Community-based perinatal depression recognition and management: a qualitative study on the perspectives of pharmacists and an educational resource

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Statement of Originality

This is to certify that to the best of my knowledge, the content of this thesis is my own work. This thesis has not been submitted for any degree or other purposes.

I certify that the intellectual content of this thesis is the product of my own work and that all the assistance received in preparing this thesis and sources have been acknowledged.

Signature

[Signature]

Name

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Publications/Presentations derived from this research


Chapter 2 of this thesis has been submitted to the *Journal of Mental Health* (May 2016):

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Dissertation Abstract

Introduction

Perinatal depression (PND) is a significant public health problem affecting up to 13% of mothers and often remains undiagnosed. PND screening is usually conducted by medical practitioners or nurses/midwives in primary-care settings however there is scope to consider the role of a wider range of allied health providers in PND detection. Pharmacists in particular are one of the most accessible members of the primary healthcare team and are potentially in an ideal position to screen women for PND. Theoretically, equipping pharmacists with the tools and training to undertake such screening would increase the possibility of detecting women with PND and referring them to practitioners who could diagnose and treat them appropriately. However, questions about whether this is feasible remain unanswered.

Objectives

The first objective of this dissertation was to determine whether previous research attempts have investigated the possibility of allied health professionals conducting postpartum depression screening in the context of primary care. The second objective of this study was to explore the perspectives of Australian pharmacists about their current experiences with women in the perinatal period and their views on integrating perinatal depression screening into their professional practice. The third and final objective of this dissertation was to develop & deliver a pilot PND training program to community pharmacists and collect participant feedback to inform the development of a future feasibility study on PND screening in community pharmacy.

Methods

A literature review was conducted to explore previous attempts to integrate allied health professionals into the postpartum depression screening process. In Phase 1 of this study, semi-structured phone interviews were conducted with 20 Australian pharmacists to explore their experiences with pregnant and postpartum mothers and their views on delivering PND-screening services in community pharmacy.
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pharmacies. These responses were combined with best practices for adult education to develop and deliver the "Perinatal Mental Health in the Pharmacy" (PMHP) educational program with 15 practising community pharmacists in Sydney, Australia. The development, implementation and evaluation of the PMHP program constituted Phase 2 of this study.

Results

The results of the literature review indicated that much of the previous research on primary-based postpartum depression (PPD) screening programs focused almost entirely on nurse practitioners, midwives and medical practitioners. There did not appear to be any studies in the literature which suggested that the role of pharmacists or indeed any allied health professional (apart from nurses and midwives) in PPD screening in primary care had been explored. The results of Phase 1 indicated that participants believed that pharmacists were easily accessible and thus ideally placed to screen for PND but that diagnosis was beyond their scope of practice. The prevailing view amongst participants was that although pharmacists were capable of screening for PND, they required further training to do so and proceeded to provide their views on the ideal format of such a program. Participants in Phase 2 of the study reported that their tertiary training did not adequately prepare them for conducting PND screening and that the PMHP educational intervention which they completed improved their confidence in assessing and referring suspected cases of PND.

Conclusion

Casual interactions between a childbearing woman and her allied health provider represent possible opportunities for the detection of perinatal depression. Pharmacy represents just one of multiple avenues within the community where allied health providers may have the opportunity to detect and refer suspected cases of PND. The reported improvement in pharmacist confidence with PND detection and referral upon completion of the educational intervention suggests that pharmacists require further training before pharmacy-based screening programs can be implemented. There is also a need to consider redesigning tertiary pharmacy curricula to ensure that perinatal mental health
is adequately covered. Pharmacists are willing and pending appropriate training, able to conduct PND screening to detect hitherto unrecognised depression. Further research into the long-term outcomes of pharmacist-led PND screening is recommended.
Chapter 1:

Introduction

1.1 Research background

The perinatal period is usually depicted as a time of intense happiness and well-being for families and mothers in particular. However, the reality of pregnancy and early motherhood can often be quite challenging, with dramatic physical changes and emotional turbulence sometimes resulting in psychological distress. Depression is considered one of the leading causes of disease-related disability among women and childbearing women in particular are at risk (Burke, Burke, Rae, & Regier, 1991). There is ample evidence linking depression in the perinatal period with various long-term consequences on both the mother and infant involved. With perinatal depression (PND) affecting a significant number of childbearing women, there is a distinct need for health professionals to understand the features, predictors, consequences and screening instruments used to detect PND.

1.1.1 Definition of PND

The term perinatal in the context of mental health is used broadly to describe the period during pregnancy and up to 12 months after childbirth (Gaynes et al., 2005). However, the criterion used to define the onset of depression in the postpartum period is not well-defined. The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) (American Psychiatric Association, 2013) stipulates that the criterion for postpartum onset is that the depressive episode occurs within 4 weeks after childbirth. This definition is problematic, however, given that up to 85% of postpartum women (Pearlstein, 2008) will suffer from “postpartum blues” - a mild and transient dysphoria that can last up to two weeks postpartum (O’Hara & Wisner, 2014). This occurrence is distinct from postpartum depression (PPD), and in most cases is a time-limited condition which will resolve on its own. This DSM-5 definition also stands in contrast to evidence suggesting that vulnerability to PND continues for at least the first 6 months after childbirth (Cooper & Murray, 1998) and potentially up to four years postpartum (Woolhouse, Gartland, Mensah, & Brown, 2015). Debate about the period of postpartum
depression (PPD) onset aside, the symptoms of PND are similar to a major depressive episode as defined by DSM-5. The DSM-5 also states that women in the perinatal period experiencing major depression must exhibit five of the following nine symptoms and that the symptoms cause significant distress or impairment to be diagnosed with PND: depressed mood, loss of interest or pleasure, change in weight or appetite, sleep changes, psychomotor retardation or agitation, fatigue, feelings of worthlessness, impaired concentration or recurrent thoughts of death or suicide. It is also important to note, however, that the DSM-5 does not classify perinatal depression as a separate disease but rather the onset of major depression within a specified perinatal period. There is some controversy in the literature about whether depression rates during the perinatal period are larger than that of non-childbearing women and whether PND is a distinct phenomenon. Some researchers have suggested that the risk of depression in postpartum women is not any higher than in other young women (O’Hara, Zekoski, Philipps, & Wright, 1990) whilst others have reported that there is a higher risk of depression in the postpartum period (Cox, Murray, & Chapman, 1993; M. Eberhard-Gran, Eskild, Tambs, Samuelsen, & Opjordsmoen, 2002). The clinical presentation of PND does mimic that of other major depressive disorders with the key difference being timing; the perinatal period is a critical time for fetal and infant development and depression has been shown to have detrimental effects on this development. It is worthwhile noting that the period after birth is often referred to in the literature as either the “postpartum” or “postnatal” period, and these terms are used interchangeably. Similarly, the period during pregnancy is referred to as either “antepartum” or “antenatal”, and the terms are also used interchangeably.

1.1.2 Prevalence, risk factors and consequences of PND

Prevalence estimates for PND differ markedly between sources suggesting that there are inherent difficulties in attempting to arrive at a universal figure. The oft-reported figure of 13% for postpartum depression was derived from a meta-analysis conducted two decades ago (O’Hara & Swain, 1996) though a more recent review placed the postpartum depression estimates between 6.5 and 12.9% (Gaynes et al., 2005). Globally, prevalence rates for depression across the perinatal period have been reported between 4.4% and 73.7% (Gaynes et al., 2005; Halbreich & Karkun, 2006; Leahy-Warren, McCarthy, & Corcoran, 2011; O’Hara & Swain, 1996); these wide variances highlight the difficulty in
ensuring consistent prevalence estimation. The factors affecting prevalence estimates include the assessment method and outcome measures used, the length of postpartum period being studied and type of screening or diagnostic instrument utilised (Gorman et al., 2004; Halbreich & Karkun, 2006; Leahy-Warren et al., 2011). Generally, higher prevalence rates tend to be associated with the use of self-report instruments whilst lower prevalence rates are associated with the use of interview-based instruments (O’Hara & Swain, 1996).

A concerted effort within the research community to understand the predictors of PND has led to the identification of risk factors that appear to increase the likelihood of a woman developing PND (McCoy, Beal, Shipman, Payton, & Watson, 2006; O’Hara & McCabe, 2013; O’Hara & Wisner, 2014). Studies have identified several biological and psychosocial risk factors for PND including family history of depression, poor partner support or domestic violence, marital status, low socioeconomic status, young age and limited social support (Bloch, Rotenberg, Koren, & Klein, 2005; E. R. Myers, Aubuchon-Endsley, & Bastian, 2013; Stewart, Robertson, Dennis, Grace, & Wallington, 2003a). Prior personal history of depression has consistently been found to be a strong risk factor for PND, emphasising the need to focus PND assessment efforts on childbearing women with a past history of depression to prevent or ameliorate the effects of perinatal depression (Bloch et al., 2005). Conversely, protective factors have also been identified which potentially guard against the development of PND; namely, the existence of support structures within the mother’s social sphere (Leahy-Warren et al., 2011). Evidence points to the protective benefits of adequate social support to new mothers in the postpartum period as it is seen to aid the woman better adapt and transition to motherhood (Kiehl & White, 2003; Plews, Bryar, & Closs, 2005). Women identified as having a high risk for postpartum depression (PPD), in particular, benefit from the support provided by healthcare providers (Shaw, Levitt, Wong, Kaczorowski, & McMaster University Postpartum Research Group, 2006). However, informal social and infant care support from a new mother’s family and friends have also been found to be beneficial (Häggman-Laitila, 2003; Leahy-Warren, McCarthy, & Corcoran, 2012; Negron, Martin, Almog, Balbierz, & Howell, 2013).

The effort to understand the factors that contribute to the development of PND is driven by the acute recognition of the detrimental (and sometimes catastrophic) effects of PND on mother and infant
PND is associated with significant morbidity for both the mother and her family and in extreme cases, PND can be fatal with suicide being reported as the leading cause of maternal death in the UK (Oates, 2003). Antenatal depression has been associated with unsafe practices during pregnancy such as illicit drug use, smoking and alcohol consumption (Dunkel Schetter & Tanner, 2012) and pregnant women with depression are less likely to comply with recommended pregnancy practices such as good nutrition and regular clinic visits (Grigoriadis et al., 2013). Maternal depression in pregnancy may also exert a biochemical effect with antenatal depression being associated with an alteration in the mother’s neuroendocrine system (Field, Diego, & Hernandez-Reif, 2006), potentially contributing to poor pregnancy and birth outcomes such as preeclampsia (Kurki, Hiilesmaa, Raitasalo, Mattila, & Ylikorkala, 2000; Qiu, Sanchez, Lam, Garcia, & Williams, 2007), low birth weight, intrauterine growth restriction and an increased risk of premature delivery (Alder, Fink, Bitzer, Hösl, & Holzgreve, 2007; Grote et al., 2010). Infants born to mothers who suffered from antenatal depression are also more likely to have poor temperament (E. P. Davis et al., 2007) and exhibit poor sleep patterns (Field et al., 2007). The effects of antenatal depression can last for a significantly long period after birth with studies reporting increased cortisol levels in adolescents whose mothers suffered from depression during their pregnancy (Halligan, Herbert, Goodyer, & Murray, 2004). Postpartum depression has similarly been shown to impart long-term detrimental effects. Affected mothers are less likely to breastfeed for the recommended period of time (Dennis & McQueen, 2007), to adhere to the recommended vaccination schedule (Minkovitz et al., 2005) and are at a significantly greater risk of expressing thoughts of harming their infant compared to non-affected mothers (Jennings, Ross, Popper, & Elmore, 1999). Poor maternal-infant attachment (Zauderer, 2008) in the period after birth is a common outcome of postpartum depression which can sometimes persist and impair long-term bonding between mother and infant (Moehler, Brunner, Wiebel, Reck, & Resch, 2006). A mother with PPD is much less likely to engage in positive mother-infant interactions essential to the infant’s emotional development (Field et al., 2006) with potential long-term outcomes on the infant including delayed cognitive and emotional development (Grace, Evindar, & Stewart, 2003; Murray, Fearon, & Cooper, 2015), mental health disorders and social adjustment disorders (Bauer et al., 2015). The negative impacts of postpartum depression on the infant appear to remain even when the depression is treated (Forman et al., 2007). Given the
detrimental effects of perinatal depression on mother and infant, there is thus a need to detect and treat it early.

1.1.3 Perinatal depression screening

With an increasing recognition of the importance of early detection, the case for universal perinatal depression screening has often been made by researchers, clinicians and health agencies globally. The World Health Organisation (WHO) have published ten criteria (Wilson et al., 1968) for evaluating screening programs which have since underpinned many discussions around the value of screening. Wilson and Jungner (Wilson et al., 1968) stipulated that to proceed with universal screening, the condition must be an important health problem that is well-understood, be detectable at an early stage, that treatment be available, that the criteria for ideal candidates for treatment be established and that the cost of screening be balanced against the benefits of doing so. Given the low rates of help-seeking amongst women with PND (Dennis & Chung-Lee, 2006; McGarry, Kim, Sheng, Egger, & Baksh, 2009) and the likelihood that a case of PND will be missed by a woman’s health provider (Georgiopoulouso, Bryan, Wollan, & Yawn, 2001; Goodman & Tyer-Viola, 2010; Nishizono-Maher et al., 2004), there is a need to consider the evidence supporting the benefits of universal PND screening. Indeed, the latest US Preventive Services Task Force Recommendation Statement (Siu et al., 2016) has endorsed the utility of universal screening, recommending that such programs should form the backbone of perinatal mental health care policies. Studies (Buist et al., 2006; Milgrom & Gemmill, 2014; Milgrom, Mendelsohn, & Gemmill, 2011) have demonstrated that routine screening for PND results in more cases of PND being detected that may otherwise have remained unnoticed. Though the long-term clinical and cost-effectiveness of universal PND screening programs have been called into question (L. Harris, 2016; Thombs, Ziegelstein, Roseman, Kloda, & Ioannidis, 2014), there is nonetheless a broadly acknowledged need to consider ways of detecting PND as early as possible. The utilisation of a validated screening tool is a fundamental aspect of any screening program (UK National Screening Committee, 1998) and can aid in the detection of PND regardless of whether it is utilised in the context of a universal screening program or at the discretion of the health provider administering it. In fact, evidence suggests that in the absence of a screening tool, the ability of health providers to detect PND is significantly diminished (Goodman & Tyer-Viola, 2010; Heneghan, Silver,
Bauman, & Stein, 2000; Holden, 1994; Milgrom et al., 2011; Nishizono-Maher et al., 2004).

Interestingly, routine screening by healthcare professionals throughout the perinatal period has been associated with increased help-seeking behaviour by women who are screened, suggesting that simply asking about a woman's mental health in this period can itself spur women with PND to seek help (Reilly et al., 2014).

Several screening instruments have been identified and investigated by researchers to determine their effectiveness in the detection of perinatal depression (Boyd, Le, & Somberg, 2005; Gaynes et al., 2005; Mann & Gilbody, 2011; E. R. Myers et al., 2013). Various screening tools have been validated for use in the perinatal period (Hewitt et al., 2009), however, there is insufficient evidence that a single tool has a high enough degree of both sensitivity and specificity to provide a positive predictive value (PPV = % of true positives/ all positive results on screening instrument) that warrants isolated use (Gaynes et al., 2005). Despite this, the screening tool most widely used in PND screening is the Edinburgh Postnatal Depression Scale (EPDS). The EPDS (Figure 1.1) is a 10-item self-report questionnaire with items scored 0-3, specifically designed and widely validated for use in postpartum depression (Cox, Holden, & Sagovsky, 1987). Research suggests (Hewitt & Gilbody, 2009) that the EPDS may, if enough care is used, be administered alone within screening protocols successfully. A separate approach to identification, outlined in NICE guidelines (NICE, 2007) suggests the use of verbal questions in an interview format based around two introductory questions (Whooley Questions) (Gjerdingen, Crow, McGovern, Miner, & Center, 2009; Mann & Gilbody, 2011) as an efficient way for healthcare professionals to quickly rule out PND and potentially reduce the number of women having to undertake the EPDS (Figure 1.2)
### Table 1.1 The Edinburgh Postnatal Depression Scale (EPDS) (Cox et al., 1987)

<table>
<thead>
<tr>
<th>Item</th>
<th>Response Format (Multiple Choice)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I have been able to laugh and see the funny side of things.</td>
<td>● As much as I always could</td>
</tr>
<tr>
<td></td>
<td>● Not quite so much now</td>
</tr>
<tr>
<td></td>
<td>● Definitely not so much now</td>
</tr>
<tr>
<td></td>
<td>● Not at all</td>
</tr>
<tr>
<td>2. I have looked forward with enjoyment to things.</td>
<td>● As much as I ever did</td>
</tr>
<tr>
<td></td>
<td>● Rather less than I used to</td>
</tr>
<tr>
<td></td>
<td>● Definitely less than I used to</td>
</tr>
<tr>
<td></td>
<td>● Hardly at all</td>
</tr>
<tr>
<td>3. I have blamed myself unnecessarily when things went wrong</td>
<td>● Yes, most of the time</td>
</tr>
<tr>
<td></td>
<td>● Yes, some of the time</td>
</tr>
<tr>
<td></td>
<td>● Not very often</td>
</tr>
<tr>
<td></td>
<td>● No, never</td>
</tr>
<tr>
<td>4. I have been anxious or worried for no good reason.</td>
<td>● No not at all</td>
</tr>
<tr>
<td></td>
<td>● Hardly ever</td>
</tr>
<tr>
<td></td>
<td>● Yes, sometimes</td>
</tr>
<tr>
<td></td>
<td>● Yes, very often</td>
</tr>
<tr>
<td>5. I have felt scared or panicky for no very good reason.</td>
<td>● Yes, quite a lot</td>
</tr>
<tr>
<td></td>
<td>● Yes, sometimes</td>
</tr>
<tr>
<td></td>
<td>● No, not much</td>
</tr>
<tr>
<td></td>
<td>● No, not at all</td>
</tr>
<tr>
<td>6. Things have been getting on top of me.</td>
<td>● Yes, most of the time I haven’t been able to cope at all</td>
</tr>
<tr>
<td></td>
<td>● Yes, sometimes I haven’t been coping as well as usual</td>
</tr>
<tr>
<td></td>
<td>● No, most of the time I have coped quite well</td>
</tr>
<tr>
<td></td>
<td>● No, I have been coping as well as ever</td>
</tr>
</tbody>
</table>
Table 1.2 The Whooley Questions (NICE, 2007)

<table>
<thead>
<tr>
<th>Question</th>
<th>Possible Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. I have been so unhappy that I have had difficulty sleeping.</td>
<td>● Yes, most of the time</td>
</tr>
<tr>
<td></td>
<td>● Yes, sometimes</td>
</tr>
<tr>
<td></td>
<td>● Not very often</td>
</tr>
<tr>
<td></td>
<td>● No, not at all</td>
</tr>
<tr>
<td>8. I have felt sad or miserable.</td>
<td>● Yes, most of the time</td>
</tr>
<tr>
<td></td>
<td>● Yes, sometimes</td>
</tr>
<tr>
<td></td>
<td>● Not very often</td>
</tr>
<tr>
<td></td>
<td>● No, not at all</td>
</tr>
<tr>
<td>9. I have been so unhappy that I have been crying.</td>
<td>● Yes, most of the time</td>
</tr>
<tr>
<td></td>
<td>● Yes, quite often</td>
</tr>
<tr>
<td></td>
<td>● Only occasionally</td>
</tr>
<tr>
<td></td>
<td>● No, never</td>
</tr>
<tr>
<td>10. The thought of harming myself has occurred to me.</td>
<td>● Yes, quite often</td>
</tr>
<tr>
<td></td>
<td>● Sometimes</td>
</tr>
<tr>
<td></td>
<td>● Hardly ever</td>
</tr>
<tr>
<td></td>
<td>● Never</td>
</tr>
</tbody>
</table>

NICE (2007) recommends that healthcare professionals ask these two questions at a woman’s first contact with primary care and at 4-6 weeks and 3-4 months postpartum:

- During the past month, have you often been bothered by feeling down, depressed, or hopeless?
- During the past month, have you often been bothered by little interest or pleasure in doing things?

