postpartum OCD for childbearing women (Abramowitz et al., 2003; Brandes et al., 2004). Obsessive compulsive disorder, a form of anxiety disorder, is distinguished by irrational, recurring, and unsolicited cognitive thoughts, ideas or qualms that give rise to anxiety/distress (obsessions) and impulse to engage in excessive behavioural or mental acts (i.e. compulsive rituals) so as to restrain or defuse their distress (Abramowitz et al., 2003). Intrusive thoughts about harming the newborn without compulsions or with both obsessions and compulsions are indications of postpartum OCD (Brandes et al., 2004).

Research into postpartum OCD is scarce and there are limited epidemiological and descriptive studies on this topic (Abramowitz et al., 2003; Brandes et al., 2004). The majority of postpartum OCD research has been case studies and retrospective studies of patients' records (Rasmussen & Tusang, 1986). In a mail survey of patients with OCD (39 females and 21 males), 21% of female participants indicated onset of OCD after childbirth while 15% reported a deterioration of OCD after childbirth (Buttolph & Holland, 1990).

Obsessive compulsive disorder symptoms such as harm-related obsessive thoughts are fairly common in women suffering from PND. One study compared the severity of OCD symptoms in 100 women with PND and 46 new mothers with no psychiatric illness (Jennings, Ross, Pepper, & Elmore, 1999). Forty-one percent of postnatally depressed women reported having aggressive obsessive thoughts towards their infants. Of these, 20% reported "passing" thoughts while 12% reported

"repetitive" thoughts. Furthermore, 4% believed that "precaution" measures such as avoiding being alone with baby should be undertaken and 5% indicated they had previously acted aggressively towards their baby. Interestingly, 6.5% of new mothers with no psychiatric illness (i.e. 1 in every 15 childbearing women) have experienced "passing" aggressive obsessive thoughts towards their newborn infant. This suggests that undesired harmful thoughts towards an infant can occur in new mothers with no psychiatric illness. Additionally, aggressive obsessive thoughts are found to occur independently of other stress-related factors such as child temperament and history and severity of depression (Jennings et al., 1999).

In general, research evidence suggests that women can develop OCD during the postpartum (Arnold, 1999). Given that depression includes undesired thoughts, it is possible that obsessive undesired harmful thoughts are symptomatic of PND onset or that the distressing feelings associated with obsessive undesired harmful thoughts could induce depressive symptoms. Hence, further research should not only attempt to investigate the prevalence of postpartum OCD but also determine if OCD symptoms are a cause or effect of PND. As PND and OCD can occur concurrently, further studies on their clinical management is warranted (Abramowitz et al., 2003; Brandes et al., 2004).

2.2.6 Post traumatic stress disorder

Post traumatic stress disorder is a reaction to an event, either personally experienced or witnessed, that involves actual or threatened death or serious injury or a threat to the physical integrity of self or others (APA, 2000). Diagnostic and Statistical Manual of Mental Disorders, 4th Edition-Text Revision criteria for PTSD are: (Criterion A) exposure to traumatic event(s); (Criterion B) re-experiencing the traumatic event through intrusive and recurrent thoughts, flashbacks and nightmares; (Criterion C)

persistent avoidance of trauma-associated stimuli and numbing of general responses; (Criterion D) increased arousal via irritability or anger, hypervigilance, exaggerated startle response, difficulty in falling or staying asleep and difficulty in concentrating; (Criterion E) the duration of disturbance is more than one month; and (Criterion F) significant distress and impairment in social, occupational and other important areas of functioning (APA, 2000).

Childbirth characterised by intense pain, prolonged labour, emergency caesarean section and/or loss of control has been associated with the development of PTSD (Ballard, Stanley, & Brockington, 1995; Reynolds, 1997; Creedy et al 2000). In a study of 253 new mothers, Cohen et al. (2004) concluded that PTSD symptoms seem to be more connected to life events and depression rather than pregnancy, labour and birth. On the other hand, the majority of other studies investigating PTSD and childbirth in US (Soet et al., 2003), Sweden (Wijma et al., 1997), UK (Ayers & Pickering, 2001), Australia (Creedy et al., 2000; Gamble et al., 2005), and Nigeria (Adewuya et al., 2006) identified an incidence ranging from 0.9% to 5.9% and reported that it was primarily related to childbirth events and experiences. Ayers and Pickering (2001) excluded women reporting PTSD symptoms during pregnancy, and found that 3% of women met the diagnostic criteria for PTSD after childbirth and symptoms continued six months later.

Post traumatic stress disorder generally occurs with depression (Deering, Glover, Ready, Eddleman, & Alarcon, 1996). Negative affective states like guilt, shame and anger associated with depression are common in PTSD (Joseph, Williams, & Yule, 1997). After birth, women may be subjected to feelings of guilt or anger about the things that they may or may not have done as well as feelings of self-disappointment by

their own inability to deal with the pain or by their need for more analgesia than anticipated (Creedy, 2002). To date, the majority of research has shown that PTSD can occur after childbirth. Therefore, it is important for researchers to examine symptoms of trauma to understand possible ensuing depression.

Postnatal depression is the most prevalent of the postpartum mood disorders, and has therefore received the majority of research attention in recent years (Pope, 2000). Nevertheless, it is important for midwives to recognize that maladjustment in the postpartum may not necessarily be confined to symptoms of depression and that there is a need to distinguish between postnatal anxiety and PND (Austin, 2004; Heron et al., 2004; Matthey, Barnett, Howie & Kavanagh, 2003; Pope, 2000; Tam & Chung, 2007). It is widely acknowledged that anxiety and depression commonly co-exist as both affective states and clinical disorders in the postpartum (Matthey et al., 2003; Ross, Gilbert, Sellers, Romach, 2003). Anxiety in the postpartum is generally subsumed within diagnoses of depression (Pope, 2000) as demonstrated by the pervasive use of the EPDS in postnatal research (Matthey et al., 2003). Women can develop symptoms of anxiety and stress associated with childbirth during the postpartum without depression (Miller et al., 2006). Midwives need to understand that the term *postnatal distress* is inclusive of depression, anxiety and stress and represents a more complete picture of affective disturbance following childbirth (Miller et al., 2006) so as to ensure the provision of effective emotional care and support for childbearing women.

2.3 Predictors or risk factors for postnatal depression

One of the most difficult challenges encountered in the early detection of PND lies in the covert nature of this disorder. Despite the need by mothers who are suffering from PND to seek professional care and medical assistance, the social stigma associated

with depression often acts as a deterrent. Women diagnosed with PND may worry about being perceived as an 'incompetent' mother who is unsuitable or incapable of caring for her infant. Consequently, postnatally depressed women may refuse to acknowledge their problems or seek timely and appropriate care and assistance as well as rejecting help from a third party. It is therefore important to recognise predictors or risk factors associated with PND so that preventive and intervention strategies can be implemented. To date, four meta-analyses have assessed predictive/risk factors of PND (Beck, 1996a, 1996b, 2001a; O'Hara & Swain, 1996).

Beck (1996a) performed a meta-analysis based on the effect sizes reported in 44 studies, mostly conducted in the 1980s, to examine relationships between PND and eight predictors of PND. The eight predictors were AND, childcare stress, life stress, lack of social support, antenatal anxiety, experiencing maternity blues, marital dissatisfaction and a history of previous depression. The effect size was assessed in three ways: unweighted; weighted by sample size; and weighted by quality index score. Significant effect sizes ranging from 0.29 to 0.51 were found for all eight predictors (refer to Table 2.2). Antenatal depression was in turn the strongest predictor of PND (r = .51). The remaining predictors such as childcare stress (r = .49), life stress (r = .40), lack of social support (r = .39), antenatal anxiety (r = .36), experiencing maternity blues (r = .37), marital dissatisfaction (r = .37) had moderate effect sizes.

Table 2.2

Significant effect sizes for predictors of postnatal depression ($p < .001$) (Beck, 1996a)

	Effect size		
	Unweighted	Weighted by sample size	Weighted by quality
Antenatal depression	51	.49	.51
Childcare stress	.49	.48	.48
Life stress	.40	.36	.40
Lack of social support	.38	.37	.39
Antenatal anxiety	.36	.30	.35
Experiencing maternity blues	.36	.37	.35
Material dissatisfaction	.37	.29	.35
History of previous depression	.29	.27	.29

In a subsequent meta-analysis of 17 studies, Beck (1996b) examined the relationship between infant temperament and PND. A significant moderate mean effect between PND and infant temperament was found ($r = .31$ - $.35$). Findings revealed that women whose infant displayed temperamental problems were more at-risk of developing PND. In the same year, O'Hara and Swain (1996) published perinatal risk factors of PND. Antenatal depression ($d = .75$) was the strongest predictor of PND. Similarly, antenatal anxiety ($d = .68$), lack of social support ($d = -.63$), life events ($d = .60$) and past history of psychopathology ($d = .57$) were all strong predictors of PND. Lastly, neuroticism ($d = .39$), negative cognitive attributional style ($d = .24$) and obstetric variables ($d = .26$) each reflected a weak but significant predictive relationship to PND.

The most recent meta-analysis study by Beck (2001a) investigated 84 studies published between 1990 and 1999. Thirteen significant PND risk factors were found with mean effect sizes ranging from .14 to .47 (refer to Table 2.3). Of the thirteen significant risk factors, ten had a moderate mean effect size. These were AND (r = .44 - .45), self-esteem (r = .45 - .47), childcare stress (r = .45 - .46), antenatal anxiety (r = .41 - .45), life stress (r = .38 - .40), lack of social support (r = .36 - .41), troubled marital relationship (r = .39), history of previous depression (r = .38 - .39), challenging infant temperament (r = .33 - .34) and maternity blues (r = .25 - .31). The remaining three significant factors, that is, marital status (r =.21 to .25), lower socioeconomic status (r = .19 to .22) and unplanned/unwanted pregnancy (r = .14 to .17) had low mean effect sizes.

Table 2.3

Significant effect sizes for predictors of postnatal depression ($p < .001$) (Beck, 2001a)

	Effect size		
	Unweighted	Weighted by sample size	Weighted by quality
Antenatal depression	.45	.44	.45
Self-esteem	.47	.45	.46
Childcare stress	.46	.46	.45
Antenatal anxiety	.45	.41	.45
Life stress	.40	.38	.40
Lack of social support	.41	.36	.40
Troubled marital relationship	.39	.39	.39
Depression history	.39	.39	.38
Challenging infant temperament	.34	.33	.34
Maternity blues	.31	.25	.31
Marital status	.25	.21	.25
Lower socioeconomic status	.22	.19	.22
Unplanned / unwanted pregnancy	.16	.14	.17

Overall, the risk factors of PND can be clustered into four themes which are (a) pre-existing psychiatric disorder; (b) parenting issues; (c) psychosocial factors; and (d) socio-economic factors. However, the identification of risk factors does not indicate a causal relationship. For example, AND does not cause PND. While there may be a causal relationship between some risk factors, such as lack of social support and the

development of PND, this has yet to be unequivocally established. Further research is needed to investigate the causal relationship between predictive or risk factors and PND. Midwives need to be knowledgeable about these risk factors to potentially detect women susceptible to the development of PND.

2.4 Screening and detection instruments for postnatal depression

Knowledge of the various risk factors and symptoms associated with PND has lead to the development of antenatal screening instruments for PND. Validation of PND screening and detection instruments together with the diagnosis of PND can be achieved through the utilisation of well-established and internationally recognised diagnostic criteria such as the DSM-IV-TR (refer to Appendix A) criteria for minor and major depression in addition to Research Diagnostic Criteria (RDC) and the International Classification of Diseases (ICD-10) (refer to Appendix B) (Dennis, 2003). To date, researchers have examined the effectiveness of a wide range of antenatal and postnatal screening instruments for depression (Austin & Lumley, 2003; Dennis, 2003). The following section will review the psychometric properties and effectiveness of antenatal screening and detection instruments for PND.

2.4.1 Antenatal screening instruments for postnatal depression

The earliest antenatal screening instrument called the "*postpartum emotional disorder*" (PED) scale was developed in 1978 to identify women at risk of developing PND (Braverman & Roux, 1978). The 19-item "yes/no" questionnaire was developed from clinical intuition and knowledge regarding psychopathology, and tested on 120 Canadian mothers. Thirteen percent of participants were classified as having emotional disorders and when their responses were compared to the "normal" group, six items on the PED scale revealed significant predictive value: 1) feeling unloved by partner; 2)

admission of unwanted pregnancy; 3) past history of PND; 4) being single or separated; 5) disclosure of marital problems; 6) admission of unplanned pregnancy. The administration of these six predictive items during the routine antenatal check-up formed the basis of screening woman at risk of developing PND and instituting preventive measures.

2.4.1.1 Modified Antenatal Screening Questionnaire

Following this leading edge work, 17 other studies relating to the assessment of antenatal screening instruments for predicting PND were undertaken in countries such as North America, Australia, Denmark, Israel, Portugal, Sweden, UK and Zimbabwe (Austin & Lumley, 2003; Dennis, 2003). The first antenatal screening instrument developed in Australia was the Modified Antenatal Screening Questionnaire (MASQ) (Stamp, Willams, & Crowther, 1996). This questionnaire aimed to predict women who are vulnerable to depression following childbirth. Using a sample of 249 Australian women, participants were asked to complete a self-administered 9-item questionnaire using a Likert-type response scale. The questionnaire examines women's previous psychiatric history, current relationship with partner, problem-solving style and availability of social support (i.e. friends or relatives). The MASQ had reported sensitivity of 81% and specificity of 48% for minor depression and sensitivity of 73% and specificity of 43% for PND. Furthermore, a positive predictive value of 34% and negative predictive value of 89% for minor depression and a positive value of 17% and negative value of 91% for PND were found. The MASQ was deemed effective in the prediction of minor depression but not PND due to the high false-positive rate.

2.4.1.2 Risk Factor Scale

In another Australian study, items on the 'Risk Factor Scale' were derived from a literature review and tested with 348 pregnant Australian women at 12 and 24 weeks gestation (Buist, Westley, & Hill, 1999). Participants who scored 8 or greater on this scale are at risk of developing PND. This score represents three or more risk factors in areas of marital or childhood difficulties, family history of depression, previous history of depression and premenstrual syndrome. Although 23% (n = 44) of participants were identified as 'high risk', there was no reported sensitivity or specificity values. Additionally, of those participants identified as 'high risk', none obtained a score of 12 and above for the EPDS at any point in time. Overall, statistical findings revealed little support for this antenatal screening instrument.

2.4.1.3 Postnatal Depression Risk Index

Effectiveness of the Postnatal Depression Risk Index (PDRI) (Webster, Linnane, Dibley, & Pritchard, 2000) was assessed with 901 pregnant Australian women. Six hundred women were found to have antenatal risk factors for PND while the remaining 301 women were not at risk. At 16 weeks postpartum 86.4% women (n = 574) completed the EPDS. A higher frequency of women at risk of depression (25.9%) scored 12 or above on EPDS in comparison to women not at risk (10.9%). Forty percent of women who scored three or higher on the PDRI experienced PND. This only accounts for 27% of all women scoring 12 or higher on the EPDS at 16 weeks postpartum. When the cut-off point was reduced to two, 44% of women were found to have developed PND but the positive predictive value of the PDRI decreased to 32%. Even though results suggested that antenatal screening during pregnancy enhances recognition of women at risk for PND, conclusive support for the effectiveness of the PDRI was not found.

A systematic review of antenatal screening instruments for PND was conducted by Austin and Lumley (2003). No antenatal screening instrument for PND developed thus far has met the criteria set out for routine application in the antenatal period (e.g. sensitivity and predictive values). Possible explanations for low sensitivity and low positive predictive values may include the exclusion of key areas such as personality, previous depression episodes (during the postpartum or otherwise) and a past history of abuse. Mediating effects of these factors may be under-estimated in studies evaluating antenatal screening instruments (Austin & Lumley, 2003). In conclusion, given the low positive predictive values and sensitivity of existing instruments screening for antenatal risk factors of PND, it is hard to advocate the use of antenatal screening instruments during routine care for childbearing women to detect risk of PND by midwives in practice.

2.4.2 Postnatal depression detection instruments

2.4.2.1 Postpartum Depression Predictors Inventory

Initial meta-analyses of PND-associated risk factors (Beck, 1996a, 1996b) led to the development of the Postpartum Depression Predictors Inventory (PDPI) and the subsequent PDPI-Revised version (Beck, 2001b). The PDPI-Revised was intended to be used in both the antenatal and postpartum. It consists of guided questions for each of the 13 risk factors identified by Beck (Beck, 2001a) and is administered in a structured interview setting by a qualified clinician. To date, few studies have used the PDPI-Revised (Hanna, Jarman, & Savage, 2004; Hanna, Jarman, Savage, & Layton, 2003). While PDPI-Revised does appear to correlate highly with other psychometric instruments measuring PND, the 'true' effectiveness is difficult to establish due to a lack of formal instructions, psychometric properties and recommended cut-off scores. Nevertheless, findings from these few studies strongly suggest that PDPI-Revised is a

valuable tool that enables health practitioners to identify women at risk of PND and informs timely and appropriate intervention measures (Hanna et al., 2004; Hanna et al., 2003).

2.4.2.2 Edinburgh Postnatal Depression Scale

Edinburgh Postnatal Depression Scale is a widely used PND screening instrument. It is a 10-item self-report scale designed to assist health professionals to detect depression symptoms in community samples of women following childbirth (Cox, Holden, & Sagovksy, 1987). Of the 10 items, only one addresses somatic symptoms (which can occur naturally in postpartum women) while the remaining items focus on maternal affective feelings during the past 7 days as well as attending to depressed mood, anhedonia, guilt, anxiety and suicidal ideation. Edinburgh Postnatal Depression Scale uses a 4-point scale (i.e. 0 to 3) with a total score ranging from 0 to 30.

It is important to note that high scores on the EPDS are only indicative that further psychiatric assessment is warranted (Dennis, 2003). A cut-off score of 12 to 13 has been recommended for probable major PND symptomatology (Cox et al., 1987; Murray & Carothers, 1990). Edinburgh Postnatal Depression Scale is not meant to replace a full psychiatric evaluation of PND in childbearing women as it does not predict PND or provide a measure of severity (Cox & Holden, 1994; Dennis, 2003). For example, an individual who scores from 14 to 16 can meet DSM-IV criteria for major depression while another individual who scores 18 or above may meet DSM-IV criteria of minor depression (Cox & Holden, 1994). Hence, while a cut-off score of 12 to 13 has been suggested to be indicative of major depressive symptomatology, a score of 9 to 10 should also be considered for further investigation to ensure adequate identification of

women possibly suffering from PND (Cox, Murray, & Chapman, 1998; Murray & Carothers, 1990; Zelkowitz & Milet, 1995). Furthermore, users of EPDS should be cautious in the complete reliance on this scale to detect depressive symptoms in mothers as the 10 items were not specifically written in the context of pregnancy or the postpartum (Beck & Gable, 2001a).

Numerous studies have assessed the sensitivity, specificity and positive predictive values of EPDS (Cox et al., 1987; Lawrie, Hofmeyr, De Jager, & Berk, 1998; Murray & Carothers, 1990; Thompson, Harris, Lazarus, & Richards, 1998; Zelkowitz & Milet, 1995). Cox et al. (1987) reported 86% sensitivity, 78% specificity and 73% positive predictive values for the EPDS. A wide range of sensitivity and specificity values has been established by researchers in relation to both minor and major depression. Sensitivity values range from 52% to 73% (Murray & Carothers, 1990) for minor depression while sensitivity value ranges from 67% (Zelkowitz & Milet, 1995) to 100% (Thompson et al., 1998) and specificity value ranges from 68% (Lawrie et al., 1998) to 94% (Zelkowitz & Milet, 1995) for major depression. As for the combination of minor and major depression, sensitivity value ranges from 68% (Murray & Carothers, 1990) to 80% (Lawrie et al., 1998) while the specificity value is set at 77% (Lawrie et al., 1998). In general, research evidence has thus far provided psychometric support for the use of EPDS.

2.4.2.3 Beck Depression Inventory

Beck Depression Inventory is widely used to measure depression symptom severity (Beck & Gable, 2001a). This 21-item self-report scale is designed for adults aged between 17 to 80-years-old and comprises of items relating to mood, cognitive symptoms, behaviours, somatic complaints and interpersonal domains and measures the

presence and intensity of symptoms (Beck, Steer, Ball, & Ranieri, 1996). Responses are given on a 4-point scale ranging from 0 to 3 for the last one to two weeks (Beck et al., 1996). Cut-off scores are: 0 to 13 indicating minimal depression; 14 to 19 indicating mild depression; 20 to 28 indicating moderate depression; and 29 to 63 indicating severe depression. A higher total score is indicative of more severe depressive symptoms (Beck et al., 1996; Dennis, 2003). Although a cut-off score of 12 to 13 and 20 to 21 for screening and clinical research has been recommended respectively, many studies have used a cut-off score of 15 to 16 (Kendall, Hollon, & Beck, 1987).

Psychometric properties were established in a study of college students (n = 120) and outpatients from four psychiatric clinics (n = 500) (Beck et al., 1996) revealing a Cronbach reliability alpha of 0.92 and 0.93 respectively. Construct validity for BDI-II was ascertained through a positive correlation with other established depression scales (i.e. convergent validity) as well as high positive correlation with well-established anxiety scales (i.e. discriminant validity). Consistent findings were found in a recent evaluation of the BDI-II with postpartum women where satisfactory outcomes were yielded (Beck & Gable, 2001a).

2.4.2.4 Postpartum Depression Screening Scale

The Postpartum Depression Screening Scale (PDSS) consists of a 35-item Likert-type response scale examining seven key domains. Each domain contains 5 items that depicts how a woman may be feeling following childbirth. Participants rate how they have felt over the past 2 weeks from 1= strongly disagree to 5 = strongly agree (Beck & Gable, 2001b). An initial psychometric investigation of the PDSS involved 525 mothers at approximately 6 weeks postpartum (Beck & Gable, 2001c). Significant Cronbach reliability alpha was found for all seven key domains: (1) sleeping/eating

disturbances (r = .83); (2) anxiety/insecurity (r = .83); (3) emotional lability (r = .89); (4) cognitive impairment (r = .89); (5) loss of self (r = .91); (6) guilt/shame (r = .93); and (7) contemplation of harming oneself (r = .94). Construct validity was also established using confirmatory factor analysis where Tucker-Lewis Index of 0.07 and root mean square residual of 0.05 were established. These results suggest that all items in the scale fit within the seven-factor model.

Overall, research studies have provided empirical evidence to show that PDPI, EPDS, BDI and PDSS are psychometrically sound instruments that can be used by midwives to detect postnatally depressed women in practice. The choice of instrument or the most appropriate instrument to be used in the detection of depression in postnatal women will be dependent on the type of instrumental training received by midwives and the acceptability of instrument to the client group.

2.5 Prevention and treatment for postnatal depression

2.5.1 Prevention for postnatal depression

There are three main prevention approaches for PND (Shah, 1998). Primary prevention lowers the possibilities of an individual being affected by a disease/condition; secondary prevention intrudes or decelerates the advancement of a disease/condition through early detection and treatment; and tertiary prevention slows down the progress of a disease/condition as well as the resultant disability via the treatment of the established disease. Suggestions have been made that specific criteria should be used to determine if a condition is potentially preventable (Mrazek & Haggerty, 1994). Criteria are (1) impact on the individual and society (i.e. present burden of suffering), (2) risks and benefits, screening accuracy, safety, simplicity, cost,

and acceptability associated with the preventive intervention, and (3) effectiveness of the intervention.

Regular contact by childbearing women with health professionals enables prevention measures and interventions to be implemented (Bick, 2003). Preventive interventions for PND can be classified into different categories known as pharmacological, psychological, psychosocial, quality improvement, hormonal and other diverse interventions (Dennis, 2003). The following section provides a review of the two main preventive categories (i.e. pharmacological and psychological) as well as a brief overview of the remaining preventive strategies.

2.5.1.1 Pharmacological interventions

Antidepressant medications

The use of antidepressant medication during the immediate postpartum may prevent reoccurrence of PND in childbearing women who have prior experience of PND. Wisner and Wheeler (1994) conducted a study of 23 American pregnant women who had a previous episode of PND. The control group (n = 8) received postpartum monitoring while the intervention group (n = 15) received postpartum monitoring as well as either previously used antidepressant medications or nortriptyline. Both control and intervention groups were assessed for the reoccurrence of PND before 12 weeks postpartum via a psychiatric examination. Among women who received postpartum monitoring and antidepressant medications, only 6.7% suffered a reoccurrence of PND. This was significantly lower compared to 62.5% of women who only received postpartum monitoring and suffered a reoccurrence of PND. Small sample size, non-random group allocation, non-blinded treatment, types of anti-depressant drugs used

during pregnancy as well as follow-up measurement at only 12 weeks postpartum are potential limitations of the study (Dennis, 2003).

In a follow-up study of 51 American pregnant women who had a previous episode of PND, the intervention group (n = 15) received immediate post-birth treatment of nortriptyline while the control group (n = 25) was not provided with any antidepressant medication (Wisner et al., 2001). Both control and intervention groups were assessed for the reoccurrence of PND before 20 weeks postpartum using the Hamilton Rating Scale for Depression (HRSD). No significant difference was found between control and intervention groups. Generally, the success of using antidepressant medications as a preventive measure has yet to be fully established and further studies are needed.

2.5.1.2 Psychological interventions

Beside pharmacological interventions, research studies have also examined the efficacy of psychological interventions to prevent the development of PND in childbearing women.

Interpersonal psychotherapy

In a small RCT of 37 North American pregnant women with at least one risk factor for PND, 18 women received four weekly 60-minute group counselling sessions (Zlotnick, Johnson, Miller, Pearlstein, & Howard, 2001). Postnatal depression at 12 weeks was assessed using BDI and structured clinical interviews. Around 33% of women who did not receive IPT were diagnosed with PND. Additionally, none of the women who received the IPT develop PND. Small sample size, an implicit

randomization process, unknown intervention provider and 77% of participants being single are perceived as potential limitations (Dennis, 2003).

Consistent findings were demonstrated in another study of 45 North American pregnant women at risk for PND (Gorman, 2001). At 4 weeks postpartum, women who received five individual IPT sessions that commenced in late pregnancy and ended at about four weeks postpartum (i.e. the intervention group; $n = 24$) were less significantly likely to meet DSM-III-R criteria for major depression when examined in a structured clinical interview setting. Despite the small sample size, IPT may potentially prevent PND. However, given the limitations of the two existing studies, further studies are required.

Cognitive behavioural therapy

At 26 weeks gestation, 176 Finnish pregnant women who had a fear of labour were randomly assigned to either the conventional or intensive therapy group (Saisto, Salmela-Aro, Nurmi, Kononen, & Halmesmaki, 2001). Conventional therapy consisted of an average of two sessions with an obstetrician providing standard and written information regarding vaginal birth ($n = 91$). The intensive therapy intervention included an average of four sessions with a CBT-trained obstetrician, one session with a midwife, a recommended visit to the obstetric ward, telephone availability between sessions, and written information regarding vaginal birth ($n = 85$). Participants were asked to complete the BDI at 4 and 12 weeks postpartum. Although concerns relating to childbirth decreased in the intensive therapy group, there was no significant group difference at 12 weeks postpartum in relation to BDI scores. However, it should be acknowledged that the CBT intervention used in the study targeted the women's fear of

labour rather than PND itself (Dennis, 2003). Hence, there was no conclusive evidence related to PND.

In a French study, investigating the effectiveness of CBT in the prevention and treatment of PND, 241 women who had EPDS scores of 8 and above were randomly assigned into two groups (Chabrol et al., 2002). Women in the control group (n = 128) were provided with usual postpartum care by a health professional (but the nature of usual postpartum care was not depicted in the article) while women in the intervention group (n = 113) were provided with one individualised CBT session on the second or third day postpartum by a clinical therapist. Each session contained an educational component conveying information regarding parenthood, a supportive component highlighting the need for empathetic listening, encouragement, and acknowledgement of feelings and lastly, a cognitive-behavioural component to challenge the need of being a 'perfect mother'. Post-intervention findings revealed that nearly half (48.2%) the women in the control group scored 11 and above on the EPDS in comparison to only 29.8% of women in the intervention group. While these results indicated a medium effect size (r = .42), further research is warranted to determine the effects of CBT as a preventive measure for PND.

Psychological debriefing to prevent postnatal depression

The concept of critical incident stress / psychological debriefing was initially designed to reduce trauma symptoms and prevent PTSD (Mitchell, 1983). However, in childbearing women, psychological debriefing has been used to prevent PND or ameliorate symptoms of depression. Whilst debriefing is reported by childbearing women to have assisted and facilitated their postpartum adjustment and recovery (Priest et al., 2003), in recent years the effectiveness of psychological debriefing has been

intensively debated by researchers (Dennis, 2003; Dennis, 2005; Dennis & Creedy, 2005). Some studies reported no benefits in the use of psychological debriefing (Raphael, Meldrum & Mcfarlane, 1995). These findings were further substantiated by an early Cochrane systematic review of a small number of studies investigating the effects of psychological debriefing in the reduction of general psychological morbidity, depression or anxiety (Wessley, Rose, & Bisson, 2000).

One RCT conducted in the UK assessed the effectiveness of a single midwifery-led debriefing session before hospital discharge compared with routine care in 120 primiparous (Lavender & Walkinshaw, 1998). At 3 weeks postpartum, 114 women completed the Hospital Anxiety and Depression Scale which revealed that 8.6% of women in the intervention group compared to 53.4% of women in the control group had depressive symptoms. Potential limitations relate to weak measures of PND, premature timing of outcome and assessment, as well as possible sampling bias as 59.6% of the women were single mothers (Dennis, 2003).

Another study involved 1041 Australian women who had an operative birth (i.e. caesarean section, use of forceps or vacuum extraction) (Small et al., 2000). The intervention group (n = 520) received a single-session midwife-led debriefing session before their hospital discharge. The remaining 521 women received routine care. At 24 weeks postpartum, all women were assessed using the EPDS. Whilst no significant group difference was found, a higher number of women in the intervention group reported depressive symptoms (n = 81; 17%) at 24 weeks postpartum compared to women assigned to usual postpartum care (n = 65; 14%). Results proposed that midwife-led psychological debriefing after operative birth was ineffective in reducing PND rates. Later critiques of these studies identified several methodological limitations

that included inadequate documentation of the counselling processes used to support postpartum women, inadequate inclusion criteria, inappropriate use of counselling and debriefing interventions/approaches, poor depiction and weak rationalisation of the interventions/approaches, lack of reported standardization and poorly selected maternal outcome variables (Gamble & Creedy, 2004; Gamble, Creedy, Webster, & Moyle, 2002). Importantly, the main outcome of these studies related primarily to depression rather than trauma and anxiety symptoms.