A third question should be considered if the woman answers “yes” to either of the initial questions:

- Is this something you feel you need or want help with?
Although the EPDS may be administered from as early as three to five days after giving birth (Jardri et al., 2006), an optimal cut-off at 6-8 weeks postnatally (Boyce, Stubbs, & Todd, 1993; B. Harris, Huckle, Thomas, Johns, & Fung, 1989; Murray & Carothers, 1990; Zelkowitz & Milet, 1995) with a repeat screen at 3-6 months (Boyce et al., 1993; Cox et al., 1987; Elliott et al., 2000) is a widely recommended screening protocol, though there have been suggestions that the optimal time to initially conduct the EPDS is at 12 weeks when the initial sleep deprivation stage has been overcome (Downie et al., 2003). Very high scores in the early postpartum period can indicate a high risk of subsequent PPD (Dennis, Janssen, & Singer, 2004), however, conducting the EPDS at an early stage will also conflate the number of high-scorers artificially due to the “postpartum blues” phenomenon. The widely accepted optimal cutoff point for detecting major depression is ≥13 (possible score range 0-30), as referenced by the original validation study (Cox et al., 1987). However, a wide variety of cutoff points for the EPDS have been reported with research suggesting that the wide use of unvalidated cutoff scores in many studies may be a factor in the wide range of reported PND prevalence rates reported (Matthey, Henshaw, Elliott, & Barnett, 2006). An optimal cutoff of 10 for major and minor depression and 13 for major depression has been recommended (Hewitt et al., 2009) with EPDS sensitivity ranging from 0.60 - 0.96 (specificity 0.97 - 0.45) for major depression and 0.31 - 0.91 (specificity 0.99 - 0.67) for major or minor depression (Hewitt et al., 2009). Notably, the cutoff point chosen for any particular study will affect the sensitivity - the lower the cutoff, the higher the sensitivity. Whilst a higher sensitivity means that fewer cases will go undetected, it also invariably decreases the specificity, thus resulting in an increased number of false-positives who are ultimately found not to be depressed (Paulden, Palmer, Hewitt, & Gilbody, 2009). A large Australian study (Milgrom, Ericksen, Negri, & Gemmill, 2005) demonstrated that the PPV of the EPDS at cutoff 11.5 was 76% (min. 49%; max 84%), suggesting that three-quarters of high EPDS scores might be true-positives. A similar PPV statistic was reported (Jevitt, Zapata, Harrington, & Berry, 2005), with 19.2% of 26 women clinically assessed after a high EPDS score found to be depressed and 53.85% of those found to be suffering from dysthymia (persistent depressive disorder as defined by the DSM-5). Whilst this result appears to favour the EPDS, an analysis reported by Paulden et al. (2009) of formal postpartum depression identification studies found that due to the high number of false-positives, such protocols were not deemed cost-effective enough to be implemented by the NHS.
(National Health Service, UK), a finding corroborated by Hewitt et al. (2009). Miligrom et al. (2005) suggest a method of reducing false-positives based on a 2-step screening process: 1) administer the EPDS with an optimised cutoff of 12.5 and 2) then administer the Beck Depression Inventory (BDI) (a 21-question self-report depression scale also with a depression cutoff at 12.5) to those who screen positive on the EPDS. Based on their data, a positive BDI score at this point will raise the PPV from 76% by using the EPDS alone to 92% by administering both the EPDS and BDI. The Agency for Healthcare Research and Quality (AHRQ) (E. R. Myers et al., 2013) supports this finding, reporting that a 2-step screening process followed by a standardised questionnaire where necessary may represent the optimal approach to improving screening efficiency.

It is important to note that high scores on the EPDS are only indicative that referral for further psychiatric assessment is warranted (Stewart et al., 2003a) but do not constitute a diagnosis of depression. The EPDS is not intended to replace a full diagnostic assessment of PND as it cannot diagnose PND nor can it indicate true severity (Stewart et al., 2003a). The EPDS is intended to pick up on major depression though it has also been found to inadvertently detect the presence of other mental health conditions, such as anxiety and bipolar disorder, with a sensitivity of 0.38-0.86 (specificity 0.99-0.87) (Hewitt et al., 2009). Additionally, Item 10 on the EPDS questions the respondent about suicidal ideation and a positive response requires immediate attention. Health professionals administering the EPDS have often reported feeling uncomfortable when discussing the results of this question, or bringing up the issue altogether (Mason & Poole, 2008). Thus the question of acceptability of the EPDS amongst healthcare professionals and patients is a significant point to consider and has been found to vary. The acceptability of the EPDS within patient cohorts generally favour the EPDS, with a few exceptions. One study reported (Ciliska, 2004) that a significant number of the women they surveyed found the screening process involving the EPDS too simplistic and preferred an open discussion with their provider. These women indicated that the inadequacy of the screening process, the intrusiveness of the questions and the stigma around depression prevented them from giving reliable answers on the EPDS. Cultural factors may also play a role in acceptability with a systematic review on screening tools used with UK South-Asian women (Downe, Butler, & Hinder, 2007) and finding that these women generally prefer face-to-face interviews over self-reported questionnaires. In contrast, another study (Hewitt et al., 2009) reported that consumers accepted the
EPDS when conducted in the privacy of the home with a trained health visitor who was careful in administering Item 10 on the EPDS. Health providers have indicated their preference for the use of the EPDS, suggesting that it aids them "get to the bottom of things" and uncovers issues that would not have been otherwise discussed (Vik, Aass, Willumsen, & Hafting, 2009). This low rate of detection by clinical assessment compared to EPDS detection is well-known amongst researchers (Holden, 1994). A possible explanation for this low detection rate lies in the propensity for mothers to under-report their depressive symptoms when directly questioned. This notion is also supported in another study (Horowitz, Murphy, Gregory, & Wojcik, 2011) that reported that EPDS positive screens were significantly higher when submitted by post than by telephone screening (19% positive screens by post, 11% by telephone EPDS screening). It may be argued then that autonomy should be respected by healthcare professionals when delivering a screening intervention and the EPDS administered at their discretion.

Whilst the EPDS has been consistently validated for use in the postpartum period, a major problem faced by researchers lies in the ambivalence contained within the literature about the value of the EPDS during the antenatal period. Research findings in a sample of 9,028 screened women suggest (Evans, Heron, Francomb, Oke, & Golding, 2001) that depressive symptoms were more common during pregnancy than in the postpartum period, with peak incidence of depression occurring at 32 weeks of pregnancy. A meta-analysis (Bennett, Einarson, Taddio, Koren, & Einarson, 2004) investigating the prevalence of depressive symptoms and depression in pregnancy reported that amongst the 19,284 women assessed, depression was found during the first trimester at a rate of 7.4% (95% CI, 2.2%-12.6%), 12.8% during the second (95% CI, 10.7%-14.8%), and 12% during the third trimester (95% CI, 7.4%-16.7%). Women who reported a history of depression were five times more likely to exhibit depressive symptoms during pregnancy (Marcus, Flynn, Blow, & Barry, 2003), whilst a study of 188 primiparous women (Hayes, Muller, & Bradley, 2001) found that women were more depressed during pregnancy than in the first six months postpartum. Despite these findings, a Cochrane review (M. Austin, Priest, & Sullivan, 2008) concluded that there was insufficient evidence that routine antenatal psychosocial assessment led to improved perinatal mental health outcomes. Austin et al. (2003) found that no single screening tool had a high enough sensitivity and PPV to be included in routine antenatal care. Recent research has supported this notion suggesting that
screening tools such as the EPDS require further validation before they can be used routinely to screen for antenatal depression (Kozinszky & Dudas, 2015).

Overall, screening instruments such as the EPDS form a significant part of community-based screening programs and whilst further studies are required to determine the validity of using the EPDS in the antenatal period, the use of the EPDS has been widely validated for use in screening for postpartum depression. Beyond the EPDS, community-based screening programs generally have been the subject of many research studies attempting to determine whether or not perinatal depression screening overall is useful (Gaynes et al., 2005; E. R. Myers et al., 2013; O'Connor, Rossom, Henninger, Groom, & Burda, 2016; O'Hara & McCabe, 2013). Whilst there is debate about the long-term effectiveness and benefits of universal PND screening programs (Thombs, Ziegelstein, et al., 2014), there is broad acknowledgement that screening practices are useful within primary care contexts where a condition is prevalent, detectable and a screening protocol is shown to be effective at detecting cases that may otherwise have been missed (UK National Screening Committee, 1998).

For mothers with depression who may find it difficult to seek treatment for various reasons including social stigma, fear of having their baby taken away or not knowing where to seek help (Dennis & Chung-Lee, 2006; Goodman, 2009), being in contact with healthcare providers who are trained to detect possible cases of perinatal depression is crucial in enabling early detection and management of PND.

1.2 Research problem

Many clinical and practice guidelines globally (M. Austin, 2011; NICE, 2007; O'Connor et al., 2016), encourage the implementation of screening protocols within established community-based care models for perinatal women, but as discussed in 1.1. the research that does exist consistently points to primary care models (O'Connor et al., 2016), whether they are practice-based or home-based, as the preferred settings for screening women given the ease of access that women have to such venues and the extensive reach such settings provide. As mentioned previously, low levels of social support are a major predictor of PND (O'Hara & Swain, 1996) with increased social support associated with a lower risk of developing depression 6 to 8 weeks postpartum (Kritsotakis et al.,
2013). These support structures extend to those acting within the mother’s primary healthcare team who are likely to be aware of her previous mental health state and potentially be on the lookout for symptoms that indicate the onset of PND. Women with PND are unlikely to recognise and seek help for their depression (MacLennan, Wilson, & Taylor, 1996), necessitating the development of screening initiatives that can easily access such women within their immediate environment. A significant proportion of PND cases experience the condition silently and for protracted periods of time (Bennett et al., 2004) with few women who reported needing mental health support receiving either referral or treatment for their depression (Goodman & Tyer-Viola, 2010).

Women routinely present to their family physicians (or general practitioners) throughout the course of their pregnancy and for infant health checkups in the postpartum period thus providing physicians with several opportunities to screen for the presence of PND. However, studies have suggested that the routine use of validated postpartum depression screening tools by family physicians is low (Seehusen, Baldwin, Runkle, & Clark, 2005) and that the reluctance to use them may in part be due to the perception that doing so would be time-consuming. This may be exacerbated by the perception that perinatal care in a clinical setting already requires a multitude of tests and activities, leaving little room for discussion of the mother’s mental health state (Gordon, Cardone, Kim, Gordon, & Silver, 2006). Whilst many women may not hesitate to seek out general medical help during the perinatal period (Marcus et al., 2003), they are much less likely to seek out mental health support of their own accord.

It may thus be argued that missed opportunities to screen women during routine perinatal checkups could be reclaimed by increasing the number of opportunities available to conduct such screening in the community health setting. Given the ubiquity of perinatal depression in the community, there is a compelling need to examine the benefits of implementing some form of PND screening across the spectrum of appropriate and accessible primary health care venues. Allied-health professionals who interact with women in the perinatal period but who are not considered to have an established role in perinatal care (as midwives and physicians do) are potentially well-placed to detect cases of PND during the usual course of their practice.

Ideally, allied health providers interacting with a woman in the perinatal period would have an understanding of perinatal depression and the risk factors that predispose mothers to developing it.
However, this may not be the case given that allied health providers do not routinely interact with or are expected to treat childbearing women. If community-based avenues for the detection of perinatal depression were to include allied-health providers, an important factor would be to develop standard protocols to ensure that women suspected of having PND could be referred to the appropriate provider. In order to accomplish this, however, allied health providers need to be acknowledged as having a potential role to play in the detection of perinatal depression and strategies developed to investigate and better prepare them to detect and refer possible cases of PND.

1.3 Research Objectives

Pharmacists in particular are uniquely placed to engage with women in the perinatal period and potentially detect cases of PND. As one of the most easily accessible primary health professionals, pharmacists often interact with childbearing women who attend their local pharmacy for advice about medication use during pregnancy and breastfeeding or product requests for their infants (Edwards, 2014). Where pharmacists have not been adequately prepared to screen for PND, these may represent missed opportunities to detect perinatal depression and refer appropriately. Community pharmacists are commonly identified as providing a significant and unique venue within the community to facilitate and broaden access to primary care services (Chapman, Zechel, Carter, & Abbott, 2004) and multiple research efforts have considered the feasibility of pharmacists conducting mental health screening for people at risk of major depression (Adler et al., 2004; Finley et al., 2002; O'Reilly, Wong, & Chen, 2015a). It may be argued that community pharmacy represents an ideal venue to host perinatal screening programs and would provide an introductory model for other allied-health professions also considering the possibility of conducting perinatal depression screening.

Thus, the objectives of this study were to:

1. Examine the literature to understand the current role of allied health providers in the detection and management of postpartum depression.
2. Investigate the perspectives of pharmacists about their role in the detection and management of perinatal depression in primary care.
3. Develop, implement and evaluate an educational resource to improve the knowledge and attitudes of pharmacists around perinatal depression.

1.4 Significance

The presence of depression during the perinatal period is associated with severe consequences for affected mothers and their infants. Women are highly vulnerable to psychological distress during the perinatal period and given the high number of women that remain undiagnosed, implementing PND screening programs in a wide range of primary care venues may result in more cases of perinatal depression being detected and appropriately managed. Whilst studies have frequently considered the role of screening in secondary and tertiary settings and by physicians in primary care settings, few studies have considered the role of allied health providers conducting PND screening in a community setting. Hence the outcomes from this research will inform future research attempts to engage a wider variety of allied health providers, and pharmacists in particular, in PND screening efforts.

1.5 Structure of thesis

Chapter 1 of the dissertation provided an overview of the research background, problem, aims and significance. It described the presentation, prevalence, risk factors and consequences of perinatal depression. This led to a discussion about the importance of early PND detection and the role that PND screening programs, whether formal or informal, have to play in facilitating early detection and referral. This entailed a detailed discussion about the use of the EPDS in PND screening and a recognition that the EPDS is validated for use in the postpartum period but there is insufficient
evidence to support its use during the antenatal period.

Figure 1.1 Thesis Structure

Chapter 2 presents a literature review on existing research on the role of allied providers in PPD screening. The decision to focus on PPD literature rather than the entire perinatal period was made on the basis that the use of depression screening scales in the antenatal period requires further validation (Kozinszky & Dudas, 2015). The review, will examine the evidence pertaining to the data supporting feasibility of PPD screening by allied health providers using a scoping method.

Chapter 3 describes the results of semi-structured phone interviews conducted with Australian pharmacists about their experiences with perinatal women and attitudes towards PND screening in the pharmacy (Phase 1). Though PPD was focused on in Chapter 2, the remaining chapters focus on PND (the entire antenatal and postpartum period) given the increasing emphasis in the literature on the importance of detecting depression during pregnancy as well as postpartum. Chapter 3 includes a description of the design, sample, data collection instrument used and data analysis efforts involved in Phase 1 of this study. The results of this phase of the research indicated that sample pharmacists were willing to conduct PND screening but required further training to do so.
Chapter 4 describes the development of an educational intervention (Phase 2) that aimed to assist pharmacists to understand perinatal depression, recognise factors that predispose women to PND, understand safe psychotropic use during pregnancy and lactation and to provide a rudimentary introduction to PND screening and referral pathways. The ADDIE (Assess-Design-Develop-Implement-Evaluate) model of instructional design will be described as the framework used to design the educational intervention and details regarding the sample, procedures, content of the educational resources, data collection instruments and data analysis will also be described. The implications of the findings of Phase 2 of the study for pharmacy education around perinatal mental health are discussed and recommendations for future iterations of the training program developed are also presented.

Chapter 5 will conclude by presenting an overall discussion of the findings from Phase 1 and Phase 2 of this study in the broader context of PND screening in community pharmacy. Recommendations for pharmacy education, future research and practice will be discussed. Finally, this dissertation will draw conclusions about the key role that continuing professional education will play in the ability of pharmacists to conduct formal or informal PND screening during the course of their usual interactions with pregnant or postpartum women.
Chapter 2:

Literature Review

Postpartum depression screening by allied health professionals in primary care: a literature review

Chapter 2 of this thesis has been submitted to the Journal of Mental Health (May 2016):

Elkhodr, S., O’Reilly C.L., Okun M.L., Saini, B. Postpartum depression screening by allied health professionals in primary care: a literature review

Author Contributions

Ms. Sabrine Elkhodr conducted the literature review, analysed the articles and wrote the manuscript. A/Prof Bandana Saini provided primary research supervision, assisted in article selection and critically revised the manuscript. Dr. Claire L. O’Reilly and Dr. Michele L. Okun critically reviewed the manuscript and provided subject matter advice to guide the development of the manuscript.

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Dr. Michele L. Okun

A/Prof. Bandana Saini
Postpartum depression screening by allied health professionals in primary care: a literature review

Elkhodr, S., O’Reilly C.L., Okun M.L., Saini, B.

Abstract

Background

Postpartum depression (PPD) is a debilitating condition that affects a significant number of women. Primary-care based PPD screening programs offer a good chance of detection.

Aim

To review the literature on primary-care based PPD screening programs conducted by allied health professionals.

Method

The search was conducted between April and October 2014 in five databases. Key search terms included: allied health professionals, primary care, postpartum depression and screening. Inclusion criteria for article selection were that a) PPD screening constituted the focus of the research b) research based in primary-care setting c) focused on the screening outcomes, with/without an intervention and d) screening conducted by an allied health professional. Articles were excluded if they were not in the English language, focused on the antenatal period or based in secondary/tertiary settings.

Results

A total of 752 unique articles were obtained with eleven studies meeting the inclusion criteria. All articles reviewed described studies which used the Edinburgh Postnatal Depression Scale (EPDS) as the primary screening tool and all were led by nurses or midwives. Study results supported the feasibility of PPD-screening within primary care.
Conclusion

Further investigation into the feasibility of screening protocols within primary care is recommended given the prevalence of PPD.

2.1 Introduction

Depression is the second leading cause of global disability for women (Ferrari et al., 2013), with postpartum depression (PPD) affecting up to 13% of postpartum mothers. The DSM-5 (American Psychiatric Association, 2013) criteria stipulate that for a diagnosis of PPD, the onset of symptoms must have occurred within 4 weeks of birth, though this timeframe remains controversial with recent research suggesting that PPD onset can occur as late as 4 years postpartum (Woolhouse et al., 2015). For the purpose of this review, PPD has been defined as the occurrence of depressive symptoms within 4 weeks of childbirth as per the DSM-5 criteria. Reported prevalence rates for PPD vary widely depending on the assessment method used, the timing of the assessment, and the population studied (Halbreich & Karkun, 2006). However, the widespread presence of PPD within various communities is a cause for concern and the subject of concerted public health efforts globally to mitigate its effects.

The social and economic costs associated with PPD are significant yet it can often go undiagnosed and untreated (Gaynes et al., 2005). PPD has been strongly implicated in affecting the mother’s relationship with her infant and the subsequent impact on the infant’s long-term emotional development (Field et al., 2006), cognitive delays (Beardselee, Versage, & Giadstone, 1998) and increased risk of developing psychiatric disorders in adolescence (Pawlby, Sharp, Hay, & O’Keane, 2008). PPD is strongly implicated in cases of maternal suicide – it has been reported as a leading cause of maternal death (Hall, 2001) and infanticide, creating an understandable sense of urgency around developing methods to identify and treat PPD before it escalates to such fatal and preventable situations.

Mothers with depression may not recognize or actively seek help for their depression (MacLennan et al., 1996). This may be due to a multitude of factors; fearing the stigma that they perceive to be
associated with PPD or feelings of shame and a fear that admitting to thoughts of self-harm or
harming the baby may result in having the baby taken away from them (Mauthner, 2002). Such
obstacles make it more difficult to detect PPD, necessitating the development of screening initiatives
that women can easily access within their immediate environments and feel comfortable to engage
with. Given the challenge PPD presents as a mental health disorder that may often go undetected by
treating health providers and even the mothers themselves, the case for universal screening in
primary care has been advocated by all levels of health governance - from primary health care
authorities to the World Health Organisation (Wisner, Chambers, & Sit, 2006).

Several published reviews (Baker et al., 2011; Gjerdingen & Yawn, 2007) have provided evidence that
screening conducted by medical practitioners at scheduled well-baby visits and post-partum physician
visits are useful in trying to identify cases of PPD yet these settings represent just a fraction of the
avenues available within the primary care setting to undertake this task. Although medical
practitioners are central in the management of PPD, allied health professionals are well-placed in
primary care to assume roles that can help ease the immense pressure placed on community
physicians. With up to 50% of PPD cases going undetected (Chaudron, 2003) there exists a case for
screening programs to exist in a multitude of allied-health directed, primary care settings. Primary-
care based screening models provide ideal settings for screening women, given the ease of access
that women have to such venues and the extensive reach such settings provide. This review aimed to
fill a gap in the literature by exploring the role of allied-health care professionals within current PPD
screening research to determine the feasibility of delivering screening programs in allied-health
directed avenues within primary care. The decision to focus on PPD rather than the entire perinatal
period was made on the basis that screening tools are heavily utilised in PPD screening efforts
(Stewart, Robertson, Dennis, Grace, & Wallington, 2003b) and that the use of depression screening
scales in the antepartum period requires further validation (Kozinszky & Dudas, 2015).
2.2 Methods

Search Strategy (search conducted April - October 2014)

A strategic search was conducted using the following key terms (and related MeSH sub terms): allied health professionals, primary care, antenatal depression, postpartum depression and screening. The relevant search concepts and their related terms used were healthcare professional (OR/allied health, nurse, midwife, pharmacist, community worker, social worker) AND postnatal depression (OR/antenatal depression, perinatal depression, postpartum depression, postpartum blues, postnatal blues, maternal depression) AND screening (OR/referral, identification). Where appropriate, MeSH terms were utilized to increase search sensitivity. Five primary databases - Medline, Embase, Cinahl, PsycInfo, International Pharmaceutical Abstracts, and Scopus were used. Time limits were applied to search for articles published after 2000 and only articles in the English language were searched.

The articles obtained were subsequently imported into the Endnote citation management software and duplicates were removed (Figure 2.1). The remaining articles (n=752) were screened. The key inclusion criteria for the initial screening was that that article must list postpartum depression screening as an essential aim of the research reported in the article. After initial screening, the full articles were read and subjected to detailed criteria which were that the research study must be based in a primary care setting (defined as a community-based venue that allows self-referral and no specialist intervention), focused on the screening outcomes in the postpartum period (where screening was conducted in isolation or as a precursor to identify eligible participants for a larger intervention study), that the screening process be conducted by an allied health professional (defined as any health provider who is not a medical practitioner) and finally, that screening protocols (population screened, tools used, criteria for ruling PPD in or out) be clearly defined. Research papers were excluded from this review if they were not in the English language, did not focus on the role of the allied health provider on screening outcomes as a major research objective, focused on screening by professionals that were not allied health care providers, conducted screening only in the antenatal period or conducted the screening in secondary or tertiary settings. Articles selected for review were
then analyzed against criteria in a modified version of the STAR-D checklist (Appendix A) and reported in Table 2.1.

Fig 2.1 PRISMA flow diagram outlining the literature search strategy.
2.3 Results

Search yield

Eleven studies met the inclusion criteria that placed the allied health professional at the centre of the screening process and either directly focused on the screening outcomes themselves (n=4) or did so in the context of a larger intervention study (n=7) (Table 2.1).

Screening Outcomes

All studies measured the outcomes of a PPD screening program within primary care settings as at least one of their main research objectives and all studies which met the inclusion criteria for this review used the Edinburgh Postnatal Depression Scale (EPDS) as their primary screening tool. The EPDS is a self-administered 10-item questionnaire used for the purposes of identification of PPD in clinical and research settings. Values range from 0-30, with cut-off points for likelihood of depression differing between clinical protocols depending on the study methodology, language and diagnostic criteria used (Gibson, McKenzie-McHarg, Shakespeare, Price, & Gray, 2009). The EPDS has been the subject of many validation studies and the most recent systematic review reviewing EPDS validation studies (Gibson et al., 2009) noted that the thirty seven studies they analysed reported specificity values ranging from 44-100% and sensitivity from 34-100% depending on the cut-off values used.

The studies reviewed reported outcomes differently. Some reported the PPV of the EPDS, whereas others tracked EPDS scores throughout a planned intervention. The interventions, EPDS cutoffs used in each study, professional delivering the screening and other background information for each study is briefly described in Table 2.1
Table 2.1 Summary of relevant information extracted from eleven studies meeting inclusion criteria

<table>
<thead>
<tr>
<th>Reference</th>
<th>EPDS Cutoff</th>
<th>Study Protocol</th>
<th>Venue</th>
<th>Participants</th>
<th>Outcome Measures</th>
<th>Study results</th>
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<tbody>
<tr>
<td>Downie, J. et al. (2003)</td>
<td>&gt;=10</td>
<td>CHN; EPDS at 6-8 weeks OR 7-9 months postpartum</td>
<td>child health centres; Western Australia</td>
<td>mothers, 6 weeks postpartum (n=167); mothers, 7-9 months postpartum (n=91)</td>
<td>to evaluate current practice outcomes from the use of the EPDS by child health nurses in child health clinics</td>
<td>More women with depression at 7-9 months (17.6%) than at 6 weeks (13.8%); child health nurses referred several patients for possible PND based on observation despite normal scores on EPDS</td>
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<td>Reference</td>
<td>EPDS Cutoff</td>
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<td>Horowitz, J. A. et al. (2011)</td>
<td>&gt;=10</td>
<td>APRN; EPDS + SCID-1 at 4-6 months postpartum</td>
<td>EPDS (phone+mail); DSM IV interview (home)</td>
<td>postpartum mothers (n=5169)</td>
<td>to conduct a community-based, PND screening initiative and recommend screening practices</td>
<td>Screening by mail yielded a significantly higher percentage of mothers with elevated PND symptoms than screening by telephone suggesting that non-direct screening methods improved chances of detection.</td>
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<td>Jevitt, C. et al. (2005).</td>
<td>&gt;=11</td>
<td>CHN + registered NM's; EPDS at 72 hours and 6</td>
<td>home visit; US</td>
<td>pregnant nurses (n=180); postpartum (n=77)</td>
<td>to determine the feasibility of registered nurses screening for PND over time &amp; making</td>
<td>Women who appeared depressed were the least likely to agree to depression screening and/or a referral; 10.6% of the</td>
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<td>Reference</td>
<td>EPDS Cutoff</td>
<td>Study Protocol</td>
<td>Venue</td>
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<td>Nishizono-Maher, A. et al. (2004)</td>
<td>≥9</td>
<td>CHNs; EPDS + clinical interview at 3-4 months postpartum</td>
<td>community health centre; Japan</td>
<td>mothers, 3-4 months postpartum (n=96)</td>
<td>referrals for further assessment in a primarily Black population</td>
<td>51.1% of &gt;9 EPDS scorers had not been detected by nurses for possible postnatal depression; nurses judgement significantly influenced by EPDS score when known</td>
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<td>Reference</td>
<td>EPDS Cutoff</td>
<td>Study Protocol</td>
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<td>Brugha, T.S. et.al. (2011)</td>
<td>&gt;=12</td>
<td>HV's; EPDS at 6 weeks, 6, 12 and 18 months postpartum</td>
<td>general practices in Trent, England mothers, 6 weeks postpartum (n=2241)</td>
<td>to study the effects of HV psychological intervention on EPDS outcomes at 6, 12 and 18 months on women with an EPDS &lt;12 at 6 weeks</td>
<td>At 6 months following childbirth, 83 out of 767 (10.8%) control (CAU) women and 113 of 1474 IG women (7.7%) scored &gt;12 on the EPDS at 6 months, that is an absolute difference of 3.1% (95% CI 0.4–5.5) or a relative difference of 0.68 (95% CI 0.50–0.93, p=0.016)</td>
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<th>Outcome Measures</th>
<th>Study results</th>
<th>STAR-D Score</th>
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<tr>
<td>Davies, B. R. et al. (2003).</td>
<td>&gt;=9</td>
<td>HV; CMH nurse EPDS at 1, 3, 6, 12 &amp; 18 months postpartum</td>
<td>Home visit; UK</td>
<td>postpartum mothers (n=86)</td>
<td>to improve the early detection and treatment of PND in the practice studied</td>
<td>Use of the EPDS by health visitors enhanced the early detection of postnatal depression.</td>
<td>46%</td>
</tr>
<tr>
<td>Glavin, K. et al. (2010)</td>
<td>&gt;=10</td>
<td>PHN's; EPDS at 2 weeks, 6 weeks, 3 months and 6 months postpartum</td>
<td>home visits &amp; well baby clinics; two municipalities in Norway</td>
<td>mothers, 6 weeks postpartum (n=228)</td>
<td>to examine the effect of supportive counselling by public health nurses on PND</td>
<td>Decrease in depression scores from baseline to 3 months (2.5 point decrease, CI -4.0, -1.1) &amp; 6 months (2.7 point decrease, CI -4.3, -1.2) in the intervention group.</td>
<td>86%</td>
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</table>
### Screening & Intervention studies

<table>
<thead>
<tr>
<th>Reference</th>
<th>EPDS Cutoff</th>
<th>Study Protocol</th>
<th>Venue</th>
<th>Participants</th>
<th>Outcome Measures</th>
<th>Study results</th>
<th>STAR-D Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuosmanen, L. et al. (2010)</td>
<td>&gt;=13</td>
<td>MHN's; EPDS at 8 weeks and after final mental health nurse visit</td>
<td>three maternity and child health clinics in Vantaa, Finland.</td>
<td>mothers, 8 weeks post-partum (n=166)</td>
<td>to explore the impact of integrating mental health sessions into the everyday routines of MCH clinics</td>
<td>Post-intervention, the mean EPDS score was 9.04; change from the beginning -5.71, P = 0.062.</td>
<td>43%</td>
</tr>
<tr>
<td>Leung, S. S. L. et al. (2010)</td>
<td>&gt;=10</td>
<td>MCH Nurse; EPDS at 2 months and 6 months postpartum</td>
<td>Maternal &amp; Child Health Centres; Hong Kong</td>
<td>mothers, 2 month postpartum (n=462)</td>
<td>to evaluate effectiveness of PND screening program using EPDS</td>
<td>Mothers undergoing PND screening programme using EPDS had better mental health outcomes than those screened by clinical assessment.</td>
<td>85%</td>
</tr>
<tr>
<td>Reference</td>
<td>EPDS Cutoff</td>
<td>Study Protocol</td>
<td>Venue</td>
<td>Participants</td>
<td>Outcome Measures</td>
<td>Study results</td>
<td>STAR-D Score</td>
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<tr>
<td>Macarthur, C. et al. (2002)</td>
<td>no cut-off</td>
<td>Midwives; EPDS at 4 weeks, 10-12 weeks &amp; 4 months postpartum.</td>
<td>general practices; the West Midlands health region of the UK</td>
<td>mothers, 4 weeks postpartum (n=1503)</td>
<td>to develop &amp; implement a new model of community postnatal care</td>
<td>Mental health score (MCS) was significantly better in the intervention group than controls, as were mean EPDS scores and satisfaction amongst women who were assigned to the new model of care.</td>
<td>85%</td>
</tr>
<tr>
<td>Segre, L. et al. (2012)</td>
<td>&gt;=12</td>
<td>CHN’s screened with EPDS at ten possible</td>
<td>home visits; Des Moines, Iowa mothers postpartum (n= 1800)</td>
<td>to longitudinally assess the implementation and results of depression screening by the Des</td>
<td>Depression scores significantly decreased amongst women who sought treatment after a positive screen; 63% of those seeking</td>
<td>92%</td>
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</table>
### Screening & Intervention studies

<table>
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<tr>
<th>Reference</th>
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<th>Study results</th>
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<tbody>
<tr>
<td></td>
<td>occasions</td>
<td>Moine Healthy Start project</td>
<td>treatment experienced at least a 4-point improvement in EPDS score. Only 1% (n=8) of the total positive screens (n=581) were already seeking treatment.</td>
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**Abbreviations:**
- MCH: Maternity And Child Health.
- MHN: Mental Health Nurse.
- CHN: Community Health Nurse.
- PHN: Public Health Nurse.
- HV: Home Visitor.
- NM: Nurse-Midwife.
- APRN: Advanced Practise Registered Nurse.
- CMH: Community Mental Health.
Seven of these papers investigated the impact of counseling interventions following an initial screening process that were all integrated into the model of care (Brugha, Morrell, Slade, & Walters, 2011; Davies, Howells, & Jenkins, 2003; Glavin, Smith, Sørum, & Ellefsen, 2010; Kuosmanen, Vuorilehto, Kumpuniemi, & Melartin, 2010; Leung et al., 2011; MacArthur et al., 2002; Segre, O’Hara, Brock, & Taylor, 2012). All of the remaining four studies (Downie et al., 2003; Horowitz et al., 2011; Jevitt et al., 2005; Nishizono-Maher et al., 2004) that reported the outcomes of screening alone, included some mechanism for referral to an external treatment provider. None of the four studies reviewed reported follow up on the results of these referrals.

In all seven studies where the design included initial screening followed by an intervention, the EPDS (Edinburgh Postnatal Depression Scale) was used as a screening tool as well as an outcome assessment tool to measure changes in depression scores after an intervention was implemented. However, the protocols for scoring and reporting the EPDS scores were different in each study. These studies used different methods to report changes in EPDS scores following an intervention (absolute score change, or threshold specified score change) as markers of depression.

Six of the seven studies which applied a treatment intervention demonstrated significantly reduced EPDS scores following the intervention delivery. Glavin et al. (2010) noted that the intervention arm showed a 5.9 point average reduction in EPDS score compared to 3.4 points in the control arm, where the Reliable Change Index (a measure used to determine the clinical significance of change (Eisen, Ranganathan, Seal, & Spiro, 2007)) for the EPDS is calculated to be four points (Stephen Matthey, 2004). Davies et al. (2003) demonstrated that of 20 mothers classified as having depression according to their EPDS scores at 1 or 3 months, 75% were no longer depressed at 12 months, whilst Macarthur et al. (2002) showed a statistically significant reduction in EPDS scores of 1.66 in the intervention group. Segre et al. (2012) successfully referred 216 women with EPDS scores >12 for treatment with an on-site provider, where 63% of women (n=137) subsequently achieved at least a 4-point reduction in EPDS scores after treatment, reporting that only 1% of those with a high EPDS score were already receiving treatment when screened. Leung et al. (2011) demonstrated a 41% reduction in the proportion of EPDS scores >10 in the intervention group at 6 months postpartum. Brugha et al. (2011) reported that the odds ratio for EPDS≥12 at 6 months for the 2241 subjects was
0.71 for the intervention group (7.7% EPDS score ≥12) compared to care as usual (10.8% EPDS score≥12). In contrast, Kuosmanen et al. (2011) did not find statistically significant changes in EPDS scores before and after the mental health intervention they studied.

In the remaining four studies which focused on screening outcomes alone, the outcome measures used differed between studies. Some measured positive predictive value (PPV) of the EPDS as a primary outcome measure; Jevitt et al. (2005) found that of the 26 women in their study who received a mental health assessment following a positive screen, 19.2% (n=5) were diagnosed with depression, 53.9% (n=14) received a diagnosis of dysthymic disorder and 26.9% (n=7) were not classified as depressed, indicating a PPV of 73%. Horowitz et al. (2011) demonstrated a PPV of 77.8%, with 144 out of the 185 mothers with EPDS scores >10 meeting the DSM-IV criteria for PPD.

The remaining two studies did not report any diagnostic follow up to confirm the presence of depression so PPV could not be determined. However, they did conclude that their screening protocol was successful by virtue of the fact that the screening professional detected and referred cases that would otherwise have gone unnoticed. Downie et al. (2003) reported that 19.2% (n=50) of their screened subjects were at risk of developing depression based on their high EPDS scores with 11% of women in their study (n=29) receiving a follow-up referral. Nishizono-Maher et al. (2003) tested whether identification of mothers with PPD undertaken via clinical assessment by nurses yielded the same results as when the assessment was aided by use of the EPDS. In this Japanese study, 88/96 subjects (total n= 693) who scored >9 on the EPDS and who were presenting to a clinic for 3 month postnatal check-up with their baby were provided with a nurse-delivered clinical assessment; the nurse was blinded to the EPDS score. Of these eligible cases, 51.1% (n=45) were not identified as depressed, by the nurse involved; this provides evidence for the clinical value of using a validated screening tool such as the EPDS in the course of nurse-directed postnatal depression screening.
2.4 Discussion

This review described screening for postpartum depression (PPD) by allied health professionals in the primary care setting. To the best of our knowledge, this is the first review looking into this particular area of research. Primary care is a pivotal venue for PPD screening, thus clearly defined and implemented screening programs for depression could be particularly useful given the potential for healthcare professionals to miss cases of depression in the absence of such programs (Brealey, Hewitt, Green, Morrell, & Gilbody, 2010; Yonkers et al., 2001). It is important to note that despite casting a wide net to search for studies that included involvement of any type of primary-care based allied health professional in PPD screening, all research studies found that matched this inclusion criteria involved only nurse practitioners or midwives- none of the studies found involved any other type of allied health professional. Given the high prevalence of postpartum depression in the community, this is a particularly salient finding in light of the fact that there are multiple avenues within primary care that can be utilized to screen for PPD. Pharmacists are amongst the most easily accessible healthcare professionals within primary care and offer additional opportunities for mothers with PPD to be detected. In a recent study (O’Reilly, Wong, & Chen, 2015b), it was demonstrated that pharmacists are capable and willing to perform depression screening and refer the patient to their physician where necessary. This represents a critical area of future research which has the potential to significantly enhance the reach of PPD screening in primary care. However, our review indicates that although current community-based PPD screening programs have the potential to minimize the impact of PPD, the long-term success of such programs remains unclear due to a lack of long-term data. Despite this, the majority of studies reviewed concluded that screening in primary care provided a unique opportunity for healthcare professionals to detect PPD cases that could potentially go undiagnosed and untreated.

Due to a lack of longitudinal studies on the topic, the long-term success of PPD screening programs could not be established. However, one of the key findings of this review was the universally recognised feasibility of PPD screening in primary care and the recurrent suggestion by authors that cases may have gone undiagnosed in the absence of the screening program utilized during the course of their study. The studies reviewed also suggest the utility of allied health professionals such
as nurse practitioners and midwives in PPD screening. This offers a significant opportunity to maximize existing resources; screening can be conducted and results referred to a specialist physician, sparing capacity in primary care. Mental health interventions by non-mental health specialist workers are already being implemented through the World Health Organisation’s Mental Health Gap Action Programme (mhGAP). The mhGAP provides health professionals in low-middle income countries with the tools to deliver evidence-based mental health interventions in non-specialised healthcare settings. This model could possibly inform future attempts to enable a wider variety of allied health workers to deliver PPD interventions in primary care.

The availability of validated and widely known instruments such as the EPDS is a significant advantage in PPD screening. It was apparent in the studies reviewed that using an instrument such as the EPDS significantly enhanced clinical assessment of PPD and removed barriers that can lead women to underreport their symptoms when questioned directly by clinicians (Horowitz et al., 2011). This low rate of detection by clinical assessment alone compared to EPDS detection is well-known amongst researchers, with a review of the use of the EPDS by home visitors (Holden, 1994) indicating that the rate of detection of depression was as low as 40% using clinical judgment alone; a finding supported by Nishizono-Maher et al. (2003) and Leung et al. (2011). These findings appear to support research conducted within the broader area of depression which suggests that unassisted judgements of depression by clinicians lacks sensitivity when compared to standardised psychiatric measures used to screen for depression such as the Patient Health Questionnaire-9 (PHQ-9) (Carey et al., 2014; Gilbody, Richards, Brealey, & Hewitt, 2007). The articles reviewed support the notion that where allied health professionals are involved in screening for postpartum depression in primary care, they would benefit from being trained in the use of instruments such as the EPDS as a standard screening tool within the course of their practice.

Despite numerous studies exploring PPD screening in primary care, this area of research is limited by a diverse set of factors that complicate our ability to define a “successful” PPD screening program or construct best practice recommendations for PPD screening in primary care. The lack of consistency in the reporting of screening outcomes is one of these factors. In the studies reviewed, multiple outcome descriptors were used to answer what was essentially the same question across the board:
how effective is screening by allied health professionals in primary care? In the four studies reviewed that conducted screening alone, the outcomes measured were either PPV of the EPDS or more simply, the number of positive screens elicited by EPDS screening (Downie et al., 2003; Horowitz et al., 2011; Jevitt et al., 2005; Nishizono-Maher et al., 2004). The underlying assumption- that detection equates with a positive outcome- is flawed given that case detection is simply the first step on a long road to recovery (ultimate recovery being the goal of screening in the first place). Despite all four studies including some mechanism for referral as part of their study, they did not report long-term follow up to determine PPD progression and the outcome of referral. Seven of the studies reviewed attempted to fill that gap by implementing an intervention following on from their screening protocol (Brugha et al., 2011; Davies et al., 2003; Glavin et al., 2010; Kuosmanen et al., 2010; Leung et al., 2011; MacArtur et al., 2002; Segre et al., 2012). These studies mostly analysed EPDS score changes from baseline to post-intervention as an outcome to measure the effect of the intervention compared with controls. Six out of these seven reported improvements on baseline EPDS scores after the intervention; in one case the EPDS scores did not improve post intervention (Kuosmanen et al., 2010). Although the results of these intervention-based studies are promising, they highlight the need for further, high quality research that quantitatively assesses the long-term impact of primary care PPD screening using consistent outcome measures.

Another factor limiting the available evidence in these studies was the lack of standardized EPDS cut-off scores used across the research spectrum. The literature (and indeed, the studies included in our review) shows a highly scattered approach to determining the EPDS cut-off for each study. The widely accepted optimal cut-off point for major depression is 13, as referenced by the original validation study, which indicates the likely presence of major depression (Cox et al., 1987). However, a wide variety of cut-off points for the EPDS (Stewart, Robertson, Dennis, Grace, & Wallington, 2003c) have since been reported. A meta-analysis of over 40 studies (Paulden et al., 2009) demonstrated an optimal cut-off of 10 for both major and minor depression and 13 as a cut off for major depression. Whilst a cut-off of 13 suggests the presence of major depression, a lower threshold of 10 will increase screening sensitivity and thus the number of potential cases of PPD identified. One study (Chaudron et al., 2010) suggested that the optimal cut-off of the EPDS may be as low as 9, several points below the traditional cut-off of 13. Regardless of cut-off scores, Davies et al. (2003) provide some evidence
to suggest that breaking away from study protocols is sometimes necessary when the clinicians involved suspect PPD despite a low EPDS score. The variance in EPDS cutoff scores between studies highlights the need to standardise EPDS cut-off scores in research protocols to ensure that cutoffs used in primary-care based screening programs are backed by a strong body of evidence. Further research into key protocols in the use of EPDS for PPD screening is recommended to assess the factors that drive EPDS cut-off inconsistencies and to help shape a defined set of cut-off scores that inform future research studies.

There is a growing sense amongst PPD researchers (Chaudron & Wisner, 2014) that future research must pivot around effective ways of bridging the gap between screening and treatment engagement to give an accurate picture of screening outcomes that can inform the development of clinical guidelines. Screening programs implemented in the absence of well-established and well-resourced referral and treatment programs to funnel positive screens are invariably found to be ineffective (Nishizono-Maher et al., 2004). Three randomised cluster trials studying the implementation of a training program that equips primary healthcare professionals with the skills to recognize, identify and treat PPD (Brugha et al., 2011; Leung et al., 2011; Yawn et al., 2012) collectively indicate that screening is most effective when integrated into a stepped-care model that begins with screening and ends with treatment (Gjerdingen, Katon, & Rich, 2008). The most recent systematic review (E. R. Myers et al., 2013) prepared for the Agency for Healthcare Research and Quality (AHRQ) in the United States suggests that where screening and treatment is offered by the same provider or practice, outcomes are considerably better and depressive symptoms significantly improve. This is particularly true for women who are more likely to decline referral to another service for treatment, as reported by nurse practitioners in the study by Jevitt et al. (2005) who observed that women that appeared depressed were the least likely to agree to referral. Further research on integrated care models in various primary care settings is required to bridge this research gap and provide policymakers with the confidence they need to implement such programs universally.

However, despite evidence that stepped-care models appear to provide promising results, there have been limited attempts to determine the overall effectiveness of a screening program from detection right through to referral and treatment. Only one randomised controlled trial (Leung et al., 2011) has
been conducted to the knowledge of the authors that attempts to fill this research gap. However, significant limitations have limited its generalizability, leading some researchers (Thombs, Arthurs, et al., 2014) to argue that there is insufficient evidence to prove a benefit to women from established screening programs and that clinical guidelines should reconsider supporting costly universal depression screening programs. This conclusion correctly identifies a gap in the research exclusively linking screening to depression outcomes through high-quality randomised controlled trials. Some researchers lament the implementation of universal screening programs (L. Harris, 2016; Thombs, Ziegelstein, et al., 2014) citing lack of evidence of long-term benefit to PPD-affected women, exorbitant costs and potential harm to women as justifications for their stance. However, given the immense social risk and undiagnosed maternal suffering associated with not implementing some form of universal screening (Gjerdingen & Yawn, 2007), it may be suggested that these findings strengthen the imperative to conduct further high-quality randomised controlled trials to determine the long-term success rates of PPD screening programs. Further research is also required to determine whether extending such programs into allied-health directed avenues would result in a significantly higher number of women with PPD receiving diagnosis and treatment.