Several studies have focussed primarily on anxiety and PTSD symptoms. A Swedish study tested an early counselling intervention to reduce symptoms of psychological trauma using three to four face-to-face sessions focussing on the delivery experience of women who had an emergency caesarean section (Ryding, Wijma & Wijma, 1998). Women participated in the first two counselling sessions while in hospital (i.e. 1 to 5 days following birth) and subsequent counselling sessions at 3 and 4 weeks postpartum. Counselling group participants (n = 50) had more positive cognitive appraisal of delivery, fewer post-traumatic stress reactions and less marked general mental distress than the comparison group. The intervention was not effective for women with the most serious post traumatic reactions or most serious mental distress.

A major challenge in offering counselling and emotional support to new mothers is the availability of trained staff. Midwives are well placed to assess and provide targeted interventions to childbearing women but have often been criticised for their lack of attention to emotional care (Brown et al., 2005; Bruinsma et al., 2003; Gamble et al., 2004b; Rudman et al., 2007a, 2007b). Furthermore, some midwives have expressed concern about their counselling skill base, lack of time to provide emotional support, and fear of eliciting emotional responses and not managing these (Hildingsson

& Radestad, 2005). In a small RCT, Gamble et al. (2005) evaluated the feasibility of a midwifery-led counselling intervention with 100 new mothers randomly assigned to receive counselling or routine care. All but one woman assigned to the control condition completed the study. At 3 months postpartum, PTSD total symptom scores were reduced for women in the intervention group, as were stress symptoms. Four women in the intervention group and 17 women in the control group reported EPDS scores indicating probable depression. All mothers in the intervention group reported high or very high satisfaction with the counselling intervention.

Although the application of psychological debriefing to prevent PND may not be directly suitable for use with childbearing women, it may be appropriate for midwives to consider offering women opportunities to discuss their childbirth experience and other forms of psychological support (Gamble et al., 2005; Rowan, Bick, & Bastos, 2007).

Research studies on the use of pharmacological (i.e. antidepressant medications) and psychological (i.e. IPT and CBT) preventive interventions for PND are encouraging. At this stage, there is no strong conclusive evidence to recommend the use of pharmacological and/or psychological interventions by midwives as preventive measures for PND (Chabrol & Callahan, 2007; Dennis, 2003; Dennis, 2005; Dennis & Creedy, 2005). However, further investigation of these strategies should be undertaken given their promising effects on the prevention of PND. To date, research on other preventive interventions that include psychosocial (i.e. antenatal classes, perinatal support and supportive interactions), quality improvements (i.e. continuity of care, early postpartum follow-up by GPs, home versus clinic visit and flexible postpartum care), hormonal (i.e. oestrogen therapy, progesterone therapy and thyroid function) and other

diverse interventions (i.e. educational strategies and relaxation with guided imagery) have revealed inconclusive efficacy (Dennis, 2003; Dennis, 2005; Dennis & Creedy, 2005). Currently, there is insufficient and no conclusive evidence (in quantity and/or quality) for the use of these approaches by midwives in practice and further studies are warranted.

2.5.2 Treatment for postnatal depression

Published research on the treatment of PND is limited. Similar to the preventive interventions for PND, various treatment interventions for PND include pharmacological, psychological, psychosocial, and hormonal interventions. The following section provides a review of the two main treatment measures (i.e. pharmacological and psychological) as well as a brief overview of main treatment approaches.

2.5.2.1 Pharmacological interventions

Antidepressant medications

There is a wide variety of antidepressant medication on the market. Selective serotonin reuptake inhibitors are new generation drugs recommended for the initial treatment of PND (Wisner, Parry, & Piontek, 2002). There are few studies specifically conducted to investigate the effects of SSRIs in the treatment of PND (Dennis, 2003).

An 8-week open label US trial with six women found a significant decline in HRSD scores over time with the largest decline between 2 to 3 weeks postpartum (Suri, Burt, Altshuler, Zuckerbrow-Miller, & Fairbanks, 2001). Similar results were found in another 8-week US trial (Cohen et al., 2001). Twelve out of 15 women experienced significant remission of major depression illustrated through a HRSD score of below 8.

Although overall findings from both studies suggest promising effects of SSRIs in the treatment of PND, there are major limitations associated with both studies in terms of small samples, participants' awareness of treatment and lack of a placebo control group (Dennis, 2003). Additionally, it is important to acknowledge that women with PND are more likely to present with anxious features, take longer to respond to pharmacotherapy and require more antidepressant medication to obtain a therapeutic response compared to non-postpartum depressed women (Hendrick et al., 2000). Use of antidepressant medication during the postpartum also poses concerns for breastfeeding which provides a channel for direct infant exposure to the medication. To date, even though there are some studies investigating the potential effects of antidepressant medications on infant outcomes during breastfeeding, due to infant exposure risks and ethical considerations, there is no existing controlled research relating to use of any antidepressant medication during breastfeeding (Dennis, 2003).

2.5.2.2 Psychological interventions

Interpersonal psychotherapy

An adapted form of IPT for the treatment of PND was used in a US descriptive study (Stuart & O'Hara, 1995). Interpersonal psychotherapy treatment variations often include the provision of assistance to participants in resolving marital disputes and major role transitions that commonly take place in the postpartum. Six mothers who met DSM-III-R criteria for major depression were treated for 12-weeks. Through the use of EPDS, BDI and HRSD, significant favourable changes for all measures were found post-treatment. However, results of the study are limited by small sample size, lack of control group and unreported treatment provider (Dennis, 2003).

In a later well-designed US trial, 120 postpartum women from the community were randomly allocated to either the treatment group (i.e. receiving 12 weeks of IPT; *n* = 60) or a wait list condition group (*n* = 60) (O'Hara, Stuart, Gorman, & Wenzel, 2000). Depressive symptomatology was assessed through interview and self-reports every 4 weeks. Of the 120 initial participants, 99 (i.e. 83%) completed the protocol. Results revealed a significant decrease in mean HRSD scores for women who received IPT from 19.4 to 8.3 in comparison to women in the waitlist group from 19.8 to 16.8. Although the study is limited due to the homogeneous sample (e.g. Caucasian, educated, and married) and clinical interviewers who were not blinded to group allocation, the results do suggest that IPT may be an effective and feasible alternative to pharmacological interventions in the treatment of PND.

Cognitive behavioural therapy

The efficacy of CBT intervention in the treatment of PND has been evaluated through an Australian study of 37 postnatally depressed women (Prendergast & Austin, 2001). These women were screened by Early Childhood Nurses (ECNs) through the application of EPDS (i.e. a score 12 and above) and diagnostically assessed with DSM-IV major depression via clinical interview. Participants were randomly allocated into a treatment group (*n* = 17) and control group (*n* = 20). The treatment group received six weekly 60-minute home-based CBT sessions provided by ECNs and the control group received six weekly clinic visits from ECNs. All participants were interviewed immediately following treatment as well as a postal questionnaire at 6 months postpartum. No significant group difference was found. Small sample size, unclear randomization process, significant group differences in baseline EPDS scores, as well as similar counselling coverage by ECNs in home-based CBT sessions and weekly clinic visits are possible limitations.

In a French study, women diagnosed with major depression were allocated to a treatment (n = 18) or control group (n = 30) (Chabrol et al., 2002). Women in the treatment group participated in a CBT program of five to eight 1-hour weekly home-visits that encompassed four components (i.e., supportive, educational, cognitive-behavioural and psychodynamic). A significant proportion of mothers in the treatment group (66%) recovered better than mothers in the control group (6%) via assessment through the EPDS, BDI and HRSD. A larger sample is required to further verify these findings.

One study aimed to evaluate the combined effects of antidepressant medication (i.e. SSRIs) and CBT in the treatment of PND (Appleby, Warner, Whitton, & Faragher, 1997). Eighty-seven UK women, diagnosed with PND at 6 to 8 weeks postpartum, were randomly allocated into four treatment groups via computer-generated numbers. The four treatment groups were (1) fluoxetine and one CBT session; (2) fluoxetine and six CBT sessions; (3) placebo and one CBT session; and (4) placebo and six CBT sessions. After brief training, a psychologist with no previous clinical experience delivered the CBT counselling session. Using the EPDS, HRSD and a revised clinical interview, depressive symptoms were assessed at 1, 4 and 12 weeks post-treatment. Results indicated significant improvements in all 4-treatment groups. Improvements were greater in the treatment group which received six CBT sessions compared to the treatment group which only received one CBT session. Additionally, improvements were greater in the treatment group that received fluoxetine in comparison to the placebo group. However, there was no significant interaction effect between CBT counselling and the use of fluoxetine. A significant number of women declined participation due to a reluctance to take antidepressant drugs and could possibly explain the lack of significant interaction effects.

Generally, there is sufficient evidence to recommend pharmacological (i.e. antidepressant medications) and psychological (i.e. IPT and CBT) approaches in the treatment of PND (Dennis & Hodnett, 2007). To date, other treatment approaches that include psychosocial (i.e. antenatal classes, perinatal support and supportive interactions), quality improvements (i.e. peer support, partner support and non-directive counselling), hormonal (i.e. oestrogen therapy) and other diverse interventions (i.e. relaxation/message therapy, bright light therapy and sleep interventions) have revealed conflicting findings with regards to their efficacy (Dennis, 2003; Dennis & Hodnett, 2007) but have not been deemed to be harmful. Importantly, an awareness of the treatment strategies that have been clinically established and regarded to be effective in the treatment of PND will ensure the provision of correct and accurate treatment options to women by midwives.

2.6 Midwives' role in the management of emotional disorders during pregnancy and the postpartum

During the course of pregnancy, birth and the postpartum, childbearing women may be attended to by several health professionals (i.e. GPs, Obstetricians, Midwives, Paediatricians, Physiotherapists and MCHNs). By and large, studies on midwives' role in the management of emotional disorders during pregnancy are few and limited. Nevertheless, midwives are well positioned to play a pivotal role in the early recognition, prevention, and treatment of childbearing women suffering from emotional disorders (Schneider, 2002). Support provided by midwives during pregnancy can have positive long-term effects on health outcomes (Hodnett et al., 2004; Rosen, 2004) and improve psychosocial outcomes (Hodnett & Fredericks, 2003) for childbearing women.

Generally, childbearing women have been found to be relatively satisfied with the provision of care by health professionals (e.g. obstetricians and midwives) during pregnancy (Hildingsson & Radestad, 2005; Janssen & Wiegers, 2006; Teijlingen et al., 2003). However, the lack of continuity of care hinders the establishment of a trusting relationship between childbearing women and midwives which could be characterised by conflicting and confusing advice (Skocir & Hundley, 2006). The lack of continuity of care has been identified as a significant factor for consumer dissatisfaction (Biro et al., 2003; Teijlingen et al., 2003; Waldenström et al., 2004). When continuity of care is provided by a team of midwives, a significant increase in childbearing women's satisfaction with antenatal, intrapartum and postpartum care has been observed (Biro et al., 2003)

Poor care may be associated with poor attitudes amongst midwives. Some authors have argued that childbirth may be viewed by some health professionals, including midwives, as a routine, non-significant event in their hectic work schedule (Barclay & Jones, 1996). This may contribute to insensitivity towards the unique experience of childbirth for women (Barclay & Jones, 1996) as well as contributing to a lack of trust, respect and safety (Page, 2001). Medical institutions are sometimes found to "depersonalise" and "infantilise" women while staff members are described as "paternalistic" (Roberts, 1992). In the existing fragmented medical model of care for childbearing women, it is difficult to identify who can or should be the best person to care for women suffering from emotional distress in the postpartum. Given that midwives are often the first point of contact, if not the most common contact, with childbearing women within a fragmented health care system, midwives could potentially be regarded as the most appropriate health professionals to identify, care and

assist childbearing women suffering from emotional disorder (Elliott et al., 2007; Ross-Davie et al., 2006).

There is increasing awareness that adequate emotional support may aid in the alleviation of affective distress experienced by childbearing women. Researchers have raised the need for a greater integration of psychological theory into midwifery practice (Slade, MacPherson, Hume, & Maresh, 1993). As described in the literature, the unique stresses that occur during labour and birth together with feelings of guilt and self-doubt after childbirth experienced by some women suggest the need for the provision of opportunities to discuss childbirth-related experiences. During the early postpartum, an emotionally distressed woman may need to engage in important psychological activities to re-establish her assumptions and perceptions of the world as safe and predictable (Gamble & Creedy, 2004).

Recent research investigating the efficacy of a brief counselling session within a few days postpartum to reduce PND or trauma symptoms, has corroborated that women appreciate the opportunity to discuss their childbirth-related experiences with a supportive health professional (Cooke & Stacey, 2003; Gamble et al., 2005; Priest et al., 2003; Small et al., 2000). Responsive care provided by midwives has been shown to enhance childbearing women's coping efforts and positive feelings about their labour and birth (Davey et al., 2005; Nystedt et al., 2005; Rudman et al., 2007a). In particular, women want midwives to offer emotional support to help them cope with their distress. This is evident in a study of childbearing women's postpartum needs where 90% of primiparas and 79% of multiparas women wanted opportunities to express their childbirth-related feelings with a midwife (Cooke & Stacey, 2003). Additionally, Gamble et al. (2005) found that stress, trauma and depressive responses in childbearing

women can be alleviated by postpartum counselling conducted by a skilled midwife. The redesign of care that it is midwife-led, flexible and customised to childbearing women's needs could help improve their mental health and reduce probable depression during the postpartum (MacArthur et al., 2002).

Regrettably, midwives have been criticised for the poor intrapartum and postpartum emotional care provided for childbearing women (Brown et al., 2005; Bruinsma et al., 2003; Gamble et al., 2004b; Rudman et al., 2007a; Rudman et al., 2007b). Possible reasons for this poor care have been related to the lack of focus on the importance of support, care and connectivity between individuals caused by technology-subjugated and risk-oriented systems (Hodnett et al., 1997) together with communication breakdowns, inconsistent advice, confusion and inadequate care (Tumblin & Simkin, 2001; Waldenström et al., 2004; Waldenström et al., 2006).

Childbearing women have reported midwives to not engage in the emotional aspects of care in the early postpartum (Creedy et al., 2000; Gamble et al., 2005; Singh, 2001). The lack of emotional care was identified in an Australian study of 592 childbearing women (Creedy et al., 2000). Using the Perception of Care Questionnaire, the majority of childbearing women indicated lower levels of satisfaction with emotional support compared with the technical aspects of care. Only 13.5% of participants reported that any health professional asked how they felt about their birth experience. Approximately half the participants felt that health professionals encouraged questions about childbirth (49%) and were pleased with their communication with staff (54%). Lastly, only 44% of participants were content with the opportunities provided by staff to discuss their birth experience. These findings were confirmed in later studies (Gamble et al., 2005; Singh, 2001). Gamble et al. (2005)

found that only 13.7% of women had been provided with the opportunity to discuss their feelings in relation to childbirth. Additionally, Singh (2001) found that, of all the childbearing women investigated, only half felt they had received all the emotional support they needed and up to a quarter of women indicated they had received no emotional support. Findings suggest that, in practice, there is little engagement between midwives and childbearing women to discuss issues relating to the unique nature and feelings associated with childbirth. It also indicates that affective distress experienced by childbearing women can be exacerbated by the lack of emotional care provided by health professionals (e.g. midwives).

Overall, midwives can correct unrealistic misconceptions about childbirth, facilitate women's transition to motherhood and prevent the development of PND through offering timely, appropriate and adequate health information and psychosocial support to pregnant women (Gamble et al., 2005). They also have a potentially important role in the education, early recognition, prevention and/or treatment of depressed women and are in an ideal position to provide counselling and educational information on PND for first time mothers (Schneider, 2002). Although it may be difficult to clearly define the boundaries of psychosocial support, it can occur in several different forms such as basic counselling, IPT and CBT (Austin et al., 2008; Chabrol et al., 2002; Gamble et al., 2005; Milgrom, Negri, Gemmill, McNeil, & Martin, 2005; Prendergast & Austin, 2001). For example, in cases of PND, midwives can provide relevant information, support social networks and provide basic counselling services to women. In more serious cases, midwives can assist depressed women to make informed choices with regards to treatment, resources and options. Furthermore, while childbearing women are relatively satisfied with the care provided by health professionals during pregnancy (Hildingsson & Radestad, 2005; Janssen & Wiegers,

2006; Teijlingen et al., 2003), recent research has recommended the provision of continuity of care by midwives to enhance satisfaction with care provided both during pregnancy and the postpartum (Biro et al., 2003; Hatem, Sandall, Devane, Soltani, & Gates, 2008; Teijlingen et al., 2003; Waldenström et al., 2004). To accomplish this, midwives need to be well-educated, skilled and confident in these roles regarding emotional disorders in childbearing women.

2.7 Review of midwives' knowledge, attitudes and management regarding emotional disorders during pregnancy and the postpartum

Research indicates that the provision of skilled emotional support to childbearing women by midwives during pregnancy and the postpartum can improve childbearing women's overall emotional health and well-being as well as reduce PND symptoms. Despite this, there appears to be a lack of research on midwives' knowledge, attitudes and management of emotional disorders, particularly, during pregnancy.

Studies have also found that midwives spend little time engaged in the provision of maternal emotional support following birth. Midwives may be apprehensive about the efficacy of postpartum counselling and view it as potentially harmful to childbearing women. Consequently, midwives may avoid giving childbearing women an opportunity to discuss childbirth-related experiences and feelings (Hammett, 1997). Given the ambiguity and debate surrounding postpartum counselling, research was performed to gain insight into midwives' perception of postpartum counselling (Gamble et al., 2004a). Participating midwives acknowledged that postpartum counselling could not only assist in childbearing women's psychological adaptation to motherhood but also allow the development of effective communication skills. Although postpartum counselling has been perceived to have the potential to exacerbate the emotional distress

and create new problems for childbearing women, it is argued that these concerns were more of a reflection of midwives' anxieties and uncertainty as well as lack of ability in providing postpartum counselling for childbearing women (Hammett, 1997).

It seems plausible that deficits in the quantity and quality of emotional care provided to childbearing women is, at least in part, related to midwives' ability to provide this care. Midwives can be educated to develop the skills and knowledge needed to address the emotional distress confronted by childbearing women. For example, empathy in nurses has been shown to be enhanced via a brief skills-based counselling intervention (Cutcliffe & Cassedy, 1999). Furthermore, the provision of counselling skills training has been shown to be effective in enhancing both primary health care providers' ability and confidence to identify and address in other areas of health care problems (Cordoba et al., 1998; Fleming & Manwell, 1999; Williams & Martinez, 2008). This suggests that teaching midwives to assess women's emotional needs and apply specific counselling techniques can improve patient outcomes.

To date, there are very few studies investigating midwives' knowledge of emotional disorders as well as their attitudes and management towards the provision of emotional care for childbearing women. To our knowledge, an early study that attempted to determine midwives' knowledge and management of PND was conducted via a questionnaire survey completed by 115 Australian midwives (Eden, 1989). The questionnaire examined midwives' knowledge on the incidence, symptoms and management of PND. Midwives were asked to list PND related symptoms and the management intervention to be implemented for childbearing women. Details of midwives' personal experiences with postnatally depressed women were also examined. Two open-ended questions were also included in the questionnaire to reduce the

likelihood of response bias. Findings reflected little consensus among midwives in relation to the symptoms that represent mild to moderate PND. While half the midwives could recognise severe PND symptoms, up to a third confused the symptoms of severe PND with puerperal psychosis. Furthermore, a third of midwives indicated that the management of women suffering from PND was the assessment and/or referral of patients to other professionals. Thus, findings indicated that some midwives perceived themselves as being unable to manage PND effectively which highlights the need for PND assessment guidelines amongst midwives.

Since then several studies have investigated other health professionals' identification and management of PND. Paediatricians, for example, were found to possess limited awareness of PND and be unfamiliar with the use of PND screening tools (Wiley, Burke, Gill, & Law, 2004). Since the early work of Eden (1989), there have been few studies that have investigated midwives' knowledge and management of the provision of emotional care for childbearing women (Buist et al., 2006; Keng, 2005; Stewart & Henshaw, 2002).

Stewart and Henshaw (2002) assessed knowledge of the prevalence of perinatal mental disorders in 266 midwives in UK. The majority of midwives (72.9%) correctly identified the prevalence rates for maternity blues. On the other hand, their knowledge of the prevalence of AND, PND and postpartum psychosis was poor with a respective 30.8%, 47% and 69.9% of midwives unaware of the prevalence rate of these perinatal mental disorders. While many participants believed that they had a role in care of women with perinatal mental health disorder, they lacked confidence in providing this aspect of care due to (a) a lack of knowledge and prior experience in perinatal mental disorders; (b) insufficient training in listening and counselling with women with mental

health disorders; and (c) inadequate support from other health professionals. Additionally, they identified that more working time was required to care for depressed women.

Keng (2005) examined 57 Malaysian midwives' knowledge and perceptions of PND. Only 49.1% of midwives were able to correctly identify clinical depression arising from childbirth, while others confused PND with maternity blues or women having difficulties adjusting to childbirth and motherhood. Midwives were found to lack knowledge in areas such as symptoms, contributing factors and prevalence rates. Findings suggest that PND education, awareness programs and childbirth-related mental health counselling training should be provided for midwives who may or may not have previously received such education in their midwifery training as it serves to consolidate, reinforce and update midwives' knowledge about PND.

A recent Australia study investigating the knowledge and awareness of perinatal depression in 246 GPs, 338 MCHNs and 569 midwives was conducted via two self-report questionnaires (Buist et al., 2006). Respondents completed a 10-item knowledge questionnaire and questions related to a depression vignette. Buist et al. (2006) found a high level of depression awareness in all three groups of health professionals but that depression was more likely to be taken into account during the postpartum rather than pregnancy. Maternal child health nurses had higher awareness of perinatal depression than either GPs or midwives although GPs had a higher likelihood of diagnosing PND and recommend the use of antidepressant medications. Midwives were not only less likely than either MCHNs or GPs to recognise the need to provide assistance and care for childbearing women in emotional distress, they were also less likely to recommend

the use of antidepressant medications, possibly indicative of a lack of knowledge in this area.

Generally, midwives appear to have some knowledge and awareness of PND but less understanding about the manifestations of depression during pregnancy. Knowledge of perinatal depression reported by MCHNs may reflect their role as the primary health professional group, who have recently been educated, trained and involved in the screening of depression in childbearing women (Buist et al., 2006). This implies that, with appropriate and relevant education and training, midwives' knowledge and management of both antenatal and postnatal depression can be enhanced.

2.8 Midwives' confidence in emotional care: Application of Bandura's self-efficacy theory

Bandura (1977) introduced the concept of self-efficacy as a key component of the social cognitive theory. Self-efficacy refers to individuals' beliefs that they are capable of performing in a certain manner to attain certain goals (Ormrod, 2006) and this is independent of their personality characteristics (Bandura, 1977). Rather than being a reflection of individuals' true ability, self-efficacy reflects individuals' perceptions of their abilities to manage their motivations, cognitive processes, emotional states and social environment in performing specific behaviours (Bandura, 1986).

2.8.1 Determinants of self-efficacy in midwives

Self-efficacy is determined by four factors which are (a) performance accomplishments; (b) modelling; (c) social persuasions; and (d) physiological states.

Firstly, performance accomplishment is the most powerful factor in determining self-efficacy as successful performances increase self-efficacy while repeated failures lower it (Bandura, 1986; Ormrod, 2006). Midwives who have prior experience of providing emotional care and perceiving competence in this role (as determined by positive client outcomes) are likely to have higher self-efficacy compared to those who perceive themselves to be ineffective.

Secondly, observing the performances of others, either directly, via pre-recorded medium or through reading printed materials provides a common source of information about required skills and abilities. This form of observational learning can have a powerful impact on an individuals' perceived self-efficacy, particularly in the absence of a previous performance accomplishment. Learning through observation is more effective when individuals are able to identify themselves with their model (Bandura, 1986; Ormrod, 2006). Hence, self-efficacy in midwives can potentially be enhanced through observational learning in the presence of a role model or resources that demonstrate requisite skills, abilities and success in the provision of emotional care in midwifery practice.

Thirdly, individuals often acknowledge the appraisals of others as valid assessments of their own skills and abilities and this can impact on self-efficacy (Bandura, 1986; Ormrod, 2006). Encouragement to engage in emotional care by management and constructive evaluation of emotional care practices by peers are therefore likely to have positive effects on midwives' self-efficacy.

Finally, individuals' perceptions of emotional arousal and physiological responses experienced during performances of the desired skills can markedly affect

self-efficacy. Positive and negative interpretations of arousal and responses will lead to an increase and decrease in self-efficacy respectively (Bandura, 1986; Ormrod, 2006). Therefore, midwives are likely to draw inferences about their perceived ability to provide emotional care from interpretations of their own emotional arousal and other physiologic cues when providing care to childbearing women. Positive interpretations of physiological arousal while providing care to childbearing women with emotional disorders can increase midwives' self-efficacy, and in turn, increase the likelihood of continued engagement with these women, while negative interpretations have the opposite effect.

2.8.2 Level of self-efficacy and midwives' confidence to provide emotional care

Self-efficacy can influence an individual's (a) choice of behaviour; (b) motivation level; (c) cognitive patterns and (d) emotional responses. Individuals may avoid tasks that surpass their abilities and engage in tasks which they feel capable and competent to perform (Bandura, 1986; Ormrod, 2006). People with high self-efficacy are more likely to be motivated, invest more effort and persist longer when confronted by difficulties and setbacks in comparisons to those with low self-efficacy (Bandura, 1986; Ormrod, 2006). They also possess performance-enhancing cognitive patterns where high self-efficacy sustains elevated expectations and induces individuals to envisage successful performance while individuals with low self-efficacy emphasize their professed deficiencies, envision failure, and self-defeat (Bandura, 1986; Ormrod, 2006). Finally, self-efficacy influences individuals' emotional reaction to new behaviours and tasks perceived as overwhelming by individuals with low self-efficacy are viewed as challenging to those with a strong self-efficacy (Bandura, 1986; Ormrod, 2006).

Self-efficacy theoretical framework has previously been applied in many contexts such as breastfeeding confidence (Dennis, 1999) and academic learning (Joo, Bong, & Choi, 2000; Zimmerman, 2000). Similarly, it can be applied in an attempt to understand midwives' confidence in providing emotional care. Besides being motivated, it follows that midwives with high self-efficacy would be more inclined to engage in emotional care as they would perceive themselves as possessing the required skills and abilities to effectively improve the overall psychological well-being of childbearing women. They may also view emotional care as a challenging yet fulfilling and empowering role within midwifery practice.

Thus far, the literature review has identified discrepancies between the reported needs of childbearing women and what midwives offer. This could possibly be associated with midwives' knowledge inadequacies and negative attitudes underpinned by poor skills (Gamble & Creedy, 2007; Gamble et al., 2004a, 2004b). Given the comorbidity that exists between depression and anxiety disorders, the lack of assessment of midwives' knowledge in the broader domain of psychological distress is of concern. No recent research has been conducted to examine Australian midwives' knowledge, skills and attitudes as the basis for effective emotional care against best-practice standards. Furthermore, examining the development of knowledge, skills and attitudes of midwives from a self-efficacy framework may provide insights into current midwifery practices and develop useful resources to address gaps. Therefore, the research questions for the current study are as follows:

1. What is the extent of midwives' knowledge, attitudes and self-reported practices in relation to emotional disorders (i.e. antenatal and postnatal depression and anxiety disorder) during pregnancy and postpartum?

2. To what extent does an educational resource improve the knowledge, attitudes and practices of midwives in the provision of emotional care?

In order to address these research questions, a two-phase research program was undertaken. Phase 1 was a scoping study where a valid and reliable needs analysis was conducted to evaluate midwives' knowledge about emotional disorders during pregnancy and the postpartum (i.e. antenatal and postnatal depression and anxiety disorders) as well as their self-reported practices towards childbearing women's emotional health needs. Information gathered from the needs analysis will inform the development of an education intervention designed to enhance midwives' knowledge and abilities in this neglected area of practice.

2.9 Summary

Research evidence indicates that childbearing women are susceptible to emotional disturbances during pregnancy and the postpartum. Maternal depression and anxiety have potentially serious adverse outcomes for women, children and their families. In Australia, midwives are well placed to identify and support childbearing women suffering perinatal mental distress. However, they have been criticised for the provision of poor emotional care. Researchers have called for greater integration of psychological processes into midwifery practice to improve maternal psychosocial outcomes.

Midwives need to be well-educated, skilled and confident in the provision of emotional care by offering timely and appropriate psychosocial assessment, adequate health information and psychosocial support (e.g. counselling) to pregnant women. Midwives with high self-efficacy are more likely to engage in providing emotional care.

The few available studies indicate that midwives in Australia possess limited knowledge about the identification and management of PND. More was known about PND than depression in pregnancy. When compared with MHCNs and GPs, midwives reported less knowledge of depression in childbearing women (Buist et al., 2006). In order to meet the needs of childbearing women through the provision of competent and effective emotional care, it is essential for midwives to be knowledgeable, and competent in providing such care.

CHAPTER 3

Phase 1 Study: Method, Results & Discussion

The Phase 1 study aimed to determine the extent of knowledge, attitudes and self-reported practices of midwives in relation to emotional disorders (i.e. antenatal and postnatal depression and anxiety disorders) during pregnancy and the postpartum. The study attempted to ascertain gaps in knowledge and understanding of emotional work in midwifery practice. This chapter will describe and justify the method for Phase 1 and discuss the outcomes by comparing and contrasting results with those of previous studies. Limitations of the study and implications of results for the second phase study will also be discussed.

3.1 Method

3.1.1 Design

The design of the Phase 1 study was an anonymous postal questionnaire survey of midwives who are members of the Australian College of Midwives (ACM). This design method was found to be effective in a previous study where a response rate of 31.6% was obtained (n = 1105) (Cantrill, Creedy, & Cooke, 2004). It is a simple and cost effective procedure that can provide a sample that is a reasonable representation of Australian midwives in terms of age, gender and years of experience (Cantrill et al., 2004). A similar response rate would be adequate for this anonymous postal questionnaire survey.

3.1.2 Sample

The Australian College of Midwives aims "to be the leading organisation shaping Australian maternity care" and achieve professional excellence in midwifery by

striving to "maximize the quality of midwifery and maternity care for Australian women and their families" (ACM, 2008b). A national sample of midwives (n = 3000) was accessed via the ACM newsletter; *Midwifery News*. The process of disseminating the postal questionnaire survey to midwives through ACM was used because, despite being registered professionals, several legislative and policy barriers prohibit access to the midwifery workforce via the various State registering authorities. Contacting a nation-wide sample of midwives via the ACM not only provided an opportunity to engage midwives in research projects, it also offered an efficacious way to seek midwives' knowledge of perinatal emotional disorders and their views, opinions and practices in relation to the care of women who are emotionally distressed. Inclusion criteria were midwives who currently care for women during pregnancy, in labour or postpartum.