2.5 Limitations

Although great care has been taken to ensure the validity of this review, it contains several limitations. Firstly, the literature review was undertaken and synthesised by one author, increasing the chance of errors in determining eligibility of papers to be included in the review. This limitation was exacerbated by the tendency of some authors within the literature to implicitly suggest that their study measured primary-care screening outcomes when on closer examination, they didn’t include this as a research objective. Preliminary screening of the literature was undertaken by secondary authors to reduce the effect of this limitation. Secondly, the authors were unable to ascertain the generalisability of the findings presented in the papers reviewed due to factors presented in the discussion. Despite these limitations, this review provides a unique perspective on PPD screening in primary care and delivers new insights about the application of screening protocols in settings beyond that which is current practice.
2.6 Conclusion

Screening for PPD by allied health professionals with the EPDS is feasible and can help detect hitherto undiagnosed disease. While much research has been conducted, inconsistencies in defined outcomes and cut off thresholds for the EPDS within published screening studies limit effective translation of research into practice. Ease of access to healthcare professionals is vital for such screening programs to be effective. The findings of this review support the possibility that postpartum depression screening can be extended into multiple facets within primary care. However further research is required into the feasibility of training a wider scope of allied health providers within primary care to maximize PPD detection and improve depression outcomes. There is also an urgent need for further high-quality randomised-controlled trials that examine the long-term impact of screening and intervention on PPD outcomes within the context of stepped-care models.

*This manuscript does not contain clinical studies or patient data.*

*The authors declare that they have no conflict of interest.*
Chapter 3:

Phase 1 Study

Pharmacist perspectives on pharmacy-based perinatal depression screening: a qualitative study.

Chapter 3 of this thesis has been submitted to the *International Journal of Clinical Pharmacy* and is currently under review (May 2016):

**Elkhodr, S., O’Reilly C.L., Saini, B. Pharmacist perspectives on pharmacy-based perinatal depression screening: a qualitative study.**

**Author Contributions**

Ms. Sabrine Elkhodr developed the ethics application, designed the semi-structured interview guide, conducted the phone interviews, developed the coding framework and wrote the manuscript. A/Prof Bandana Saini provided primary research supervision, reviewed the ethics application, guided the development of the interview guide and coding framework and critically reviewed the manuscript. Dr. Claire L. O’Reilly provided research supervision, reviewed the ethics application, guided the development of the interview guide and coding framework and critically reviewed the manuscript.

Ms. Sabrine Elkhodr

Dr. Claire L. O’Reilly

A/Prof. Bandana Saini
Pharmacist perspectives on pharmacy-based perinatal depression screening: a qualitative study.

Elkhodr, S., O’Reilly C.L., Saini, B.

3.1 Introduction

Perinatal depression (PND) affects up to 13% of mothers (Halbreich & Karkun, 2006) and is characterised by a non-psychotic depressive episode occurring during pregnancy or after birth. Distinct from the ‘postpartum blues’, which occur in up to 70% of all new mothers and usually resolve within two weeks of birth (Marcus & Heringhausen, 2009), PND onset can occur as late as four years postpartum (Woolhouse et al., 2015) and can have far-reaching consequences on families affected by the disorder (Letourneau et al., 2012). With heightened global awareness about mental health and the recognition that PND often remains undetected, the implementation of universal screening programs to detect PND has been widespread and broadly advocated (Milgrom & Gemmill, 2014).

According to a new statement from the US Preventive Services Task Force (USPSTF), all pregnant and postpartum women should be routinely screened for depression (L. Harris, 2016). However, the lack of randomised controlled trials (RCT’s) providing evidence that universal screening programs improve depression outcomes has called the utility of such programs into question (Thombs, Ziegelstein, et al., 2014). A frequently cited criticism in the literature (Chaudron & Wisner, 2014; Gjerdingen & Yawn, 2007) is that comprehensive systems are required to ensure that suspected PND cases are funneled through to appropriate diagnostic and management services; that screening is just the first step of many and must necessarily precede a well-structured, collaborative system of care. Advisory bodies such as the Agency for Healthcare Research and Quality (AHRQ) have suggested that universal screening be reserved for situations where sturdy referral systems have been established to deal with screening results. Regardless, numerous studies have suggested that routine screening initiatives successfully increase the detection rate of PND in the community setting (Brugha...
et al., 2011; Downie et al., 2003; Evins, Theofrastous, & Galvin, 2000; Horowitz et al., 2011; Jevitt et al., 2005; Segre et al., 2012).

Given their routine contact with perinatal mothers, nurses and midwives are often the first health professionals to suspect that a woman is experiencing PND (Segre, O’Hara, Arndt, & Beck, 2010) and although these visits present key opportunities to recognise and refer PND cases, they represent just a fraction of the avenues available within the primary care sphere to undertake this task. PND screening by allied health professionals who deal with perinatal women in primary care could theoretically increase the likelihood of detecting cases of PND. They are highly accessible to pregnant and postpartum women, operate within numerous venues in the community and are well-placed to assume roles that can help ease the immense pressure placed on community physicians.

Pharmacists are one of the most accessible healthcare professionals within a mother’s health care team and are well-placed in the community to identify potential cases of PND through the daily, casual conversations they encounter with women at risk. There are numerous examples of successful pharmacist-led, community-based screening programs that screen for conditions such as depression (O’Reilly et al., 2015a; Rubio-Valera, Pons-Vigués et al., 2014), COPD (Castillo et al., 2009; L. Fuller et al., 2012; Soriano, Zielinski, & Price, 2009), sleep disorders (J. M. Fuller, Wong, Krass, Grunstein, & Saini, 2011; Perraudin, Le Vaillant, & Pelletier-Fleury, 2013; Tran et al., 2009), diabetes (Snella et al., 2006) and hypertension (Mangum, Kraenow, & Narducci, 2003) which support the notion that PND could also potentially be screened for in a pharmacy setting. Increasingly, the role of pharmacists in detecting and managing mental health disorders is becoming more accepted as emerging evidence points to their professional pertinence (Bell, Whitehead, Aslani, Sacker, & Chen, 2006; Rubio-Valera, Chen, & O’Reilly, 2014) and feasibility within mental health care teams. Pharmacists may be instrumental in supporting early detection, forward referrals and interventions by other trained professionals (Finley, Crismon, & Rush, 2003) and recommendations have been made to include pharmacists as part of primary mental health care teams (Brophy, Hodges, Halloran, Grigg, & Swift, 2014). Such involvement could reasonably be extended to accommodate the mental health needs of perinatal women though there appears to be very little in the literature to suggest this potentiality has been explored. Pharmacists already play a significant role in facilitating optimal perinatal health,
ranging from providing breastfeeding support (Edwards, 2014; Ruddock, 2004) and contraception counselling (Schatz, Chapman, & Chang, 2014) to nutrition advice (Philpott et al., 2014) and minor ailments in childhood. However, there are no studies that elucidate the perspectives or experiences of community pharmacists in PND, representing a significant gap in the literature about PND screening in the primary care context.

3.2 Aim of the study

The purpose of this study was to explore community pharmacist’s current involvement in supporting perinatal women’s mental health, their perspectives on the future role pharmacists’ can play in health promotion (screening and health education) for perinatal depression in community practice and the barriers preventing them from currently doing so.

3.3 Ethical Approval

The study was approved by the Human Research Ethics Committee at the University of Sydney (project number 2015/683) (Appendix B).

3.4 Methods

A qualitative method of data collection and inductive analysis using a semi-structured interview guide to gather the data was deemed the most appropriate research design for this study, particularly as the research is exploratory.

Participant recruitment

Purposive recruitment methods were employed to build a convenience-based sample of practicing pharmacists from the western/south western regions of the city of Sydney, New South Wales. The decision to focus on pharmacies in this area was based on data obtained from the Australian Bureau of Statistics (ABS 2014) which suggested that the fertility rate in this region was higher than the NSW average. Invitation letters, participant information sheets and consent forms were mailed out to thirty
two pharmacies in south-western Sydney in addition to practicing pharmacists known to the research team who were not necessarily located within the study catchment area of south-western Sydney. This was followed up with a phone call ten days later to elicit interest in participating in the study. Passive snowballing methods were subsequently employed to enhance the sample variation and size. Study inclusion criteria included participants who were pharmacists, English speaking and had practiced or were currently practicing within community pharmacy. Upon completion of the interview, participants were reimbursed with a thirty dollar gift voucher for their time and contribution. Recruitment continued until thematic data saturation was reached with respect to pharmacist experiences with perinatal depression.

Interviews

All semi-structured interviews were conducted over the phone by the first author in lieu of face to face interviews. This operating decision was made to enable convenience and higher response rates for pharmacists who cite “lack of time” as a primary barrier to research participation (Awaisu & Alsalimy, 2015). Although there was scarce literature related to pharmacist perspectives on PND, general reading about PND and primary care, as well as the collective pharmacy practice experiences of the research team were used to construct a good-quality semi-structured topic guide. The interview was structured to extract relevant participant demographic data and basic experiences with new mothers through simple, opening questions that became progressively detailed as the interview continued as outlined in Table 3.1 (see Appendix C for full questionnaire entitled “Interview Topic Guide”). Using this funnel approach, factual questions were used initially, followed by opinion and self-reported practice behaviour questions whilst allowing for reflective open ended comments if volunteered. To provide context, two brief, hypothetical vignettes related to mothers presenting with PND symptoms were used to lead interviewees onto questions around current and future practice. The guide was pilot tested with three practicing pharmacists prior to research interviews commencing both for the appropriateness of the interview guide and for the training of the main interviewer (SE). All interviews were digitally recorded and then transcribed verbatim by an independent transcriber for subsequent analysis. All transcriptions were cross-checked by the first author for accuracy and assigned identifier numbers.
## Table 3.1: Semi-structured Interview Guide outline

<table>
<thead>
<tr>
<th>General Professional Characteristics</th>
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<tr>
<td>seniority, size of pharmacy, location of pharmacy, years in practice, frequency of practice</td>
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<th>Pregnancy and postpartum in the pharmacy</th>
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<tr>
<td>types of product queries, special issues encountered, common counseling points to this patient group, general services offered to this group, observations about this patient group</td>
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<tr>
<th>Perinatal Depression in the Pharmacy: Current Practice</th>
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<tr>
<td>frequency of contact with postpartum mothers, gauging emotional problems, approaching suspected PND, current referral practices, confidence with referral</td>
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<tr>
<th>Perinatal Depression in the Pharmacy: Future Practice</th>
</tr>
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<tr>
<td>community pharmacy’s capacity to screen for postpartum depression, steps before PND screening can become professional service, tools required to screen for PND and incorporating them into the counseling session, potential barriers that need to be addressed before PND screening implemented, perceived stigma around PND, patient privacy and PND screening, acceptability of PND screening being conducted by pharmacists, cost issues, pharmacy owners willingness to implement PND screening, need for training.</td>
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</table>
Data Analysis

Given that the objective of the semi-structured interviews was to seek the perspectives of pharmacists concerning their experiences with PND and the lack of existing data on the topic, a constructivist approach was chosen to underpin data analysis. This approach recognises the subjective interplay between participant and researcher in deriving meaning from data (Mills, Bonner, & Francis, 2008), subjecting the research notes to a process of “analytic induction” (Pope, Ziebland, & Mays, 2000) as a way of iteratively “testing and retesting theoretical ideas” emerging from the data. Transcribed data were systematically coded using NVivo 10 software (QSR International Pty Ltd, 2012). The research team first familiarised themselves with the transcripts before conceptualising presenting themes using open and axial coding techniques into a coding framework which was utilised in the analysis of further transcripts. Codes were integrated into this framework as they emerged. To improve the reliability of the data, 20% (n=4) transcripts were independently coded by two members of the research team and coding structures compared to achieve consensus.

3.5 Results

Of thirty-two pharmacies contacted by mail and phone to participate, eleven responded (34% response rate). A further seven pharmacists in Sydney and two in the ACT were recruited through snowballing methods. Thus, a total of eighteen semi-structured phone interviews were conducted with practicing pharmacists in New South Wales and two in the ACT (twenty interviews in total) between September 2015 and January 2016. Table 3.2 summarises the general demographic and practice characteristics of participants. The interviews ranged between 18 and 43 minutes. The number of years participants had been in practice ranged between one to thirty. Three participants were registered but not currently practicing; these pharmacists were on maternity leave at the time but usually practised within community pharmacy. Participants reported their frequency of contact with perinatal women as ranging from ten per day to once every six months. A thematic content analysis of the interview transcripts revealed three umbrella themes – role perceptions, patient-pharmacist relationship and practice issues, and eight sub themes summarised in Table 3.3 with relevant quotes provided beneath each sub-theme. Where direct participant quotes are used, the code P refers to the pharmacist followed by a number indicating the participant who provided the quote.
### Table 3.2. Participant professional characteristics

<table>
<thead>
<tr>
<th>Participant Characteristics</th>
<th>Proportion (n=20)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>14</td>
</tr>
<tr>
<td>Male</td>
<td>6</td>
</tr>
<tr>
<td><strong>Time in Practice</strong></td>
<td></td>
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<tr>
<td>&lt;5 years</td>
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<tr>
<td>5-10 years</td>
<td>11</td>
</tr>
<tr>
<td>&gt;10 years</td>
<td>4</td>
</tr>
<tr>
<td><strong>Seniority</strong></td>
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<tr>
<td>Employee</td>
<td>10</td>
</tr>
<tr>
<td>Manager</td>
<td>3</td>
</tr>
<tr>
<td>Owner</td>
<td>4</td>
</tr>
<tr>
<td>Not currently practising</td>
<td>3</td>
</tr>
<tr>
<td><strong>Frequency of practice</strong></td>
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<td>12</td>
</tr>
<tr>
<td>Not currently practising</td>
<td>3</td>
</tr>
<tr>
<td><strong>Location of pharmacy</strong></td>
<td></td>
</tr>
<tr>
<td>Shopping strip</td>
<td>12</td>
</tr>
<tr>
<td>Shopping centre</td>
<td>5</td>
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</tbody>
</table>

### Role Perceptions

All participants expressed that pharmacists were ideally placed in the community to screen for PND and had the capacity and willingness to screen given the right circumstances but emphasised that diagnosis was beyond their scope of practice.
Accessibility

Participants identified several key parameters defining their role in the context of perinatal mental health, all underpinned by the ease with which mothers are able to access their pharmacists.

“I think the beauty of community pharmacy, is the accessibility of it. So the fact that there’s always a pharmacist that you can speak to… rather than other medical settings, that require the customer to take that first step of, “I'm going to go and speak to someone about this.” which is quite often the biggest hurdle that people face…” P15

“Sitting down and showing her that as a pharmacist, I’m on her side and for her to call me up whenever she's feeling down .. show her that I'm part of her support system and that I'm there for her.. some patients do feel like the pharmacist is the first point of contact for anything, they just come into the pharmacy, which is ideally accessible.” P2

“Always make sure that they know, they can come back in...make sure those doors are open...we are the most accessible health care professional you can just pop in and see the pharmacist, you don’t need to have an appointment.” P10

Participants frequently noted that key to this supportive role was the imperative to de-stigmatize perinatal depression and reassure women that their experiences were relatively common.

“Just informing the mother that it is quite normal..so a lot of them feel like they are the only one, as if it’s not normal to be feeling this way… but just inform them that there is help.. it’s something that still is not understood very well and that’s where the pharmacist can help change their views.

.” P5
Most participants pointed out that overcoming this stigma was crucial to encouraging patients to open up about their depression.

“The patient might perceive it as stigma (sic) and so she might be unwilling to disclose this sort of stuff in a pharmacy setting… so getting the patient to talk about these things that’s going to be the tricky part… I would reassure her that’s a very common experience after giving birth.” P6

“It’s a case of trying to put the person who you are talking to at ease, so you can try to overcome that stigma… and just reassuring people that what they’re experiencing is completely normal.” P15

Preparedness for roles in PND

Although most participants identified their role as being primarily concerned with the provision of medication advice & counselling, some participants voiced concerns that community pharmacists are not currently well-equipped to advise on medication use while pregnant or breastfeeding.

“I think pharmacists in the community will often get asked - is it safe to take antidepressants while you’re pregnant and while you’re breastfeeding and I think that are a lot of pharmacists out there who don’t know how to use the information in the best interests of the patient… I’ve seen it where pharmacists would scare women, about taking medication and that would result in them not wanting to get diagnosed, and not taking any treatment.” P13

“it’s not particularly an easy thing to do because available resources for pharmacists to be able to make informed decisions about drugs aren’t easy to come by… it’s not easy for pharmacists to deal with” P18
All participants’ noted the imperative to refer suspected cases of PND to appropriate professionals as their professional duty though were unfamiliar with local referral pathways for PND.

**Professional Boundaries**

A prevailing notion amongst a majority of the participants was that pharmacist-led PND screening would encounter resistance from primary care physicians (or general Practitioners-GPs). This was thought to occur as GPs may perceive that pharmacists were either not trained to screen, did not have the time in the pharmacy to explore sensitive mental health issues or believed that pharmacists would be stepping onto GP professional boundaries by conducting PND screening.

“I think some doctors may raise their brows thinking (pharmacists) haven’t been trained enough to be able to detect or screen for patients with mental health problems and I would agree to a certain extent. We are not doctors. We are only trained to a certain point where we had to say we need to refer you…if we can’t detect patients that are going through that we’re lacking in our professional duty to them” P11

“I know with previous services, the doctors weren’t taking on it, because they felt in a way that pharmacists were taking over the GP’s job, but showing them it’s actually more of a team work, the pharmacist referring rather than diagnosing, that will sort of help break down the barrier.” P2

Suggestions were made that the key to overcoming some of this resistance would be through relationship-building and proving the value of the pharmacy based service.

“I think a lot of it comes down to the relationships that you have with medical practitioners in your own area. A lot of medical practitioners really appreciate the fact that we’re referring people for other medical conditions already…the doctor’s generally very appreciative of the fact that we’ve sent that person back to them.” P15

“The more people we screened and referred particularly if they turned out to be legitimate cases of concern then I think well the results are going to speak for themselves.” P19

Furthermore, pharmacists noted that cultivating strong, interprofessional networks across the perinatal depression care landscape would allow for more robust referral and management strategies.
You don’t want to be overstepping anyone’s professional boundaries, but at the same time I think having recognition and the confidence of other healthcare professionals would definitely help. Because if we do get access to that kind of delivery of service but then get resistance from healthcare professionals then I don’t think we’ve accomplished anything” P7

“For a diagnosis of depression, you need a medical practitioner, diagnosis cannot be made in a pharmacy, it can only be detected...you can suspect, but certainly you can’t diagnose it.” P6

“I think screening and referring them on is definitely our role, but would have to be careful to stick within our realm and our field of expertise and not step outside that” P10

The possibility of delivering PND training with GPs and pharmacists attending together was also raised by one participant.

Pharmacist-patient relationship

Patient Trust

Pharmacists emphasised that nurturing patient trust was a prerequisite to initiating conversations around sensitive mental health issues. Moreover, pharmacists believed that the rapport they build with their patients through casual, non-threatening conversations allows them to pick up on nonverbal cues that may indicate the presence of a mental health disorder.

I find that with my patients. I mean I tend to find out all about them just from chit-chatting. It doesn’t have to be direct questions. You could just be discussing life in general & you’ll just pick up on these things. p11
The more you can get people talking the more cues you see, like both verbal and nonverbal cues you will start to see. And also people start to open up the longer the conversation goes on. So you tend to be able to get a good gauge on what the real issue is rather than the initial thing that the person is talking to you about. P15

An interesting observation was made by several pharmacists that a patient’s trust was predicated on the pharmacist’s perceived ability to relate to the mother in question; namely that they are either female or a father and thus able to empathize.

“I was always very wary, when I first got registered about being a young male pharmacist and having these conversations with women...I always talk about personal experience whenever I talk to customers, about my own kids...I think it makes you much more relatable” P15

“If you guide them in that direction, but also show them that – I’ve been through something similar and this is what I did, I think they would be more prone to accepting that advice. There’s that fine line and it really depends on the pharmacist ...if it was a male, some women might get offended.” P12

The difficulties associated with maintaining patient privacy in an open pharmacy was also frequently cited as a potential barrier to earning patient trust.

“There’s also the whole issue of pharmacy being such an open space and if you don’t have that area or counseling room where you can spend that time with the patient then the patient would be less likely to tell you what’s going on because they will always have that feeling of someone listening in” P11

Patient Autonomy

Participants noted that patients are often hesitant to disclose that they are struggling emotionally.
“They’re often trying to shrug it off, they say I’m tired, it’s because I haven’t slept properly, because I’m not eating properly. So they’re not wanting to name how they’re feeling..as a mum, you would never talk about how you weren’t coping.” p13

Pharmacists asserted that in such cases, respecting patient autonomy transcended their professional mandate to refer cases that they believed warranted additional investigation, except where immediate risk to the mother or child was apparent.

“If in fact, if they outright say that they’re really depressed and they want to hurt themselves, then patient confidentiality isn’t much of an issue in those cases, but it is your responsibility as a pharmacist to get somebody involved, who might be in a better position to actually manage that.” P10

They were also careful to maintain this autonomy when following up on mental health referrals with the patient’s medical practitioner by ensuring they receive consent first.

“I would encourage the patient, yeah just go and have a chat to your doctor. If there was no improvement that’s when I might be considering having a conversation with the prescriber but I’d get the patient’s consent first because you don’t want to sort of stir things around that way.” P19

Clinical Practice Issues

Training

Pharmacists cited a lack of confidence when dealing with sensitive mental health issues.

“If I knew more about the condition and knew how to pick up on it in pharmacy that would make me more confident. If am confident that she does have possibly have it or if she thinks that she might have it that’s easier to refer.” P1

Most participants acknowledged that their current level of expertise was inadequate to deal with the complexities associated with perinatal depression and expressed frustration at the lack of clear guidance available to pharmacists regarding appropriate referral pathways. They unanimously stated a desire to engage in further education to gain these skills and knowledge.
“The perceptions of pharmacists themselves could be a barrier because, you know, there is a stigma is dealing with general depression let alone postpartum depression. That could be resolved with education to empower pharmacists, I guess and training to sort of make it normalized that dealing with patients with depression and postpartum depression is not only essential but it is possible.” P7

“I definitely want training because as I said as a pharmacist, we just know the general side. We don’t have training on how to approach something as sensitive as mental health. So probably more in-depth training and techniques on how to approach the situation that would definitely give you more confidence in dealing with it.” P2

When queried about the format they would like the training to take, the majority stated that they would prefer online modules but that a face-to-face component was also necessary to simulate possible interactions with patients who may have PND.

“I think it would probably have to be a combination of pre-learning online. And then probably some face-to-face stuff. Because I think when you’re talking about how you interact with the customer, which is really the key to whether or not it’s going to be successful. There has to be some face-to-face time, because you need to be able to present those scenarios in a more personal way.” P15

Conflicting priorities

Pharmacists frequently cited a lack of time as the primary barrier to conducting PND screening in community pharmacy. Participants expressed that competing demands in the pharmacy created a perplexing dilemma where they had to choose between providing patients with focused attention or to get through the heavy foot traffic that flows through their pharmacy. Such conflicts were described as a compelling reason to thoroughly consider whether PND screening, a time-intensive endeavour, is appropriate in community pharmacy.

“Times always a barrier, the pharmacist is always very busy... It’s unfortunate but that’s just the whole changing face of pharmacy. It has become hard to spend time with patients. If that was to take place I think it would be necessary to employ more staff especially employ another pharmacy dispensary checker or another pharmacist so you could have enough
time to be able to go through with these processes and put them in place and to use them sufficiently." P11

It was pointed out however, that if a given pharmacy was intent on providing this service, such conflicts could be resolved.

“I guess you can always get around with that if you really generally want to adopt that service. I think that wouldn’t stop anyone if that’s the mission and the priority the pharmacy wants to adopt and instill.” P7

Remuneration

Suggestions were made that time constraints could be resolved by securing funding that would allow for more pharmacists to be on staff thus giving them time to have in-depth mental health discussions with patients.

“Time means money so if it’s going to be a free service most pharmacy owners will be hesitant because they are paying for that extra pharmacist to do that extra work so there has to be something in return.” P11

Some pharmacists believed that PND screening counts as a professional service they should be financially remunerated for. Some participants felt that pharmacy owners would be more partial to adopting PND screening in their pharmacy if remuneration was provided.

“The issue with pharmacy, the big issue is actually funding. There should be some kind of reimbursement for that because this is not just dispensing a prescription. It’s more of an in-depth session. So something along the lines of the Medcheck program for example...some kind of reimbursement, should really be there, to motivate the pharmacists to give that extra time for the patient.” P2

The pharmacy owners interviewed all agreed that the value provided by pharmacists in the context of PND screening needed to be recognised but differed on whether that value should be financially compensated.

“I honestly believe, that us providing this service to our community, creates customers for life...I don’t believe you could charge for mental health screening.” P13

“I think going forward the bottom’s fallen out of the margin of dispensing. Most pharmacies
depend on dispensing... so services that are being rolled out need to have some kind of value." P20

Not all pharmacists however believed that they needed to be remunerated to screen for PND. These participants either felt that the costs associated with screening would be so low as to not warrant remuneration or they believed that screening was simply another facet of their role as pharmacists.

“ I don’t think there’s much cost involved in screening, unless it’s a you know, full blown screen, where they come in at a scheduled time – I think if you’re just picking up on that with the perinatal patients coming into the pharmacy, I dont think there actually needs to be any funding for that; just part of our role.” P10
3.6 Discussion

This study represented the first qualitative study conducted to evaluate the concerns, beliefs and needs of pharmacists in the context of perinatal depression screening. Quantitative reviews have been undertaken to assess the acceptability of perinatal depression screening to healthcare professionals (El-Den, O’Reilly, & Chen, 2015) however much of the research conducted in the area of perinatal depression has centered around the experiences of medical practitioners, nurses and midwives. There is little evidence in the literature to suggest that the feasibility of pharmacist-led PND screening has yet been explored. On the other hand, there is reasonable evidence to suggest that pharmacists have a role to play in the detection and management of mental health issues (Finley et al., 2003; Rubio-Valera, Chen et al., 2014) and the feasibility of implementing depression screening services in pharmacy has been demonstrated (O’Reilly et al., 2015a). This study bridges a significant investigative gap that opens the possibility of trialing perinatal depression screening programs in community pharmacy. The results of this study indicate that pharmacists are willing to expand the professional scope of their practice to incorporate such a role. However, participants voiced salient points for consideration before the feasibility of such a program can be explored. Their main areas of concern centered around establishing patient trust, handling conflicting priorities, access to educational resources, and enhancing interprofessional collaboration.

The importance of establishing patient trust and rapport was raised in this study as a significant consideration in the provision of perinatal depression screening services. Many studies have confirmed that patient trust is a critical factor in treatment compliance (Kerse et al., 2004; Piette, Heisler, Krein, & Kerr, 2005; Zolnierek & DiMatteo, 2009). Ensuring patient privacy is paramount to establishing this trust, participants stated, though guaranteeing this privacy in the context of a busy pharmacy was difficult. Lack of privacy in community pharmacy has been a long-standing issue for pharmacists (Raisch, 1993). However, consultation rooms in pharmacies are becoming more commonplace and may encourage patients to discuss sensitive issues with their pharmacist, such as PND, in private when they are aware of their availability (Mobach, 2008; Saramunee et al., 2014).
In addition to challenges associated with maintaining patient privacy, pharmacists acknowledged that they struggled to prioritise in-depth mental health discussions with mothers in the pharmacy due to significant time-pressures. Such pressures are well-documented (Eades, Ferguson, & O’Carroll, 2011; Eden, Schafheutle, & Hassell, 2009; Gert Scheerder, Iris De Coster, & Chantal Van Audenhove, 2008; Saramunee et al., 2014). Participant suggestions that remuneration for a PND screening service to employ extra pharmacists may be justified given pharmacist performance, job satisfaction and time spent with patients is associated with staffing adequacy (Chui, Look, & Mott, 2014; Kreling et al., 2006). Pharmacy stakeholders have long been championing the expansion of professional pharmacy services but without adequate financial support to reduce associated pharmacist workload increases, pharmacists are far less inclined to adopt such services (Bush, Langley, & Wilson, 2009). If future research deems PND screening in pharmacy feasible, then government remuneration schemes may be required to support the wide rollout of such a program.

Whilst lack of privacy and time to explore the mental health state of perinatal patients were cited as major barriers, a more urgent concern appeared to be lack of adequate training to detect or refer cases of PND. Pharmacists in this study frequently commented on the need for further training in perinatal depression detection, referral and management and the lack of clarity in current guidelines for directing patients to appropriate care. These suggestions align with previous research (Scheerder & Iris De Coster, 2015) suggesting lack of training as the most important barrier to implementing depression services in pharmacy. Given they are often the first point of contact for patients with depressive symptoms (Linden, Wurzendorf, Ploch, & Schaefer, 2008), the imperative to adequately prepare pharmacists to detect and appropriately refer cases of suspected PND is high. Study participants expressed that they lack the confidence to approach sensitive mental health issues, corroborating previous research suggesting pharmacists are more comfortable dealing with physical illnesses than mental illnesses (Rickles, Dube, McCarter, & Olshan, 2010) and lack sufficient confidence to conduct public health services (Eades et al., 2011). The suggestion that a priority for such training would be to overcome stigma and build mental health literacy amongst pharmacists is not unwarranted. Findings from previous studies with pharmacists (O’Reilly, Bell, Kelly, & Chen, 2013) indicates that lower levels of mental health stigma results in pharmacists being more willing to provide
medication counseling for consumers with schizophrenia and that pharmacy students (Bell, Johns, Rose, & Chen, 2006; Linden et al., 2008) had a significant reduction in stigma after attending mental health education programs.

However an interesting finding was the suggestion that pharmacists also require further training in medication use during pregnancy and lactation. Previous studies indicate that whilst the majority of pharmacists feel confident providing medication counselling during the perinatal period, their knowledge is variable and may require further training (de Ponti, Stewart, Amir, & Hussainy, 2015). Participants repeatedly emphasized that their primary role in the context of perinatal care is to facilitate safe use of medicines and provide important medicine information, a notion commonly expressed amongst pharmacists in research studies (Eades et al., 2011; Worley et al., 2007). As such, any attempts to develop pharmacist-specific, PND training modules would need to examine and address knowledge gaps since medication counselling is primarily within the purview of pharmacists.

In terms of training format, views collected from pharmacists during this study are consistent with a solid body of evidence suggesting that digital learning approaches are an effective means of delivering health training to healthcare professionals (Davis, Sollecito, Shay, & Williamson, 2004; Hollis et al., 2015; Manning & Frisby, 2011; Peters, Kimura, Ladden, March, & Moore, 2008). Digital learning is becoming an indispensable tool in the mental health education repertoire with many healthcare professionals engaging in continuing professional development activities online. This pedagogical transition however does not negate the need to deliver at least some content vis-a-vis. This is primarily true when attempting to train pharmacists to improve their communication approaches to people with mental illness (Bell, Whitehead, et al., 2006) where role plays and patient interactions are vital to the learning process. Further research into the format and feasibility of training pharmacists to understand, detect and refer cases of PND is recommended.

Interprofessional collaboration, particularly between pharmacists and general practitioners (GP’s), was frequently mentioned by participants as necessary to the successful implementation of PND screening, supporting previous research stating the same (Bradley et al., 2008; Bradley, Ashcroft, & Noyce, 2012; Laubscher, Evans, Blackburn, Taylor, & McKay, 2009; Zwarenstein, Goldman, &
Reeves, 2009). Cooperation between pharmacists and GP’s is vital to ensuring continuity of care, although collaboration between these two professions in the context of depression is uncommon (Bell, Aslani, McLachlan, Whitehead, & Chen, 2007). Both GP’s and pharmacists report interprofessional collaboration as an essential component to successful pharmacist-delivered public health services (Bryant, Coster, Gamble, & McCormick, 2009; Scheerder et al., 2008) however GP’s have often expressed doubt in pharmacist’s abilities to deliver services beyond their roles as medication experts (Hughes & McCann, 2003). One participant’s suggestion about interprofessional learning i.e. involving GP’s in pharmacist PND training echoes previous research (Hughes & McCann, 2003; Scheerder & Iris De Coster, 2015) suggesting this may encourage cross-sector discussions about how to jointly manage PND patients, ensuring adequate pharmacy utilisation, efficient referral systems and avoiding duplication of care. Participant’s perceptions that GP’s are not comfortable with pharmacists managing the PND screening process has been mirrored by research suggesting GP’s do not believe pharmacists are as equipped to deliver some health services as GP’s are (Blenkinsopp, Tann, Evans, & Grime, 2008; Edmunds & Calnan, 2001; Hughes & McCann, 2003). Bradley et.al (2012) propose a model of collaboration that takes these attitude discrepancies into account and moves through three stages of interaction (isolation, communication and collaboration) before meaningful professional alliances can occur. For PND screening in the pharmacy to be useful, consistent referral systems to GP’s must be installed and this requires harmonious cooperation between both professional sectors.

3.7 Conclusion

Pharmacists are willing and able to reinforce their involvement in mental health promotion activities by developing systems to implement perinatal depression screening in the community pharmacy context. The main barriers that must be overcome to facilitate such a program include inadequate training, lack of patient privacy and time and perceived GP hesitation to support pharmacist-led PND screening. Further research into the feasibility, economic viability and benefit of such screening initiatives is recommended.

This manuscript does not contain clinical studies or patient data. The authors declare that they have no conflict of interest.
Chapter 4:

Phase 2 Study

Developing and implementing the Perinatal Mental Health in the Pharmacy (PMHP) training program

4.1 Plan of Chapter

Research findings from the first phase of this research described in Chapter 3 indicated a need for a training intervention to augment pharmacists existing understanding of perinatal mental health disorders and to prepare them for the possibility of undertaking perinatal depression screening. This chapter will describe the development, implementation and evaluation of a pilot perinatal depression educational training program delivered to pharmacists (Phase 2). The development of this training program was based on a thorough evaluation of adult education methodologies and the approach taken to plan, design and deliver the program will be discussed in depth in this chapter. Phase 2 findings will be discussed in the context of a broader discussion around mental health education programs delivered to pharmacists with particular attention focused on the feedback provided by Phase 2 participants.

4.2 Introduction

The recognition of the role of primary health practitioners in the delivery of mental health services has been growing steadily and as one of the most accessible primary health professionals, pharmacists have been increasingly studied as potential drivers of mental health care in the community setting (Rubio-Valera, Chen et al., 2014). With the increasing emphasis placed on the pharmacist’s role in mental health care delivery, there is a need to continue to research appropriate and effective ways of preparing pharmacists to collaborate within a team of health professionals to detect, refer and manage patients with mental health disorders. With perinatal depression (PND) affecting up to 13% of
women in the perinatal period (Gaynes et al., 2005), pharmacists are in an ideal position to screen for this disorder. As discussed in Chapter 3, pharmacists acknowledge the important role they have to play in supporting mothers through this vulnerable and often difficult time in their lives. However, pharmacists in Phase 1 of this study consistently stated that whilst they acknowledged their role in the provision of perinatal care, they were not equipped to handle perinatal mental health issues as they were not adequately trained in this area. Research has shown that pharmacists who undertake mental health training often report lowered levels of stigma attached to mental health issues, an improved ability to detect mental health disorders and increased confidence in providing services to consumers with mental illness (McGuire, Bynum, & Wright, 2016; O’Reilly, Bell, Kelly, & Chen, 2011). A thorough review of the literature suggested that an educational intervention for pharmacists on the subject of perinatal mental health has not been reported. With a need for pharmacist-specific perinatal mental health training clearly identified in Phase 1 of this study, the research team decided to develop and pilot test a perinatal mental health training program with a small group of community pharmacists to inform future attempts to train pharmacists in this important area.

4.3 Objectives

The primary objectives of Phase 2 were to:

1. Pilot test a perinatal mental health training program with pharmacists
2. Identify an appropriate training methodology to inform the development of a perinatal mental health training program relevant to pharmacy practice
3. Fulfill the training needs articulated by community pharmacists in Phase 1 (Chapter 3) through a pilot perinatal mental health training program
4. Gather feedback from pilot participants to inform future iterations of this newly developed training program.
4.4 Method

4.4.1 Design

Phase 2 utilised a single-group, pre-post experimental design to pilot test an educational program on the topic of perinatal mental health. A mixed format approach was employed, encompassing self-study and face-to-face components. The educational intervention consisted of a three-hour face-to-face workshop which was preceded by the dissemination of relevant pre-reading to all registered participants. Pre- and post-workshop analyses of participant attitudes and confidence levels with respect to perinatal depression screening as well as training program evaluation were investigated through an online survey sent to participants. Participants were expected to complete a self-reflection activity within three weeks of completing the workshop to satisfy continuing professional development requirements attached to this program.

4.4.2 Sample

Community pharmacists practising in Sydney, Australia (n=15) were recruited to participate in the “Perinatal Mental Health in the Pharmacy” (PMHP) educational program. Recruitment was conducted through a non-paid advertisement posted in a popular Australian pharmacist’s social media group inviting pharmacists to participate by registering online. One of the inclusion criteria for participation was that participants must be registered pharmacists with community pharmacy experience. Twenty-nine pharmacists who met this inclusion criterion registered to attend the training program, however, only 52% (n=15) of registered and eligible participants attended the workshop. Given the purpose of the research was to pilot test and gather participant responses to the training program, the small sample size was deemed adequate for the purposes of Phase 2. Participants were advised on multiple occasions throughout their involvement with the program that the purpose of the pilot was to gather feedback and insights that may inform future research about PND training for pharmacists. Their completion of the pre- and post-workshop surveys was taken as confirmation of their consent to be involved in the pilot test. Participants were advised that pending completion of all components of the program, they would receive a certificate which could contribute to their continuing professional development portfolio.
4.4.3 Educational Program

A review of adult training methodologies used in the development of pharmacy programs was conducted in consultation with senior members of the research team. Various models were investigated for the development of PMHP and two models in particular were deemed appropriate for use in the PMHP program - the ADDIE (Assess-Design-Develop-Implement-Evaluate) model and the Dick and Carey Systems Approach model.

The ADDIE model (Branson, Rayner, Cox, Furman, & King, 1975) is at the core of Instructional System Design models with wide applicability across disciplines including the health sciences (Duffy & Robins, 2011; Pittenger, Janke, & Bumgardner, 2009; Robinson & Dearmon, 2013). It provides a lean and unencumbered view of all necessary components of an instructional program and provides a clean, linear and simple-to-use framework for novice instructors to follow. It does not prescribe the use of specific learning theories but rather serves as a device to assist instructors to visualise and plan course design. The ADDIE model postulates that learners’ needs and the context in which they are to be taught should be analysed (Assess) which sets the stage for learner expectations and learning goals to be constructed in the Design phase. Here, learning goals and objectives, communication and technology strategies and overall class design are defined. Once a blueprint for the program is established, instructors then develop program materials in line with the learning objectives in preparation for implementation within a class environment. Finally, the course instructors evaluate the program through the delivery of feedback and assessment mechanisms intended to measure the outcomes of the program to inform future iterations (Shelton & Saltsman, 2006).

In contrast, the Dick and Carey Systems Approach Model (D. C. Myers, Dick, & Carey, 1978) (Figure 4.1) postulates a systems view whereby instruction is conceived as a complex, interconnected structure rather than the sum of isolated parts as described in the ADDIE model. The model describes the interdependence between content, context and instruction and assumes an iterative rather than a linear execution of each step. The evaluation process in the Dick and Carey model stands in contrast to the ADDIE model. The ADDIE model places the evaluation phase in the final stage of the instructional process whereas a key component of the Dick and Carey model is that evaluation occurs
throughout each step of the method. Revisions are made continuously and constant iterations of the instructional program are to be expected (Keenan, 2013).

![Diagram of the Dick and Carey Systems Approach Model](image)

**Figure 4.1 The Dick and Carey Systems Approach Model (Dick et al., 2001)**

After careful consideration, the ADDIE (Assess-Design-Develop-Implement-Evaluate) model was chosen as the most appropriate framework to utilise in the development of the PMHP program (Mayfield, 2011; Shelton & Saltsman, 2006). The primary driver behind this decision was the recognition that the inherent flexibility and linearity of the ADDIE model conferred a level of simplicity that was appropriate for the purposes of a pilot test. As such, this section will be organised in accordance with the ADDIE framework to allow for a coherent overview of the process followed by the research team in the development of the PMHP program.

4.4.3.1 Defining the context (ASSESS)

The research findings in Phase 1 of this study provided enough scope to justify an investigation into the training needs of the target demographic - community pharmacists. The ASSESS phase of the ADDIE framework requires that the instructional problem is defined, training goals clarified and that existing gaps in the knowledge/awareness of the target demographics are elucidated.
Needs analysis

The process of determining an educational need (or clarifying the discrepancy between current and desired knowledge levels) is usually considered to be the first step in instructional design (Burton & Merrill, 1991). Qualitative findings discussed in Chapter 3 clearly identified a gap between pharmacist’s existing knowledge about perinatal mental health and their level of expected knowledge. Pharmacists interviewed felt that while they were willing to screen for perinatal mental health disorders, they were not trained well enough to do so. Participants frequently suggested that their understanding of safe medication use in pregnancy and lactation was not adequate and that they were not comfortable counselling pregnant or lactating patients about safe psychotropic use.

Furthermore, analysis of the interviews conducted in Phase 1 revealed a sense of reticence amongst participants to engage in discussions about mental health with women in the perinatal period due to a lack of confidence in approaching what is perceived to be a sensitive issue. Pharmacists have frequently reported a lack of confidence in counselling patients with mental illness (Badger, Kingscote-Davies, & Nolan, 2002; Bell, Rosen, Aslani, Whitehead, & Chen, 2007; Bell, Whitehead et al., 2006) although they are usually interested in providing services to mentally ill patients (Cates, Burton, & Woolley, 2005). Although there does not appear to be published data specifically discussing the impact of pharmacist confidence levels on the ability to screen for perinatal depression, it may be inferred that a similar level of reticence exists particularly in light of the findings in Phase 1 of our study.

Review of existing resources

A comprehensive review of existing perinatal depression training programs that were easily accessible to pharmacists was conducted. A thorough search of published literature was conducted using the search terms education (OR training OR teaching) AND primary care (OR allied health OR pharmacy) AND perinatal depression (OR postpartum depression OR postnatal depression OR antenatal depression). Where appropriate, MeSH terms were utilised to increase search sensitivity. Five primary databases - Medline, Embase, Cinahl, PsycInfo, International Pharmaceutical Abstracts and Scopus were used. Time limits were applied to search for articles published after 2000 and only articles in the English language were searched.
In addition, three online search engines - Google, Yahoo and Bing - were used to search for perinatal mental health training programs used in practice. Filters were set by language and geographical location so that only results in the English language and in Australia were found, since the focus of this search was primarily on Australian-based programs (given our target demographic consisted solely of Australian pharmacists). Programs which did not list allied health-care professionals in their target audience groups, aimed specifically at one group of health professionals or patients (e.g. midwives, rural health providers, Indigenous patients, etc.) or listed pre-requisites were excluded from the review. Programs which were held as one-off events or did not publicly advertise the training were also excluded. Several training providers were identified which hosted training programs of various formats and target audiences (Table 4.1).