3.1.3 Data collection instruments

The Phase 1 study involved the completion of a 13-page questionnaire by respondents (refer to Appendix C). The questionnaire consisted of an information coversheet and four sections partially adapted from the *beyondblue* "National Baseline Survey". While the questionnaire addressed the broad spectrum of perinatal emotional disorders, greater focus was given to perinatal depression because of (a) the prevalence of this condition in childbearing women; (b) the opportunity to compare results with other samples of midwives and professional groups; and (c) the significant burden of depression on women, their children and family relative to other emotional disorders.

Section A – Demographics and professional practice questions

Section A consisted of 16 demographic questions related to age, gender, education level, employment, years and area of midwifery practice. Questions seeking

information on respondent's professional practice were related to the ways their midwifery education could have better prepared them for assessing and caring for/managing women with antenatal and/or postnatal depression. Their beliefs as to the extent to which they have been provided with adequate education or training were also sought.

Section B – Assessing knowledge of antenatal & postnatal depression

Section B comprised 20 questions that examined respondents' knowledge of antenatal and postnatal depression. Areas of examination include the onset period, incidence rate, symptoms, associated risk factors, screening and detection instruments as well as treatment and management strategies for both antenatal and postnatal depression. Additionally, respondents' awareness of the comorbid relationship between perinatal depression and anxiety disorders was assessed. Antenatal depression items were adapted from the *beyondblue* "National Baseline Survey – Health Professional Knowledge Questionnaire" while the PND items were drawn from information gathered in the literature review and evaluated by two maternity researchers. Respondents were required to circle one of the four answer options provided.

Section C –Attitudes and perceptions of caring for women with depression and anxiety

Section C investigated respondents' (1) attitudes towards their role in caring for women with depression and anxiety and (2) their perceptions of the extent to which workplace policies and processes hindered their care for women with depression and anxiety. Attitudes in relation to one's self-perceived competence and efficacy of treatments may affect the recognition, assessment and treatment initiation of depression and other psychosocial problems (McCall, Clarke, & Rowley, 2002). The 17 items

included in this section are based on a modified version of the REASON questionnaire developed by McCall et al. (2002) which was developed using information gathered through a literature review, semi-structured interviews with a panel of experts and pilot testing with 63 GPs. It was specifically designed for doctors in general practice and was psychometrically sound. Respondents' confidence to assess and manage emotional distress was assessed via the 12-item Professional Comfort and Competence subscale of REASON questionnaire (Cronbach's alpha of 0.82). This subscale was modified for use with midwives. For example, "I feel I cannot make a difference to patients with mental disorders" became "I feel I cannot make a difference to women with emotional problems". Furthermore, respondents' perceptions of the extent to which workplace policies and processes hindered their care of women with depression and anxiety were assessed via the revision of another 5 items from the REASON questionnaire. For example, "I find emotional problems are too time-consuming to deal with in general practice" became "I find emotional problems too time consuming to deal with". All items were measured on a seven-point Likert scale (i.e. 1 = strongly disagree to 7 = strongly agree).

Section D – Examining practices in the care of women with postnatal depression

Section D was partially adapted from *beyondblue* "National Baseline Survey" and contained questions regarding the percentage of childbearing women with antenatal or postnatal depression; the barriers and impact associated with the care of these women; and use and efficacy of the EPDS. A vignette, based on the work of Jorm, Korten, Jacomb, Christensen, & Henderson (1998) was also included. The case study described a hypothetical woman named Mary who was suffering depression. Initially, respondents are asked a series of questions in relation to the antenatal and postnatal vignettes. Respondents answered questions on the nature of Mary's problem and

whether it might be useful to (1) engage in certain activities to address her feelings, (2) recommend assistance from a range of individuals (e.g. psychologist/counsellor), and (3) recommended medication. Additionally, respondents are asked how comfortable they are to apply or recommend various management approaches in assisting Mary. Respondents rate their responses on a five-point Likert scale (i.e. 1 = not comfortable at all, 2 = somewhat comfortable, 3 = comfortable, 4 = more than comfortable and 5 = unsure).

3.1.4 Procedure

The questionnaire was tested with a group of 13 Griffith University Master of Midwifery (MMid) students to establish reliability and face validity of the 13-page questionnaire. Subsequently, amendments to the questionnaire were made.

A questionnaire together with a replied paid enveloped was then distributed through the ACM Newsletter winter edition 2006 which is sent to all members of the ACM. Strategies to enhance participation included the insertion of a reminder notice into the following issue of the newsletter.

3.1.5 Data analysis

Data was entered and analysed using the Statistical Package for Social Science (SPSS) Version 13.0 as well as being checked for completeness and consistency. Accuracy of data coding and entry was enhanced by undertaking a 10% random comparison between the computerised data and the original data. Each variable was reviewed for skewed and kurtotic distributions. Psychometric properties for the data instruments were assessed. For example, applicability of the factor model in the original 17-item REASON scale for this population was determined. Associations of categorical and continuous variables with knowledge scores of antenatal and postnatal depression,

attitudes, and reported practice towards childbearing women's postpartum emotional health needs were determined using Analysis of Variance (ANOVA) and multiple regression analyses respectively. An alpha level of 0.01 was used for all statistical tests to reduce the likelihood of Type 1 error. Nonetheless, an alpha level of 0.05 was noted if significant at this level and not significant at alpha 0.01.

3.1.6 Ethical considerations

The protocol was approved by the Human Research Ethics Committee of Griffith University. The questionnaire information coversheet detailed the background and aims of the study and invited participation from members of ACM. It stated that the return of a completed or partially completed questionnaire would be taken as implied consent to participate in the research. No personal contact details were made available to the researcher. The newsletter, attached with the questionnaire and reply paid envelope, was mailed out by staff members of ACM. It was not anticipated that respondents would be subjected to any risk of harm from participating in the study. All information obtained was treated in the strictest confidence. While a range of background data was requested, no identifying information was sought on the questionnaire, thus ensuring anonymity. To ensure respondents' privacy was protected, only group data will be published, with results of the survey being disseminated to all members through the College journal.

3.2 Results

3.2.1 Sample characteristics

A total of 815 completed postal questionnaires (804 females and 11 males) were received from members of ACM. This represented a response rate of 27.2%. The average age of respondents was 44 years with an age range between 20 to 67 years old. Around half of respondents (46.4%) indicated that they were midwives while the remaining 53.6% of respondents responded indicating they were registered nurses and endorsed midwives. The average number of years respondents have practiced as a midwife was 15 years and ranged between 1 to 40 years. Respondents' highest level of tertiary education varied from certificate to PhD qualifications. Comparison of sample characteristics of respondents in the national survey and that of the Australian midwifery workforce 2002 – 2012 (AHWAC, 2002) are presented in Table 3.1

Table 3.1

Sample characteristics of respondents in the national survey (n = 815)

	Mean (SD)	Percentage (%)	AHWAC * (%)
Age	44.38 (8.82)	-	40.7
Number of years practicing as a midwife	14.89 (9.48)	-	-
Average work hours per week	30.42 (11.98)	-	27.0
Gender			
Female	-	98.6	99.0
Male	-	1.4	1.0

Current licensed as:			
Midwife	-	46.4	-
Registered Nurse & Endorsed	-		-
Midwife		53.6	
Highest level of education			
Certificate	-	17.6	-
Diploma	-	6.6	-
Undergraduate (Bachelor) Degree	-	21.9	-
Graduate Certificate /Diploma	-	35.7	-
Masters	-	17.2	-
PhD	-	1.1	-
Current midwifery practice areas:			
All areas	-	51.5	-
Antenatal	-	20.8	-
Postnatal	-	23.5	-
Birthing	-	21.2	-
Neonatal	-	5.4	-
Currently not practicing in clinical area but working primarily as a /an:			
Educator	-	4.6	-
Researcher	-	1.5	-
Manager	-	2.7	-
Total	-	8.8	8.0
Working in the:			
Public sector	-	75.8	75.3
Private sector	-	24.2	24.7
Hospital	-	83.9	97.2

** Source: Australian Health Workforce Advisory Committee (AHWAC) (2002)*

3.2.2 Education and training on antenatal and/or postnatal depression

Around half of respondents believed that the education or training they received had been somewhat adequate for the effective care of antenatal and/or postnatal women with depression (48.5%; *n* = 390); adequate (30.8%; *n* = 248); or not adequate at all (14.9%; *n* = 120). Furthermore, 35.6% (*n* = 285) of respondents indicated that they needed further training to improve their skills to assess and care for women with antenatal and/or postnatal depression. Respondents who felt they did possess adequate skills indicated that further training might be useful and beneficial (60.5%; *n* = 485).

Around forty percent of respondents perceived their midwifery education program to be "not at all adequate" in preparing them in the assessment and management of women suffering from antenatal and/or postnatal depression (41.4%; *n* = 333); somewhat adequate (37.1%; *n* = 299); and only 16.0% (*n* = 129) of respondents perceived their midwifery education to be adequate. In addition, 55.8% (*n* = 450) of respondents reported there was too little emphasis placed on the assessment and management of women with antenatal and/or postnatal depression during their midwifery education; 18.1% (*n* = 146) reported no emphasis and only 24.3% (*n* = 196) of participants reported adequate emphasis.

Overall, respondents indicated that more practice in the assessment (66.8%; *n* = 537) and management (72.4%; *n* = 581) of antenatal and/or postnatal depression during their midwifery program would have better prepared them in detecting and managing women with antenatal and/or postnatal depression. Nearly two-thirds (59.3%; *n* = 476) of respondents also indicated the desire for greater knowledge in treatment techniques. Interestingly, a respective 81.5% (*n* = 659) and 54.3% (*n* = 439) of respondents indicated on-the-job experience as well as conferences and workshop as the two main

sources of information about the assessment and management of antenatal and/or postnatal depression. Less than 20% of respondents indicated that a tertiary education such as a university midwifery program leading to entry into practice or undertaken since registration/endorsement as a midwife; an undergraduate or postgraduate nursing program; or an accredited course and internet sites as sources of information about the assessment and management of antenatal and/or postnatal depression. Lastly 34.1% (*n* = 276) of respondents indicated that their colleagues as a source for learning about the assessment and management of antenatal and/or postnatal depression.

3.2.3 Knowledge of antenatal and postnatal depression

The average total score examining respondents' knowledge on antenatal and postnatal depression was 13.43 (*SD* = 2.22) with scores ranging from 0 to 19. On average, respondents correctly answered 62.9% of questions assessing AND knowledge (*SD* = 14.0%) and 70.7% of PND knowledge (*SD* = 14.3%). Using 25% as the maximum acceptable cut-off point for all questions in which respondents had given an incorrect answer, revealed that respondents incorrectly answered several questions that examined their knowledge on antenatal and postnatal depression.

For questions investigating AND knowledge, the majority of respondents were not aware of the proportion of pregnant women who met the diagnostic criteria for depression (49.6%; *n* = 404) and associated outcomes of AND that included gestational hypertension, pre-eclampsia and spontaneous abortion (28.6%; *n* = 233). Almost all respondents underestimated the percentage of women suffering from depression during pregnancy who subsequently attempt suicide in the postpartum (98.3%; *n* = 801), 70.6% (*n*= 575) and 35.5% (*n* = 289) of respondents were not aware of the risk factors and common treatments methods for AND respectively.

For questions examining PND knowledge, 25.8% (n = 210) of respondents underestimated the proportion of mothers suffering from maternity blues while 44.4% (n = 362) of respondents either underestimated or overestimated the proportion of mothers suffering from PND. Respondents were not aware of the onset period for PND (71.0%; n = 579). The majority of these (49.8%; n = 397) indicated the common onset period for PND to be one month rather than 10 – 14 days after childbirth. Around a third of respondents were not aware of the recommended treatment for moderate to severe PND (32.0%; n = 261). Respondents appeared to have a flawed perception of the use of antidepressant medications (56.4%; n = 460) where 48.6% (n = 370) mistakenly thought that antidepressant medications were not effective immediately. Lastly, 43.8% (n = 357) of respondents erroneously thought that the EPDS was able to fully assess symptoms of psychotic depression.

An investigation of relationships between the various personal and professional characteristics and knowledge of antenatal and postnatal depression were conducted. Only level of education was significantly associated with PND knowledge where more highly educated respondents showed greater knowledge of PND ($F(5,785) = 1.47$, $p = .004$).

3.2.4 Attitudes and perceptions of caring for women with depression and anxiety

To assess the applicability of the factor model in the original 17-item REASON Scale, an inter-item correlation matrix was computed for this set of variables. Bartlett's test of sphericity generated a significant statistic of 4443.81 ($p < .0001$) and the Kasier-Meyer-Olkin measure of sampling adequacy was equal to 0.88, suggesting viability of the factor model. Examination of the primary components analysis outlined four factors, each with an eigenvalue greater than 1.00, which accounted for 58.1% of the total

variance. Table 3.2 below reflects the analogous eigenvalues to these four factors, the percentage of variance explained and cumulative percentage of variance explained by the four factors.

Table 3.2

Eigenvalues, percentage of variance explained and cumulative percentage of variance explained by Factors 1, 2, 3 & 4 of the REASON scale

Factor variance	Eigenvalues	Variance (%)	Cumulative (%)
1	5.27	31.0	31.0
2	2.17	12.8	43.7
3	1.26	7.4	51.1
4	1.19	7.0	58.1

Interpretation of the four-factor solution was assisted through the utilisation of Varimax rotation. The factor loadings resulting from this Varimax rotation indicated four factors. A relatively straightforward definition for each of these four emergent factors was permitted due to the prominent themes among the items with similar factor loadings. All 17 items entered as variables in the factor analysis had a factor loading of 0.50 and above for at least one factor except for item C16 which had a factor loading of -0.36 (refer to Table 3.3). Additionally, using 0.50 as a lower limit, item C4 loaded on more than two factors.

Table 3.3

Factor loadings for REASON scale items on Factor 1, 2, 3 & 4

Items	Factor 1[a]	Factor 2[b]	Factor 3[c]	Factor 4[d]
C3	.85			
C2	.82			
C1	.82			
C8	.74			
C4	.56	.51		
C15		.69		
C14		.69		
C9		.67		
C6		.64		
C5	.37	.56		
C16		-.36		
C10			.79	
C7			.76	
C17			.74	
C12			.70	
C11				.85
C13			.37	.60

[a] *Concern about systemic problems in the health care system hindering their care for women with depression and anxiety*
[b] *Comfort working with women who have emotional health problems and disorders*
[c] *Competence in the use of treatment techniques (i.e. counselling and relaxation) with women*
[d] *Competence in referral of women with depression and anxiety to other health professionals*

Factor 1 (5 items) accounted for 31.0% of common variance and reflected perceptions of the extent to which systemic problems hindered care for women with

depression and anxiety. High internal reliability of this sub-scale was indicated by the coefficient alpha of the current sample (r = .85). Items that loaded highly on this factor (>.5) included:

C1 My workload prevents me from addressing women's problems with depression and/or anxiety.

C2 Where I work the organisation of maternity services hinders midwives' ability to get to know women well enough to give adequate emotional care.

C3 I am too pressed for time to routinely assess women's emotional health.

C4 I find emotional problems too time consuming to deal with.

C8 Current organisational priorities encourage me to focus only on problems presented by the woman rather than exploring underlying issues.

Only 41.6% of respondents reported that their workload prevented them from addressing women's problems with depression and/or anxiety. Less than half of respondents found that the organisation of maternity services hindered their ability to get to know women well enough to give adequate emotional care (42.6%) and that current organisational priorities encourage them to focus only on problems presented by women rather than exploring underlying issues (42.5%). Furthermore, respondents did not find themselves too pressed for time to routinely assess women's emotional health (55.9%) or found emotional problems too time consuming to deal with (75.2%).

Factor 2 (6 items) accounted for an additional 12.8% of the common variance and examined respondents' feelings in working with women who have emotional health problems and disorders. Satisfactory internal reliability for this sub-scale was supported by the coefficient alpha of the current sample (r = .61). Items that loaded on this factor (>.3) included:

C5 I feel I cannot make a difference to women with emotional problems.

C6 Women find it intrusive for midwives to routinely / regularly inquire about their emotional health.

C9 I am more comfortable treating physical problems than emotional problems.

C14 I feel frustrated counselling women with emotional disorders.

C15 I feel uncomfortable questioning women about emotional disorders.

C16 Midwives should have a primary role in the treatment of women with anxiety disorders.

Over half the respondents reported that midwives should have a primary role in the treatment of women with anxiety disorders (56.4%) and can make a difference to women with emotional problems (84.1%). Respondents did not feel frustrated in counselling women with emotional disorders (56.9%) and did not necessarily feel more comfortable treating physical problems than emotional problems (45.8%). Most importantly, respondents felt comfortable in questioning women about emotional disorders (72.4%) and did not think that women find it intrusive for midwives to routinely/regularly inquire about their emotional health (82.1%).

Factor 3 (4 items) accounted for a further 7.4% of the common variance and investigated respondents' self-perceived competence in the used of treatment techniques (i.e. counselling and relaxation) with women suffering from depression and anxiety. The coefficient alpha of the current sample (r = .79) revealed good internal reliability for this sub-scale. Items that loaded highly on this factor (>.5) included:

C7 I feel competent in counselling patients with anxiety.

C10 I feel competent in the use of counselling techniques.

C12 I feel competent in teaching relaxation techniques.

C17 I feel competent in counselling women with depression.

Less than half of the respondents perceived themselves to be competent in counselling women with anxiety (35.8%) or depression (27.3%). Furthermore, only 33.5% of respondents reported feeling competent in the use of counselling techniques and in teaching relaxation techniques (39.8%).

Factor 4 (2 items) accounted for an additional 7.0% of the common variance and inspected respondents' attitudes and self-perceived competence towards the referral of women with depression and anxiety to other health professionals. Low internal reliability for this sub-scale was reflected in the coefficient alpha of the current sample (r = .36). Items that loaded on this factor (>.5) included:

C11 Women with anxiety disorders should be referred to a counsellor, psychiatrist or psychologist.

C13 I feel competent in knowing which women need to be referred to another health professional.

Respondents felt that women with anxiety disorders should be referred to a counsellor, psychiatrist or psychologist (83.7%). In addition, they felt competent in the identification of women who need to be referred to another health professional (81.5%). No item was dropped from the original set of 17 variables. Overall, moderate internal consistency for the entire 17-item scale was low but adequate (r = .60).

Lastly, multiple regression analyses revealed no statistical significance in the associations between antenatal and postnatal depression knowledge and midwives' attitudes and practice towards childbearing women's postpartum emotional health needs (p > .05). There were also no significant correlations between each of the four factors with antenatal and postnatal depression knowledge.

3.2.5 Self-reported practices in the care of women with antenatal and postnatal depression

Around three quarters of midwives reported working with women with antenatal (70.8%) and postnatal (76.6%) mood disturbance in the last 12 months. Time constraints (54.7%), reluctance of women to seek help (46.1%) and lack of support services (37.1%) were reported as the three main barriers to successful care and outcomes for women with depression. Over time, 47.5% of respondents noticed a significant increase in the number of women identified with antenatal and/or postnatal depression. Nearly two-thirds of respondents (65.5%) indicated that they had been involved in the screening of women for antenatal and/or postnatal depression. The identification of women with depression, or any other mood disturbances, impacted on respondents in terms of an increase in time (75.1%) and the economic cost of care (52.7%).

Many respondents (69.1%) have used screening instruments or methods to screen women for depression during the antenatal and/or postpartum. Of these, 54% of midwives used the EPDS. Midwives (75.4%) perceived that the majority of childbearing women find it easy to complete EPDS. As many as 97.3% of respondents found the EPDS to be a useful tool (to a varying degree) for screening antenatal and/or postnatal depression and 95.7% of participants reported feeling comfortable in explaining the results of EPDS to women. Up to 94.9% of respondents who have used the EPDS intend to keep using this scale in their practice.

A summary of the responses to the main questions in the vignette is presented in Table 3.4. Analysis of responses to the vignette, which described a hypothetical woman named Mary who was suffering from antenatal and postnatal depression, revealed that

63.3% of respondents provided an adequate diagnosis of depression (i.e. depression, perinatal depression, AND or PND) and 82.4% of respondents reported that Mary does require assistance. Respondents were less likely to suggest the use of antidepressant or other inappropriate medications during pregnancy compared to the postpartum.

Table 3.4

Vignette responses – diagnosis and treatment (n = 813)

	Midwife (%)
Depression diagnosis at any time	63.3
Need of assistance	82.4
No medication antenatal/postpartum	2.2 / 0.1
Antidepressant medications antenatal/postpartum	61.5 / 93.2
Inappropriate medications antenatal/postpartum	5.4 / 30.6

Respondents believed it would be “more than useful” for Mary to engage in specific activities to deal with feelings during the antenatal period such as talking to her husband/partner followed by “seek support from family and friends” and “individual counselling” (refer to Table 3.5).

Table 3.5

Perceived usefulness of activities to address feelings during the antenatal period (n = 813)

	Not useful at all (%)	Somewhat useful (%)	Useful (%)	More than useful (%)	Unsure (%)
Increase physical activity	8.6	29.0	40.2	18.8	3.3
Improve knowledge through reading	3.9	27.9	45.5	21.4	1.3
Attend self-help group with other women	1.2	17.0	39.7	39.7	2.4
Arrange more outings and social contacts	9.9	31.5	36.1	19.1	3.4
Practice relaxation, yoga and/a meditation	1.7	14.5	41.3	41.3	1.3
Attend individual counselling	1.7	14.2	34.2	47.1	2.8
Attend couple counselling	10.0	25.8	32.6	26.1	5.5
Admission to a psychiatric unit	86.0	6.0	1.2	1.2	5.1
Seek support from family or friends	0.4	10.6	35.6	52.0	1.4
Talk to her husband/partner	0.3	4.6	28.2	65.4	1.5

Respondents believed it “more than useful” for Mary to seek assistance from husband/partner, followed by family and/or friends as well as a counsellor and midwife (refer to Table 3.6). Over half the respondents thought seeking assistance from support groups, telephone counselling services, naturopath, homeopath, religious people and other health professionals such as GP / family doctor, psychologist, social worker and community nurse as being either “useful’ or “somewhat useful” for Mary.

Table 3.6

Perceived usefulness of help-seeking during the antenatal period (n = 813)

	Not useful at all (%)	Somewhat useful (%)	Useful (%)	More than useful (%)	Unsure (%)
GP / family doctor	5.0	21.0	44.4	28.0	1.5
Pharmacist	75.7	17.5	2.9	0.8	3.1
Counsellor	1.0	9.5	39.6	49.0	0.9
Psychologist	9.7	23.1	31.3	31.0	4.9
Social worker	16.2	25.6	30.6	24.1	3.5
Midwife	1.0	12.9	43.1	42.3	0.6
Community nurse	20.9	27.1	33.0	15.8	3.1
Obstetrician	33.9	33.2	21.9	8.1	2.9
Telephone counselling service	11.0	33.1	37.8	15.1	3.0
Psychiatrist	37.8	28.7	16.1	9.0	8.5
Family and /or friends	1.3	12.1	32.7	51.8	2.0
Ask partner for assistance	1.8	9.3	34.3	52.4	2.2
Naturopath	15.2	34.9	30.7	9.9	9.4
Homeopath	18.3	34.1	28.3	9.2	10.1
Clergy, minister, priest or religious helpers	13.7	33.9	32.1	9.5	10.7
Try to deal with her own problems	74.0	16.9	5.6	0.8	2.6
A support group	1.9	16.7	42.3	37.6	1.4

The majority of medications such as anxiolytics and anti-psychotic medication were perceived as "not useful" for Mary. Over half the respondents thought the use of antidepressant medication, vitamins and minerals to be either "somewhat useful" or "useful" to Mary (refer to Table 3.7).

Table 3.7

Perceived usefulness of medication during the antenatal period (n = 813)

	Not useful at all (%)	Somewhat useful (%)	Useful (%)	More than useful (%)	Unsure (%)
Vitamins and minerals (e.g. iron)	12.6	33.1	37.3	11.4	5.6
St John's Wort	27.9	21.8	20.1	4.8	25.5
Pain relievers	85.4	5.9	2.3	1.4	4.9
Antidepressants	24.0	30.9	23.1	7.5	14.5
Antibiotics	95.3	1.3	0.9	0.7	1.8
Sleeping pills	64.1	22.2	5.3	1.8	6.5
Anti-psychotics	85.8	4.0	1.8	0.7	7.7
Tranquillisers (e.g. sedatives)	82.2	6.9	2.3	0.7	7.9

On the other hand, during the postpartum, respondents believed that it would be more than useful for Mary to seek help from a psychologist, followed by counsellor, psychiatrist and GP/family doctor. Participants reported that seeking assistance from a midwife would be either useful (37.1%) or more than useful (34.2%) (refer to Table 3.8).

Table 3.8

Perceived usefulness of help-seeking during the postpartum (n = 813)

	Not useful at all (%)	Somewhat useful (%)	Useful (%)	More than useful (%)	Unsure (%)
GP / family doctor	1.4	8.4	31.5	58.2	0.5
Pharmacist	58.8	23.4	9.5	4.3	4.1
Counsellor	1.8	5.9	24.3	67.0	1.0
Psychologist	1.7	5.8	22.3	68.2	1.9
Social worker	11.8	21.6	31.6	32.4	2.5
Midwife	8.2	19.9	37.1	34.2	0.7
Community nurse	13.2	21.5	32.4	31.3	1.6
Obstetrician	42.1	25.1	18.6	11.5	2.8
Telephone counselling service	11.8	27.8	31.1	28.1	1.2
Psychiatrist	4.3	8.4	23.9	58.6	4.9
Family and /or friends	2.5	19.3	31.0	46.0	1.3
Ask partner for assistance	3.9	15.8	28.4	50.5	1.4
Naturopath	26.1	30.3	22.9	10.5	10.2
Homeopath	27.3	29.7	22.3	9.1	11.6
Clergy, minister, priest or religious helpers	20.2	35.1	24.7	11.5	8.5
Try to deal with her own problems	90.7	5.5	2.1	0.5	1.2
A support group	3.6	14.0	29.1	52.1	1.3

Over half the respondents (54.3%) thought antidepressants would be more than useful for Mary (refer to Table 3.9). Respondents also thought it "more than useful" for Mary to engage in activities such as attending individual or couple counselling, discussions with a health worker and attending self-help groups with other women (refer to Table 3.10).

Table 3.9

Perceived usefulness of medication during the postpartum (n = 813)

	Not useful at all (%)	Somewhat useful (%)	Useful (%)	More than useful (%)	Unsure (%)
Vitamins and minerals (e.g. iron)	17.8	39.1	28.9	7.7	6.5
St John's Wort	27.7	22.6	19.2	6.5	24.0
Pain relievers	85.9	6.4	1.8	0.5	5.4
Antidepressants	2.3	10.9	28.0	54.3	4.5
Antibiotics	95.2	1.5	0.4	0.3	2.7
Sleeping pills	40.7	28.1	15.9	6.3	9.1
Anti-psychotics	52.4	11.6	8.7	7.0	20.3
Tranquillisers (e.g. sedatives)	56.7	16.4	7.9	3.1	15.9

Table 3.10

Perceived usefulness of activities to address feelings during the postpartum (n = 813)

	Not useful at all (%)	Somewhat useful (%)	Useful (%)	More than useful (%)	Unsure (%)
Increase physical activity	11.0	31.4	35.5	19.4	2.7
Improve knowledge through reading	11.4	30.7	36.6	19.1	2.2
Attend self-help group with other women	3.0	11.6	35.9	48.3	1.2
Arrange more outings and social contacts	12.7	30.8	35.2	18.2	3.1
Practice relaxation, yoga and/or meditation	2.9	19.4	37.7	38.5	1.6
Attend individual or couple counselling	1.9	8.8	27.7	60.5	1.2
Discuss with health worker	1.3	8.7	33.7	55.0	1.3
Admission to a psychiatric unit	23.1	20.6	18.5	20.9	16.9

Lastly, in situations where respondents encountered a woman having similar emotional problems to Mary, they reported being more than comfortable to first liaise with the woman's maternal and child health nurse, followed by referring the woman to a specialised mental health service as well as recommending counselling (refer to Table 3.11).

Table 3.11

Reported confidence when offering assistance during the postpartum (n = 813)

	Not comfortable at all (%)	Somewhat comfortable (%)	Comfortable (%)	More than comfortable (%)	Unsure (%)
Provide support/counselling to Mary	10.7	43.0	3.03	15.5	0.5
Recommend counselling	1.0	6.4	28.9	63.6	0.1
Recommend medication	32.1	20.6	22.8	20.1	4.4
Suggest Mary attend a mother's group	5.0	13.3	32.9	47.0	1.8
Liaison with Mary's Maternal & child health nurse	0.6	6.0	25.4	67.3	0.6
Refer Mary to a specialised Mental health service	4.4	7.5	20.5	65.4	2.2

3.3 Discussion

3.3.1 Knowledge of emotional disorders

Findings from the 20 knowledge questions examining childbearing-related emotional disorders revealed that midwives have reasonably good knowledge of antenatal and postnatal depression with an average score of 67.2%. This finding is comparable to the average knowledge score of 64% reported by Buist et al. (2006). Buist et al. (2006) used 10 multiple choice knowledge questions developed by Watts and Pope (1998). However, in the current study, questions were drawn from both the *beyondblue* "National Baseline Survey – Health Professional Knowledge Questionnaire" and a review of the literature. Unlike the questions used by Buist et al. (2006), the knowledge questions used in the current study allowed for differentiation between knowledge levels of antenatal and postnatal depression. Midwives' knowledge of PND (70.7%) was evidently greater than their knowledge of AND (62.9%). Midwives who participated in the current study were also aware of the psychological comorbidity of depression and anxiety as a common occurrence during pregnancy and the postpartum.

3.3.1.1 Antenatal depression

Women suffering from AND are at a higher risk of developing PND (Leigh & Milgrom, 2008; Milgrom et al., 2008; Robertson et al., 2004) and yet midwives' knowledge of AND is possibly inadequate. The current study found that the proportion of pregnant women who meet the diagnostic criteria for depression is underestimated by Australian midwives. This finding coincides with results of a UK study (Stewart & Henshaw, 2002) where respondents had a poor understanding of the associated health outcomes of AND on pregnant women. Furthermore, not only did midwives underestimate the percentage of women suffering from depression during pregnancy

who subsequently attempt suicide in the postpartum, but their comprehension of risk factors and common treatment methods for AND also appears inadequate. These knowledge deficits about AND may well explain why health professionals, including midwives, miss signs of depression during pregnancy and appear uncertain or overly cautious in their recommendation for treatment (Buist et al., 2006).

Findings thus far suggest that midwives' knowledge of AND needs to be improved to enhance their awareness, care and management of emotionally disturbed women during pregnancy. Participating midwives were found to have a slightly better knowledge of PND. However, given the basic nature of items examining midwives' knowledge of PND, a much higher score was anticipated. Midwives appear to have a lack of understanding in several PND-related areas like the incidence rate, onset and treatment methods which are consistent with previous research on midwives' knowledge of PND (Buist et al., 2006; Eden, 1989; Keng, 2005; Stewart & Henshaw, 2002).