These training programs ranged from a one and a half hour online training program to a Masters degree focusing purely on perinatal and infant care. Many of the specialised perinatal mental health training programs whose details were published online (that were geared solely at healthcare professionals) focused on providing training to medical and nurse/midwife practitioners though they did also suggest that they were available for “allied health professionals”. The only comprehensive training program which appeared to be freely and easily available to all healthcare professionals across Australia was the six-part online perinatal mental health training program provided by BeyondBlue, Australia’s leading mental health advocacy organisation. The training program offered is an online learning program which incorporates case studies and clinical advice from leading perinatal mental health experts. BeyondBlue has also developed the Clinical Practice Guidelines for the treatment of perinatal mental health disorders which is intended to be used as a reference resource by health professionals. One member of the research team completed this online training program to determine its suitability for pharmacists and determine whether there was a need for developing the PMHP program if this program could sufficiently address the training needs espoused by pharmacist participants in Phase 1.
Table 4.1 Review of existing PND training resources

<table>
<thead>
<tr>
<th>Name of training provider</th>
<th>Duration and mode</th>
<th>Program Overview</th>
<th>Target audience</th>
<th>Accrediting bodies</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>BeyondBlue (national)</td>
<td>6 x 1 hour modules Online</td>
<td>“Detecting and managing perinatal mental health disorders in primary care” Covers: - Perinatal mental health - Edinburgh Postnatal Depression Scale (EPDS) - Broader psychosocial assessment - Counselling skills and client-centred communication - Evidence-based interventions for anxiety and depression</td>
<td>All health professionals</td>
<td>Royal Australasian College of General Practitioners (RACGP); Australian College of Rural and Remote Medicine (ACRRM) and the Royal College of Nursing Australia (RCNA)</td>
<td><a href="https://www.beyondblue.org.au/health-professionals/perinatal-mental-health/perinatal-mental-health-training">https://www.beyondblue.org.au/health-professionals/perinatal-mental-health/perinatal-mental-health-training</a></td>
</tr>
<tr>
<td>Name of training provider</td>
<td>Duration and mode</td>
<td>Program Overview</td>
<td>Target audience</td>
<td>Accrediting bodies</td>
<td>Reference</td>
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</table>
| Women's Health Clinical Support Programs (WHCSP) (WA) | Face-to-face workshop; 4 hours | “Edinburgh Postnatal Depression Scale (EPDS) training”  
Covers:  
- Perinatal mental health  
- EPDS overview  
- Using the EPDS to screen  
| The Black Dog Institute (SA and Tas) | Face-to-face workshop; various times during the year | “Perinatal in practice”  
This workshop aims to introduce health professionals to the current understanding of perinatal mood | All health professionals | Australian College of Rural and Remote Medicine (ACRRM) | [http://www.blackdoginstitute.org.au/docs/PerinatalProgramDescription.pdf](http://www.blackdoginstitute.org.au/docs/PerinatalProgramDescription.pdf) |
<table>
<thead>
<tr>
<th>Name of training provider</th>
<th>Duration and mode</th>
<th>Program Overview</th>
<th>Target audience</th>
<th>Accrediting bodies</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW Institute of Psychiatry (NSW)</td>
<td>Eight units of study + one week residential block per semester</td>
<td>Graduate Diploma in Mental Health (Perinatal and Infant)</td>
<td>Allied Health Professionals working with families who have infants</td>
<td>Accredited with Department of Education and Training (DET)</td>
<td><a href="http://www.nswiop.nsw.edu.au/future-students/postgraduate-study/pimh">http://www.nswiop.nsw.edu.au/future-students/postgraduate-study/pimh</a></td>
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<tr>
<td>Name of training provider</td>
<td>Duration and mode</td>
<td>Program Overview</td>
<td>Target audience</td>
<td>Accrediting bodies</td>
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<tr>
<td>NSW Institute of Psychiatry (NSW)</td>
<td>Twelve units of study + one week residential block per semester</td>
<td>“Master of Mental Health (Perinatal and Infant)” The course is designed to equip professionals working in the area of Perinatal and Infant Mental Health with appropriate, comprehensive, clinical and academic skills for providing leadership within the discipline.</td>
<td>Child Health Nurses, Allied Health, Nurses, Obstetricians</td>
<td>Accredited with DET</td>
<td><a href="http://www.nswiop.nsw.edu.au/future-students/postgraduate-study/pimh">http://www.nswiop.nsw.edu.au/future-students/postgraduate-study/pimh</a></td>
</tr>
<tr>
<td>The Victorian Transcultural Psychiatry Unit (VTPU)</td>
<td>Online program; 90 minutes</td>
<td>“Cultural responsiveness in perinatal mental health: Working effectively with women and their families from culturally and linguistically diverse (CaLD)”</td>
<td>GPs, Midwives, Maternal Child Health Nurses, Psychologists, n/a</td>
<td>n/a</td>
<td><a href="http://dev.professorlang.com/node/1532">http://dev.professorlang.com/node/1532</a></td>
</tr>
<tr>
<td>Name of training provider</td>
<td>Duration and mode</td>
<td>Program Overview</td>
<td>Target audience</td>
<td>Accrediting bodies</td>
<td>Reference</td>
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<tr>
<td>(national)</td>
<td></td>
<td>backgrounds”</td>
<td>Social workers, Mental Health Nurses, Case Managers/Clinicians</td>
<td></td>
<td><a href="http://med.monash.edu.au/nursing/professional-development/perinatal-intro.html">http://med.monash.edu.au/nursing/professional-development/perinatal-intro.html</a></td>
</tr>
<tr>
<td>Monash University (Vic)</td>
<td>1.5 hour online training</td>
<td>“Perinatal &amp; Infant Mental Health Training”</td>
<td>Community/allied health</td>
<td>n/a</td>
<td></td>
</tr>
</tbody>
</table>
Identifying training gaps for pharmacists

Whilst the BeyondBlue online training program was indeed comprehensive and suitable for pharmacists, the research team felt that the program was developed under the assumption that general practitioners would be the main audience. Whilst module one (Overview of Perinatal Depression), two (Depression screening using the EPDS) and six (Management of Perinatal Depression) were found to be highly pertinent for a pharmacist audience, the remaining three modules (which focused on diagnostic assessment, mental health care plans and secondary referral pathways) were not felt to be relevant to the pharmacy context. Based on these considerations, a decision was made by the research team to continue with plans to develop the PMHP program.

The research team drew upon their collective practice experience and findings from Phase 1 of this study to identify gaps in pharmacists’ understanding of perinatal mental health to inform the development of PMHP. It was recognised that while the BeyondBlue training program provided a rough outline suitable for the PMHP program, key topics needed to be covered which were particularly relevant for a pharmacist audience. One of these topics was the use of psychotropic medication during pregnancy and lactation. Several participants in Phase 1 mentioned that they felt they lacked a thorough understanding of psychotropic medication use in the perinatal period - a finding which is corroborated by research suggesting that pharmacists required further training with respect to pharmacotherapy use in the perinatal period (Byatt et al., 2013).

4.4.3.2 Designing the program (DESIGN)

In the DESIGN phase of the PMHP program, the research team endeavored to answer the following question: what will the program look like? In this section, we set the learning objectives, determine an appropriate structure and format for the program, develop a content framework and set the evaluation criteria.

Setting the learning objectives

To inform the development of the learning objectives of the PMHP program, the research team utilised the Matrix Framework of Perinatal Depression and Related Disorders as the basic framework (NPDI, 2011). The Framework was developed by the National Perinatal Depression Initiative’s (NPDI)
Workforce Training and Development Committee (Australia) and the aim is to provide guidance on the core skills required by health practitioners working with perinatal women and ensure uniform standards of care across the healthcare spectrum. The NPDI committee responsible for developing the Framework was made up of experts from a range of disciplines in perinatal mental health including representatives from the Australian General Practice Network, Australian College of Midwives, Royal Australian College of General Practitioners, Australian Psychological Society and the Australian Association of Maternal and Child Family Health Nurses. Furthermore, the team was made up of perinatal psychiatrists, obstetricians, rural/remote practitioners and consumer and carer representatives to bring practice experience to the development of the Framework (M. Austin, 2011). As such, it was deemed to be a robust and appropriate training framework to inform the development of learning outcomes for the PMHP.

The Framework defines five levels of training and associated learning objectives, graded by the level of involvement and complexity of care provided by stakeholders in each tier. The five levels, from lowest complexity to highest are Awareness/Health Promotion, Basic Skills, Basic Skills Plus, Intermediate Skills and Advanced Assessment and Intervention. The Framework provides guidance on which groups of professionals are likely to fall under each category based on their level of involvement in postnatal care. “Allied health” falls under the Basic Skills category and after a close examination of the learning objectives assigned to this category, the research team deemed that these objectives were an appropriate basis for the development of the learning objectives in the PMHP program. The modified learning objectives and strategies used to achieve these objectives will be described in the next section.

Structure & format of the program

Another important consideration in the development of PMHP was the structure and format of the program. The majority of participants in Phase 1 of this study stated that they would prefer a blended learning approach with both online and face-to-face components. This approach has been shown to be effective previously. For example, in a meta-analysis looking at the effectiveness of online vs blended learning (Means, Toyama, Murphy, & Baki, 2013), blended learning approaches were found to be superior in studies contrasting blended approaches with purely face-to-face teaching methods.
One of the interview topics in Phase 1 was to enquire from participants the length of training they would feel appropriate should a training program on PND be designed specifically for them. The response was mixed, with preferred face-to-face time ranging from nothing at all to a complete weekend course. However, the most common response was that a half-day/evening workshop would be most appropriate. Given that lack of time is a common complaint by pharmacists in a community setting (Eden et al., 2009), ensuring that the PMHP allocated an adequate amount of time to meeting the learning objectives without becoming a burden on participants was deemed critical. As such, it was decided that the format of the program would be divided into two components: a training manual (pre-reading) that would be delivered to each participant via email before the delivery of a face-to-face 3-hour evening workshop.

In terms of program structure, Experiential Learning Theory informed the development of PMHP in recognition of the diverse sets of learning styles likely to be represented by participants. Kolb’s Experiential Learning Model (Wolfe & Kolb, 1984) defines learning as “the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience”. As depicted in the four-stage continuous learning cycle (Figure 4.2), the learner must use analytical skills to conceptualise and be actively involved in an experience in order to reflect upon the experience and be able to use the new ideas gained to inform future behaviour. Each dimension of the Model (represented by the Abstract-Concrete axis and the Active-Reflective axis) represent conflicting yet connected modes of learning which assimilate into four major learning styles depicted in Figure 4.1. Several studies conducted with health science students (Z. Austin, 2004; Williams, Brown, & Etherington, 2013/4; Zoghi et al., 2010) have demonstrated a strong leaning towards the Converger learning style though research (Smith, Krass, Sainsbury, & Rose, 2010) has shown that undergraduate pharmacy students prefer application-directed approaches whereas postgraduate students prefer the deep processing opportunities that a meaning-directed learning approach provides.
These considerations were taken into account in the design stage of the PMHP program leading the research team to devise a program strategy that would incorporate both didactic and experiential learning elements into the instructional framework in an attempt to maximise learning opportunities for participants with differing learning styles. The online component, a training manual intended to contain all content relating to PMHP learning objectives, constituted the required reading for all participants before attendance at the workshop. This passive learning approach was intended to provide participants with necessary background information about perinatal depression and fulfill the Abstract Conceptualisation component of the Kolb Learning Model. Armed with required background knowledge, participants would then be led into a workshop environment that would be focused entirely on the application of that knowledge through Active Experimentation. The decision was made to eschew any attempt to deliver content during the workshops. Instead, the team favoured creating a learning environment that built upon and contextualised background knowledge through the facilitation...
of structured activities. Upon completion of the workshop, participants would then be expected to apply workshop learnings in their professional practice to gain Concrete Experience by engaging in a conversation with perinatal women. Participants would then be expected to complete a written exercise through an online survey platform asking them to reflect upon the experience (Reflective Observation).

Alignment of learning objectives with program design

With the structure and format of the program decided, the research team engaged with andragogical literature to determine appropriate methods to align program collateral with the assigned learning objectives. The training manual, entitled “Perinatal Mental Health: A Guide for Australian Pharmacists” (hereby known as the Guide) (Appendix D), would match evidence-based content with the learning objectives to ensure alignment with learning outcomes (Table 4.2 below). The development of activities for the workshop, however, required deeper investigation and a more creative approach to ensuring that learning outcomes are achieved. Adult learning principles, borrowed from andragogy theories, were utilised in the development of the workshop activities. This will be discussed further in 4.4.3.3
<table>
<thead>
<tr>
<th><strong>Learning objectives</strong>- at the end of the PMHP program, pharmacists would be able to:</th>
<th><strong>Strategy</strong></th>
</tr>
</thead>
</table>
| To know the key features and prevalence rates of the most common perinatal mental health disorders; know how to differentiate between the various disorders and understand the impact on infant health and well-being | ● Provision of a section in the Guide covering relevant information  
● Development of an infographic activity in the workshop to consolidate learnings |
| Understand the importance of conducting a broader psychosocial assessment, including risk assessment, for comprehensive clinical care in patients with possible PND | ● Provision of a section in the Guide covering relevant information  
● Delivery of a presentation by a mental health educator (patient)  
● Discussion of a case study in the workshop addressing risk factors and psychosocial assessment |
| Understand the background, purpose and importance of screening, its application and limitations & implement screening (using the EPDS) | ● Provision of a section in the Guide covering relevant information  
● Initiation of a workshop discussion about the importance of screening and integration of screening into the pharmacy workflow |
| Interpret the EPDS scores and integrate with other assessment material as well as communicate these results to women using basic counselling skills and client-centred communication | ● Role play activity during the delivery of the workshop with various possible scenarios  
● Provision of sample EPDS forms |
| Understand the importance of knowing where and how to refer to relevant referral pathways and existing treatments, interventions and support | ● Provision of a section in the Guide covering relevant information  
● Initiation of workshop discussion about referral procedures, networks and the integration of referral protocols into the |
<table>
<thead>
<tr>
<th>Learning objectives - at the end of the PMHP program, pharmacists would be able to:</th>
<th>Strategy</th>
</tr>
</thead>
</table>
| | pharmacy workflow  
● Development of pharmacy screening service  
(including referral protocols) as workshop activity  
● Provision of a template referral letter to GPs |
| Have awareness of evidence-based interventions for anxiety, depression and related disorders in the perinatal period. |  
● Provision of a section in the Guide covering relevant information  
● Discussion of a case study relating to psychotropic use whilst breastfeeding during workshop |
| Have knowledge of Clinical Practice Guidelines for mental health disorders in the perinatal period. | Provision of the Clinical Practice Guidelines in print and digital versions |
Assessment model

The research undertook an exhaustive search of the literature to determine an adequate model to use for the evaluation of the PMHP program. Kirkpatrick’s Four-Level Evaluation model (Reaction-Learning-Behaviour-Results) (D. L. Kirkpatrick, 1975) was deemed the most appropriate to use for the purposes of Phase 2. The Kirkpatrick Model is a commonly used standard for evaluating the effectiveness of training and considers the value of training across four, stepped levels:

- **Level 1 - Reaction**: evaluates participants response to the training and their perception of its value
- **Level 2 - Learning**: evaluates whether or not participants have understood and learned the material
- **Level 3 – Behaviour**: measures the application of those learnings and whether participants have been able to put their understanding into practice
- **Level 4 – Results**: evaluates the broader impact of the training on the organisation or an external stakeholder.

Whilst there has been criticism of the model for presenting the evaluation process as a simplified set of hierarchical outcomes that does not consider the impact of intervening variables on training results (Holton, 1996), the research team did not consider that the effects of such variables on PMHP evaluation outcomes would justify the use of an elaborate evaluation model. In fact, the power of the Kirkpatrick Model has often been attributed to its simplicity and ability to help trainers think clearly about their evaluation criteria (Alliger & Janak, 1989); characteristics that were considered important in this pilot test given the small sample size and modest aims of the project. Given that the primary objective of Phase 2 of this study was to identify and gain feedback on an appropriate teaching model for the delivery of the perinatal depression training, it was not deemed necessary to measure changes in knowledge or attitude towards perinatal depression nor was measuring the overall impact of the training on external stakeholders (i.e. pregnant women/new mothers) within the scope of the project. Thus the research team decided to look at only two metrics when evaluating the PMHP program - Reaction and Behaviour. The development of the evaluation tools will be discussed further in 4.4.3.4.
4.4.3.3 Developing training content (DEVELOP)

In the DEVELOP phase of PMHP, the research team sought to elaborate upon the program blueprint developed in the DESIGN phase by generating the resources that would allow for the implementation of PMHP.

The PMHP Guide

The *Perinatal Mental Health: A Guide for Australian Pharmacists* was developed in accordance with the learning objectives and associated content outlined in Table 4.3. The Clinical Practice Guidelines (M. Austin, 2011) was used as a core reference to ensure that content would align with current evidence in relation to perinatal mental healthcare. A deeper emphasis was placed on pharmacotherapy in the Guide compared to the Clinical Guidelines given it was tailored to meet the requirements of a pharmacist audience. The research team sought to capitalise on the multimedia effect (Mayer, 2003/4) to enhance knowledge retention by attempting to present information in a visual format where appropriate. In addition, care was taken to make the twenty-three page Guide as visually appealing as possible (using Canva, a web-based design tool) to increase the likelihood that participants will read the entire guide. Once the Guide was completed, the draft was peer-reviewed by two senior members of the research team (and a perinatal mental health expert) with extensive experience in mental health and pharmacy education to ensure content validity.
### Table 4.3 Contents of PMHP Guide content with associated learning objectives

<table>
<thead>
<tr>
<th>Section of the Guide</th>
<th>Associated learning outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part 1:</strong> Overview of Perinatal Mental Health</td>
<td>Learning Objective 1: To know the key features and prevalence rates of the most common perinatal mental health disorders; know how to differentiate between the various disorders and understand the impact on infant health and well-being</td>
</tr>
<tr>
<td>● “Postpartum Blues”</td>
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<tr>
<td>● Postpartum Depression</td>
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<td>● Anxiety</td>
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<tr>
<td>● Puerperal Psychosis</td>
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<tr>
<td>● Impact of PPD on families</td>
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</tr>
<tr>
<td><strong>Part 2: Detection of postpartum depression</strong></td>
<td>Learning Objective 2: Understand the importance of conducting a broader psychosocial assessment, including risk assessment, for comprehensive clinical care in patients with possible PND</td>
</tr>
<tr>
<td>● Why screen for PPD?</td>
<td>Learning Objective 3: Understand the background, purpose and importance of screening, its application and limitations &amp; implement screening (using the EPDS)</td>
</tr>
<tr>
<td>● Help-seeking beliefs of new mothers</td>
<td>Learning Objective 4: Interpret the EPDS scores and integrate with other assessment material as well as communicate these results to women using basic counselling skills and client-centred communication</td>
</tr>
<tr>
<td>● A 4-step approach to screening</td>
<td>Learning Objective 5: Understand the importance of knowing where and how to refer to relevant referral pathways and existing treatments, interventions and support</td>
</tr>
<tr>
<td>● Using the EPDS</td>
<td></td>
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<tr>
<td>● Limitations of the EPDS</td>
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<tr>
<td>● Acceptability of the EPDS</td>
<td></td>
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<tr>
<td>● Screening women from culturally</td>
<td></td>
</tr>
<tr>
<td>Section of the Guide</td>
<td>Associated learning outcomes</td>
</tr>
<tr>
<td>----------------------</td>
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</tbody>
</table>
| diverse backgrounds  | *Additional Objective 1:* Understand professional boundaries in relation to distress and disorders in the perinatal period  
*Additional Objective 2:* Understand how to encourage women to follow-up with any referrals made to other mental health professionals and engage other services |
| • Acting on psychosocial assessments |  |
| • Dealing with resistance to referral |  |

**Part 3: Treatment for postpartum depression**

<table>
<thead>
<tr>
<th></th>
<th>Learning Objective 5: Develop an awareness of evidence-based interventions for anxiety, depression and related disorders in the perinatal period</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Treatment principles</td>
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<tr>
<td>• Psychosocial treatment</td>
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<tr>
<td>• Decision-making about pharmacotherapy</td>
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<td>• Benefits of pharmacological treatment in the perinatal period</td>
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<tr>
<td>• Supporting informed decision-making</td>
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<tr>
<td>• Discussing the risks and benefits</td>
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<tr>
<td>• Factors affecting drug entry into human milk</td>
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<tr>
<td>• Psychotropic use during pregnancy</td>
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<tr>
<td>• Psychotropic use while breastfeeding</td>
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</tbody>
</table>
The PMHP Workshop

The workshop was deliberately designed to be problem-centric rather than content-centric to enhance learning retention and align with evidence-based methods of adult education delivery (Knowles, 1970). Attendees were expected to read the Guide in advance to familiarise themselves with important concepts related to perinatal mental health and screening. The aim of the workshop was to contextualise these concepts by applying them in a simulated patient situation and encouraging discussion in a facilitated learning environment. Each activity during the workshop was designed to ensure that specified learning objectives were met. The rationale for all activities included in the workshop (and description of each activity, the associated learning objectives and evaluation criteria) can be found in Table 4.4.

The activity types chosen to form the backbone of the workshop were:

1. **Patient Interaction** - Participants were able to hear from and interact with a consumer who has experienced PND recently.

2. **Group discussion** - Participants were assigned discussion questions in the context of a particular patient whose journey they would follow through a series of sequential scenarios.

3. **Role Plays** - Role plays were carried out between sets of participants.

4. **Production** - Participants were assigned tasks to produce certain deliverables by the end of the workshop.