3.3.1.2 Postnatal depression

The occurrence of PND is often underestimated. Eden (1989) reported that 72.2% of participating midwives thought PND occurred rarely or occasionally. A similar result was found in both the UK study where only 47% of midwives were aware of the prevalence rate for PND and the Malaysian study where 61% of midwives perceived the prevalence rate of PND in women to be less than 10% (Keng, 2005). Interestingly, while nearly half the midwives in the current study were incorrect in their estimation of the proportion of women suffering from PND, a third made an overestimation (33%) instead of an underestimation error (10.4%). This result supports

those of Buist et al. (2006) who found that health professionals have a higher level of awareness of perinatal depression in the postpartum than the antenatal period.

Eden (1989) found little consensus among Australia midwives in regards to symptoms that represent mild to moderate PND. However, as the severity of depressive symptoms increased, midwives' ability to recognise depression improved. In comparison, the current study did not explicitly investigate midwives' knowledge of symptom severity associated with PND. Instead, a number of questions were asked regarding common symptoms and diagnostic criteria of PND. Close to 90% of midwives correctly answered all these questions possibly reflecting sound knowledge of symptoms as well as diagnostic criteria associated with PND. However, the proportion of women suffering from PND was either under- or over-rated by midwives. In regards to assessment, there was a mistaken understanding about the EPDS to detect psychotic depression. Therefore, findings to date suggest the need for further education on the identification of women who are at risk or suffering from perinatal disorders as well as the use of EPDS in detecting probable antenatal and postnatal depression in childbearing women.

Eden (1989) found that participating midwives were unable to effectively manage women with PND and were less likely to suggest appropriate treatment strategies. Although some respondents stated they would assist women to discuss their feelings, provide explanations and reassurance, over a third would refer women to doctors or other health professional (36.4%). In contrast to these results, the current study revealed that midwives were aware and correctly chose the appropriate treatment strategies for mild PND, that is, the provision of PND education, supportive counselling and peer support groups. While 70% of midwives selected psychotherapy and

antidepressant medication as the appropriate treatment strategies for moderate to severe PND, close to one-third of midwives elected less appropriate treatment strategies for moderate to severe PND. This finding highlights possible knowledge deficits about the treatment methods for PND.

In general, outcomes of the current study revealed a general improvement in midwives' overall knowledge of PND in comparison to results published study by Eden nearly 20 years ago. More highly educated midwives showed greater knowledge of PND. However, persistent areas of concern were identified in regards to the assessment and management of PND.

3.3.2 Attitudes and perceptions of caring for women with depression and anxiety

Attitudes and perceptions were assessed using the 17-items REASON questionnaire (McCall et al., 2002). The original measure was developed for use with GPs and aimed to assess (a) professional comfort and competence with the care of mental health disorders; and (b) concerns about service barriers in this area. The revised REASON questionnaire investigated midwives' attitudes towards their role in caring for women with depression and anxiety and perceptions of the extent to which workplace procedures hindered such care. In comparison to the original 2-factor structure, the current study revealed four factors related to midwifery practice:

1. concern about systemic problems that hindered their care for women with depression and anxiety;
2. comfort in working with women who have emotional health problems and disorders;
3. competence in the use of treatment techniques (i.e. counselling and relaxation) with women suffering from depression and anxiety; and

4. competence in the referral of women with depression and anxiety to other health professionals.

Whilst the identification of two additional factors was not anticipated, the revised REASON questionnaire was deemed to be a reliable measure of the four constructs as indicated by the satisfactory to high value of Cronbach's alpha with the exception of Factor Four which had a low Cronbach's alpha. Taking into consideration that Factor Four had an eigenvalue of well over 1 and explained a further 7% of the variance in midwives' responses, the significance of this factor cannot be ignored. This outcome can be viewed as an indication that midwives' attitudes towards their role in caring for women with depression and anxiety are more complex than originally assumed.

Findings showed that approximately 50% of midwives did not perceive systemic problems such as workload, organisational priorities, organisation maternity services and time factors as hindering their care for women with depression. Even though this result is rather encouraging, there is still a considerable number of midwives who indicated otherwise. Midwives' concerns about the systemic problems in health care services accounted for as much as 31% of the variance in their attitudes and perception of care for women with depression and anxiety, highlighting the need for this area of concern to be addressed. It suggests that in order for midwives to be effective and supportive of the delivery of emotional care to childbearing women, maternity services need to be adequately resources to ensure midwives have the necessary time to provide such care for childbearing women.

Generally, participating midwives reported feeling comfortable working with women with emotional problems. Not only did midwives feel secure in questioning women about their emotional disorders (72.4%), they did not feel frustrated in counselling women with emotional disorders (56.9%) and were equally comfortable with treating both physical and emotional problems in women (45.8%). Hammett (1997) found that midwives acknowledged that their provision of postnatal counselling could assist in childbearing women's psychological adaptation to motherhood. Likewise, a large proportion of midwives in the present study believed that they could make a difference to women with emotional problems (84.1%). Importantly, more than half the midwives indicated that they should have a primary role in the treatment of perinatal disorders such as anxiety disorders (56.4%). Additionally, midwives reported that women do not find it intrusive for them to routinely/regularly inquire about their emotional health (82.1%). This provides additional support to previous research which indicated that women want midwives to offer emotional support to help them cope with their distress as well as the opportunities to discuss childbirth-related feelings with a midwife (Cooke & Stacey, 2003; Gamble et al., 2005).

Despite these buoyant findings implying midwives are feeling positive about working with childbearing women who experience emotional distress and believe that such care can make a difference; they do not feel competent in the provision of emotional care and support. Midwives indicated confidence in their ability to identify women who need to be referred to another health professional (81.5%) but close to two-thirds did not feel proficient in the use of counselling techniques or relaxation techniques with childbearing women.

Importantly, participating midwives clearly indicated their willingness to offer assistance and acknowledged the importance of providing emotional care to women and that such practice is markedly compromised by their perceived lack of competency in the delivery of emotional care rather than a lack of interest or time. This finding may explain why midwives have previously been criticised for their poor intrapartum and postpartum emotional care (Brown et al., 2005; Bruinsma et al., 2003; Gamble et al., 2004b; Rudman et al., 2007a, 2007b). This finding also supports concerns by some midwives that ineffective emotional support exacerbates emotional distress and creates new problems, but perhaps is a reflection of midwives' anxiety and uncertainty about their perceived inability to provide emotional support for childbearing women (Alexander, 1998).

3.3.3 Self-reported practices in the care of women with antenatal and postnatal depression

Many participating midwives who worked with antenatal and postpartum women have used screening instruments or methods to screen for depression (69.1%). Over half of these midwives had used EPDS to screen for depression in women during pregnancy and the postpartum (54%). Midwives reported that the EDPS is a useful tool that is easy for childbearing women to complete (75.4%). As well as being comfortable in explaining EPDS scores to women (95.7%), midwives intended to continue using this scale in their practice (94.9%). However, responses on the knowledge items revealed that midwives incorrectly assumed that EPDS can be used to detect psychotic depression (43.8%). This implies that, despite the widespread and continuing use of EPDS in practice, midwives may misunderstand the functions of EPDS and be unaware of its limitations. Matthey (2008) proposed that users of EPDS may erroneously believe that childbearing women who score highly on the EPDS meet the diagnostic criteria for

a mood disorder and fail to differentiate between enduring and transient emotional distress. This suggests that further education on the use of EPDS is required.

Responses to the clinical vignette indicated that around two thirds of midwives (63.3%) correctly identified depression in the woman (i.e. Mary) which is lower than the 79.3% found by Buist et al. (2006). Of those midwives who did not identify depression, the majority did not provide any response whatsoever. This lack of response, however, may not necessarily be an indication of midwives' inability to detect depression in childbearing women. Other vignette responses were also in accordance with the findings of Buist et al. (2006) where a similar percentage of midwives reported that Mary did require assistance and that medication was not required in either the antenatal or postpartum period. There was an increase in the proportion of midwives who perceived antidepressants as useful to women in both the antenatal and postpartum period compared to an earlier study by Buist et al. (2006), with more recommending the use of antidepressant medication in the postpartum. Furthermore, the perceived usefulness of recommending inappropriate medication was more likely to occur during the postpartum than pregnancy. Our findings suggest that pregnancy is a time when midwives are more concerned and cautious about the recommendation of pharmacological treatment methods for depressed pregnant women which is also similar to the views of midwives surveyed by Buist et al. (2006). Midwives are more likely to recommend women to discuss their antenatal emotional feelings with health professionals as well as family and friends. This is likely to be a reflection of women's reluctance to use medication during pregnancy for fear of harming the unborn baby (MacQueen & Chokka, 2004; Oren et al., 2002).

3.3.4 Midwives' education and training on antenatal and/or postnatal depression

Many midwives in this national survey reported that their education or training was not adequate at all for the effective care of antenatally and/or postnatally depressed women (14.9%). Midwives reported little or no emphasis on the assessment and management of women with antenatal and/or postnatal depression (73.9%). Midwives' knowledge of these areas was predominantly acquired through on-the-job experience, books and journal articles. This could suggest that Australian midwifery educational programs may have neglected education on childbirth-related emotional disorders and the practical skills needed to provide competent and effective emotional care for antenatal and postpartum women suffering from these disorders.

Most importantly, almost all midwives in the survey have reported that further training might be useful to improve their skills to assess and care for women with antenatal and/or postnatal depression and anxiety disorders (96.1%). They would like to learn more about childbirth-related emotional disorders, assessment, management and treatment techniques. These results confirm earlier research which found that midwives wanted more education and training in regards to emotional care (Stewart & Henshaw, 2002).

3.3.5 Limitations

This exploratory survey study is limited because of potential sampling bias, validity of responses compared to actual behaviour, and adequacy of data instruments. Ways in which these limitations were addressed in this study or could be addressed in future research will be discussed.

3.3.5.1 Sampling bias

The chosen sample of midwives was recruited through a national professional body of midwives in Australia who are likely to have an interest in professional issues related to their practice. Taking into consideration time constraints and availability of resources for the study, it was reasonable to target a large convenience sample. Nonetheless, it is plausible that midwives who completed the survey may have had a particular interest in childbearing-related emotional disorders or any aspect of professional practice. Consequently, these respondents may have had better knowledge of emotional disorders that occurs during pregnancy and the postpartum as well as a more favourable and positive care attitudes and self-reported practices towards women who are emotionally distressed during the antenatal and postpartum period. In addition, non-responders may have differed in their level of knowledge, opinions and practices from midwives who responded, thereby contributing to sampling bias where findings of this study may not accurately represent the general population of midwives. The limiting effects of the sampling approach may have been compensated by the large response rate, using an alpha level of 0.01 to decrease the likelihood of Type I error and comparison of findings with previous research. The representative nature of the national sample of Australian midwives accessed was established. Sample characteristics of respondents in the current study was similar to that of the midwifery workforce in Australia 2002 – 2012 as reported by AHWAC (2002) in terms of age, gender, average weekly work hours and practice areas. Future research may consider examining the geographical location of midwives to ensure the diversity of regions throughout the nation and capturing the views of midwives who are not members of the ACM. This may be achieved through the recruitment of midwives respondents from the various private and public hospitals and birth centres located in the various states throughout the nation.

3.3.5.2 Data collection instruments

In self-administered questionnaires, there are risks relating to inaccurate reporting and poor recall of knowledge and practices. This method of data collection is also likely to generate social desirability bias on attitude scales where respondents will have a tendency to reply in a manner that they assume to be "socially appropriate" or will be viewed as " socially favorable" by others (Cohen, Manion, & Morrison, 2000a). These issues can potentially influence the true determination of midwives' current knowledge, attitudes and practices of perinatal emotional disorders. Additionally, it is acknowledged that the lack of open-ended questions deters the solicitation of midwives' valuable and insightful views and opinions on issues not covered in the questionnaire. Furthermore, the length of the questionnaire may have affected midwives' response rate. However, it is reasoned that the lack of open-ended questions is balanced by the fact that the lengthy questionnaire had already provided information on the research areas being examined. The length of the questionnaire is also counteracted by the flexible and ample time for completion.

3.3.5.3 Validity of responses to actual behaviour

The assessment of midwives' knowledge, attitudes and self-reported practices by questionnaire relies on self-report with no opportunity to observe practice or validate reports made by participants. Validity of responses as a reflection of actual practice is difficult to establish. While there may be more comprehensive methods available to assess midwifery practice such as field observation, this was beyond the scope of the present study. However, the consistency of results across questions (e.g. congruence between midwives' attitudes towards systemic problems acting as a barrier to the effective care of distressed women and time constraints being listed as a barrier) indicated the likelihood of midwives reporting accurately on their practice. Previous

studies report surveys as a useful method to measure knowledge (Cohen et al., 2000a) and a similar self-reported survey had been used by others to measure health professional's knowledge and awareness of depression in perinatal woman (Buist et al., 2006). Future research could use the findings of these studies to validate midwives' reported practice.

Despite limitations of the study, there are few studies which have attempted to comprehensively examine Australian midwives' knowledge of emotional disorders (i.e. antenatal and postnatal depression and its comorbidity with anxiety disorders) as well as their attitudes and reported practices towards childbearing women's emotional health needs. The questionnaire used to assess knowledge was research based and attempted to elicit more in-depth knowledge than previous studies.

3.3.6 Implications of findings for the Phase 2 Study

It is clear that there has been an improvement in midwives overall knowledge of PND since the earlier work by Eden (1989). However, knowledge gaps were identified for both antenatal and postnatal depression. Results from the national survey study revealed knowledge deficits in relation to incidence rate, onset period, assessment and treatment options for both antenatal and postnatal depression as well as the use of EPDS in practice.

In some regard, midwives' lack of knowledge in childbearing-related emotional disorders may be influenced by a lack of support by management, availability of facilities, and lack of interest or competence. It seemed clear that midwives did not receive adequate training about childbearing-related emotional disorders during their midwifery education. There is also insufficient emphasis placed on the education and

development of midwives in the effective assessment, care, and management of women with antenatal and/or postnatal emotional disorders. Midwives recognised the benefits of further education to increase their knowledge of perinatal emotional disorders and enhance their midwifery practice and care of women. Although midwives acknowledge the difference they can make in women with emotional health problems, the majority did not report being competent working with women who have emotional health problems. Hence, as suggested by Gamble et al. (2004a, 2004b) and Hammett (1997), the gap between the reported needs of childbearing women and what midwives are offering could very well result from knowledge inadequacies and skill insecurities in midwives.

Given the growing emphasis in midwifery practice, to provide emotional care for childbearing women, it is important that midwives are well-educated and competent in the assessment and management of women with childbearing-related emotional disorders. There appears to be a need to review midwifery curricula in Australia to ensure that students learn about perinatal emotional disturbances and are equipped with skills to provide the best possible care to such women and support their families.

Overall, findings of the national survey support the likelihood that the discrepancy in the quantity and quality of emotional care provided to childbearing women is partly related to midwives' ability to provide this care. In view of the: (1) comorbidity that exists between depression and anxiety disorder; (2) strong connection between antenatal and postnatal depression; and (3) relatively poor knowledge of emotional disorders during pregnancy and the postpartum, there is a need to develop and evaluate an educational resource designed to improve midwives' knowledge of emotional disorders (i.e. antenatal and PND and anxiety disorder) during pregnancy and

the postpartum and enhance midwives' attitudes and management of childbearing women's emotional health needs

CHAPTER 4

Phase 2 Study: Method, Results & Discussion

Research findings from the Phase 1 needs analysis indicated a need for an education intervention to improve midwives' knowledge of emotional disorders (i.e. antenatal and postnatal depression and anxiety disorders) during pregnancy and the postpartum and enhance their attitudes and management of childbearing women's emotional health needs. This chapter outlines the approach applied in the Phase 2 study for the development and evaluation of a pilot online educational resource designed to address the knowledge needs of midwives. Findings obtained in Phase 2 will be presented and discussed in relation to the broader literature on midwifery education and practice where particular relevance to the emotional care of childbearing women will be drawn. Feedback received from participants about the educational module will be presented. Limitations of the study and implications of the findings for education, practice and research will also be discussed.

4.1 Method

4.1.1 Design

A one-group quasi-experimental research design was used in the Phase 2 study. Participants completed an online educational module on maternal psychological morbidity (i.e. depression and anxiety disorders) relating to pregnancy and the postpartum. Pre- and post- education intervention analyses of participants' knowledge of these childbearing-related emotional disorders were investigated using an online assessment function.

4.1.2 Sample

Griffith University MMid students (n = 30), who were enrolled in the course "7954NRS Complications of Childbearing", were recruited to participate in this pilot study. Although the small simple size was deemed to be adequate for the Phase 2 pilot study, it was, nevertheless, acknowledged that the small sample size is a potential research limitation. These student midwives were required to complete an online educational module on maternal psychological morbidity as part of their degree program. The students were not, however, required to participate in the study. Consenting participants provided some demographic details and gave permission for their pre and post assessment results to be used in this research. The course convenor was not aware if students opted in or out of the research study. Given the need for midwives to be competent in the assessment and care of childbearing women with emotional disturbances, the provision of education on emotional disorders experienced by women during pregnancy and the postpartum was seen to be beneficial to their future midwifery practice.

All students were advised of plans for this educational resource to be launched through the ACM website as a self-directed learning resource for practicing midwives. Potential participants were also advised that their willingness to complete the modules and provision of feedback would inform revisions to the package. The online educational resource also included pre- and post- assessment activities. This form of assessment is widely used in many professional online resources such as *Breastfeeding Essentials* (Health e-learning, 2008) to identify gaps in knowledge and determine the relative effectiveness of the package to meet these learning needs. Preliminary discussions with ACM have indicated significant interest in this project.

4.1.3 Online educational resource

The online educational resource is a self-directed learning resource designed to account for individual's own learning speed and pace. The online educational resource is equivalent to a total of 12 to 20 hours of study (i.e. 3 to 5 hours of study per week per topic). Content for the educational resource was adapted (with permission) from the International Marcé Society Resource Package – "Emotional Effects of Childbirth" which was developed primarily for health professional working in the maternity sector. Supplementary material, based on information drawn from the literature review, was written in consultation with an educational designer from Griffith University Flexible Learning and Access Services (FLAS). Content was evaluated by two maternity researchers and educators Overall, the educational resource aimed to address the required knowledge, attitudes and evidence-based management approaches to emotional disorders during pregnancy and the postpartum identified from the national survey conducted in the Phase 1 study. The educational resource, which was named "Maternal Psychological Morbidity" within the course "7954NRS Complications of Childbearing" was placed on the web with online interactive activities and provided participants with information on the following four topic areas.

Topic 1: Emotions and feelings experienced by childbearing women

In light of survey findings that identified midwives' perceived lack of confidence and competency in working with childbearing women with emotional issues, Topic 1 aimed to provide a foundation from which to understand common emotions and feelings experienced by childbearing women and the support needed by women to deal with these emotions. Pregnancy and childbirth can be viewed as a developmental transition for mothers due to dramatic physical and psychological changes (Buist, 2006). Women's responses to the innate emotional, psychological and cognitive

transformation that takes place during pregnancy and puerperium may vary (Stocky & Lynch, 2000). Content considered the common emotional needs that occur during pregnancy, childbirth and puerperium and provided reasons for the need to understand women's emotional changes during each stage. Factors such as cultural influences (Mancino, Melluso, Monti, & Onorati, 2005) that may contribute to women's varying emotional responses as well as the identification of women with special needs such as disability (Lipson, California, California, & Rogers, 2000) were also explored.

Topic 2: Psychiatric illnesses and emotional disorders experienced by childbearing women

Topic 2 introduced the common emotional disorders. Maternity blues is a common evanescent condition experienced by 50 to 80% of new mothers and typically occurs within 3 to 5 days postpartum and lasts for a few hours to a few days. Symptoms of maternity blues as identified in the literature are outlined as well as helpful strategies to assist women to effectively resolve these feelings. Strategies include the provision of support, empathy, simple explanations and reassurance to new mothers by midwives (Saunders, 2003). Other psychiatric and emotional disorders associated with childbearing such as AND, PND, puerperal psychosis and anxiety disorders (i.e. postpartum panic disorder, OCD and PTSD) are discussed. Using information derived from evidence-based research, issues such as prevalence rates, onset period, symptoms, biological and psychosocial risk factors as well as associated adverse consequences are explored. An overview of the information presented for each disorder is as follows:

<u>Antenatal and postnatal depression</u>

The prevalence of AND is often reported to be around 7 to 20% and 10 to 15% for PND (Bennett et al., 2004b; Faisal-Cury & Menezes, 2007; Robertson et al., 2004).

Symptoms of AND and PND are similar to the diagnostic criteria of depression as per DSM-IV-TR. PND usually occurs within 4 weeks postpartum and its symptoms are often accompanied by a high level of anxiety where obsessional symptoms or morbid preoccupations concerning the baby may be exhibited (APA, 2000). There is a range of biological and psychosocial risk factors for AND and PND for example, history of depression and socio-economic status (Beck, 2001a; Leigh & Milgrom, 2008). Adverse outcomes of depression during pregnancy include pre-eclampsia, gestational bleeding, elevated resistance to uterine artery blood flow and poor birth outcomes while PND can affect the mother-infant relationship, attachment security, cognitive, behavioural, emotional and physical development in children (Biro et al., 2003; Faisal-Cury & Menezes, 2007; Grace et al., 2003; Hammen & Brennan, 2003; Martins & Gaffan, 2000; Milgrom et al., 2004; Murray et al., 2003; Rahman et al., 2004; Robertson et al., 2004).

Puerperal psychosis

Puerperal psychosis occurs approximately in 1 to 2 per 1000 women and usually within the first two to three weeks after childbirth (Saunders, 2003). Women who have a personal and family history of bipolar disorder and/or manic depression are at risk of developing puerperal psychosis (Jones & Craddock, 2001). Symptoms of puerperal psychosis can evolve rapidly and include elated mood, disorganised behaviour, preoccupations, delusions, hallucinations and grandiosity. In acute cases, there are high suicidal and infanticide risks where hospitalisation may be required (Kennedy & Suttenfield, 2001).

Postpartum panic disorder

The general prevalence rate of panic disorder for the general adult population is 5% but there is insufficient data to determine the prevalence for childbearing women (Rubinchik et al., 2005). During panic attacks, symptoms such as shortness of breath, palpitations, chest pain or discomfort, choking or smothering sensations and fear of "going crazy" or losing control are present (APA, 2000).

Postpartum obsessive compulsive disorder

The prevalence rate of OCD in the general adult population stands at 2 to 3% (Angst, 1994). Women are at higher risk of developing OCD than men and the research suggests that women can develop OCD during the postpartum (Arnold, 1999). However, there are insufficient studies to conclusively determine the prevalence rate of OCD for childbearing women (Abramowitz et al., 2003). Given that depression includes undesired thoughts, it is possible that obsessional undesired harmful thoughts are associated with the onset of PND or that the distressing feelings associated with obsessive undesired harmful thoughts could bring about depressive symptoms.

Posttraumatic stress disorder associated with childbirth

Childbirth may be traumatic for some women (related to intense pain, prolonged labour, emergency caesarean section and loss of control, poor care), and subsequently lead to the development of childbirth-related PTSD. Studies investigating PTSD and childbirth have established an incidence ranging from 0.9% to 5.9% for postpartum PTSD (Adewuya et al., 2006; Ayers & Pickering, 2001; Cohen et al., 2004; Creedy et al., 2000; Gamble et al., 2005; Soet et al., 2003)

Prevention, detection and management of perinatal depression and anxiety disorders

Preventative measures and detection approaches (e.g. screening instruments such as the Antenatal Psychosocial Health Assessment (Matthey et al., 2004) and EPDS (Beck & Gable, 2001a) to detect women at risk of possible mood and anxiety disorders) as well as various management options and treatment methods such as antidepressant medication during pregnancy and the postpartum (Casper et al., 2003; Cole et al., 2007; Hendrick et al., 2003) are discussed.

Topic 3: Skills and attitudes required by midwives to effectively assist childbearing women in dealing with emotional disorders

Besides an understanding of the emotional changes experienced by women around the time of childbirth, midwives can assist women express and cope with their feelings through listening to their experiences; validating feelings; and helping them find their own solutions to problems. Such support is needed by women to work through the normal emotional changes that may be experienced during pregnancy, childbirth and in the adjustment to motherhood as well as by women who are suffering from a recognised depressive or anxiety disorder outlined in Topic 2.

As identified in the national survey conducted in Phase 1, midwives indicated their willingness to offer assistance and acknowledged the importance of providing emotional care to women. However, such practice is compromised by their perceived lack of competency in the delivery of emotional care. Specifically, they did not feel that they were sufficiently skilled in the use of psychological techniques (i.e. counselling and relaxation) with women suffering depression and/or anxiety. Hence, Topic 3 provided an overview of techniques that could be used by midwives to foster rapport

with women for whom they are caring. This module emphasized a person-centred approach or 'non-directive counselling'. This technique is ideal as it is easy to understand and apply in practice and unlikely to cause harm through misapplication (Tudor, 2004). Other various therapeutic approaches, which have been shown to be effective for mild and moderate depression and anxiety in primary care, include IPT, CBT and dynamic approaches based on the mother and child relationship (Chabrol et al., 2002; Gorman, 2001; Prendergast & Austin, 2001; Saisto et al., 2001; Zlotnick et al., 2001). Importantly, this topic endeavoured to assist midwives in the identification of communication blocks and understand how their attitudes and behaviour can help or hinder their communication with childbearing women; as well as the development of skills for active listening such as (a) getting started; (b) empathising; (c) accepting and validating; (d) using non-verbal communication; (e) reflecting; and (f) using questions (Burnard, 2005; Egan, 2007).

Topic 4: Ways midwives can prevent emotional disorders in childbearing women

Taking into consideration midwives' concerns regarding the systemic problems such as workload, organisational priorities, organisation maternity services and time factors that hinder their care of women with depression and anxiety as identified in the national survey, ways of adjusting routine practices so that midwives can help women to more effectively deal with their emotional responses were explored in this last topic. Topic 4 identified ways in which midwives may be able to help prevent emotional disorders from occurring in childbearing women and the various interventions that can help women deal with their emotional disorders. It also described the role of midwives in relation to other health professionals and educated midwives as to when to refer

women who require specialised care as well as developing an action plan for further learning.

Each of the four topics contained a variety of learning activities (such as case study, video vignettes, and knowledge revision tools (such as true and false questions etc.) that were intended to help midwives apply the concepts learned in each topic. An example of a learning activity was the identification of the appropriate type of counselling (i.e. expert/directive counselling or person-centred/non-directive counselling) to be applied according to the situation. A list of optional further readings which underpinned each topic, together with a glossary were also included in the educational module.

4.1.4 Data collection instruments

4.1.4.1 Online assessment tool

Multiple choice questions are a favoured method of assessing learners' knowledge and understanding in the medical field, and are commonly used in online learning platforms such as Blackboard (Blackboard Inc., 2006) and Web-CT (Wed-CT, 2006). By ensuring accuracy, relevance and importance of the content as well as the acceptability of its structure (i.e. be free of flaws), multiple choice questions can be highly reliable and versatile in assessing a wide range of material (Palmer & Devitt, 2006). Hence, the efficacy of the education intervention was examined using an online assessment that consisted of 60 multiple choice questions (refer to Appendix D). These questions, which were evaluated by two maternity researchers, included a modified version of Section B questions implemented in Phase 1 as well as items drawn from the information presented in the educational modules. Participants were required to choose the correct response from the four answer options provided.

Topic 1: Emotions and feelings experienced by childbearing women was assessed using 10 items and consisted of two subgroups related to (i) childbirth and culture; and (ii) emotions and feelings of childbearing.

Topic 2: Psychiatric illnesses and emotional disorders experienced by childbearing women was examined using 34 items. These questions were divided into eight subgroups which were (i) maternity blues; (ii) AND; (iii) PND; (iv) puerperal psychosis; (v) postpartum anxiety disorders including panic disorder, OCD and PTSD; (vi) comorbidity between depression and anxiety; (vii) screening and detection instruments; and (viii) management and treatment.

Topic 3: Skills and attitudes required by midwives to effectively assist childbearing women in dealing with emotional was assessed using 8 items. Lastly, *Topic 4: The ways midwives can prevent emotional disorders in childbearing women* was examined using 8 items and included two subgroups that were (i) emotional care in midwifery practice; and (ii) assessing mood disorders in childbearing women.

4.1.4.2 Online evaluation tool

An online evaluation form, which consisted of 18 questions, was used to solicit participants' feedback on the educational module in terms of its content, length, delivery, perceived efficacy in relation to future midwifery practice and possible ways to improve future educational resources (refer to Appendix E). The overall quality of the online educational module and content in each topic were assessed using six items that required participants to rate their responses on a five-point Likert scale (i.e. 1 = Poor, 2 = Fair, 3 = Adequate, 4 = Good and 5 = Excellent). Similarly, 10 items were used to evaluate the length, delivery and perceived efficacy of the educational resource on a

five-point Likert scale (i.e. 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree). Two open-ended items were included to seek participants' feedback on the positive and negative aspects of the educational module and suggestions for future improvement.

4.1.5 Procedure

Permission to include the online educational resource on emotional disorders during pregnancy and the postpartum as part of postgraduate program was sought and approved by the Program Convenor. All students were required to complete the online educational resource which was imbedded within the course "7954NRS Complications of Childbearing". Students were invited to complete the pre- test as part of a tutorial class activity. The post- test was to be completed by students as one of the course assessment requirements. Students had the option to complete the online evaluation of the educational module.

During the first tutorial class in week 1 of semester, student midwives were provided with an overview of the study and informed that participation required permission to allow their responses for the tutorial class activity, assessment item and evaluation for the online educational module to be used for research purposes. All participants received an information sheet detailing the background and aims of the study (refer to Appendix F) and signed an informed consent form (refer to Appendix G).

Participants completed the tutorial class activity online in a pre-booked computer laboratory. Participants were only allowed one attempt and 60 minutes to complete the tutorial class activity. Over the next 4 weeks, the online educational module was placed on the web in both Acrobat Portable Document File (PDF) and

Hyper Text Markup Language (HTML) formats to allow participants to print a hard copy if they wish to do so. In week 5 of the semester, the post-test was completed by participants as a course assessment requirement online via a computer located in a pre-booked computer laboratory. At the end of the test, participants were asked to complete the online module evaluation. Only the pre and post assessment data and evaluation ratings collected from consenting participants were used in this study.

4.1.6 Data Analysis

Data was entered and analysed using the SPSS Version 13.0. Collected data was reviewed for completeness and consistency within a single data form and among data forms. Accuracy of data coding and entry were ensured by undertaking a 10% random comparison between the computerised data and the original data. A comparison between participants' overall pre- and post-education intervention knowledge on emotional disorders during pregnancy and the postpartum was conducted using a repeated measures ANOVA. Each of the 60 pre- and post-test items was assessed using paired-sample t-test. Feedback received in regards to the quality and usefulness of the package was evaluated using basic descriptive statistics and a simplified content thematic analysis. Relationships between the sample characteristics of participants, their performance on the pre and post assessments and evaluation on the online educational resource were examined using Pearson's correlation coefficient tests. Lastly, the statistical power of Phase 2 study was also determined using the Power and Sample Size (PASS) software program. An alpha level of 0.01 was used for all statistical tests to reduce the likelihood of Type 1 error. Nonetheless, an alpha level of 0.05 was reported if significant at this level and not significant at alpha 0.01.

4.1.7 Ethical considerations

Ethical approval for the Phase 2 study was obtained from the Human Research Ethics Committee of Griffith University. An information sheet, detailing the background and aims of the study was provided to participants. It clearly stated that although completion of the module was required as part of their program, student midwives were invited to allow their responses for the tutorial class activity, course assessment and evaluation of the online educational module "Maternal Psychological Morbidity" to be used for research purposes.

Student midwives were clearly informed that their participation was voluntary and they were not under any obligation to consent to participate in this study. Non-participation would not involve any penalty or in any way compromise their relationship with the University and the Program and Course Convenor was blind to study participation. If students chose to participate, they could discontinue participation at any time without penalty or without providing an explanation. Participation in the study posed no risks as the study only sought participants' knowledge of emotional disorders during pregnancy and the postpartum as well as their feedback on the online educational module.

All data was treated in the strictest confidence. A range of background data was requested (e.g. age, gender and years of nursing practice). Participants were assured that their anonymity would be protected, and only group data would be published, with results of the study being disseminated through scholarly publications and conferences. A report of the general findings from the study will be made available to participants via email.

A research assistant, who was not involved in the development or administration of the module, assessment or evaluation, was employed to print and assign a participant number to each student's responses from the tutorial class activity. The research assistant also printed student's responses for the course assessment as well as matching up the pre-test and post-test data. All data entry was performed by the research assistant. This ensured that the co-investigator, who was conducting the data analysis, did not have access to participants' details thus ensuring anonymity (i.e. names and student identification number). On the other hand, the course convenor, who was the chief investigator for this study, did have access to participants' responses from the pre-test data (i.e. student's responses from the tutorial class activity) and post-test data (i.e. student's responses for course assessment) as well as information on students' access to the online educational module because of educational and quality imperatives. However, there was no foreseeable risk or penalty for participants as the chief investigator was not directly involved in the data collection, data entry or data analysis processes.

4.2 Results

4.2.1 Sample characteristics

Twenty-nine female student midwives consented to participate in the study (n = 29) out of a possible cohort of 30 student midwives. The mean age of participants was 30.28 years (SD = 8.04) with an age range between 21 to 57 years old. On average, participants had been a practicing registered nurse (RN) for 6.03 years (SD = 7.15) ranging from 1 to 36 years (refer to Table 4.1).

Table 4.1

Sample characteristics of participants in the education intervention (n = 29)

	Age	Years of practice (Registered nurse)	Gender
Mean (SD)	30.28 (8.04)	6.03 (7.15)	-
Median (IQR)	29.00 (10.00)	4.00 (5.00)	-
Range			
Minimum	21.00	1.00	-
Maximum	57.00	36.00	-
95 % CI for mean			
Lower bound	27.22	3.32	-
Upper bound	33.33	8.75	-
Frequency (%)			
Female	-	-	100
Male	-	-	0

4.2.2 Pre- and post- education intervention knowledge test

Out of a total score of 60, participants scored an average of 37.55 (*SD = 3.63*) for the pre-education knowledge test and 40.24 (*SD = 3.14*) for the post education knowledge test. The pre-education knowledge test scores ranged from 29 to 44 while the post-education knowledge test scores ranged from 35 to 47. A summary of the descriptive data for the total pre- and post-education knowledge test scores is presented in Table 4.2.

Table 4.2

Descriptive data for total pre- and post-education intervention knowledge test scores (n = 29)

	Pre-Test	Post-Test
Mean (SD)	37.55 (3.63)	40.24 (3.14)
Median (IQR)	38.00 (5.00)	39.00 (4.50)
Range		
Minimum	29.00	35.00
Maximum	44.00	47.00
95 % CI for mean		
Lower bound	36.17	39.05
Upper bound	38.93	41.43

As the sample size was less than 30, formal statistics to measure skew and kurtosis were inaccurate to determine the normality of data scores distribution (Wilkinson & Task Force on Statistical Inference, 1999). Inspection of the normality plots (refer to Figure 4.1 & 4.2) and Shapiro-Wilks statistical test for normality ($p > .05$) indicated no problems with the normality of data scores distribution (i.e. pre- and post-education knowledge test scores as well as the difference between scores for each participant).

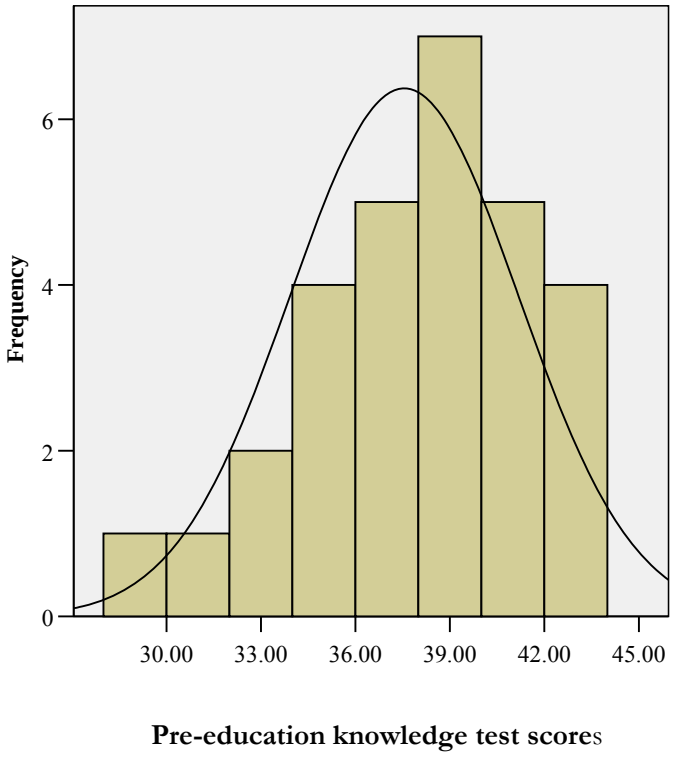

Figure 4.1 Normality plots for pre-education knowledge test scores

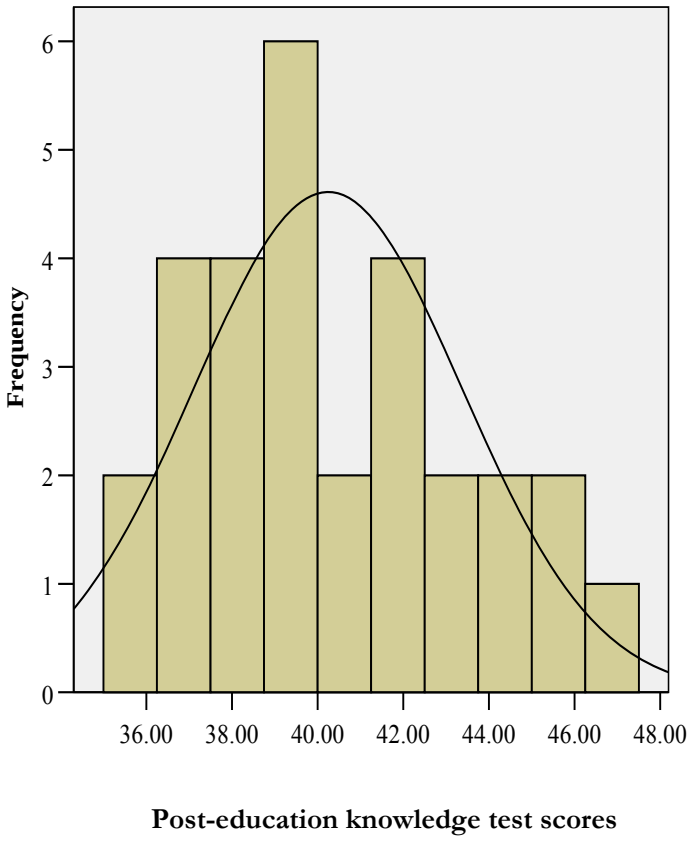

Figure 4.2 Normality plots for post-education knowledge test scores

Repeated measures ANOVA revealed a significant difference between the pre- and post- test scores, F (1, 28) = 14.05, p = .001, with an effect size (partial η^2) of 0.334. Inspection of the means plot (refer to Figure 4.3) showed that participants scored higher in the post-education knowledge test scores (M = 40.24; SD = 3.14; 39.05 < *95% CI* > 41.43) compared to the pre-education knowledge test scores (M = 37.55; SD = 3.63; 36.17 < *95% CI* > 38.93). On average, participants correctly answered a corresponding 62.59% (SD = 6.05%) and 67.07% (SD = 5.23%) of the questions before and after the education intervention.

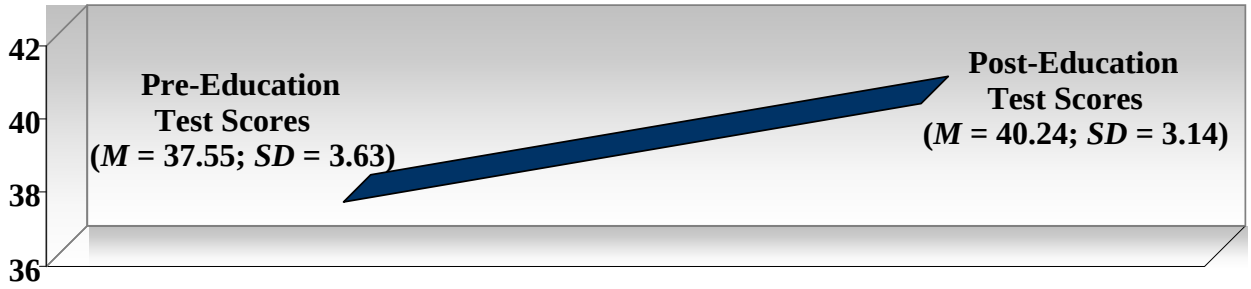

Figure 4.3 Pre- & post- education intervention knowledge test results (n = 29)

Power and sample size analysis revealed that group sample size of 29 used in this study achieved 89.7% power to detect the difference of 2.69 between the pre- and post- education test scores in a design with 2 repeated measurements having a compound symmetry covariance structure when (a) the standard deviation is 3.86; (b) the correlation between observations on the same subject is 0.355; and (c) the alpha level is 0.05 (refer to Figure 4.4).

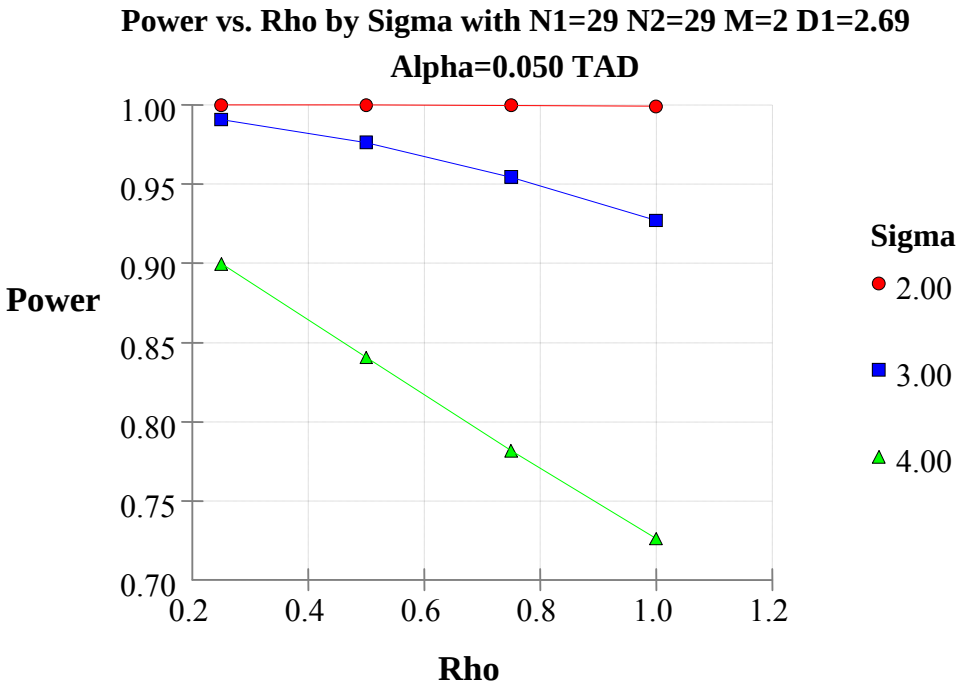

Figure 4.4 Time-averaged difference (normal data) power analysis

In addition, repeated measures ANOVA revealed a significant difference between the pre- and post- test scores for Topic 1, F (1, 28) = 8.29, p = .008, with an effect size (partial η^2) of 0.229 and Topic 4, F (1, 28) = 5.69, p = .024, with an effect size (partial η^2) of 0.169. Inspection of the means (refer to Table 4.3) revealed that the post-test (M = 8.03; SD = 1.45; 7.48 < *95% CI* > 8.59) scores were higher than the pre-test (M = 7.14; SD = 1.09; 6.72 < *95% CI* > 7.55) scores for Topic 1. Likewise in Topic 4, post-test scores (M = 6.59; SD = 0.78; 6.29 < *95% CI* > 6.88) were higher when compared to the pre- test scores (M = 6.10; SD = 0.98; 5.73 < *95% CI* > 6.47). Further analysis of these four topics found a significant difference in several subgroups. Significant statistical improvement were found in the group of items examining emotions and feelings of childbearing (F (1, 28) = 8.22, p = .008; effect size (partial η^2) of 0.227) as well as puerperal psychosis (F (1, 28) = 9.53, p = .005; effect size (partial η^2) of 0.254). Inspection of the means (refer to Table 4.6) revealed that the post-test

scores were higher than the pre-test for these two groups of items. In contrast, a significant statistical decline was found in the group of items examining comorbidity between depression and anxiety (F (1, 28) = 5.24, p = .030; effect size (partial η^2) of 0.158); screening and detection instrument for emotional disorders (F (1, 28) = 6.06, p = .020; effect size (partial η^2) of 0.178); as well as management and treatment of emotional disturbances (F (1, 28) = 10.98, p = .003; effect size (partial η^2) of 0.282). Inspection of the means (refer to Table 5.6) revealed that the post-test scores were lower than the pre-test for these two groups of items.

Table 4.3

Repeated measures analysis (ANOVA) of the pre- and post- educational knowledge test scores for Topics 1 to 4 and corresponding subgroups (n = 29)

	Items (n)	Pre-Test			Post-Test			*p* value
		Mean (SD)	Range	95% CI	Mean (SD)	Range	95% CI	
Topic 1	**10**	**7.14 (1.09)**	**5.00 - 9.00**	**6.72 - 7.55**	**8.03 (1.45)**	**5.00 - 10.00**	**7.48 - 8.59**	**.008***
▪ Childbirth and culture	3	2.48 (.69)	1.00 - 3.00	2.22 - 2.74	2.66 (.55)	1.00 - 3.00	2.45 - 2.87	.345
▪ Emotional and feelings of childbearing	7	4.66 (.86)	3.00 - 6.00	4.33 - 4.98	5.38 (1.18)	2.00 - 7.00	4.93 - 5.83	.008*
Topic 2	**34**	**19.59 (2.35)**	**14.00 - 25.00**	**18.69 - 20.48**	**19.69 (2.66)**	**16.00 - 26.00**	**18.68 - 20.70**	**.848**
▪ Maternity blues	3	2.31 (.54)	1.00 - 3.00	2.10 - 2.52	2.48 (.51)	2.00 - 3.00	2.29 - 2.68	.202
▪ Antenatal depression	5	3.28 (1.07)	.00 - 5.00	2.87 - 3.68	3.66 (1.20)	.00 - 5.00	3.20 - 4.11	.148
▪ Postnatal depression	5	2.21 (.49)	1.00 - 3.00	2.02 - 2.39	2.45 (.74)	1.00 - 4.00	2.17 - 2.73	.182
▪ Puerperal psychosis	2	1.31 (.54)	.00 - 2.00	1.10 - 1.52	1.62 (.49)	1.00 - 2.00	1.43 - 1.81	.005*
▪ Anxiety disorders	10	6.24 (.99)	4.00 - 8.00	5.87 - 6.62	6.48 (.87)	4.00 - 8.00	6.15 - 6.54	.182
▪ Comorbidity of depression and anxiety	2	.90 (.72)	.00 - 2.00	.62 - 1.17	.62 (.56)	.00 - 2.00	.41 - .83	.030**
▪ Screening and detection instruments	4	1.17 (.93)	.00 - 3.00	.82 - 1.53	.69 (.66)	.00 - 2.00	.44 - .94	.020**

▪ Management and treatment	3	2.17 (.66)	1.00 - 3.00	1.92 - 2.42	1.69 (.66)	1.00 – 3.00	1.44 - 1.94	.003*
Topic 3	8	**4.76 (1.12)**	**3.00 - 7.00**	**4.33 - 5.19**	**5.03 (1.27)**	**3.00 – 8.00**	**4.55 - 5.52**	**.275**
Topic 4	8	**6.10 (.98)**	**3.00 - 8.00**	**5.73 - 6.47**	**6.59 (.78)**	**4.00 - 8.00**	**6.29 - 6.88**	**.024****
▪ Emotional care in midwifery practice	4	3.41 (.73)	1.00 - 4.00	3.14 - 3.70	3.62 (.68)	1.00 - 4.00	3.36 - 3.88	.136
▪ Assessing mood disorder in childbearing women	4	2.69 (.66)	1.00 - 4.00	2.44 - 2.94	2.97 (.50)	2.00 – 4.00	2.78 - 3.16	.088

** Significant at 0.01 level; ** Significant at 0.05 level*

Detailed examination of each item on pre- and post-intervention knowledge assessment tool suggested 7 items showed no difference in the correct response rate, 28 items demonstrated a slight decline in the correct response rate and 31 items indicated a minor improvement in the correct response rate (refer to Appendix H). Most importantly, pair-sample t-test analyses revealed 8 items had a significant difference in the correct response rate between the pre- and post-assessment ($p < .05$). Out of these 8 items, the correct response rate for 5 items (i.e. items 5, 18, 21, 22 and 56) were higher in the post-education intervention assessment in comparison to the pre-education intervention assessment. On the other hand, the remaining 3 items (i.e. items 29, 41 and 43) had a decline in the correct response rate in post-education intervention assessment when compared to the pre-education intervention assessment.

Overall, participants displayed a significant improvement (48.3%; $n = 14$) in their knowledge of the general emotional responses experienced by childbearing women during the second trimester of pregnancy (i.e. an increasing attachment to the fetus). Their awareness of the possible associated outcomes of depression during pregnancy aware was enhanced (41.4%; $n = 12$). Participants' understanding of PND and puerperal psychosis also improved. In the post-test, participants knew that postnatally depressed women are more likely to develop PND in subsequent pregnancies and non-puerperal depressive illness later on in life and are more likely to exhibit suicide ideation and attempt suicide as well as being unlikely to recover spontaneously without appropriate treatment. There was also a considerable decline in the number of participants who viewed puerperal psychosis as a severe form of PND (27.6%; $n = 8$). Most importantly, all participants (100%; $n = 29$) became aware that the emotional support provided by midwives can enhance satisfaction, fulfilment and emotional wellbeing for women via

the provision of continuity of care through labour and birth. They possessed knowledge about the assessment and recognition of mood disorders in childbearing women.

On the other hand, the online educational resource was ineffective in improving participants understanding and knowledge in the following areas:

- prevalence and onset of PND;
- risk factors of AND and its potential adverse impact on mother and infants;
- symptoms of anxiety disorders as well as postpartum related OCD;
- comorbidity between depression and anxiety;
- antenatal screening and detection instruments for PND;
- management and treatment of depression during pregnancy and the postpartum; and
- importance of separating own emotions and feelings from those experienced by childbearing women.

4.2.3 Evaluation of the online education intervention

4.2.3.1 Quantitative analysis of the 16 Likert-Scale evaluation questions

Out of the 29 participants who completed the online educational module, 27 completed the online evaluation. As shown in Figure 4.5, a similar trend can be seen in participants' perception of content quality of the online educational module across all four topics, including the supplementary materials, where either close to or over half the participants indicated that they found the content to be good. Approximately one-third of participants found the content for all four topics to be adequate while the remaining participants found the content to be fair. In particular, around 10% of participants found the content for Topic 2: Psychiatric Illness and Emotional Disorders to be excellent. Overall, the content of the online educational module was well received by the

participants where 7.1% (*n* = 2) participants found the content to be excellent, 48.1% (*n* = 13) found it to be good while the remaining 44.4% (*n* = 12) found it to be either fair or adequate.

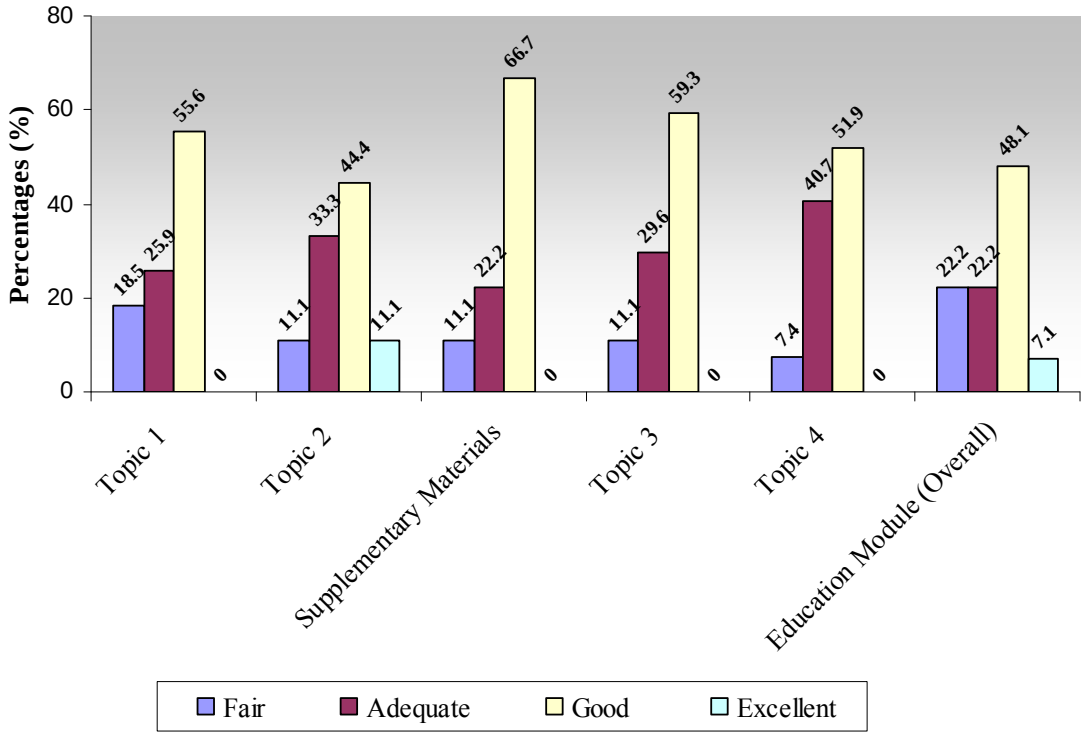

Figure 4.5 Perceived content quality of the online educational module (n = 29)

Table 4.4 reflects participants' perceived efficacy of the educational module for future midwifery practice as well as meeting learning needs and expectations. Around half the participants agreed that the educational module met their learning needs and expectations. The remaining participants were either ambivalent or did not feel that the educational module met their learning needs and expectations. Similarly, approximately half the participants either agreed or strongly agreed that the length and delivery (i.e. online self-directed learning) of the educational module were appropriate and beneficial to their learning while others participants were uncertain with a small group of participants reported the length (14.8%; *n* = 4) and online self-directed learning delivery

of the educational module (11.1%; $n = 3$) were not useful in their learning. Interestingly, although the majority of participants found the information included in the educational module to be useful for future midwifery practice (74.1%; $n = 20$), only 37% ($n = 10$) would recommend the educational module to other practicing midwives while 48.1% ($n = 13$) of participants were neither supportive nor unsupportive in recommending the educational module to other practicing midwives.

Over half the participants indicated that, upon completing the educational module, they (a) felt that their knowledge and understanding of emotional distress experienced by childbearing women during pregnancy and the postpartum improved; (b) believed that they now possessed the skills to assist and manage childbearing women suffering from emotional distress; and (c) felt positive and confident about working with childbearing women suffering from emotional distress during pregnancy and the postpartum. However, around 30% of participants were neither supportive nor unsupportive of these views and opinions with about 10% of participants stating their disagreement.

Lastly, using Pearson's correlation coefficient tests, investigation of all possible linear relationships among data variables, found no significant correlations between the sample characteristics of participants, their performance on the pre- and post-education knowledge assessments and evaluation on the online educational resource ($p > .05$)

Table 4.4

Perceived efficacy of educational module to learning and future midwifery practice (n = 27)

	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)
The educational module met my expectations.	-	18.5	29.6	51.9	-
The educational module met my learning needs.	3.7	18.5	22.2	55.6	-
The length of the educational module was appropriate.	7.4	14.8	29.6	44.4	3.7
The information included in the educational module is useful for my future midwifery practice.	-	3.7	22.2	59.3	14.8
I will recommend this educational module to other practicing midwifes.	-	14.8	48.1	37.0	-
The delivery of the educational module online for self-directed learning is beneficial learning.	-	11.1	33.3	37.0	18.5

After completing the educational module:	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)
My knowledge and understanding of the emotional distress experienced by childbearing women during pregnancy and the postpartum have improved	-	11.1	29.6	48.1	11.1
I believe that I now possess the skills to help, assist and managed childbearing women suffering from emotional distress during pregnancy and the postpartum	-	7.4	29.6	59.3	3.7
I feel positive about working with childbearing women suffering from emotional distress during pregnancy and the postpartum	-	11.1	25.9	59.3	3.7
I feel confident about working with childbearing women suffering from emotional distress during pregnancy and the postpartum	-	3.7	33.3	63.0	-

4.2.3.2 Qualitative analysis of the two open-ended evaluation questions

Content thematic analysis of the two open-ended questions, which sought feedback on the positive and negative aspects of the education intervention, was performed. Open coding of the responses received in the two open-ended questions was conducted by itemising, categorising and theming responses. Consequently, two main categories emerged with several themes within the categories identified.

Category 1: Characteristics of educational module

The four themes were identified within this category were:

A. **Efficacy** – Participants reported the online educational module to be informative, useful and would like the online educational module to continue to be available for midwives.

B. **Release and delivery** – Participants did not agree with the progressive release of the topics within the educational module over a four-week period and would have preferred the whole educational module being available online for study at their own pace. Specifically, participants felt that they did not have sufficient time to fully grasp the content of Topic 4 prior to the course assessment as it was only made available one week before the course assessment. Participants indicated that they were overwhelmed with the extensive amount of information they had to read online. Although the online educational resource was available to participants in printable formats, they felt that the inclusion of some forms of in-person educational training methods (e.g. workshop), which provides opportunities for learning interactions, would have enhanced their learning.

C. **Quality of topics** – Topics 1, 2, 3 and supplementary materials were generally well received by participants and content was perceived as informative and interesting. However, participants indicated that Topic 4 needed improvement

as the content (e.g. description of health professional roles) needed to be more relevant to the Australian context. Additionally, participants wanted to know more about referral and ways to support childbearing women in practice.

D. **Length and quantity** – Participants indicated that the module was lengthy and too in-depth given the short timeframe to complete the module prior to the course assessment.

Category 2: Characteristics of pre- and post-test activities

The two themes were identified within this category were:

A. **Choice of assessment approach** – Participants reported that the multiple choice questions were overly-specific to the content and should have aimed to assess participants' overall knowledge and understanding of the educational module.

B. **Difficulty of assessment** – Participants found some multiple choice questions to be poorly phrased and responses choices to be very challenging "answers in multiple choice questions were so similar... difficult to choose the correct answer... almost like splitting hairs."

On the whole, participants found the educational module to be informative and beneficial to their learning of emotional disturbances experienced by women during pregnancy and the postpartum, and would like the educational module to be made available for midwives. Participants believed that the content of the educational module should include information regarding referral and ways to support childbearing women within the Australian context, particularly in *Topic 4: The ways midwives can prevent emotional disorders in childbearing women*. They suggested that the educational module should be fully released for study at learner's own pace and ample time should be provided for the completion of the educational module prior to the assessment. In

addition to a self-directed learning approach, participants recommended the use of other educational training methods such as workshops to enhance the learning and teaching processes. Participants also proposed rephrasing and revising the assessment items in order to better examine participants' overall knowledge and understanding of the educational module rather than specific detail such as specific prevalence rates.

The relatively small but nevertheless significant margin of improvement in the post-education intervention knowledge test scores found in the Phase 2 study appears to suggest that the online educational module was useful in improving midwives' knowledge of childbearing-related emotional disorders. However, results also indicated that, upon completion, midwives continued to report difficulties in enhancing their knowledge in some areas of perinatal depression and anxiety disorders which include the (a) comorbidity relationship between depression and anxiety; (b) antenatal screening and detection of PND; and (c) management and treatment of perinatal women who are suffering from emotional disturbances. Outcomes of the Phase 2 study together with the information gathered from midwives' evaluation of the online educational module will be discussed in the next section.

4.3 Discussion

4.3.1 Appraisal of the online educational module

Overall, comparison of the pre- and post-test results in Phase 2 revealed that student midwives performed significantly better in the post-education knowledge test. Although the improvement cannot be conclusively attributed to the introduction of the online educational module, findings suggest that, student midwives' knowledge of the general emotional responses related to pregnancy and the associated outcomes of AND as well as their understanding of PND and puerperal psychosis were enhanced. Importantly, not only were student midwives able to assess and recognise childbearing-related mood disorders, they acknowledged that the provision of continuity of care and emotional support by midwives can enhance satisfaction, fulfilment and emotional wellbeing for childbearing women. Despite these encouraging significant findings, the relatively small margin of improvement should also be taken into consideration. Some areas showed a significant decline or a lack of improvement and may need to be addressed and revised in order to enhance the quality of the educational resource.