The workshop was centred around a hypothetical patient, Stephanie, who falls pregnant and presents to the pharmacist at various stages in her perinatal journey. This problem-based learning (PBL) approach is commonly used in pharmaceutical education (Galvao, Silva, Neiva, Ribeiro, & Pereira, 2014). All learning objectives and associated workshop activities were addressed in relation to Stephanie to increase contextual learning opportunities. The activity booklet (Appendix E) contained the three sequential case studies utilised during the workshop in addition to the activities described in Table 4.4.
### Table 4.4 Workshop Activity Rationale

<table>
<thead>
<tr>
<th>Learning objectives (as defined by the Training Matrix)</th>
<th>Learning Activity Associated with Learning Objective</th>
<th>Rationale for activity</th>
<th>Evaluation Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>To know the key features and prevalence rates of the most common perinatal mental health disorders; know how to differentiate between the various disorders; and understand the impact of PND on infant health and well-being.</td>
<td><strong>Activity 1:</strong> Creating Infographic (30 mins)</td>
<td>This activity will encourage participants to contextualise the information presented to them in Chapter 1 of the Guide to produce a tangible product that can reasonably be used in their professional practice.</td>
<td>Level and quality of participation in anticipated activities</td>
</tr>
<tr>
<td></td>
<td>Create an infographic about perinatal mental health as part of an in-pharmacy health promotion campaign.</td>
<td></td>
<td>Accuracy of information presented</td>
</tr>
<tr>
<td></td>
<td>Relevant section in Training Guide</td>
<td></td>
<td>Successful completion of activity</td>
</tr>
<tr>
<td></td>
<td>Chapter 1: Overview of Perinatal Mental Health</td>
<td></td>
<td>Engagement with the process</td>
</tr>
<tr>
<td>Understand the importance of conducting a broader psychosocial assessment, including risk assessment, for</td>
<td><strong>Activity 2:</strong> Group discussion</td>
<td>This activity will encourage critical thinking, peer-to-peer learning and the sharing of professional experiences</td>
<td>Level and quality of participation in activity</td>
</tr>
<tr>
<td>Learning objectives (as defined by the Training Matrix)</td>
<td>Learning Activity Associated with Learning Objective</td>
<td>Rationale for activity</td>
<td>Evaluation Criteria</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>-----------------------------------------------------</td>
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</tr>
<tr>
<td>comprehensive clinical care in patients with possible PND</td>
<td>(15 mins) Group discussion of Scenario 1: <em>Stephanie Falls Pregnant</em> preceded by a set period of time for discussion within teams. The discussion of scenario 1 will involve discussing the presentation of a patient, Stephanie, at the pharmacy and her request for a sleeping aide. Points of discussion will include assessing risk factors for PND and determining possibility of PND being present in Stephanie’s case. <strong>Relevant section in Training Guide</strong> Chapter 1: Overview of Perinatal Mental Health</td>
<td>between colleagues to facilitate a deeper understanding of the issues presented.</td>
<td>Observation of participant attentiveness throughout discussion</td>
</tr>
<tr>
<td>Learning objectives (as defined by the Training Matrix)</td>
<td>Learning Activity Associated with Learning Objective</td>
<td>Rationale for activity</td>
<td>Evaluation Criteria</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>-----------------------------------------------------</td>
<td>-----------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Understand the background, purpose and importance of screening, its application and limitations &amp; implement screening (using the EPDS)</td>
<td>Activity 3: Group discussion &amp; critical thinking (15 mins) Group discussion of Scenario 2: Stephanie wants St. John’s Wort preceded by a set period of time for discussion within teams. Scenario 2 will involve discussing Stephanie’s return to the pharmacy at a future date and requesting St John’s Wort. This discussion will encourage participants to think about ways to hold sensitive conversations with patients whom they suspect of experiencing PPD and approaching the topic of filling out the EPDS with them. Relevant section in Training Guide Chapter 2: PPD Detection &amp; Referral</td>
<td>This activity will encourage critical thinking, peer-to-peer learning and the sharing of professional experiences between colleagues to facilitate a deeper understanding of the issues presented.</td>
<td>Level and quality of participation in activity Observation of participant attentiveness throughout discussion</td>
</tr>
<tr>
<td>Learning objectives (as defined by the Training Matrix)</td>
<td>Learning Activity Associated with Learning Objective</td>
<td>Rationale for activity</td>
<td>Evaluation Criteria</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>---------------------------------------------------</td>
<td>------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Interpret the EPDS scores and integrate with other assessment material as well as communicate these results to women using basic counselling skills and client centred communication</td>
<td>Activity 4: Role play (40 mins) Role plays between the pharmacist and Stephanie (simulated patient) explaining her EPDS score. Participants will be split up into groups of three and will simulate the entire patient interaction according to a guide that will be provided to them. Groups will role play from initial conversation through to EPDS screening, discussion with Stephanie and referral to her GP)</td>
<td>Role playing will provide participants with an opportunity to simulate a PPD screening in a safe environment free of judgement or consequence. Participants will be able to hone their counselling skills in the context of suspected postpartum depression and observe and provide feedback to each other.</td>
<td>Level and quality of participation in activity Observation of participant attentiveness throughout role-play</td>
</tr>
<tr>
<td>Understand the importance of knowing where and how to refer to relevant</td>
<td></td>
<td></td>
<td>Level and quality of participation in anticipated activities</td>
</tr>
</tbody>
</table>

Relevant section in Training Guide
Chapter 2: PPD Detection & Referral
<table>
<thead>
<tr>
<th>Learning objectives (as defined by the Training Matrix)</th>
<th>Learning Activity</th>
<th>Rationale for activity</th>
<th>Evaluation Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>referral pathways and existing treatments, interventions and support</td>
<td><strong>Activity 5:</strong> Conceptualise PND screening professional service (40 mins)</td>
<td>Groups will design (in principle) a PND-screening service in the pharmacy which will encompass the entire detection and referral process and consideration of marketing, budgeting and resource allocation. Participants will be expected to incorporate their infographic from Activity 1 and create a PND screening &amp; referral checklist as part of this service. <strong>Relevant section in Training Guide</strong> Chapter 2: PPD Detection &amp; Referral</td>
<td>Ability to think laterally to overcome barriers to implementation</td>
</tr>
<tr>
<td>Have awareness of evidence-based interventions for anxiety, depression and</td>
<td>This activity will encourage critical thinking, peer-to-peer learning and the</td>
<td></td>
<td>Level and quality of participation in activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

96
<table>
<thead>
<tr>
<th>Learning objectives (as defined by the Training Matrix)</th>
<th>Learning Activity Associated with Learning Objective</th>
<th>Rationale for activity</th>
<th>Evaluation Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>related disorders in the perinatal period.</td>
<td>Activity 6: Group discussion &amp; critical thinking (15 mins)</td>
<td>sharing of professional experiences between colleagues to facilitate a deeper understanding of the issues presented.</td>
<td>Observation of participant attentiveness throughout discussion</td>
</tr>
<tr>
<td></td>
<td>Group discussion of Scenario 3: Stephanie Gets Treatment preceded by a set period of time for discussion within teams. Scenario 3 will encourage participants to draw upon their knowledge of psychotropic use in pregnancy and breastfeeding to answer Stephanie's queries about her medications. Relevant section in Training Guide Chapter 3: Treatment for PPD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have knowledge of Clinical Practice Guidelines for mental health disorders in the perinatal period.</td>
<td>Copy of Guidelines included in the Health Professional Kit to be handed out at workshop (kindly provided by Beyond Blue)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


4.4.3.4 Delivery & evaluation of the training program

(IMPLEMENTATION & EVALUATION)

In the IMPLEMENT and EVALUATE phases of PMHP, the research team delivered the resources created in the DEVELOP phase and sought to determine whether the research objectives of Phase 2 were met.

Pre-workshop model

Upon registration, participants were sent an online copy of the Guide via email and instructed to read and understand the content before attending the workshop. Each participant was given at least ten days to complete this task. Participants were also asked to complete a pre-workshop survey (Table 4.5) to gain a baseline view of participant attitudes and confidence levels with respect to perinatal mental health screening. The pre-workshop survey was designed by the research team to collect participant characteristics as well as an understanding of participant’s prior experience, training and preparedness for dealing with perinatal mental health using a 10-point Likert scale. Survey items pertaining to the level of confidence participants feel in relation to the assessment and referral of women suspected of having PND were also included. A study with nurse practitioners reported that nurses’ confidence in their knowledge of how to use a screening tool was the single biggest predictor of screening behaviour (Goldsmith, 2007). Thus, understanding pharmacists’ levels of confidence in relation to PND screening and referral was deemed appropriate. The research team drew upon their collective practice experience as well as items from a national PND awareness survey conducted with Australian midwives (Jones, Creedy, & Gamble, 2012) to inform the development of this pharmacist-specific survey. The survey was then tested for face validity with a pharmacy mental health expert.
### Table 4.5 Pre-workshop Survey Questions

<table>
<thead>
<tr>
<th>Survey Item</th>
<th>Answer Format</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Survey Item</strong></td>
<td><strong>Answer Format</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Likert Scale</strong></td>
</tr>
<tr>
<td><strong>Your date of birth?</strong></td>
<td>DD/MM/YYYY</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>18-25</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gender?</strong></td>
<td>M</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Are you an Australian or overseas registered pharmacist?</strong></td>
<td>Australian-registered</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Are you currently practising?</strong></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Have you practised in community pharmacy?</strong></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>If yes, which industry do you predominantly work in?</strong></td>
<td>Hospital</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey Item</td>
<td>Answer Format</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>How adequately did your pharmacy degree program prepare you for working with postpartum and pregnant women?</td>
<td>1= not at all adequate</td>
</tr>
<tr>
<td></td>
<td>10= more than adequate</td>
</tr>
<tr>
<td>During your pharmacy degree, how much emphasis was placed on perinatal mental health?</td>
<td>1=no emphasis at all</td>
</tr>
<tr>
<td></td>
<td>10= strong emphasis</td>
</tr>
<tr>
<td>During your pharmacy degree, how much emphasis was placed on perinatal health in general?</td>
<td>1=no emphasis at all</td>
</tr>
<tr>
<td></td>
<td>10= strong emphasis</td>
</tr>
<tr>
<td>During your pharmacy degree, how much emphasis was placed on the safe use of medications during pregnancy and breastfeeding?</td>
<td>1=no emphasis at all</td>
</tr>
<tr>
<td></td>
<td>10= strong emphasis</td>
</tr>
<tr>
<td>How could your pharmacy degree 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)</td>
<td>More lecture time on antenatal and/or postnatal depression</td>
</tr>
<tr>
<td></td>
<td>More practice in assessing antenatal and/or postnatal depression</td>
</tr>
<tr>
<td></td>
<td>More knowledge in the treatment techniques for antenatal and/or postnatal depression</td>
</tr>
<tr>
<td></td>
<td>More practice in managing antenatal and/or postnatal depression (e.g. counselling skills) (checkbox)</td>
</tr>
<tr>
<td>Do you believe that the education or training you have received as a pharmacist has been adequate for effective care of antenatal and/or postnatal women with depression?</td>
<td>1= not at all adequate</td>
</tr>
<tr>
<td></td>
<td>10= more than adequate</td>
</tr>
<tr>
<td>How confident do you feel ASSESSING a woman for the possibility of antenatal/postpartum depression and/or anxiety?</td>
<td>1= not at all confident</td>
</tr>
<tr>
<td></td>
<td>10= very confident</td>
</tr>
<tr>
<td>How confident do you feel REFERRING a woman you believe may be suffering from antenatal/postpartum depression and/or anxiety?</td>
<td>1= not at all confident</td>
</tr>
<tr>
<td></td>
<td>10= very confident</td>
</tr>
<tr>
<td>Do you think pharmacists are capable of screening for postpartum depression and/or anxiety and referring suspected cases?</td>
<td>Yes No</td>
</tr>
<tr>
<td></td>
<td>Unsure</td>
</tr>
</tbody>
</table>
Workshop delivery and evaluation

The workshop was held in the Faculty of Pharmacy building at the University of Sydney (Sydney, Australia) on the thirty-first of March 2016. A volunteer speaker from BeyondBlue, who had previously experienced perinatal depression and anxiety, was asked to talk about her personal experiences with the illness to set the scene for the rest of the workshop. The speaker attending the workshop also volunteered to stay for the entirety of the workshop and provide participants with a unique opportunity to complete learning activities in consultation with a member of the target patient group.

The research team decided to engage the speaker in an attempt to provide the pharmacist audience with unique insights into the lived experiences of consumers who have experienced perinatal depression and anxiety - a patient and public involvement (PPI) exercise which has been demonstrated to improve the learning experience of health students and professionals (Farrell, 2004; Fudge, Wolfe, & McKeivitt, 2008; Lonie, 2006; Stacy & Spencer, 1999). There is significant evidence (Bell, Johns, Rose, & Chen, 2006; O’Reilly, Bell, & Chen, 2010, 2012) supporting the benefits of contact-based education as the most effective method of reducing pharmacist’s stigma towards mental illness. The case for involving mental health consumers in the education of pharmacists is particularly pertinent given that mental health tutorials and lectures do not decrease pharmacist’s stigmatising attitudes towards consumers with mental illness (Bell, Johns, & Chen, 2006). A strong determinant of mental health stigma amongst Australian pharmacy students (J. S. Bell et al., 2010) is the perception of unpredictability amongst patients; thus attempts to provide pharmacists (and indeed, pharmacy students) with opportunities to directly engage with mental health consumers may aid in mitigating these concerns.

Upon completion of the opening presentation, the group was divided into five teams of three and each of the six activities assigned were completed chronologically as a team. Time was allocated to the completion of each activity and for class discussion of each activity. Due to time constraints, only five out of the six activities were completed before the end of the workshop (Activity 6 was not completed though participants were encouraged to attempt it in their own time). Assessment of learning objectives were made on a whole-class basis (rather than an individual basis) to provide the
research team with a very broad understanding of the class response to each individual activity. This evaluation activity was completed using the Evaluation Rubric developed for each activity in this workshop.

Post-workshop model

Participants were asked to complete the post-workshop survey to enable the research team to assess the impact of PMHP and obtain feedback from the participant group to inform future iterations of the training program. In order to fulfill continuing professional development requirements, participants were expected to complete a reflection exercise within three weeks of the workshop to receive a certificate of completion for the PMHP program.

Post-workshop survey

The focus of the post-workshop survey was to collect participant feedback about the quality of the PMHP program. The survey items were derived by the research team in consultation with an instructional design expert and in consideration of the parameters that would be useful to measure and inform future development of the PMHP program (Table 4.6). The post-workshop survey was designed to capture the reaction of participants, by "measuring the level of (internal) customer satisfaction" (as per the Kirkpatrick Evaluation model chosen to underpin this pilot test (D. L. Kirkpatrick, 1975)). Furthermore, the updated Kirkpatrick model (D. Kirkpatrick & Kirkpatrick, 2005) considers that the degree to which participants found the training engaging and relevant to their jobs are similarly important metrics when applying Level 1 of the Kirkpatrick model to a training evaluation framework. The research team developed the post-workshop survey in consideration of the need to accurately and adequately characterise participant reactions to the PMHP program and the perceived relevance to their practice. To maintain confidentiality, participants were not asked to supply their names though their date of births was used to match pre- and post-workshop surveys to enable paired data comparisons.
Table 4.6 Post-workshop Survey Questions

<table>
<thead>
<tr>
<th>Item</th>
<th>Answer Format</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Likert Scale (multiple choice)</td>
</tr>
<tr>
<td></td>
<td>1--------------------------10</td>
</tr>
<tr>
<td>Your date of birth</td>
<td></td>
</tr>
<tr>
<td>Did the workshop meet your expectations?</td>
<td>1=not at all 10=very much</td>
</tr>
<tr>
<td>How relevant were the workshop activities to your practice?</td>
<td>1=not at all 10=very relevant</td>
</tr>
<tr>
<td>How did you feel about the facilitation of sessions?</td>
<td>1=poor 10=excellent</td>
</tr>
<tr>
<td>What is the value of the workshop to you?</td>
<td>1=worthless 10=worthwhile</td>
</tr>
<tr>
<td>How relevant were the resources provided to you?</td>
<td>1=poor 10=excellent</td>
</tr>
<tr>
<td>What did you think about the:</td>
<td>1=poor</td>
</tr>
<tr>
<td>-structure of the workshop?</td>
<td>10=well-structured</td>
</tr>
<tr>
<td>-length of the workshop?</td>
<td>1=too brief 10=too long</td>
</tr>
<tr>
<td>-relevance of the workshop?</td>
<td>1=not at all relevant 10=very relevant</td>
</tr>
<tr>
<td>-style of the Guide?</td>
<td>1=poor</td>
</tr>
<tr>
<td>-amount of information provided in the Guide?</td>
<td>1=too little 10=too much</td>
</tr>
<tr>
<td>Item</td>
<td>Answer Format</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>-readability of the Guide?</td>
<td>1=poor</td>
</tr>
<tr>
<td></td>
<td>10=excellent</td>
</tr>
<tr>
<td>How confident do you feel REFERRING a woman you believe may be suffering from antenatal/postpartum depression and/or anxiety AFTER attending this workshop?</td>
<td>1=not at all confident</td>
</tr>
<tr>
<td></td>
<td>10=very confident</td>
</tr>
<tr>
<td>How confident do you feel ASSESSING a woman for the possibility of antenatal/postpartum depression and/or anxiety AFTER attending this workshop?</td>
<td>1=not at all confident</td>
</tr>
<tr>
<td></td>
<td>10=very confident</td>
</tr>
<tr>
<td>Do you think pharmacists are capable of screening for antenatal/postpartum depression and/or anxiety and referring suspected cases?</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Unsure</td>
</tr>
<tr>
<td></td>
<td>(multiple choice)</td>
</tr>
<tr>
<td>Please comment:</td>
<td>(Short Answer)</td>
</tr>
</tbody>
</table>
**Reflection activity**

The reflection activity was an online written activity that expected participants to apply their learnings from the PMHP program to a real-life scenario and reflect upon how the PMHP experience helped them deal with the scenario (Table 4.7). The Behaviour component of the Kirkpatrick Model was used to inform the development of the reflection activity, whereby the extent of learning is measured as a function of the individual's application of that learning and change to usual practice (Alliger & Janak, 1989). An open-ended question format was adopted to avoid the influence of numerical scales on participant responses (Schwarz & Oyserman, 2001) and to provide researchers with nuanced insights into the effect of the training on individual participant behaviour upon completion of the PMHP program. The questions were derived by the research team and informed by their collective pharmacy practice and training experience. The task was to engage with a woman in the perinatal period in the course of their professional practice and reflect upon the experience. This activity was intended to help participants meet continuing professional development requirements but also to provide the research team with valuable insights into the application of learnings from the PMHP program. The questions were generated by the research team to elicit responses that would provide the team with such insights.

**Table 4.7 Reflection activity questions**

1. Describe your encounter and the outcome
2. What challenges did you face, if any?
3. What did you learn from this experience?
4. How did you apply your workshop learnings to this experience?
4.5 Results

Twenty-nine pharmacists registered to attend the PMHP workshop and 52% of those registered (n=15) actually attended the workshop. Thirteen participants completed the pre-workshop survey and of those, nine also completed the post-workshop survey (matched by date of birth) and reflection exercise within three weeks of workshop completion. Characteristics of the participants (n=9) who fulfilled all requirements of the PMHP course (attended the workshop, completed both surveys and the reflection exercise) are highlighted in Table 4.8. The results described in 4.5.1 and 4.5.3 will only refer to evaluation exercises completed by these nine participants.