Firstly, test results showed a significant decline in students' understanding of the comorbid relationship between childbirth-related depression and anxiety. This is an area of concern given that the comorbidity between depression and anxiety disorders is not only well documented in the general population (Kessler et al., 2005a; Kessler et al., 2005b) but also in pregnant and postpartum women (Heron et al., 2004). Secondly, while the systematic review of antenatal screening instruments for PND indicated insufficient evidence to support the use of antenatal screening instruments during routine care for childbearing women to detect risk of PND (Austin & Lumley, 2003), psychometric support for the use of instruments to detect PND such as PDPI, EPDS, BDI and PDSS have been well established (Beck et al., 1996; Beck & Gable, 2001a,

2001c; Cox et al., 1987; Hanna et al., 2004; Lawrie et al., 1998; Thompson et al., 1998). However, the student midwives demonstrated poor knowledge regarding the efficacy of detection instruments for PND. Thirdly, there was no improvement in students' understanding of the management and treatment of mood disorders in perinatal women despite research evidence recommending both pharmacological (i.e. antidepressant medications) and psychological (i.e. IPT and CBT) approaches in the treatment of PND (Dennis, 2003; Dennis & Hodnett, 2008). The continuing knowledge deficits in these three significant areas appear to indicate a need to revise the content of the educational resource. A good understanding of detection instruments for PND as well as the management and treatment for PND will allow midwives to select appropriate tools for use in practice; understand and interpret the findings of the tools to identify women who are either at risk or show symptoms of PND; and lastly, ensure the provision of appropriate and timely management, treatment and emotional health care for childbearing women.

Student midwives' evaluation of the educational resource indicated that they wanted more information on how emotional care in midwifery practice relates to other health professionals (e.g. obstetricians, gynaecologists, MCHNs, GPs, psychologists, psychiatrists etc) in an Australian context. Inclusion of information about referral and ways to support childbearing women in practice were proposed by student midwives. Such modifications may raise awareness of when, whom and how they should refer childbearing women who require further specialised mental health care. Changes could also assist practicing midwives to better understand how the provision of emotional care and support, together with the work of other health professionals can enhance maternal psychosocial outcomes.

Student midwives remarked that, given their competing study, work and personal life demands, the length and depth of the online educational module were excessive within the short given timeframe (i.e. 4 weeks) prior to assessment. This was further aggravated by the progressive release of topics within the educational module which student midwives reported restricted the pace of their self-directed learning. These issues may have contributed to the small margin of improvement found in this study as student midwives may not have sufficient time to fully engage with and understand the information. Hence, not only should ample time be provided, the online educational package should also be released as a whole rather than sequentially. Nevertheless, keeping in mind that the educational resource is planned to be placed on the ACM website as a self-directed package for practicing midwives, some of the time constraints and competing pressures on student midwives will not necessarily affect practicing midwives choosing to complete this education package / resource as a continuing professional development activity.

Additionally, student midwives reported that some questions were poorly phrased and answer selections were highly analogous. This critique may possibly explain the lack of improvement as well as decline in some specific areas of perinatal depression and anxiety disorders. It should be acknowledged that poorly phrased and structured assessment items could have had an adverse impact on student midwives' abilities to correctly answer the questions. Review and alterations to the assessment function used to determine practicing midwives' knowledge is required to achieve an accurate assessment of the online educational resource.

Student midwives also called for the inclusion of some face-to-face teaching strategies such as workshops to discuss content and skill development. While this is one

option, the use of workshops to promote learning interaction and engagement may not necessarily be suitable for midwives working in regional, rural and remote areas of Australia or midwives who have limited opportunity to attend face-to-face sessions. An alternative option could be the introduction of blended learning which is defined as *"an effective integration of different modes of delivery, models of teaching and styles of learning as a result of adopting a strategic and systematic approach to the use of technology combined with the best features of face to face interaction"* (Krause, 2007 as cited in Griffith Institute of Higher Education, 2007). Blended learning can be explained by spanning a continuum that covers a wide spectrum of activities between conventional face-to-face interactions and those that are fully online (Griffith Institute of Higher Education, 2007) (refer to Figure 4.6).

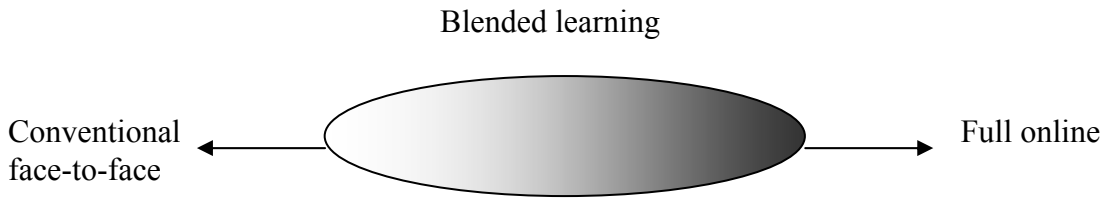

Figure 4.6 Blended learning

Examples of blended learning strategies that could be used to promote learning interaction and engagement for practicing midwives in relation to perinatal emotional disorders include:

- Blending technologies – online discussion forum / board;
- Blending time – instant messaging and real time web lectures;
- Blending the locus of learning – sending learners on a virtual fieldtrip to a series of perinatal emotional disorder related websites or research databases followed by a brief online report of their experience; and

- Blending participants - inclusion of a guest lecturer who makes a scheduled synchronous contribution to a real-time online discussion group or who provides an expert contribution to an asynchronous online discussion forum.

(Bonk & Graham, 2006; Derntl & Motschnig-Pitrik, 2005; Dron, Siedel, & Litten, 2004; Griffith Institute of Higher Education, 2007)

Therefore, the overall efficacy and quality of the online educational resource for use with practicing midwives could be enhanced by revising the content and assessment items, with emphasis on areas of knowledge deficit and those proposed by the student midwives. Furthermore, the package could also benefit from the inclusion of blended learning techniques.

4.3.2 Limitations

This pilot intervention study is limited because of potential selection bias and threats to internal validity because of history, cause and effect as well as the adequacy of data instruments. Ways in which these limitations were minimised or could be addressed in future research will be discussed.

4.3.2.1 Selection bias

Potential selection bias exists in this current study as random selection of participants did not occur (Cook & Campbell, 1979). The selected sample was a group of student midwives who were highly interested in acquiring midwifery-related knowledge and skills, and highly motivated to learn and excel as the online educational module was linked to their course assessment. Hence, the selected sample was a 'promising' group to potentially obtain significant results. Additionally, it may be difficult to generalise the results obtained in Phase 2 to other groups such as practicing

midwives, GPs and psychologists where there may be a lesser impact of education on knowledge. Nevertheless, given that this was a pilot study examining the efficacy of an education intervention, aimed specifically at midwives, the use of student midwives was justified. Moreover, given the potential benefits to their midwifery practice, it is expected that practicing midwives should be equally interested and motivated to complete such an educational resource which is targeted at improving their professional knowledge and skills.

There was no control group used in this current study and this makes it difficult to eliminate a number of threats to internal validity. The lack of a control group, an issue associated with selection, can interact with other threats to internal validity to produce spurious treatment effects (Wood & Ross-Kerr, 2006; Cook & Campbell, 1979; Polit & Hungler, 1997). The limiting forces present in the current study were:

Selection-History

There is a risk that history may influence the effect of the intervention and may not be detected without the presence of a control group (Cook & Campbell, 1979). For instance, the effects of other education programs, hospital-based research and activities on maternal psychological morbidity are unknown. This problem can be overcome with the inclusion of a control group and adding a number of questions at the end of the post-test which explicitly ask if participants were involved in any events that took place between the pre- and post-testing that were related to maternal psychological morbidity.

Selection-Cause and Effect

It is acknowledged that, without the use of a control group, the causal relationship between the online educational module and the significant increase in

student midwives' knowledge of childbearing-related emotional disorders cannot be conclusively determined (Cohen et al., 2000a). It would not be possible to have a control group due to ethical and equity considerations in the tertiary educational context. Nevertheless, despite the inability to include a control group to compare the causality effect of educational resource between both the control and experimental group, results did reveal a significant improvement trend in student midwives' knowledge of childbearing-related emotional disorders. Inclusion of a control group will be needed in future research in order to determine the causal relationship between the educational intervention and midwives' knowledge of childbearing-related emotional disorders.

4.3.2.2 Instrumentation

Although the assessment instrument used in the current study had been reviewed by two expert maternity researchers, the validity and reliability of the newly developed instrument had not been established and this could be considered as a limitation. However, there is no reason to assume that the assessment instrument was not appropriate as the questions were drawn from the online educational module and the literature. Psychometric properties of this instrument will need to be further determined by a panel of experts from different disciplines and established in future research.

4.4 Summary

This chapter outlined the development, evidence-base, implementation and evaluation of an on-line resource for midwives. The findings support the implementation of an educational resource to improve midwives' knowledge of emotional disorders during pregnancy and the postpartum. While student midwives' theoretical knowledge and skills in the provision of emotional care to childbearing

women were improved, the problem remains with application to midwifery practice. It appears that midwives may also need to be trained in the effective application of knowledge in order for them to be competent and confident in providing emotional care. Lastly, the use of blended learning strategies such as an online discussion forum, real time web lectures and virtual fieldtrips may facilitate interaction and engagement so as to enhance the overall learning experience of midwives.

CHAPTER 5

Conclusions & Recommendations

Women are vulnerable to psychological distress during the perinatal period. Perinatal emotional distress can negatively influence the mother-infant relationship (Milgrom et al., 2004; Murray et al., 2003); attachment security in young children (Hammen & Brennan, 2003; Martins & Gaffan, 2000); and increase the risk of cognitive delays and social-behavioural problems in young children (from three months) (Grace et al., 2003; Milgrom et al., 2004; Murray et al., 2003; Rahman et al., 2004). Research evidence regarding adverse effects of untreated perinatal emotional disorders highlights the importance of preventing, detecting and treating emotional distress in childbearing women.

Perinatal emotional disorders are an important public health issue but the role of midwives in the prevention, assessment, management and monitoring of women with such conditions is relatively under-investigated. Even though the exact aetiology of perinatal emotional disorders is unclear, there is fairly consistent evidence about the predictors of emotional distress, efficacy of screening tools, and partial effectiveness of psychological interventions to prevent and treat perinatal distress. However, conclusions drawn from the literature review and findings of the present study identified knowledge and skill gaps by clinicians; limited prevention and detection strategies; fragmented models of care; as well as the inappropriate management for women with perinatal emotional disorders.

In Australia, midwives are well positioned to provide holistic maternity care including the identification, management and support of childbearing women who are

experiencing perinatal emotional distress. However, several studies have reported a general neglect of emotional aspects of care by midwives and other health professionals (Creedy et al., 2000; Gamble & Creedy, 2004; Gamble et al., 2005; Singh, 2001). Limited attention has been given to understanding midwives' knowledge, attitudes and care of women suffering from emotional disorders during pregnancy and the postpartum (Buist et al., 2006; Eden, 1989). In view of these gaps in knowledge and practice, a two-phase research study was conducted. Phase 1 was a needs analysis of midwives' knowledge, attitudes and self-reported practices in the delivery of perinatal emotional care. Findings from the needs analysis were used in Phase 2 to inform the development of an education intervention. This final chapter will summarise key findings for each of the two phases and discuss the implications of these findings for midwifery education and practice and further research in the field.

5.1 Phase 1: National survey

Extending on prior research conducted by Eden (1989) and Buist et al. (2006), the first phase of this study was designed to ascertain the current knowledge needs and potential practice gaps of midwives in providing competent and effective emotional care to childbearing women. In contrast to earlier work, which predominantly examined midwives' knowledge and management of maternal depression, the current study undertook a national survey with a large representative sample. The survey was unique in its differentiation of antenatal and postnatal depression knowledge and its investigation of midwives' awareness of the comorbidity of depression and anxiety. In addition, it also examined midwives' attitudes towards the care of women suffering from perinatal emotional disorders. There have been no other reported studies that have assessed midwives' knowledge and management of perinatal emotional disorders in Australia.

5.1.1 Main conclusions of Phase 1 study

The national survey identified that midwives were aware of the comorbid relationship between depression and anxiety and depression prevalence in pregnancy and postpartum. Their knowledge of PND was greater than that of AND. There was relatively low knowledge of risk factors, prevalence, adverse health outcomes, treatment and management of AND. Midwives also displayed poor knowledge about incidence, onset period and treatment approaches for postnatal depression. Many midwives in the current study reported working with women who were emotionally distressed and perceived that there was a considerable increase in the number of women suffering from AND and/or PND. While the EPDS is commonly used in practice, midwives incorrectly reported that the EPDS can be used to detect psychotic depression. Antidepressant medications were viewed by respondents as acceptable and effective in treating depression during pregnancy and the postpartum but were more likely to recommend antidepressant medication use for PND.

A large proportion of respondents believed midwives should have a primary role in the treatment of perinatal disorders and could make a difference to women with emotional problems. They also reported feeling comfortable working with emotionally distressed women. Despite this positive outlook, systemic problems were reported to hinder appropriate care. Midwives reported encouraging women to discuss their emotional feelings during pregnancy with health professionals as well as family and friends. While they recognised the efficacy of antidepressants, they were cautious about recommending the use of medications during pregnancy. The majority of midwives considered that they were not sufficiently skilled or competent in the use of specific treatment techniques (i.e. counselling and relaxation) that may be used with women suffering from depression and anxiety. Respondents noted that further training to

improve midwives' skills in psychosocial assessment and managing women with perinatal emotional disorders would be helpful. The majority of respondents wanted to learn more about childbirth-related emotional disorders and associated assessment, management and treatment techniques.

5.1.2 Disparity in midwives' knowledge, attitudes and practice

In comparison to the findings of a previous survey of Australian midwives by Eden (1989), the current study revealed a marked improvement in midwives' overall knowledge of PND. This could be a reflection of the increasing standards of education for midwives over the last twenty years and improved level of community awareness of perinatal emotional distress through campaigns such as "*beyondblue*: The National Depression Initiative" (*beyondblue*, 2008). Notably, the focus of recent national awareness campaigns and research programs has been primarily on PND and it is therefore not surprising that both the present study and recent research by Buist et al. (2006) found health professionals (including midwives) having a higher level of awareness of PND than depression during pregnancy.

The term PND is now in common usage due to significant media attention and extensive research. This high level of PND awareness, however, may lead to inappropriately applying the label of PND to women who may only be displaying symptoms associated with adjustment to motherhood. Matthey (2008) argued that the clinical utility of the EPDS to screen for probable depression may result in excessive screening; neglect of other aspects of emotional wellbeing; and lead to the unnecessary labelling of women as distressed even though their emotional state may only be transient or short–lived. For example, one study identified that the percentage of mothers who scored high on EPDS at Time 1 (17%) dropped significantly to 13.4%

when tested three weeks later (Ballestrem, Straub, & Kächele, 2005). In view of the widespread use of EPDS in practice and present findings which suggest midwives do not possess a good understanding of the functions and limitations of EPDS, further education on the use of EPDS in clinical practice is warranted. Furthermore, midwives will need to be prudent in regards to an over reliance on EPDS as a stand alone instrument to detect childbearing-related depression in women. The over-identification of PND in women can potentially deplete the already limited time and resources of midwives to care for postnatally depressed women.

Strategies to appropriately assess women thought to be at risk for depression have been recommended by Matthey (2008). For example, women who scored highly on their initial EDPS should either be retested at a later date or reassessed with a different instrument (e.g. BDI) to differentiate between enduring and transient distress. Matthey (2008) also suggested that health professionals should re-think the 'at-risk' concept in the identification of women who are susceptible to develop PND as the abundance of factors associated with PND means many women would be considered 'at risk'. Furthermore, he argued that a tiered approach to PND intervention is needed to more appropriately identify and care for women experiencing some distress and mild depression (Matthey, 2008). The suggested strategies by Matthey (2008) have implications for midwifery practice. For example, there is a need for midwives to play an active role in the screening and monitoring of women's mental health using one of the standardised measures shown to be valid and reliable. Results from the national survey highlighted some misconceptions about the EPDS and the need for further training in screening and assessment. While the use of the EPDS, which can be scored easily and only takes approximately 5 to 10 minutes to complete, is found to be acceptable to women, midwives must be knowledgeable about (a) the use of the EPDS;

(b) the interpretation of scores; and (c) be able to develop an active plan of care in response to women's scores. The screening and monitoring of perinatal distress would also need to be monitored through a clinical audit process to further inform practice.

Knowledge deficits in relation to the assessment, treatment and management of perinatal emotional disorders were clearly identified in the present study and similarly reflected in the findings of Buist et al. (2006). However, in comparison with the findings from the study by Eden (1989), there appears to be only a small change over the past two decades in midwives' knowledge and ability to assess and manage postnatally depressed women. Eden (1989) reported that the majority of midwives were likely to observe and refer postnatally depressed women to other health professionals as their primary management strategies. Almost two decades later, there is little change in the management strategies reported by midwives. The present survey was more detailed than that used by Eden (1989) and aimed to assess specific areas of knowledge and practice. However, the magnitude of knowledge deficits in relation to assessment, treatment and management of perinatal emotional disorders may have actually increased over time. Eden (1989) surveyed midwives from a single facility in Melbourne whereas the current study undertook to recruit a national sample of midwives. Survey respondents are likely to differ from non-respondents because of their interest in the area and potentially better knowledge of childbearing-related emotional disorders. Results of the present study may therefore be an over-estimation of midwives' knowledge of perinatal emotional disorders compared to the midwifery population in general.

Although participating midwives' acknowledged the importance of perinatal mental healthcare, their willingness to offer assistance and provide emotional care to

women in practice was compromised by their perceived lack of competence. The current findings may reflect a positive change in attitudes of midwives towards mental health issues. Nevertheless, midwives' self-perceived inability to offer care and support may reflect a lack of self-efficacy in this area. Consequently, this may have an adverse influence on midwives' motivation, cognitive patterns, emotional responses and the likelihood of engaging in emotional care in practice (Bandura, 1977, 1986; Ormrod, 2006). Midwives may find emotional care overwhelming and as such be less motivated to care and support emotionally distressed women. This may explain why midwives have continued to be censured over the provision of poor intrapartum and postpartum emotional care to childbearing women (Brown et al., 2005; Bruinsma et al., 2003; Gamble et al., 2004b; Rudman et al., 2007a, 2007b). Even though educating and equipping midwives' with the necessary knowledge and skills are important in enhancing their abilities to engage in perinatal mental healthcare, midwives' self-efficacy or confidence to provide such care should also be addressed. Ways to enhance midwives' self-efficacy could include the use of role models as well as encouraging and acknowledging the importance of emotional care in workplaces. Midwives would also need to be reassured of the positive impact emotional care can have on childbearing women. In addition, they need to be supported through provision of time and resources to provide such care.

Although there is a wide variety of emotional care and support strategies that can be offered, common psychological interventions such as basic counselling, IPT and CBT (Austin et al., 2008; Chabrol et al., 2002; Gamble et al., 2005; Milgrom et al., 2005; Prendergast & Austin, 2001) could be offered by midwives. While midwives are yet to be trained specifically in the application of IPT and CBT, it is nevertheless still appropriate for midwives to consider offering women opportunities to discuss their

childbearing-related experience (Rowan et al., 2007). Recent mental health service developments in the UK routinely offer CBT training to all health professionals (especially nurses) to enhance service provision (Williams & Martinez, 2008). Skills in basic counselling also need to be developed and assessed during continuing professional training sessions and observed in practice.

In line with the views of midwives surveyed by Buist et al. (2006), the present study revealed that midwives do acknowledge the benefits of pharmacological interventions in the treatment of emotional disorders in childbearing women. Nevertheless, pregnancy continues to be a time where midwives seem concerned and cautious about recommending antidepressant medications for the treatment of depression. *"The National Midwifery Guidelines for Consultation and Referral"* (ACM, 2008d) clearly states that best practice in maternity care must be based not only on physical aspects but also emotional, social and cultural aspects for both the woman and her infant(s). In accordance with best practice guidelines, when dealing with perinatal women suffering from emotional disorders such as depression and anxiety, midwives should work with women throughout the perinatal period to establish a relationship of trust and mutual respect. Both midwives and women need to actively recognise their roles in maternity care. Midwives need to be impartial and inform women of various available treatment options (i.e. pharmacological and psychological interventions). They also need to listen, be aware and address women's feelings and concerns such as the potential adverse effect treatment options may have on their unborn or newborn baby as well as the care of their infant(s) given their mental condition. Midwives should take into account these concerns in assisting women to make an informed decision and refer women to appropriate community agencies and support networks. It is also essential for midwives to work collaboratively with other healthcare professionals to ensure the

appropriate referral of perinatal women with depression or anxiety to relevant healthcare providers whenever necessary.

According to the *"National Competency Standards for the Midwife"* (ANMC, 2006), midwives are expected to demonstrate life-long professional learning and seek opportunities to maintain or update their knowledge levels, skills, attitudes and experience for the effective care for women and/or infant. Therefore, in order for midwives to be effective and supportive of emotional care to childbearing women, it is not only imperative to recognise the importance of emotional work in midwifery practice but also to engage in developing skills and competence to provide such care. It appears there is still a gap between what midwives need to know, the scope of practical skills required and how to best develop these skills and knowledge.

5.2 Phase 2: Educational resource

The second phase of this study aimed to address the educational needs of midwives identified in Phase 1 through the development, implementation and evaluation of a pilot online educational resource. At present, there is yet to be any accredited educational resource developed in Australia that primarily addresses the knowledge needs of health professionals, specifically midwives, in relation to perinatal emotional disorders. Although there are workshops conducted for midwives on perinatal mental illness, these workshops are ad-hoc, usually require midwives to attend in person, and not monitored to ensure that content is evidence-based. The online educational resource developed in the present study is not limited by geographical location, could readily be updated, and accessed by midwives across Australia.

5.2.1 Main conclusions of Phase 2 study

Student midwives' overall knowledge of perinatal emotional disorders significantly improved following completion of the online educational resource. Although this improvement cannot be conclusively attributed to the introduction of the education intervention, results suggest that education can be useful. Nonetheless, findings also revealed a decline in students' understanding in three specific areas. These areas were (a) the comorbid relationship between childbirth-related depression and anxiety; (b) efficacy of screening instruments for PND; and (c) the management and treatment for mood disorders in perinatal women.

Generally, student midwives found the educational module to be informative and beneficial to their understanding of perinatal emotional disorders. There was a relatively high level of satisfaction with the content of the online educational resource. Suggested areas of improvement to the online educational resource include (a) an overview of how emotional care by midwives relates to other health professionals in the Australian maternity care and mental health services context; (b) the inclusion of information about referral and ways to support childbearing women in practice; (c) a reduction of content; and (d) integration of teaching strategies that promote interaction and engagement in learning. Most importantly, despite completing the online educational resource, participants neither felt positive nor confident about working with childbearing women with perinatal emotional disorders. They continued to report a lack of skills to assist and manage these women.

5.2.2 Translation of knowledge into practice

Learning is more than the simple acquisition of or increase in knowledge. Focus should be placed on a deepening of understanding that enables the learner to perceive

the subject matter in different way so as to bring about a conceptual change in practice (Biggs & Tang, 2007). Tertiary learning and teaching have long been criticised for an over-emphasis on the provision of knowledge rather than application through developing clinical skills, reasoning and judgement (Biggs & Tang, 2007). Translation of knowledge acquired from the online educational resource into midwifery practice is an important consideration. Although this was not explicitly assessed in the Phase 2 study, student midwives' self-perceived ability to translate acquired knowledge into their midwifery practice was determined via their evaluation of the online educational module. It is evident that the online educational resource did not facilitate the application of this newly acquired knowledge into midwifery practice nor foster their engagement in the provision of emotional care. While the online educational resource was useful in improving midwives' overall knowledge and attitudes in relation to perinatal emotional disorders, it was inadequate in establishing initial confidence in the provision of emotional care for women. Revisions to the online educational resource are therefore needed.

5.2.3 Revisions of the online educational resource

Web-based education programs, a form of e-learning, may be an optimal intervention for busy practitioners and/or those practicing in rural and remote areas. There is support for the use of e-learning in the health care context as it overcomes the "traditional boundaries" that depicts the learning experiences such as space, time and place (Murero & D'Ancona, 2006). However, the online educational resource utilised in the present study was criticised for its lack of face-to-face learning opportunities. In view of this, the concept of blended learning, which uses information and communication technologies to increase learning and knowledge exchange

opportunities among multiple users in urban, rural and remote areas, could be integrated into the online educational resource.

The application of Bandura's self-efficacy theory also provides useful direction in the revision of the online educational resource to enhance midwives' self-efficacy in the provision of emotional care. As outlined by Bandura (1986), performance accomplishments, modelling, social persuasions and physiological states are four factors that influence midwives' self-efficacy in emotional care work. Although feedback on knowledge performance accomplishments of midwives was provided, the learning approach of the online educational resource neither encompassed modelling or social persuasions processes nor addressed midwives' physiological states when outlining new skills and/or changes to an existing practice. In view of this, the following implementations could improve the online educational resource:

Performance accomplishments

- The introduction of a counselling framework and educating midwives in basic counselling skills via real time web lectures. Subsequently, midwives could be encouraged to conduct a brief counselling session with a friend or colleague and prepare a self-critique report that is submitted online for written feedback from the online lecturer / facilitator.
- The placement of an electronic copy of the EPDS online so that midwives can download, print and administer the EPDS to a volunteer. This approach can enhance knowledge acquisition through direct performance experience.

Modelling

- The provision of online video vignettes of counselling by a midwife in practice.
- The provision of podcast audio recording of a telephone counselling session.

Social persuasions

- The launch of online discussion boards and/or forums to (a) encourage communication amongst midwives in sharing their views, experiences and challenges of emotional care work in practice; and (b) allow for the provision of constructive and timely feedback and encouragement as well as the use of positive reinforcement by the online facilitator to shape behaviour in midwives.

Physiological states

- The inclusion of online information on relaxation strategies useful in both midwives' practice and everyday life.
- The application of online discussion boards and/or forums can provide midwives with an opportunity to reflect and discuss with peers their negative physiological cues experienced during emotional care work and strategies used to manage them. Altering midwives' negative views of these cues can be achieved via the provision of reassurance and encouragement by the online facilitator. Consequently, midwives will then be able to perceive these physiological cues in a positive manner that enhances self-efficacy.

These proposed changes to the online educational resource, which address performance accomplishments, modelling and social persuasions processes as well as

physiological states of midwives, can collectively improve self-efficacy of midwives when adopting changes or applying newly acquired skills in their practice.

Lastly, areas of identified knowledge deficit need to be appropriately addressed. A good understanding of detection instruments for PND as well as the management and treatment for PND will allow midwives to select appropriate tools for use in practice; understand and interpret the findings of the tools to identify women who are either at risk or show symptoms of PND; and ensure the provision of appropriate and timely management, treatment and emotional health care for childbearing women. Moreover, it will also allow midwives to accurately explain the results of the detection instruments to women. They will also be able to provide women with information on the various treatment options for perinatal depression and anxiety and discuss issues and problems encountered by women who are experiencing perinatal emotional disorders.

The identified knowledge deficit areas may be in part due to assessment questions being poorly phrased and/or question response options being highly analogous. Review and alteration to the assessment function used to determine midwives' knowledge is required to achieve an accurate assessment of the potential expediency of the online educational resource. The use of multiple assessment strategies such as the previously suggested online self-critique report can be beneficial in enhancing self-efficacy as it provide midwives with more than one opportunity to determine their performance accomplishments (Wood, Bandura & Bailey, 1990).

5.3 Recommendations

5.3.1 Recommendations for research

It is apparent that Australian midwives' knowledge, attitudes and management of women with perinatal emotional disorders are under-researched. Furthermore, educational strategies to address these short-comings have also received very little attention. Future research should attempt to build on the findings of this study. Firstly, the criteria used in the determination of sample representativeness are fairly narrow (i.e. age, gender and years in midwifery practice). It is recommended that midwife respondents from the various private and public hospitals and birth centres around the country should be recruited to ensure that the sample more accurately reflects the population of midwives in Australia. Secondly, findings of the present study depended on self-reported practices of midwives with no opportunity to verify its accuracy. Therefore, field observations should also be conducted in subsequent research to validate responses about actual practice obtained in the national survey. Thirdly, to establish the efficacy of the online educational resource for used in a continuing professional development context, validity of the revised online education research should be established via a larger and more representative sample of practicing midwives instead of only student midwives. Lastly, the use of a control group is recommended to evidently establish a causal relationship between education and knowledge of perinatal emotional disorders as well as accounting for the influence of other unknown education programs, hospital-based research, policy changes and activities on perinatal emotional disorders.

Despite the call for a greater integration of psychological processes into midwifery practice more than a decade ago (Slade et al., 1993), little has been achieved in this area. Subsequently, Gamble et al. (2005) established the effectiveness of a brief,

midwife-led counselling intervention in reducing symptoms of trauma, depression, stress, and feelings of self-blame for women who report a distressing birth experience. More research is needed to determine the usefulness of other midwife-led counselling models in improving the emotional and mental health of women who are experiencing emotional distress, particularly during the antenatal period. Further research is also warranted on the nature and quality of emotional care provided by midwives.

5.3.2 Recommendations for practice

To optimise early detection and intervention for perinatal mental illness, research and clinical experiences suggest that it is important for psychosocial assessment to commence in the antenatal setting (Austin, 2004). Assimilation of mental health care within routine maternity care is the most acceptable and accessible approach for the provision of services to women experiencing perinatal mental illness (Buist et al., 2005). At the start of 2007, *beyondblue* in Australia commissioned the Perinatal Mental Health Group to develop a National Action Plan to inform the development of policies and governance structures in perinatal emotional care. It is expected that routine psychosocial assessment, appropriate training for health professionals and information and pathways to care for women with perinatal mental disorders are to be integrated into existing practice. Importantly, implementation of new policies, such as the introduction of routine psychosocial assessment by midwives, is a gradual process that requires managing the workplace culture (e.g. behaviours, attitudes and expectations held by midwives and management within the organisation). Strategies for successfully changing workplace culture include: education and communication; management support for culture change; as well as engaging and supporting activities that promote new workplace values and norms (Davidson & Griffin, 2006; Robbins, Millett, Cacioppe, & Waters-Marsh, 2001).

The potential impact of the National Action Plan on the midwifery profession together with the findings of the present study clearly point to the need for service managers in maternity health care areas to (a) recognise and acknowledge the importance of emotional work in midwifery practice; (b) address the systemic issues encountered by midwives so as to support the delivery of effective emotional care to childbearing women; and (c) facilitate the shift in workplace culture and behaviour to endorse the integration of emotional healthcare in the routine maternal care provided by midwives in both the public and private sectors. Furthermore, as emotional care was not formerly regarded as an imperative component of midwifery practice (Slade et al., 1993), current practicing midwives may neither be educated nor possess adequate skills and abilities to offer such care for women who are emotionally distressed. In accordance with national competency standards, midwives are to seek and engage in opportunities to maintain or update knowledge, skills, attitudes and experience needed for the effective care for women and/or infant (ANMC, 2006). Therefore, the provision of continuing professional educational resources on perinatal mental disorders for midwives will help achieve this.

5.3.3 Recommendations for education

The international definition of a midwife, adopted by ACM and regulatory authorities in Australia (ACM, 2008b; ANMC, 2006), states that midwives have "an important task in health counselling and education, not only for the woman, but also within the family and community". Specifically, ACM's philosophy statement for midwifery and ANMC's National Competency Standards for the Midwives both highlight the need for a holistic care approach in addressing women's social, emotional, physical, spiritual and cultural needs and expectations (ACM, 2008a; ANMC, 2006). Besides acknowledging the effectiveness of continuity of care as a primary health

strategy that allows women to engage in decision-making regarding their health and health care, ANCM's Standards for Midwifery Education indicate that midwifery curricula must enable students to acquire the knowledge, skills and attitudes necessary to practise to the full role and scope of midwifery (ACM, 2008c). In view of these directions and the identified gaps in current knowledge and practice as well as the lack of emphasis placed on the assessment and management of perinatal emotional disorders during tertiary education reported by midwives in the Phase 1 national study, there may be a need to review midwifery curricula in Australia to ensure that student midwives learn about perinatal emotional disturbances and are equipped with skills to provide the best possible care to women and support their families. Indeed, in the recent draft standards and criteria for the accreditation of nursing and midwifery courses leading to registration, enrolment, endorsement and authorisation in Australia, attention has been drawn to the need for the curriculum to address mental health issues where midwives are expected to develop beginning level of practice competence in perinatal mental health issues which include recognition, response and referral (ANMC, 2008).

It is recommended that an online educational resource such as the one used in this research study be launched nation-wide through the ACM website as a self-directed learning resource for all students and practicing midwives. Additionally, to address the limitations of the existing online educational resource, a workshop targeted at equipping midwives with the practical skills needed in their care, assessment and management of childbearing women who are suffering from emotional disorders during pregnancy and the postpartum should also be conducted for all students and practicing midwives. Alternatively, blended learning strategies such as real-time web lectures, virtual classroom and online discussion forum can be adapted to the online educational resource.

5.4 Conclusions

The perinatal period (during pregnancy and up to one year postpartum) is customarily perceived to be a time of relative well-being, emotional stability and happiness for women. Nevertheless, childbirth is a major event in a woman's life that may precipitate adverse emotional responses. There is substantial evidence acknowledging that childbearing women experience dramatic psychological changes and are vulnerable to mental and emotional disturbances that can begin during pregnancy. Furthermore, there are immediate and long-term adverse consequences of perinatal emotional disorders for women, children and their relationships.

Potentially, midwives can correct misconceptions, facilitate women's transition to motherhood and prevent the development of perinatal emotional disorders through timely, appropriate and adequate health information and psychosocial support to pregnant women. They can also have an important role in the education, early recognition, prevention or treatment of emotionally disturbed women and are in an ideal position to provide counselling and educational information on perinatal emotional disorders for first time mothers. Furthermore, midwives can provide relevant information, support social networks and provide basic counselling services to women. In more serious cases, midwives can assist postnatally depressed women to make informed choices with regards to treatment, resources and options. To accomplish this, midwives need to be well-educated and skilled in these roles.

In view of the increasing need for effective emotional care for childbearing women in midwifery practice, it is essential for midwives to develop their knowledge and understanding of emotional work in order to be competent in the care, assessment and management of these women. The national survey identified a need to develop an

education intervention to improve midwives' knowledge of perinatal emotional disorders and enhance their attitudes and management of childbearing emotional health needs. Consequently, within the context of research limitations, the Phase 2 study evaluated the efficacy of an online educational module developed to enhance midwives knowledge of perinatal emotional disorders. Results indicated support for the implementation of a revised educational resource to improve midwives' knowledge of emotional disorders during pregnancy and the postpartum and implementation of other on-line learning activities to enhance practice development and competence.

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Appendix A: Diagnostic and Statistical Manual of Mental Disorders IV-TR: Criteria for minor and major depression

Status	Criteria
Major depression	Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure. 1. Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful). 2. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others). 3. Significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. 4. Insomnia or hypersomnia nearly every day. 5. Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down). 6. Fatigue or loss of energy nearly every day. 7. Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick). 8. Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others). 9. Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific. **Note:** Do not include symptoms that are clearly due to a general medical condition, or mood-incongruent delusions or hallucinations.

Minor depression	Minor depression is defined as a mood disturbance of at least 2 weeks' duration with between two and five symptoms of depression, including 1. Depressed mood 2. Diminished interest 3. Weight change 4. Sleep disturbance 5. Psychomotor changes 6. Fatigue 7. Feelings of worthlessness 8. Poor concentration 9. Recurrent thoughts of death. Patients with this condition may have fewer vegetative symptoms (appetite, diurnal mood variation) and more subjective symptoms (self-blame, worry, irritability, lethargy)

With Postpartum Onset Specifier

The criterion for postpartum onset is that the depressive episode must occur within 4 weeks after childbirth

Appendix B: International Classification of Diseases (ICD-10): Criteria for minor and major depression

Status	Criteria
Major depression	▪ The patient suffers from lowering of mood, reduction of energy, and decrease in activity. ▪ Capacity for enjoyment, interest, and concentration is reduced, and marked tiredness after even minimum effort is common. ▪ Sleep is usually disturbed and appetite diminished. ▪ Self-esteem and self-confidence are almost always reduced and, even in the mild form, some ideas of guilt or worthlessness are often present. ▪ The lowered mood varies little from day to day, is unresponsive to circumstances and may be accompanied by so-called "somatic" symptoms, such as loss of interest and pleasurable feelings, waking in the morning several hours before the usual time, depression worst in the morning, marked psychomotor retardation, agitation, loss of appetite, weight loss, and loss of libido. ▪ Depending upon the number and severity of the symptoms, a depressive episode may be specified as mild, moderate or severe. ▪ An episode of depression in which several of the above symptoms are marked and distressing, typically loss of self-esteem and ideas of worthlessness or guilt. Suicidal thoughts and acts are common and a number of "somatic" symptoms are usually present. ➢ Agitated depression } ➢ Major depression } single episode without psychotic symptoms Vital depression }
Minor depression	▪ Two or three of the above symptoms are usually present. The patient is usually distressed by these but will probably be able to continue with most activities

Appendix C: Midwives' knowledge, attitudes and self-reported practices towards childbearing women's antenatal and postnatal emotional health needs: A national survey

Title: Midwives' knowledge, attitudes and self-reported practices towards childbearing women's antenatal and postnatal emotional health needs: A national survey

Investigators:

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This survey seeks to determine current practicing midwives' knowledge of antenatal and postnatal depression as well as their views concerning their interaction with women in the antenatal, birthing or postnatal period. Providing skilled emotional support during pregnancy, labour and the postpartum period can significantly improve women's emotional health and contribute to a reduction in symptoms of psychological trauma, depression and self-blame. Thirty percent of women report distressing birth experiences. Of these, up to nine percent develop the symptom profile of posttraumatic stress disorder. While the majority of women are highly satisfied with the technical components of care, many women report dissatisfaction with staff communication and emotional support. A high percentage of women, including 90% of primiparous women, identify a need for debriefing. Little is known about the specific skills of midwives in counselling postpartum women, or midwives' attitudes towards counselling and the perceived benefits.

Data collected from this survey will inform the development of an educational strategy aimed at enhancing evidence-based midwifery care. Your input is important to ensure that the strategy is responsive to needs, and therefore of benefit to childbearing women, midwives and the profession.
Section A of the survey asks for general demographic and professional practice information.
Section B examines respondents' knowledge of antenatal and postnatal depression while Section C investigates respondents' attitudes towards caring for women with depression and anxiety. Last of all, Section D examines respondents' practice when caring for women with postnatal mood disturbance / depression.

Midwives willing to participate in this research are invited to complete the enclosed questionnaire and return it in the reply paid envelope. All information will be treated in the strictest confidence. A range of background data is requested, however, no data is collected which identifies you, thus ensuring anonymity. To ensure your privacy is protected, only group data will be published, with results of the survey being disseminated to all members of the Australian College of Midwives through the College journal.

You do not have to be involved in the survey unless you wish. The researchers will not be aware of those midwives who have agreed to participate or those who have declined to participate. Return of a completed or partially completed questionnaire will indicate your consent to participate.

If you have any queries or concerns about the conduct of this research, you may contact me on (07)33821083. Alternatively, you can raise your concerns with the University's Research Ethics Officer, Office for Research, Bray Centre, Griffith University, Kessels Road, Nathan, Qld 4111, telephone (07) 37357380.

Thank you for the time you have taken to read this information sheet and, if you choose to participate, thank you for completing the questionnaire

This survey specifically aims to evaluate midwives' knowledge and attitudes towards antenatal and postnatal depression. Midwives' provision of clinical care to antenatal and postnatal women during the last 12 months will also be assessed where applicable.

SECTION A
This section asks general demographic and professional practice information from the respondents.
INSTRUCTIONS: Please tick or write the response that is most appropriate for you.

1. Age: _____

2. Gender: □ Female □ Male

3. You are currently licensed as a: □ Midwife □ Registered Nurse & Endorsed Midwife

4. Your highest level of education attained is:
   - □ Certificate
   - □ Diploma
   - □ Undergraduate (Bachelors) Degree
   - □ Graduate Certificate / Diploma
   - □ Masters
   - □ PhD
   - □ Others (please specify):

   _____

5. In what year did you first qualify as a midwife? _____

6. How many years have you been practicing as a midwife?
   (*You may have left midwifery for a period of time – please deduct this period of time*) _____

7. Are you currently practicing?
   If **YES** - Please indicate your area of current midwifery practice:
   □ All areas □ Antenatal □ Postnatal □ Birthing □ Neonatal □ Others (*please specify*): _____
   If **NO (i.e. not currently in clinical practice)** - Are you primarily a/an:
   □ Educator □ Researcher □ Manager □ Others (*please specify*) _____

8. On average, how many hours per week do you work? _____

9. You are currently working as:
   - □ A shift worker in a public tertiary maternity hospital
   - □ A shift worker in a public secondary maternity hospital
   - □ A shift worker in a public rural maternity hospital
   - □ A shift worker in a private hospital
   - □ A shift worker in a public Birth Centre
   - □ A caseload midwife or in a small group practice (no shifts) in a **public** hospital (+/- birth centre)
   - □ A caseload midwife or in a small group practice (no shifts) in a **private** hospital (+/- birth centre)
   - □ Private practice as a Childbirth educator
   - □ Private practice as a Lactation consultant
   - □ Private practice providing continuity of care including homebirth services
   - □ Others (*please specify*)

   _____

10. How adequate did your midwifery education program prepare you in the assessment and management of women suffering from antenatal and/or postnatal depression?
    □ Not adequate at all □ Somewhat adequate □ Adequate □ More than adequate □ Unsure

11. During your midwifery education, how much emphasis was placed on the assessment and management of women with antenatal and/or postnatal depression?
    □ No emphasis □ Too little emphasis □ Adequate emphasis □ Too much emphasis □ Unsure

12. How could your midwifery education program have better prepared you for your role in the screening and management of women with antenatal and/or postnatal depression? (*Please select more than one if applicable*)
    - □ More lecture time on antenatal and/or postnatal depression
    - □ More practice in assessing antenatal and/or postnatal depression
    - □ More knowledge in the treatment techniques for antenatal and/or postnatal depression
    - □ More practice in managing antenatal and/or postnatal depression (e.g. counselling skills)
    - □ Others (*please specify*): _____

13. Identify where you learnt about the assessment and management of antenatal and/or postnatal depression? (*Please select more than one if applicable*)
    - □ University Midwifery program leading to registration/endorsement as a midwife (*Initial preparation as a midwife*)
    - □ University Midwifery program undertaken since registration/ endorsement as a midwife
    - □ Undergraduate nursing program
    - □ Postgraduate nursing program
    - □ Accredited courses
    - □ Books and journals
    - □ Internet sites
    - □ On the job experience
    - □ Hospital/workplace inservice
    - □ Other colleagues
    - □ Conferences or workshops
    - □ Others (*please specify*):

    _____

14. Do you think you have the appropriate skills to assess and care for women with antenatal and/or postnatal depression?
    - □ More than appropriate – I don't need further training
    - □ Appropriate – Further training might be useful and beneficial
    - □ I definitely need further training to improve my skills

15. Do you believe that the education or training you have received has been adequate for effective care of antenatal and/or postnatal women with depression?
    □ Not adequate at all □ Somewhat adequate □ Adequate □ More than adequate □ Unsure

16. In what format would further training be best presented? (***please rank in order of preference***)
    - ___ CD / DVD resources
    - ___ Web-based materials
    - ___ Journal articles
    - ___ Self-directed learning packages
    - ___ Face-to-face presentations
    - ___ Others (please specify): _____

SECTION B
This section examines knowledge of antenatal and postnatal depression.

INSTRUCTIONS: Please complete all 20 questions.
Choose only **ONE** response for each question by circling **a, b, c or d**

1. Which statement is true?
    a. Psychological morbidity, specifically depression and anxiety, are commonly seen in both the antenatal and postpartum periods.
    b. Psychological morbidity, such as depression and anxiety, is not associated with personality disorder.
    c. Psychological morbidity, such as depression and anxiety, is not associated with drug and alcohol abuse.
    d. It is not essential to screen for, and differentiate between, depression and anxiety comorbidity in pregnant women.

2. The proportion of pregnant women who meet the diagnostic criteria for depression is approximately:
    a. 8 - 35%
    b. 5 - 10%
    c. 10 - 20%
    d. 30 - 50%

3. Which of the following is associated with depression during pregnancy?
    a. Gestational hypertension
    b. Preeclampsia
    c. Spontaneous abortion
    d. All of the above

4. What is the most common reason for depressed pregnant women not receiving adequate help?
    a. Lack of social support
    b. Lack of support from healthcare providers
    c. Lack of recognition of depression symptoms by healthcare providers
    d. Poor access to treatment for depression

5. The percentage of women suffering depression during pregnancy who subsequently attempt suicide in postpartum is approximately:
    a. 1%
    b. 10%
    c. 15%
    d. 25%

6. Which of the following is not regarded as a risk factor for antenatal depression?
    a. Low socio-economic background
    b. Substance and alcohol abuse
    c. History of abuse
    d. Miscarriage in previous pregnancy

7. Which of the following are common treatments for antenatal depression:
    a. Medication and counselling
    b. Self-help groups and counselling
    c. Admission to a psychiatric unit and counselling
    d. Naturotherapy and relaxation

8. Which of the following is the main symptom of antenatal depression?
    a. Irritability
    b. Attention seeking from families and friends
    c. Feelings of isolation and loneliness
    d. Reliving past experiences and events

9. Which of the following statements is true?
    a. Antenatal depression always continues into the postnatal period
    b. Women with antenatal depression have a higher chance of developing postnatal depression
    c. Women who are depressed antenatally do not require specific treatment
    d. Antenatal depression will resolve with the birth of the baby

10. The proportion of mothers who experience the "baby blues" is approximately:
    a. 1 – 2%
    b. 10 – 20%
    c. 20 – 30%
    d. 30 – 80%

11. What is the recommended management for the "baby blues"?
    a. Understanding, empathy and support
    b. Baby care assistance
    c. Psychotherapy
    d. Referral to a postnatal disorder support group

12. Which of the following is required for a diagnosis of postnatal depression?
    a. Grandiose future plans
    b. Frequent mood swings
    c. Preoccupation with cleanliness
    d. Persistent low mood for more than 2 months

13. Postnatal depression most commonly occurs after the birth within:
    a. 2 – 5 days
    b. 10 – 14 days
    c. After 1 month
    d. After 3 months

14. The proportion of mothers who experience postnatal depression is approximately:
    a. 5%
    b. 15%
    c. 30%
    d. 50%

15. What is the recommended treatment for mild postnatal depression?
    a. Understanding and empathy
    b. Education about postnatal depression, supportive counselling and peer support groups
    c. Psychotherapy and anti-depressant medication
    d. Hospitalisation and medication

16. What is the recommended treatment for moderate – severe postnatal depression?
    a. Understanding and empathy
    b. Education about postnatal depression, supportive counselling and peer support groups
    c. Psychotherapy and anti-depressant medication
    d. Hospitalisation and medication

17. Which of the following statements is false about the Edinburgh Postnatal Depression Scale?
    a. It distinguishes well between moderate and severe depression symptoms
    b. It measures depressive symptoms to give a probable diagnosis of depression
    c. It fully assesses symptoms of psychotic depression
    d. It can detect antenatal depressive symptoms

18. Which of the following statements is true about antidepressant medication?
    a. Mothers may be able to breastfeed while taking antidepressants
    b. Presence of antidepressants in breast milk has been well-studied
    c. Antidepressants are habit-forming
    d. Antidepressant medications are not effective immediately

19. Which of the following is a symptom of postnatal depression?
    a. Annoyance with your partner or other children
    b. Feeling a sense of frustration with present life
    c. Anxious about the baby
    d. All of the above

20. Which of the following statement is correct?
    a. Without treatment, 80% of women recover spontaneously from postnatal depression.
    b. Women experiencing postnatal depression are more likely to develop postnatal depression in a subsequent pregnancy
    c. Women experiencing postnatal depression do not develop suicide ideation or attempt suicide
    d. Approximately 5% of all pregnant women develop puerperal psychosis following childbirth.

SECTION C

This section investigates attitudes towards caring for women with depression and anxiety.

INSTRUCTIONS: Please complete all parts in this section.

Choose and circle only **ONE** response that **BEST** describes your agreement with each of the following statements.

Strongly Disagree 1	**Moderately Disagree** 2	**Disagree** 3	**Neutral** 4	**Agree** 5	**Moderately Agree** 6	**Strongly Agree** 7

C1	My workload prevents me from addressing women's problems with depression and/or anxiety.	1	2	3	4	5	6	7
C2	Where I work the organisation of maternity services hinders midwives ability to get to know women well enough to give adequate emotional care.	1	2	3	4	5	6	7
C3	I am too pressed for time to routinely assess women's emotional health.	1	2	3	4	5	6	7
C4	I find emotional problems too time consuming to deal with.	1	2	3	4	5	6	7
C5	I feel I cannot make a difference to women with emotional problems.	1	2	3	4	5	6	7
C6	Women find it intrusive for midwives to routinely / regularly inquire about their emotional health.	1	2	3	4	5	6	7
C7	I feel competent in counselling patients with anxiety.	1	2	3	4	5	6	7
C8	Current organisational priorities encourage me to focus only on problems presented by the woman rather than exploring underlying issues.	1	2	3	4	5	6	7
C9	I am more comfortable treating physical problems than emotional problems.	1	2	3	4	5	6	7
C10	I feel competent in the use of counselling techniques.	1	2	3	4	5	6	7

C11	Women with anxiety disorders should be referred to a counsellor, psychiatrist or psychologist.	1	2	3	4	5	6	7
C12	I feel competent in teaching relaxation techniques.	1	2	3	4	5	6	7
C13	I feel competent in knowing which women need to be referred to another health professional.	1	2	3	4	5	6	7
C14	I feel frustrated counselling women with emotional disorders.	1	2	3	4	5	6	7
C15	I feel uncomfortable questioning women about emotional disorders.	1	2	3	4	5	6	7
C16	Midwives should have a primary role in the treatment of women with anxiety disorders.	1	2	3	4	5	6	7
C17	I feel competent in counselling women with depression.	1	2	3	4	5	6	7

SECTION D
This section examines practice when caring for women with postnatal mood disturbance / depression.
INSTRUCTIONS: Please complete all parts in this section. Tick, circle or write the appropriate response.

1. In the last 12 months, have you worked with a woman with **antenatal mood disturbance**? □ Yes □ No

   If Yes, in your estimation, what percentage of birthing women with a postnatal mood disturbance had **antenatal depression**:
   □ 10 – 25% □ 25 – 50% □ 50 – 75% □ 75% & above □ Don't know

2. In the last 12 months, have you worked with a woman with a **postnatal mood disturbance**? □ Yes □ No

   If Yes, in your estimation, what percentage of birthing women with a postnatal mood disturbance had **postnatal depression**:
   □ 10 – 25% □ 25 – 50% □ 50 – 75% □ 75% & above □ Don't know

3. Did you experience any barriers to successful care and outcomes for women diagnosed with depression? (*Please select more than one if applicable*)
   □ Time constraints
   □ Unaware of appropriate support services
   □ Unavailability of support services
   □ Reluctance of women to seek help
   □ Reluctance of family to see help
   □ Others barriers (*please specify*):
   _____

4. Overtime, have you noticed a change in the number of women identified with antenatal and/or postnatal depression?
□ Decreased significantly □ Slight decreased □ No change □ Slight increased □ Increased significantly □ Unsure

5. Have you been involved in the screening of women for antenatal and/or postnatal depression?
   □ Yes □ No

6. To what extent does identifying women with depression, or any other mood disturbances, impact on you in terms of:

   (a) Time
□ Decreased significantly □ Slight decreased □ No change □ Slight increased □ Increased significantly □ Unsure

   (b) Economic Cost of care
□ Decreased significantly □ Slight decreased □ No change □ Slight increased □ Increased significantly □ Unsure

   (c) Other areas of impact (please specify):
   _____

7. Have you had adequate support from hospital management for the implementation of screening for antenatal and/or postnatal depression?
   □ Not adequate at all □ Somewhat adequate □ Adequate □ More than adequate □ Unsure

8. Do you use screening instruments or methods to screen women for depression during the antenatal and/or postnatal period? □ Yes □ No

   If Yes, what screening instruments or methods do you use? (*Please select more than one if applicable*)
   □ Edinburgh Postnatal Depression Scale (EPDS)
   □ Clinical Interview / Health Assessment
   □ Beck Depression Inventory (BDI)
   □ Hamilton Depression Scale (HDS)
   □ Others (please specify):
   _____

If No, for what reason? (*Please select more than one if applicable*)

- □ Screening instruments too difficult to use
- □ Don't believe results are reliable
- □ Not confident in using / explaining results
- □ Don't believe women should be routinely screened for antenatal and/or postnatal mood disturbances
- □ Would rather ask about symptoms
- □ Not organisation policy to use
- □ Other (please specify):

_____

If you have used or currently using the Edinburgh Postnatal Depression Scale (EPDS) to screen women for depression during the antenatal and /or postnatal period, please answer questions 9 to 12. Otherwise, please proceed to the next page – Case Study

9. In general, what feedback do you receive from women during administration of the EPDS?
   - □ No response/comments
   - □ Generally, they find it easy to complete
   - □ Generally, they find it difficult to complete
   - □ Responses split evenly between easy and difficult

10. Please indicate how useful you find the EPDS as a tool for screening for antenatal and/or postnatal depression?
    □ Not useful at all □ Somewhat useful □ Useful □ More than useful □ Unsure

11. How comfortable are you in explaining the results of the EPDS to women?
    □ Not comfortable at all □ Somehow comfortable □ Comfortable □ Very comfortable □ unsure

12. Do you intend to keep using the EPDS in your practice? □ Yes □ No
    If NO, please explain why:

    _____

    _____

    _____

Case Study

Mary is 30 years old and is 29 weeks pregnant with her first child. For the past three weeks, Mary has been feeling uncharacteristically sad and miserable. She is unable to sleep and has lost interest in her work and hobbies. She is very concerned about how she is going to cope with the new baby and whether she will be a good mother. She is also worrying about the health of her husband James, who has been working long hours and on the weekends. James, although having extra work, has tried to be supportive and has noticed that Mary is not her normal self. There is no real reason for her to be so worried – why isn't she excited about her expected baby?

From the information given, what, if anything, is wrong with Mary?

_____

13. Do you think Mary needs assistance?
    □ Yes □ No □ Maybe, more information needed

INSTRUCTIONS:
Please answer the following questions by choosing and circling only **ONE** response using the rating scale below.

14. Please rate how useful **you** believe any of the following actions might be for Mary in dealing with her feelings.

	Not useful at al	**Somewhat useful**	**Useful**	**More than useful**	**Unsure**
❖ Increase physical activity	1	2	3	4	5
❖ Improve knowledge through reading	1	2	3	4	5
❖ Attend self-help group with other women	1	2	3	4	5
❖ Arrange more outings and social contacts	1	2	3	4	5
❖ Practice relaxation, yoga and/ or meditation	1	2	3	4	5
❖ Attend individual counselling	1	2	3	4	5
❖ Attend couple counselling	1	2	3	4	5
❖ Admission to a psychiatric unit	1	2	3	4	5
❖ Seek support from family or friends	1	2	3	4	5
❖ Talk to her husband / partner	1	2	3	4	5

16. At this stage, would you recommend that Mary seeks help from any of the following? Please indicate your view about how useful it would be.

	Not useful at al	**Somewhat useful**	**Useful**	**More than useful**	**Unsure**
❖ GP/ family doctor	1	2	3	4	5
❖ Pharmacist	1	2	3	4	5
❖ Counsellor	1	2	3	4	5
❖ Psychologist	1	2	3	4	5
❖ Social worker	1	2	3	4	5
❖ Midwife	1	2	3	4	5
❖ Community Nurse	1	2	3	4	5
❖ Obstetrician	1	2	3	4	5
❖ Telephone counselling service	1	2	3	4	5
❖ Psychiatrist	1	2	3	4	5
❖ Family and/or friends	1	2	3	4	5
❖ Asks partner for assistance	1	2	3	4	5
❖ Naturopath	1	2	3	4	5
❖ Homeopath	1	2	3	4	5
❖ Clergy, minister, priest or religious helpers	1	2	3	4	5
❖ Try to deal with her own problems	1	2	3	4	5
❖ A support group	1	2	3	4	5

17. Please rate how useful any of the following preparations and / or medications might be for Mary.

	Not useful at al	**Somewhat useful**	**Useful**	**More than useful**	**Unsure**
❖ Vitamins and minerals (e.g. iron)	1	2	3	4	5
❖ St John's Wort	1	2	3	4	5
❖ Pain relievers	1	2	3	4	5
❖ Antidepressants	1	2	3	4	5
❖ Antibiotics	1	2	3	4	5
❖ Sleeping pills	1	2	3	4	5
❖ Anti-psychotics	1	2	3	4	5
❖ Tranquillisers (e.g. Sedatives)	1	2	3	4	5

Six weeks after having her child, Mary is crying most days and is unable to sleep even when her child is asleep. She is worrying constantly about her baby and thinks there is something wrong. She believes she is a bad mother and shouldn't have had a baby. Most days when she wakes she wishes she was dead. James, her husband, finds there is nothing he can say to Mary that makes her feel better.

18. Would you recommend that Mary seeks help from any of the following? Please indicate how useful you believe it would be. (*Remember that it is now 6 weeks after the birth*.)

	Not useful at al	**Somewhat useful**	**Useful**	**More than useful**	**Unsure**
❖ GP/ family doctor	1	2	3	4	5
❖ Pharmacist	1	2	3	4	5
❖ Counsellor	1	2	3	4	5
❖ Psychologist	1	2	3	4	5
❖ Social worker	1	2	3	4	5
❖ Midwife	1	2	3	4	5
❖ Community Nurse	1	2	3	4	5
❖ Obstetrician	1	2	3	4	5
❖ Telephone counselling service	1	2	3	4	5
❖ Psychiatrist	1	2	3	4	5
❖ Family and/or friends	1	2	3	4	5
❖ Asks partner for assistance	1	2	3	4	5
❖ Naturopath	1	2	3	4	5
❖ Homeopath	1	2	3	4	5
❖ Clergy, minister, priest or religious helpers	1	2	3	4	5
❖ Try to deal with her own problems	1	2	3	4	5
❖ A support group	1	2	3	4	5

19. Please rate how useful any of the following preparations and / or medications might be for Mary.

	Not useful at al	**Somewhat useful**	**Useful**	**More than useful**	**Unsure**
❖ Vitamins and minerals (e.g. iron)	1	2	3	4	5
❖ St John's Wort	1	2	3	4	5
❖ Pain relievers	1	2	3	4	5
❖ Antidepressants	1	2	3	4	5
❖ Antibiotics	1	2	3	4	5
❖ Sleeping pills	1	2	3	4	5
❖ Anti-psychotics	1	2	3	4	5
❖ Tranquillisers (e.g. Sedatives)	1	2	3	4	5

20. Please rate how useful any of the following actions might be for Mary.

	Not useful at al	**Somewhat useful**	**Useful**	**More than useful**	**Unsure**
❖ Increase physical activity	1	2	3	4	5
❖ Improve knowledge through reading	1	2	3	4	5
❖ Attend self-help group with other women	1	2	3	4	5
❖ Arrange more outings and social contacts	1	2	3	4	5
❖ Practice relaxation, yoga and/ or meditation	1	2	3	4	5
❖ Attend individual or couple counselling	1	2	3	4	5
❖ Discuss with health worker	1	2	3	4	5
❖ Admission to a psychiatric unit	1	2	3	4	5

21. If you saw a woman such as Mary in your practice, how comfortable would you be to:

	Not useful at al	**Somewhat useful**	**Useful**	**More than useful**	**Unsure**
❖ Provide support/counselling to Mary	1	2	3	4	5
❖ Recommend counselling	1	2	3	4	5
❖ Recommend medication	1	2	3	4	5
❖ Suggest Mary attend a mother's group	1	2	3	4	5
❖ Liaison with Mary's maternal and child health nurse	1	2	3	4	5
❖ Refer Mary to a specialized mental health service	1	2	3	4	5

You have completed this questionnaire. Thank you for your time and effort.

Appendix D: Phase 2 Study – Online assessment tool

1. Transition to motherhood ___.
   (a) marked by varying rituals in different cultures and societies, can result in midwives having a misunderstanding of the woman's need.
   (b) is often encumbered by varying rituals in different cultures and societies.
   (c) is typically similar across different cultures and societies.
   (d) is less likely to be influenced by varying rituals in different cultures and societies today.

2. Childbearing women from the Asian culture:
   (a) may not breastfeed immediately as the colostrum is not believed to be beneficial for the baby.
   (b) consider having several female attendants during birth as unnecessary.
   (c) believe that the first words a baby should hear should be prayers from a religious man.
   (d) hold naming ceremonies for their babies.

3. It is important to understand women's feelings and emotions to:
   (a) help recognise abnormal emotional responses quickly.
   (b) respond to women with special needs.
   (c) help women respond positively to emotional changes and make a successful adjustment to motherhood.
   (d) all of the above

4. Distancing your own emotions and feelings from those experienced by the childbearing woman means that:
   (a) you will not be able to identify and empathise with the woman.
   (b) you will not be able to identify and sympathise with the woman.
   (c) you will be able to avoid judging and accept the validity of the woman's response.
   (d) you are in a difficult position to take an overview of the woman's response and therefore unable to help her consider ways of dealing with it.

5. Which of the following emotional responses are generally experienced by women during the second trimester of pregnancy?
   (a) Tiredness and nausea
   (b) Physical discomfort and loss in libido
   (c) Increased attachment to the fetus and increased detachment from work commitments
   (d) Anxiety about childbirth and health of the fetus

6. Higher levels of labour pain are associated with a number of physical and psychological factors such as:
   (a) Primiparity and unrealistic expectations of birth.
   (b) Rapidly dilating cervix and lack of social support.
   (c) Induction with syntocinon and a previous negative birth experience.
   (d) All of the above

7. Which of the following statements about childbirth is true?
   (a) It is not necessary for childbearing women to be actively involved in the preparation of a birth plan.
   (b) Continuous social and emotional support throughout pregnancy, during childbirth and the postpartum by midwives does not necessarily influence the physical and psychological outcomes for both mother and child.
   (c) The provision of effective emotional support from midwives during labour and continuity of care can increase the mother's sense of control and reduce the use of pharmaceutical pain relief.
   (d) Women's emotional health is improved when their feelings about childbirth are adequately acknowledged by health professionals.

8. A woman's emotional response during different stages of childbearing can be <u>negatively</u> influenced by:
   (a) the support received from extended family and friends.
   (b) the woman's perceptions that a baby will adversely affect her career and lifestyle.
   (c) the feelings that motherhood is an acceptable 'way out' of an unpleasant job.
   (d) none of the above

9. Women who experience a ____ may need to support in reaching their own decision on whether to see/hold the baby.
   (a) neonatal death
   (b) late miscarriage and/or stillbirth
   (c) late miscarriage and/or neonatal death
   (d) still birth and/or neonatal death

10. Anne Lee, a 25-year-old female from Malaysia, moved to Australia 12 months ago to be with her husband, John Elliott. She will be giving birth to their first baby in a few weeks time. Anne is getting anxious and concerned about giving birth in Australia because of language barriers and the difference in practices relating to childbirth. As the midwife caring for Anne, you should avoid:
   (a) dismissing Anne's concerns of the cultural practice differences,
   (b) acknowledging Anne's concerns of the cultural practice differences.
   (c) communicating frequently with Anne.
   (d) establishing rapport or a relationship with Anne.

11. Approximately ___ of mothers experience the 'baby blues'.
   (a) 20%
   (b) 30%
   (c) 40%
   (d) 50%

12. 'Baby blues' typically occurs _____ after birth and last for a few hours to a few days.
   (a) 3 – 5 days
   (b) 1 – 2 weeks
   (c) 2 – 3 weeks
   (d) Within the 1st month postpartum

13. ‘Baby blues’ may result from:
    (a) anxiety about the transition from hospital to home
    (b) the physical, mental and emotional upheaval of labour and birth.
    (c) unexpected discomfort (breast engorgement and soreness following birth).
    (d) all of the above

14. Which statement regarding the prevalence of postnatal depression and symptoms of depression is incorrect?
    (a) Postnatal depression affects approximately 12% - 15% of childbearing women and the prevalence rate of postnatal depression is 20%.
    (b) Women who present early symptoms of postnatal depression tend to have more profound and obvious illnesses.
    (c) Women who present symptoms of postnatal depression later are often missed because their symptoms may be hidden.
    (d) Approximately one-third of women suffering from postnatal depression will present symptoms between 10 – 14 weeks postpartum.

15. Angie had given birth to a baby girl four weeks ago. She complains to her midwife that she often feels tired during the day and wakes up in the middle of the night and early in the morning. She notices that she is unable to concentrate on the work she is doing, dislikes outgoing out with friends and thinks that she is not good at looking after her child. Which of the following combination of physical and psychological symptoms of postnatal depression is Angie showing?
    (a) Sleep disturbance, impaired concentration and feeling incompetent as a mother.
    (b) Fatigue, social withdrawal and feeling incompetent as a mother.
    (c) Sleep disturbance, fatigue, impaired concentration, social withdrawal and feeling incompetent as a mother.
    (d) Sleep disturbance, fatigue and feeling incompetent as a mother.

16. Although symptoms of PND are similar to a major depressive episode, PND can be characterised by:
    (a) the abuse of substances such as drugs and alcohol.
    (b) the presence of weight-related problems such as obesity and bulimia.
    (c) a high level of anxiety where obessional symptoms or morbid preoccupations concerning the baby may be exhibited.
    (d) none of the above

17. Women who have _____ have the greatest risk of developing postnatal depression.
    (a) antenatal depression
    (b) antenatal anxiety
    (c) unplanned and unwanted pregnancy
    (d) a prior history of depression

18. Which of the following statement about postnatal depression is true?
    (a) Without treatment, most women will recover spontaneously from postnatal depression.
    (b) Women experiencing postnatal depression are more likely to develop postnatal depression in a subsequent pregnancy.
    (c) Women experiencing postnatal depression do not develop suicide ideation or attempt suicide.
    (d) Women experiencing postnatal depression are less likely to develop non-puerperal depressive illness later on in life.

19. Children whose mothers suffer from postnatal depression are more likely to suffer from:
    (a) poor functional, somatic and intellectual development as well as behavioural disturbance.
    (b) poor functional development and behavioural disturbance.
    (c) poor somatic development and behavioural disturbance.
    (d) poor intellectual development and behavioural disturbance.

20. Women suffering from puerperal psychosis may exhibit:
    (a) Delusions
    (b) Hallucinations
    (c) Impaired perception of reality (e.g. grandiosity)
    (d) All of the above

21. Which of the following statement about puerperal psychosis is true?
    (a) Puerperal psychosis is a severe form of postnatal depression.
    (b) Unlike symptoms of postnatal depression, symptoms of puerperal psychosis can occur abruptly.
    (c) Women with a previous history of bipolar disorder are less likely to develop puerperal psychosis.
    (d) Hospitalisation is not recommended for women suffering from puerperal psychosis.

22. Which of the following is <u>not</u> a possible associated outcome of depression during pregnancy?
    (a) Gestational hypertension
    (b) Somatic impairment
    (c) Pre-term birth
    (d) Maternal malnutrition

23. Infants of antenatally depressed mothers are more likely to exhibit:
    (a) less pre-cry expressions
    (b) less abnormal reflexes
    (c) higher orientation scores
    (d) excessive crying

24. Which statement is true in relation to the potential impact of antenatal depression on mothers and infants?
    (a) Although smoking during pregnancy as a result of depression is associated with placental insufficiency, it does not lead to adverse pregnancy and birth outcomes.
    (b) Fetal growth is independent of women's weight gain/loss resulting from depression during pregnancy.
    (c) Maternal malnutrition and poor maternal weight gain during pregnancy are risk factors for intrauterine growth retardation (IUGR) and low neonatal birth weight.
    (d) The level of functional impairment between antenatally depressed and non-depressed women is relatively the same.

25. Women who have a _____ have the greatest risk of developing antenatal depression.
    (a) prior history of depression
    (b) prior history of anxiety
    (c) personal history of mood disorders
    (d) family history of mood disorders

26. Which of the following factors are regarded as risk factors for antenatal depression?
    (a) Marital conflict, high education level and unemployment
    (b) Marital conflict, high education level and single-parent
    (c) Marital conflict, low income, limited social support and less children
    (d) Marital conflict, low income, limited social support and more children

27. Anxiety is an unpleasant emotion triggered by:
    (a) anticipation of future events.
    (a) memories of past events.
    (b) ruminations about oneself.
    (c) all of the above

28. Onset of anxiety disorders:
    (a) is more common in men than women.
    (b) usually occurs in sufferers who are in their mid-30s.
    (c) corresponds with the peak of women's childbearing years.
    (d) Is uncommon in women during pregnancy or the postpartum period.

29. The presence of comorbidity between ___ and ___ has rarely been acknowledged in the literature.
    (a) depression; panic disorder
    (b) depression; obsessive compulsive disorder
    (c) depression; post traumatic stress disorder
    (d) depression; suicide risk

30. Symptoms of anxiety include:
    (a) Increase rate of breathing, heart palpitations, sweating
    (b) Increase rate of breathing, heart palpitations, nausea
    (c) Shortness of breath, heart palpitations, sweating
    (d) Shortness of breath, heart pains, nausea

31. The exacerbation or improvement of anxiety symptoms during pregnancy has been suggested to be influenced by:
    (a) psychosocial changes.
    (b) physiologic changes.
    (c) hormonal changes.
    (d) all of the above

32. For childbearing women with a history of anxiety disorder, which of the following psychosocial factors are linked to changes in anxiety symptoms during the postpartum period?
    (a) Reduction in sleep time and mothers inability to form a secure relationship with her baby.
    (b) Mediocre parenting skills and mothers inability to form a secure relationship with her baby.
    (c) Reduction in sleep time and lack of support from partner.
    (d) Mediocre parenting skills and lack of support from partner.

33. Mothers who are suffering from postpartum panic disorder usually have:
    (a) an increase in cognitive function but a decrease in self-esteem.
    (b) a decrease in cognitive function but an increase in self-esteem.
    (c) an increase in both cognitive functions and self-esteem.
    (d) a decrease in both cognitive function and self-esteem.

34. Which of the following is one of the six themes relating to the quintessence of childbearing women suffering from postpartum panic disorder?
    (a) A feeling of lack of control emerges due to the emotional and physical strain caused by panic attacks.
    (b) Inability to concentrate on tasks at hand.
    (c) Self-doubts relating to the ability to look after the baby/infant.
    (d) Use of illicit substances to avoid panic attacks.

35. Which of the following statement regarding postpartum obsessive compulsive disorder is true?
    (a) The prevalence rate of postpartum obsessive compulsive disorder has been conclusively determined.
    (b) Women do not develop OCD during the postpartum period.
    (c) Distressing feelings associated with the obsessional undesired harmful thoughts does not bring on depressive symptoms.
    (d) Obsessive compulsive symptoms such as harm-related obsessional thoughts are fairly common in women suffering from postpartum depression.

36. The potentially traumatising effects of childbirth that can subsequently contribute to the development of childbirth-related post traumatic stress disorder include:
    (a) intense pain and prolonged labour.
    (b) emergency caesarean section.
    (c) loss of control.
    (d) all of the above

37. Which of the following statements regarding postpartum posttraumatic stress disorder is true?
    (a) Posttraumatic stress disorder only occurs straight after childbirth.
    (b) Childbearing women rarely develop post traumatic stress disorder.
    (c) Obstetric intervention and a perception of poor care have been associated with the development of post traumatic stress disorder.
    (d) Post traumatic stress disorder symptoms in childbearing women are only associated with life events and depression rather than pregnancy, labour and birth.

38. Antenatal screening instruments for postpartum depression have been found to be:
    (a) effective and should be used during routine antenatal checking to detect women at risk of developing postpartum depression.
    (b) ineffective in detecting women at risk of developing PND when used during routine antenatal visits.
    (c) reliable instruments to screen for risk factors and detect women at risk of postpartum depression.
    (d) valid instruments to screen for risk factors and detect women at risk of postpartum depression.

39. The two most widely used instruments to detect both antenatal and postpartum depression are:
    (a) Postpartum Depression Predictors Inventory (PDPI) Revised and Edinburgh Postnatal Depression Scale (EPDS).
    (b) Postpartum Depression Screening Scale (PDSS) and Edinburgh Postnatal Depression Scale (EPDS).
    (c) Beck Depression Inventory (BDI) and Edinburgh Postnatal Depression Scale (EPDS).
    (d) Postpartum Depression Predictors Inventory (PDPI) Revised and Postpartum Depression Screening Scale (PDSS).

40. Which of the following statements is <u>false</u> about the Edinburgh Postnatal Depression Scale?
    (a) EPDS does not focus on the identification of somatic symptoms which can occur naturally in postpartum women.
    (b) EPDS does not predict postpartum depression or provide a measure of severity of depression.
    (c) EPDS cannot be used in place of a full psychiatric evaluation of postpartum depression in childbearing women.
    (d) EPDS is specifically written in the context of pregnant and postpartum women.

41. Which instrument is designed to measure the presence and intensity of depressive symptoms relating to mood, cognitive symptoms, behaviours, somatic complaints and interpersonal domains?
    (a) Edinburgh Postnatal Depression Scale (EPDS)
    (b) Risk Factor Scale
    (c) Beck Depression Inventory (BDI)
    (d) None of the above

42. Traces of antidepressants have been found in:
    (a) placenta.
    (b) umbilical cord blood.
    (c) amniotic fluid.
    (d) all of the above

43. Which of the following statements is true about antidepressant medication?
    (a) Mothers may be able to breastfeed while taking antidepressants.
    (b) Presence of antidepressants in breast milk has been well-studied.
    (c) Antidepressants are habit-forming.
    (d) Antidepressant medications are not effective immediately

44. Depression and anxiety suffered by childbearing women during pregnancy and the postpartum period are generally managed and treated by
    (a) counselling only.
    (b) antidepressants only.
    (c) psychotherapy only.
    (d) antidepressants and/or psychotherapy.

45. Which of the following is a skill required for the effective communication between the midwife and woman during a psychosocial health assessment?
    (a) The use of verbal and non-verbal responses.
    (b) Subtly following up on cues and clues to probe beneath the surface of a conversation.
    (c) Taking an active interest in the woman as a person not just her pregnancy.
    (d) All of the above

46. Person-centre approach is a form of non-directive counselling aimed at helping the woman ____.
    (a) understand her situation, explore possible options and their implications as well as encouraging her to make her own decisions.
    (b) by giving her advice and information, showing her how to do something and making the decision for her after having a discussion with her.
    (c) understand her situation, explore possible options and their implications as well as making the decision for her after having a discussion with her.
    (d) by giving her advice and information, showing how to do something as well as encouraging her to make her own decision.

47. Jane says that she is thinking of either having an abortion or having her baby adopted after birth. What type of counselling do you think will be most appropriate for Jane?
    (a) Directive counselling
    (b) Non-directive counselling
    (c) Non-directive followed by directive counselling
    (d) Directive followed by non-directive counselling

48. Amelia had given birth to baby girl 3-months ago. She is feeling guilty because her elder son, Christopher, is no longer getting much of her attention and has been very quiet and distant since his sister was born. Janice's midwife, Sandra, attempts to help her gain a clearer understanding of the situation (i.e. how is Christopher behaving differently from usual) and move forward to set goals that will help rebuild her relationship with Christopher (i.e. spending quality time with Christopher alone daily and finding out how Christopher feels about his newborn sister). What stage of Egan's model of counselling is Sandra engaging in?
    (a) Stage 1: Exploring
    (b) Stage 2: Understanding
    (c) Stage 3: Taking action
    (d) None of the above

49. Lesley, a midwife working at the prenatal clinical in the hospital, often finds herself either thinking about aspects of her own life (e.g. what needs to be done at home) or disagreeing with the women's responses when listening to their issues and concerns relating to their pregnancy. What problem/(s) is/are Lesley experiencing?
    (a) Communication block
    (b) Lack of distancing
    (c) Communication block and lack of distancing
    (d) None of the above

50. The five techniques for non-directive counselling (i.e. person-centred approach) are:
    (a) expressing sympathy, getting started, accepting and validation, using non-verbal signals, reflecting and using 'closed' questions.
    (b) expressing empathy, getting started, accepting and validation, using non-verbal signals, reflecting and using questions.
    (c) developing sympathy, getting started, accepting and validation, using non-verbal signals, reflecting and using 'closed' questions.
    (d) developing empathy, getting started, accepting and validation, using non-verbal signals, reflecting and using questions.

51. *"My husband and I used to spend time together such as going to the movies. Now, I am always feeling tired with looking after the baby and only interested in getting sleep whenever I can instead of spending time doing things with my husband."*
    Which of the following is a correct type and example of "reflecting"?
    (a) Simple restatement: *"You are feeling tired from looking after the baby."*
    (b) Paraphrasing: "*You used to spend time with your husband such as going to the cinema. At the moment, you are feeling exhausted from looking after the baby and like to have some sleep whenever possible. You find yourself uninterested in spending time with your husband."*
    (c) Simple restatement: *"You are feeling tired and only interested in sleeping."*
    (d) Paraphrasing: *"You are feeling tired from looking after the baby and only interested in sleeping instead of spending time doing things with your husband."*

52. Which of the following is not an example of an 'open' question?
    (a) *"What do you recall about your miscarriage?"*
    (b) *"Did your miscarriage happen at home*?"
    (c) *"How did your miscarriage happen?*"
    (d) *"What happened during your miscarriage?"*

53. What are the advantages of continuity of care provided by health professionals for childbearing women?
    (a) Help childbearing women establish trust with their health professional.
    (b) More time to develop relationships between women and their care providers.
    (c) Enable health professionals to understand how a woman behaves and detect signs of potential emotional disorders.
    (d) All of the above

54. During antenatal care, midwives should:
    (a) avoid giving women opportunities to express their feelings but encourage women to confide their feelings to others who may be in a position to be supportive.
    (b) give women the opportunities to express their feelings and attempt to help parents prepare realistically for parenthood.
    (c) attempt to help parents prepare realistically for parenthood but dissuade women from joining self-help group.
    (d) give women the opportunities to express their feelings but dissuade women from joining self-help group.

55. Claire, a midwife, told Denise that she is perfectly capable of looking after her child and is doing a good job so far. What is Claire attempting to do?
    (a) Reassure Denise of her parenting skills.
    (b) Reassure Denise of her self-worth.
    (c) Restore Denise's self-regard.
    (d) Restore Denise's self-esteem.

56. Emotional support provided by midwives during labour can enhance satisfaction, fulfilment and emotional wellbeing for women. Midwives can offer emotional support by:

(a) the provision of continuity of care through labour and birth.
(b) sympathising with the woman
(c) respecting the woman's previous labour experiences but avoid involving her or her spouse/partner in all decisions making.
(d) keeping her fully informed about what is happening but avoid involving her or her spouse/partner in all decisions making.

Case Study

Nicole

You decide to visit Nicole and her ten-week-old baby as she has not regularly attended the mother and baby clinic. You have phoned her several times but the phone is always off the hook. When you arrive at the house, the curtains are closed at 1130 am. Nicole opens the door on the third ring of the door bell in her dressing gown. She looks pale and gaunt, her hair unbrushed and no make-up. She speaks slowly and seems as though in a dream. On entering, you find the flat is untidy with sodden nappies lying around and unwashed dishes in the sink. The baby is crying in the cot and Nicole seems unwilling to pick him up and comfort him. Nicole complains that she is constantly weary however much sleep she obtains; everything is an effort and she often sits and cries for no reason. She loves the baby and her husband but feels guilty at not being able to get it together to look after them properly and sometimes thinks they would be better off without her. She has little appetite and existing on biscuits and drinking tea. Several friends from her past active social life have called but she has pretended not to be at home because she cannot summon up enough energy to see them.

57. Which of the following is an appropriate description of Nicole's condition?

(a) Nicole is clearly depressed and not able to cope with everyday living.
(b) Nicole response is common in early motherhood.
(c) Nicole is suffering from extreme anxiety.
(d) Nicole is suffering from a psychotic illness and in need of urgent attention.

58. Which of the following is an appropriate and valid concern in relation to Nicole's condition at present?
    (a) Nicole may develop severe depression.
    (b) Nicole may have difficulties bonding with her baby.
    (c) Nicole may attempt to harm herself and the baby.
    (d) Nicole may develop anxiety disorders.

59. What do you think Nicole's clinical diagnosis will be?
    (a) Postnatal blue
    (b) Postnatal depression
    (c) Puerperal psychosis
    (d) Anxiety disorders

60. Which of the following range of care do you think will be appropriate for Nicole at her present condition?
    (a) Arranging a psychiatric assessment and offering reassurance about eventual improvement as well arranging practical help through relative or home carer.
    (b) Admission into hospital and offering reassurance about eventual improvement as well arranging practical help through relative or home carer.
    (c) Arranging a visit from a GP and/or mental health professional and offering reassurance about eventual improvement as well arranging practical help through relative or home carer.
    (d) Offering reassurance about eventual improvement as well arranging practical help through relative or home carer.

Appendix E: Phase 2 Study – Online evaluation form

We like to seek your feedback on the online educational module in terms of its length, content, delivery, perceived efficacy in relation to future midwifery practice and possible ways to improve future educational resources.

Please circle the appropriate rating:	**Poor**	**Fair**	**Adequate**	**Good**	**Excellent**
The content for Topic 1: Emotions and feelings was:	1	2	3	4	5
The content for Topic 2: Psychiatric illness and emotional disorders was:	1	2	3	4	5
The content for Topic 2: Psychiatric illness and emotional disorders (supplementary materials) was:	1	2	3	4	5
The content for Topic 3: Skills and attitudes was:	1	2	3	4	5
The content for Topic 4: In practice was:	1	2	3	4	5
The overall quality of the educational module was:	1	2	3	4	5

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
The educational module met my expectations.	1	2	3	4	5
The educational module met my learning needs.	1	2	3	4	5
The length of the educational module was appropriate.	1	2	3	4	5
The information included in the educational module is useful for my future midwifery practice.	1	2	3	4	5

I will recommend this educational module to other practicing midwives.	1	2	3	4	5
The delivery of the educational module online for self-directed learning is beneficial for my learning	1	2	3	4	5
After completing the educational module:					
My knowledge and understanding of the emotional distress experienced by childbearing women during pregnancy and the postpartum period have improved.	1	2	3	4	5
I believe that I now possess the skills to help, assist and managed childbearing women suffering from emotional distress during pregnancy and the postpartum period.	1	2	3	4	5
I feel positive about working with childbearing women suffering from emotional distress during pregnancy and the postpartum period.	1	2	3	4	5
I feel confident about working with childbearing women suffering from emotional distress during pregnancy and the postpartum period	1	2	3	4	5

Which aspects which are done well and which should be continued?

Which aspects need improvement? (If possible, suggest how these aspects can be improved).

Appendix F: Phase 2 Study – Information sheet

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Background

Providing skilled emotional support during pregnancy, labour and the postpartum period can significantly improve women's emotional health and contribute to a reduction in symptoms of psychological trauma, depression and self-blame. Midwives play an essential role in assessing and addressing the emotional needs of childbearing women. While women want midwives to provide emotional care, emotional care is frequently neglected. There has been no systematic effort to map midwives existing knowledge and attitudes towards the provision of emotional care. Findings of a national survey reveal evidence of:

- knowledge deficits in relation to incidence rate, onset period and treatment options for antenatal and postpartum depression;
- insufficient emphasis placed on the education and development of midwives in the effective assessment, care, and management of childbearing women with emotional distress;

- midwives lacking skills and competencies in working with women who have emotional health problems and disturbances; and
- the likelihood that the discrepancy in the quantity and quality of emotional care provided to childbearing women is partly related to midwives' ability to provide this care.

This study seeks to evaluate the online educational module that has been designed to improve midwives' knowledge of emotional disorders during pregnancy and the postpartum period as well as enhancing their attitudes and management of childbearing women's emotional health needs. Data collected from this study will inform the development of an educational strategy aimed at enhancing evidence-based midwifery care.

What participation in this study involves
Participation in this study asks that you give permission to allow your responses for the tutorial class activity, assessment item and evaluation for the online educational module "Maternal Psychological Morbidity" to be included and used for research purposes.

Consent to participate
Your participation is voluntary and you are not under any obligation to consent to participate in this study. Non-participation will not involve any penalty or in any way compromise your relationship with the University. If you chose to participate, you may discontinue participation at any time without penalty or without providing an explanation. We hope that you will consider participation in this study, which while it may not benefit you directly, it may have the potential to improve the emotional health care and support provided to childbearing women by midwives.

Risk
Participation in this study poses no risks as the study only seeks your knowledge of emotional disorders during pregnancy and the postpartum period as well as your feedback on the online educational module.

Confidentiality
All information collected will be treated in the strictest confidence. A range of background data is requested, however, no data is collected which identifies you, thus ensuring anonymity. The data collected from this study will be reported in general terms and will not involve any identifying features. All data will be kept confidential and under lock and key in the School of Nursing and Midwifery at Griffith University for a period of 5 years before being destroyed. A report of the general findings from the study will be made available to participants. To ensure that your privacy is protected, only group data will be published, with results of the study being disseminated to participants in a form of a published journal article

Questions
If you have any questions or would like to discuss this research, you may contact Ms Cindy Jones on (07) 5552 8931 or C.Jones@griffith.edu.au.

Complaints Mechanism
Griffith University conducts research in accordance with the *National Statement on Ethical Conduct in Research Involving Humans*. If you have any concerns or complaints

about the ethical conduct of the research project you should contact the Manager, Research Ethics on 3875 5585 or research-ethics@griffith.edu.au

Privacy statement
The conduct of this research does not involve the collection, access and / or use of your identified personal information.

Thank you for the time you have taken to read this electronic information sheet and, if you choose to participate in the study, thank you for allowing your responses to be included in the study.

Appendix G: Phase 2 Study – Consent form

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I have read the information form and understand that:

- This research is to evaluate the online educational module that has been designed to improve midwives' knowledge of emotional disorders during pregnancy and the postpartum period as well as enhancing their attitudes and management of childbearing women's emotional health needs.
- I am being asked to allow my responses for the tutorial class activity, assessment item and evaluation for the online educational module to be included and used for research purposes.
- My participation is voluntary and that I may discontinue my participation at anytime without penalty or explanation.
- Any reports or publications from this study will be reported in general terms and will not involve any identifying features.
- The data will be kept confidential at all times and in under lock and key in the chief investigator's office for a period of 5 years before being destroyed.
- A report about the study findings will be made in the form of a published journal article.

□ I **agree** to allow my responses for the tutorial class activity, assessment item and evaluation for the online educational module to be included and used for research purposes.

□ I **do not agree** to allow my responses for the tutorial class activity, assessment item and evaluation for the online educational module to be included and used for research purposes.

Signatures:

…… ……
Participant *Date*

…… ……
Investigator(s) *Date*

Appendix H: Paired sample t-tests of the 60-items pre- & post- education knowledge assessment

Paired sample t-tests of the 60-items pre- and post- education knowledge assessment (n = 29)

Assessment	Pre-test Mean (SD)	Post-test Mean (SD)	Difference Mean (SD)	*p* value
Item 1	.69 (.47)	.79 (.41)	**- .10 (.72)***	.45
Item 2	.97 (.19)	1.00 (.00)	**- .03 (.19)***	.33
Item 3	.97 (.19)	.97 (.19)	.00 (.27)[n]	1.00
Item 4	.86 (.35)	.83 (.38)	.34 (.50)	.71
Item 5	.31 (.47)	.79 (.41)	**-.48 (.51)***	**.00****
Item 6	.86 (.35)	.97 (.19)	**-.10 (.31)***	.08
Item 7	.72 (.45)	.69 (.47)	.03 (.68)	.79
Item 8	.48 (.51)	.62 (.49)	**-.14 (.64)***	.26
Item 9	.45 (.51)	.52 (.51)	**-.07 (.59)***	.54
Item 10	.83 (.38)	.86 (.35)	**-.03 (.50)***	.71
Item 11	.34 (.48)	.52 (.51)	**-.17 (.66)***	.17
Item 12	.97 (.19)	1.00 (.00)	**-.03 (.19)***	.33
Item 13	1.00 (.00)	.97 (.19)	.03 (.19)	.33
Item 14	.28 (.45)	.24 (.44)	.03 (.57)	.75
Item 15	.90 (.31)	.97 (.19)	**-.07 (.37)***	.33
Item 16	.70 (.47)	.59 (.50)	.10 (.56)	.33
Item 17	.07 (.26)	.10 (.31)	**-.03 (.33)***	.57
Item 18	.86 (.35)	1.00 (.00)	**-.14 (.35)***	**.04****
Item 19	.10 (.31)	.14 (.35)	**-.03 (.33)***	.57
Item 20	.97 (.19)	1.00 (.00)	**-.03 (.19)***	.33
Item 21	.34 (.48)	.62 (.49)	**-.28 (.53)***	**.01****
Item 22	.17 (.38)	.59 (.50)	**-.41 (.68)***	**.00****
Item 23	.72 (.45)	.62 (.49)	.10 (.56)	.33
Item 24	.83 (.38)	.79 (.41)	.03 (.42)	.66
Item 25	.72 (.45)	.86 (.35)	.14 (.44)*	.10
Item 26	.83 (.38)	.79 (.41)	.03 (.42)	.66
Item 27	.07 (.26)	.03 (.19)	.03 (.33)	.57

Item 28	.76 (.44)	.93 (.26)	**-.17 (.54)***	.10
Item 29	.21 (.41)	.03 (.19)	.17 (.38)	**.02 ****
Item 30	.34 (.48)	.14 (.35)	.21 (.56)	.06
Item 31	.90 (.31)	.90 (.31)	.00 (.38) [n]	1.00
Item 32	.28 (.45)	.34 (.48)	**-.07 (.59)***	.54
Item 33	.76 (.44)	.83 (.38)	**-.07 (.37)***	.33
Item 34	.34 (.48)	.55 (.51)	**-.21 (.73)***	.14
Item 35	.79 (.41)	.76 (.44)	.03 (.42)	.66
Item 36	1.00 (.00)	1.00 (.00)	- [n]	-
Item 37	1.00 (.00)	1.00 (.00)	- [n]	-
Item 38	.14 (.35)	.07 (.26)	.07 (.37)	.33
Item 39	.31 (.47)	.24 (.44)	.07 (.59)	.54
Item 40	.24 (.44)	.14 (.35)	.10 (.62)	.38
Item 41	.48 (.51)	.24 (.44)	.24 (.58)	**.03****
Item 42	.86 (.35)	.72 (.45)	.14 (.58)	.21
Item 43	.55 (.51)	.21 (.41)	.34 (.48)	**.00****
Item 44	.76 (.44)	.76 (.44)	.00 (.46) [n]	1.00
Item 45	1.00 (.00)	.97 (.19)	.03 (.19)	.33
Item 46	.79 (.41)	.93 (.26)	**-.14 (.52)***	.16
Item 47	.41 (.50)	.45 (.51)	**-.03 (.68)***	.79
Item 48	.24 (.44)	.34 (.48)	**-.10 (.56)***	.33
Item 49	.66 (.48)	.59 (.50)	.07 (.53)	.49
Item 50	.34 (.48)	.48 (.51)	**-.14 (.64)***	.56
Item 51	.38 (.49)	.31 (.47)	.07 (.75)	.63
Item 52	.93 (.26)	.97 (.19)	**-.03 (.19)***	.33
Item 53	.97 (.19)	.97 (.19)	.00 (.27) [n]	1.00
Item 54	1.00 (.00)	.97 (.19)	.03 (.19)	.33
Item 55	.62 (.49)	.69 (.47)	**-.07 (.53)***	.49
Item 56	.83 (.38)	1.00 (.00)	**-.17 (.38)***	**.02****
Item 57	1.00 (.00)	1.00 (.00)	- [n]	-
Item 58	.07 (.26)	.14 (.35)	**-.07 (.37)***	.33
Item 59	.93 (.26)	1.00 (.00)	**-.07 (.26)***	.16
Item 60	.69 (.47)	.83 (.38)	**-.14 (.58)***	.21

[n] *Items that revealed no difference in correct response rate following the education intervention (comparisons between pre- and post- test scores)*

* *Items that revealed an improvement trend in correct response rate following the education intervention (comparisons between pre- and post- test scores)*

** *Items that had a significant difference between the pre- and post- education intervention test scores ($p < .05$)*