Table 4.8 Sample Characteristics of PMHP participants

<table>
<thead>
<tr>
<th>Sample Characteristic</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>18-25</td>
<td>1 (11%)</td>
</tr>
<tr>
<td>26-40</td>
<td>8 (89%)</td>
</tr>
<tr>
<td>41-65</td>
<td>0</td>
</tr>
<tr>
<td>65+</td>
<td>0</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>2 (22%)</td>
</tr>
<tr>
<td>F</td>
<td>7 (78%)</td>
</tr>
<tr>
<td>Undisclosed</td>
<td>0</td>
</tr>
<tr>
<td><strong>Years in Practice</strong></td>
<td></td>
</tr>
<tr>
<td>1-3</td>
<td>2 (22%)</td>
</tr>
<tr>
<td>3-5</td>
<td>1 (11%)</td>
</tr>
<tr>
<td>5-10</td>
<td>4 (44%)</td>
</tr>
<tr>
<td>10+</td>
<td>2 (22%)</td>
</tr>
<tr>
<td><strong>Current Pharmacy Sector</strong></td>
<td></td>
</tr>
<tr>
<td>Community</td>
<td>6 (67%)</td>
</tr>
<tr>
<td>Industry</td>
<td>1 (11%)</td>
</tr>
<tr>
<td>Hospital</td>
<td>2 (22%)</td>
</tr>
<tr>
<td><strong>Currently Practising</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>9 (100%)</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
</tr>
</tbody>
</table>
4.5.1 Participant surveys

The pre-workshop survey included several questions focusing on participant’s previous exposure to PND training during tertiary studies in addition to baseline confidence with assessment of perinatal mental health and referral of suspected cases of perinatal depression. The majority of participants (n=7) believed that they should have received more lecture time on PND during their pre-registration pharmacy degree whilst others (n=2) wanted more practice assessing women for PND. Overall, participants did not feel that they were provided with adequate training in perinatal mental health and perinatal health generally during their pharmacy degree. Table 4.9 lists the scores provided by participants about perinatal mental health preparation during their degree. Seventy-eight percent of participants (n=7) believed that pharmacists were capable of screening for perinatal depression and one participant selected the “Unsure” option. The only participant who reported that they did not believe pharmacists were capable of screening commented that the reason for this was that the pharmacy environment was a “busy business environment which makes it very hard to screen”. Those who responded that pharmacists were capable of screening commented that before screening could become a reality in community pharmacy, they would require further training (n=5) and a validated screening/referral protocol (n=2).
Table 4.9 Pre-workshop survey participant scores

(NB: Though meaningful statistical analyses was not attempted due to sample size, the mean/standard deviation values for scores are merely presented to provide a sense of collated findings from all participants)

<table>
<thead>
<tr>
<th>Evaluation criteria</th>
<th>Scale</th>
<th>Individual Participant Scores</th>
<th>Mean (n=9)</th>
<th>Std Dev. +/-</th>
</tr>
</thead>
</table>
| Adequate preparation for working with postpartum/pregnant women during pharmacy degree | 1= not at all adequate  
10=more than adequate | 5  6  3  4  1  2  2  1  4 | 3.11 | 1.76 |
| Emphasis on perinatal mental health during pharmacy degree                           | 1= no emphasis at all  
10=strong emphasis              | 3  1  3  2  1  2  2  1  2 | 1.89 | 0.78 |
| Emphasis on perinatal health in general during pharmacy degree                      | 1= no emphasis at all  
10=strong emphasis              | 3  3  8  2  1  2  2  1  2 | 2.67 | 2.12 |
| Emphasis placed on the safe use of medications during pregnancy/ breastfeeding during pharmacy degree | 1= no emphasis at all  
10=strong emphasis              | 5  8  10  6  4  7  10  4  6 | 6.67 | 2.29 |
<table>
<thead>
<tr>
<th>Question</th>
<th>Scale</th>
<th>Mean</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you believe that the education or training you have received as a</td>
<td>1= not at all adequate, 10=</td>
<td>5</td>
<td>2.38</td>
</tr>
<tr>
<td>pharmacist has been adequate for effective care of antenatal and/or</td>
<td>more than adequate</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>postnatal women with depression?</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Confidence ASSESSING a woman for PND</td>
<td>1= not at all confident, 10=</td>
<td>4</td>
<td>2.09</td>
</tr>
<tr>
<td></td>
<td>very confident</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Confidence REFERRING a woman with suspected PND</td>
<td>1= not at all confident, 10=</td>
<td>8</td>
<td>2.80</td>
</tr>
<tr>
<td></td>
<td>very confident</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
The post-workshop survey focused on collecting feedback about the workshop and the Training Guide provided. Table 4.10 lists mean and individual evaluation scores from participants for the workshop and the Guide. Participants also scored their post-workshop PND assessment (mean=8.1) and referral (mean=7.9) confidence. All but two participants reported higher scores for their level of confidence in PND assessment and referral after attending the workshop; two participants (participant 4 and participant 7) reported marginally lower scores after the workshop. Eight participants responded that they did believe pharmacists could screen for PND and one was unsure. Through pairing of the surveys, we found that the participant who had originally responded “No” to the question of whether pharmacists could screen for PND had changed their response to “Unsure” and the original participant who had responded with an “Unsure” had changed their answer to “Yes”. Those who answered “Yes” in the post-workshop survey commented that there was a further need for training (n=3) before pharmacists could implement a screening program, a need for validated screening and referral processes (n=1) and also a need for a sustainable funding source (n=2). One participant provided feedback that the role play activity was sub-optimal since they were expected to role play with each other and not with the facilitators (who would be in a better position to guide the conversation appropriately.
<table>
<thead>
<tr>
<th>Evaluation criteria</th>
<th>Scale</th>
<th>Individual Participant Scores</th>
<th>Mean (n=9)</th>
<th>Std Dev +/-</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Met Expectations</td>
<td>1=not at all</td>
<td>8 9 9 8 9 9 8 8 8</td>
<td>8.44</td>
<td>0.53</td>
</tr>
<tr>
<td></td>
<td>10=very much</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of resources</td>
<td>1=poor</td>
<td>10 9 9 9 10 9 8 8 9</td>
<td>9.00</td>
<td>0.71</td>
</tr>
<tr>
<td></td>
<td>10=excellent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structure of the workshop</td>
<td>1=poor</td>
<td>8 8 9 9 10 8 8 9 8</td>
<td>8.56</td>
<td>0.72</td>
</tr>
<tr>
<td></td>
<td>10=well-structured</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relevance of workshop activities to practice</td>
<td>1=not at all relevant</td>
<td>9 7 9 8 9 8 9 6 6</td>
<td>7.89</td>
<td>1.27</td>
</tr>
<tr>
<td></td>
<td>10=very relevant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilitation of sessions</td>
<td>1=poor</td>
<td>9 9 10 9 10 9 9 9 10</td>
<td>9.33</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>10=excellent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1=worthless</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Value of the workshop</td>
<td>10</td>
<td>8</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Length of the workshop</td>
<td>6</td>
<td>8</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Amount of information provided</td>
<td>4</td>
<td>9</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>in the Guide</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Style of the Guide</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Relevance of the Guide</td>
<td>10</td>
<td>8</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Readability of the Guide</td>
<td>9</td>
<td>9</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Confidence ASSESSING a woman</td>
<td>10</td>
<td>9</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Confidence REFERRING a woman</td>
<td>10</td>
<td>8</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>for PND</td>
<td>10</td>
<td>8</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>woman with suspected PND</td>
<td>10</td>
<td>8</td>
<td>9</td>
<td>7</td>
</tr>
</tbody>
</table>
4.5.2 Workshop activity evaluations

The workshop activities were generally received well by participants, with deep engagement at a class and individual level. As reflected in the evaluation scores of each activity given by the facilitators of the workshop (Table 4.11), the two activities which scored the highest percentage score overall were the infographic (92.5%) (Appendix F) and the screening service development (97.5%) (both also scoring highest on measures of participant enthusiasm and team participation in class discussion). Levels of individual participation were highest for the role plays and levels of team participation in class discussions were lowest for the two activities involving case studies.

The facilitators noted that participant responses to the volunteer speaker were very positive. Many participants made comments about the benefit of having a woman who previously experienced PND speak to them about her experiences and join them in their activities. There were repeated suggestions that a future training program should incorporate more of such speakers to allow for a holistic and comprehensive understanding of PND. Anecdotal feedback from participants also suggested that many would prefer the workshop be held over the course of a weekend rather than the evening workshop format.
### Table 4.11 Workshop Marking Rubric scores

<table>
<thead>
<tr>
<th>Criteria (scored out of 5)</th>
<th>Activity 1: Infographic</th>
<th>Activity 2: Stephanie falls pregnant</th>
<th>Activity 3: Stephanie wants St John’s Wort</th>
<th>Activity 4: Role plays with Stephanie</th>
<th>Activity 5: Build a screening service</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Originality</td>
<td>4</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>5</td>
</tr>
<tr>
<td>Clarity</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Accuracy</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Organisation</td>
<td>5</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>5</td>
</tr>
<tr>
<td>Reasoning</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Enthusiasm</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Team participation</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>(in class discussions)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual participation</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>37/40</td>
<td>25/30</td>
<td>23/30</td>
<td>25/30</td>
<td>39/40</td>
</tr>
<tr>
<td></td>
<td>92.5%</td>
<td>83.3%</td>
<td>76.7%</td>
<td>83.3%</td>
<td>97.5%</td>
</tr>
</tbody>
</table>

### 4.5.3 Reflection activity

All but one of the nine participants completing the reflection exercise consulted with a new mother within three weeks of the workshop and reflected upon the experience in the context of the learnings.
they gained from the workshop they completed. One participant did not come across any pregnant or postpartum women and completed the exercise reflecting on what they would have done if they had encountered one. A thematic content analysis of the reflection activity submissions revealed three main themes: empathy, guiding the conversation and professional confidence. Where direct participant quotes are used, the code P refers to the pharmacist followed by a number indicating the participant who provided the quote.

Empathy
All participants expressed the need to develop empathy with the patient in some capacity. Empathy may manifest in various ways and lies in the ability of the clinician to develop a shared understanding with his/her patient through affective, cognitive or behavioural means (Norfolk, Birdi, & Walsh, 2007). Participants often suggested that the ability to empathise and be guided by cues from the patient was an important part of the counselling process.

“I found it quite easy to talk to her as being a mother myself, I felt I could empathise with some of her experiences.” P2

“Don’t try to rush it or push it or the person becomes resistant. When you sense resistance, don’t push through, but try to find a way of getting your point in a different way, e.g. talk about baby for a while, then mention about her again ...gain their trust first, don’t assume that because she trusts you with her baby, she will trust you with her mental health.” P1

The ability to recognise a new mother’s motivations through the course of a conversation was reported as an important aspect of empathic counselling.

““The biggest challenge was changing the conversation to be about mom (sic) and not the baby. Even when talking about mental health or maternal health she was open to it until it came to applying it to her. It was hard to get her to accept that she was important too…” P1
Guided conversation

Participants suggested that engaging in meaningful conversation with the purpose of gauging the possibility of perinatal mental health problems underpinned their interactions with new mothers after attending the workshop.

“*I made a conscious effort to engage in conversation that would allow me to identify risk factors of postnatal depression, as opposed to just referring her to my colleague or just selling the patient a milk formula.*“ P4

Participants emphasised that there was an inherent need to guide the conversation in a way that would allow them to gain insights into the mother’s mental health status without making her feel threatened.

“*I plan to initiate the conversation with less sensitive and personal topics such as changes to sleeping patterns due to the baby and when their reply indicates stress and/or anxiety, I can offer to ask them to enter our private counselling room and screen the patients for PND.*“ P7

“I think there would be new mothers out there that may not feel as comfortable opening up with ‘strangers’ or may even feel a sense of ‘failure’ or ‘shame’ when put in a position like this client’s. Just start a conversation casually - talking about her baby ‘generally’ rather than being specific and direct with the questions, which could come across as a little intimidating” P4

Whilst most participants mentioned the need to guide a conversation, one participant added that disclosure about the direction of that conversation allowed for a more open and honest discussion.

“*Patient felt a bit apprehensive about why I was asking some of the questions - explained that I wanted to provide her with more information where required to support her through her first pregnancy. She was comfortable with talking openly afterwards...Asking open questions unrelated to*
the patient request can sometimes be unexpected. Should try to ensure that patients are feeling relaxed and comfortable with these types of conversations before proceeding.” P9

Professional confidence

Participants frequently noted that the training provided them with increased confidence to engage in mental health discussions with new mothers.

“The first thing was that I had gained confidence to start a conversation even though it may be a bit sensitive as now I have more knowledge on this topic.” P3

“After attending the workshop I felt more confident to talk about PND with her and wasn’t afraid to delve into deeper conversation with the patient...I let her know that we at the pharmacy, are always here for her if she needed anything.” P2

“(Before the workshop) I would not have asked the customer about their mental health in the first place as I would not have known what to do other than refer to the doctor. I was able to broach the subject of the survey and make a number of useful recommendations for the customer.” P6

However one participant did note that they still found it difficult to engage in sensitive conversations.

“I found it is quite difficult to ask for personal lifestyle things as most people will feel uncomfortable.” P5

4.6 Discussion

The evaluation process of the PMHP program yielded interesting results about the ideal format, content and nature of a PND training program aimed at pharmacists. Findings from this pilot test suggest that the PMHP program was well-received and achieved its intended purpose - to fulfill the training needs of pharmacists regarding perinatal depression (and perinatal mental health generally)
and to generate feedback to inform future iterations of a PMHP program. The evaluation tools used (the surveys, marking rubric/facilitator observations and reflection activities) did not necessarily provide the research team with exhaustive data but they did provide enough scope to inform a discussion around the key benefits and limitations of the PMHP program and recommendations for future iterations of the program.

Participant evaluation of the Guide and the workshop indicated an overall satisfaction with the quality, style and value of the program. The two metrics from the Kirkpatrick Model (D. L. Kirkpatrick, 1975) that were loosely evaluated in this study - Reaction and Behaviour - both showed positive results; participants reacted favourably to the experiential and blended learning approach utilised and successfully applied their learnings in the course of their practice, as seen in the reflection activities.

Blended learning (a pedagogical approach which hybridises online and face-to-face teaching components) has been extensively studied in the clinical education of healthcare students (Rowe, Frantz, & Bozalek, 2012) and there is some evidence that it results in improved clinical competencies compared to pure face-to-face teaching methods. Blended learning offers the benefit of convenience and promotes learner-centred teaching (Gray & Tobin, 2010) which in the context of continuing professional development, aligns with the needs of practising pharmacists who often cite time constraints as a significant barrier to implementing pharmacy services (Garcia, Snyder, McGrath, Smith, & McGivney, 2009; Landau et al., 2009; O’Loughlin, Masson, Déry, & Fagnan, 1999). The workshop facilitators observed (as reflected in the workshop evaluation notes and scores) that the two activities which generated the highest levels of interest amongst workshop attendees were the infographic activity (where participants were asked to create a poster about PND to hang in their pharmacies) and the development of a PND screening service development activity. Both of these activities were highly experiential, expected participant leadership and entailed a personal application of background knowledge to a potential real-world example. Participants responded positively to the learner-centred, participant-led environment created in the workshop; a study with pharmacy students developing and partaking in a medication reconciliation service (Meierhofer et al., 2013) highlighted that student-led initiatives bolstered learning opportunities and student development. Given the positive response to the experiential components of the program, it is recommended that future
iterations of the program retain these activities and incorporate further opportunities for experiential learning.

Participant comments at the conclusion of the workshop suggested that they would have preferred a lengthier training program which provided a more in-depth view of perinatal mental health and how to screen and refer cases of PND. The item on the post-workshop survey asking participants to rate the length of the workshop attracted the lowest score which suggests a strong need to revise the length of future iterations of the PMHP program. The majority of participants noted that their tertiary training did not equip them to adequately screen women for the possibility of perinatal mental health illness nor did it prepare them to refer suspected cases of perinatal depression. These findings echo previous research suggesting that tertiary pharmacy (Cates, Monk-Tutor, & Drummond, 2007) and medical courses (Keitt, Wagner, Tong, & Marts, 2003) do not adequately focus on psychiatric pharmacy or women’s health respectively, thus further justifying the need to develop postgraduate training programs to bridge that gap. Evidence suggests that a mental health first aid course conducted with pharmacy students (O’Reilly et al., 2011) lowered their stigmatising attitudes to mental health illness and improved their confidence in providing services to patients with mental illness in a pharmacy setting. Given that lack of training in mental health issues has been noted as a significant barrier for pharmacists wanting to conduct mental health services (Scheerder et al., 2008), a comprehensive training program focusing on perinatal mental health in the context of pharmacy could justifiably remove a significant barrier for pharmacists looking to provide mental health support for new mothers.

The positive feedback provided by participants with respect to the volunteer speaker emphasises the value of consumer-led mental health education as captured by previous research. Pharmacy students attending training led by mental health consumer educators (O’Reilly et al., 2010) reported reduced mental health stigma, improved attitudes towards patients with a mental illness and an appreciation for the roles that pharmacists can play in providing non-judgemental care to patients with mental health illness. These findings have been corroborated by studies confirming the benefits of contact-based education (Patten et al., 2012) and the positive impacts of such training on the pharmacist’s professional practice and interactions with patients with mental illness (Bell, Johns, Rose et al., 2006; Nguyen, Chen, & O’Reilly, 2012; O’Reilly et al., 2012) though a recent systematic review concluded
that further research was required on the effects of consumer-led education on student’s behaviour in healthcare environments (Happell et al., 2014). Regardless, a review of the literature on consumer-based education (Repper & Breeze, 2007) found that involving patients in the education of healthcare professionals may lead to improved empathy in professional practice. The importance of empathy in patient-pharmacist interactions was frequently cited by PMHP in their reflection exercises (and incidentally, by the participants in Phase 1 of this study). Studies have looked at the effect of a training intervention on pharmacist’s empathy scores (Lilja, Larsson, Hamilton, & Issakainen, 2000; Lonie, Alemam, Dhing, & Mihm, 2005) which showed modest improvements in the pharmacist’s ability to empathise with patients. Two processes appear to underpin the development of pharmacist’s empathic skills (Lonie, 2006), social learning (through critical observation) and the consistent use of self-reflective practices. As such, it can be argued that whilst empathy skills may be taught as part of a mental health training program, the development of empathy is essentially a function of experience and self-reflection (Lonie, 2010/1) and crucial to the development of patient-centred communication strategies. Recommendations for future iterations of the PMHP program would be to focus on delivering consumer-led perinatal mental health education with a component requiring participants to continually reflect upon and improve their patient communication strategies during the course of their professional practice.

Overall, the results of this pilot test were promising and suggest that further investigations into the impact of a perinatal mental health education intervention on pharmacists’ knowledge and attitudes is warranted. This pilot test represented an early foray into the possibility of developing an education program for pharmacists that could ultimately lead to the development of a pharmacist-led PND screening service and whilst the results appear positive, our findings are not prescriptive. A more robust and comprehensive study is needed to qualify our preliminary findings and to measure the impact of an educational intervention on pharmacist’s knowledge, attitudes and confidence with PND screening and referral. A recommended next step would be to gain ethics approval to develop and validate a pharmacist PND knowledge and attitude questionnaire for use in an intervention study to assess the outcome of a reviewed PMHP program on pharmacist PND knowledge and attitude scores. However, an educational intervention represents just the first step of an overall need to determine the impact of a pharmacist-led PND screening program on depression outcomes. Long-
term, the development of a randomised controlled trial to assess the impact of pharmacist intervention on the perinatal depression outcomes of affected women is recommended.

4.7 Limitations

Several key limitations were noted during this study. The study focused only on measuring Reaction and Behaviour metrics in the evaluation process without considering Learning or Results outcomes (the second and fourth steps of the Kirkpatrick model). This study was therefore not able to measure changes in knowledge of perinatal mental health. Furthermore, the pre-workshop survey was distributed after the delivery of the Training Guide which may have affected confidence and attitude scores. The reliability of scores measured were limited by the very small sample size which limited the research team’s ability to conduct comprehensive statistical analyses of change in confidence and attitude after the training program. However, this study was intended primarily as a pilot program to gain insights into the training program developed thus the team did not consider a large sample necessary for the purposes of Phase 2 of this study. The insights gained from Phase 2 will be utilised to develop a comprehensive training program and associated ethics application for a larger study to measure the impact of the training program on pharmacists’ knowledge and attitudes towards PND. Furthermore, two participants reported lower confidence scores after the workshop. Due to survey and sample size limitations, we were unable to determine the significance of these score changes nor capture individual participant feedback about why their confidence scores may have lowered or whether these score changes reflect confusion about the numerical scales provided (Alliger & Janak, 1989). This may be an indication of internal weaknesses within the survey developed and justifies the need to develop and validate a pharmacist-specific knowledge and attitude questionnaire.

4.8 Conclusion

Despite these limitations, the PMHP program provided a solid, foundational base for future attempts to develop a perinatal mental health training program with a pharmacy focus. This pilot test was successful as a number of participants reported a need for comprehensive training in perinatal mental health. Preliminary evaluation attempts have highlighted several key areas for improvement of the
PMHP program and informed recommendations for a larger study investigating the outcomes of a PND educational intervention.
Chapter 5:

Discussion & Recommendations

The perinatal period is a challenging time for pregnant and new mothers. Given the adverse impacts of PND on mothers and their families, there is a strong need to identify ways of detecting and treating this disorder as early as possible and the findings from Phase 1 and 2 of this study suggest that pharmacists may have an important role to play in early PND detection.

The literature review conducted at the initial part of this research project demonstrated that there was insufficient evidence to support the long-term benefits of universal PPD screening programs, however, there was recognition that despite the need for further RCTs (or diagnostic accuracy studies) to quantify the long-term outcomes of such programs, that there was nonetheless a need to implement a model that would enhance the detection and subsequent referral of mothers with depression (Chaudron & Wisner, 2014). A few decades ago, the World Health Organisation (WHO) published ten criteria (Wilson et al., 1968) as discussed in Chapter 1.

In the context of depression screening, much debate has transpired about whether perinatal depression as a disease-state meets this criteria (M. Austin, Hadzi-Pavlovic, Saint, & Parker, 2005; Thombs, Arthurs et al., 2014; Wickberg, 2007). Whilst there are conflicting opinions and studies about the value and cost-effectiveness of universal PPD screening programs (Chaudron & Wisner, 2014; Thombs, Arthurs et al., 2014), primary care contexts which provide unfettered access to health professionals improve the likelihood that a patient-provider interaction will result in a PPD case being detected and referred [Note: PPD being the term we selected for our literature review for reasons cited earlier]. In 2005, Kessler et al. (2005) advocated that depression screening should be conducted within primary care settings since there were key reasons why depression may not fulfill some of the Wilson and Jungner criteria – chiefly, that depression has no clearly defined pre-clinical phase. The authors suggest that perhaps the better course of action would be to screen those with a severe form of the condition, or those more likely to come to harm. Furthermore, modifications to the Wilson and
Jungner model have been suggested (R. Harris, Sawaya, Moyer, & Calonge, 2011) by researchers who have advocated that these principles not be used as a formal checklist but rather, as a paradigm which considers the net benefits of screening against the possibility of harm. Harris et al. (2011) propose that the purpose of screening is to improve quality of life and should be measured by the degree to which early recognition of a disease justifies the resources required by the program in question.

There are risks involved in universal PND screening, namely the possibility of women without depression being falsely identified as having PND, making a follow-up diagnostic appointment essential (Eberhard-Gran, Eskild, Tambs, Opjordsmoen, & Samuelsen, 2001). Conversely, it may lead to false negatives and the subsequent perceived invalidation of a woman’s mental health needs (Rosenfield, 2006). It may also create anxiety and fear in patients unnecessarily. However, it has been argued that attempting to identify and acknowledge the possibility of depression outweighs the risk of negative long-term consequences (Buist et al., 2002). Given the tangible and potentially severe consequences of PND on the family unit, there is a genuine need to consider the merits of implementing PND screening policies, whether such policies encourage mass screening or selective case-finding strategies (Rosenfield, 2006).

The literature review set the stage for an exploration of the role of the pharmacist in PND screening generally since community pharmacy provides pregnant women and postpartum mothers with ample opportunities to interact with pharmacists. The findings presented in this dissertation support the notion that utilising pharmacists and potentially other non-medical allied health professionals who are skilled in recognising cases and referring them to general practitioners (GPs) may be a way forward. The average Australian adult consults or visits their pharmacist fourteen times compared to a single annual visit to their GP (KordaMentha, 2011) therefore accessibility is a key advantage that the pharmacy sector offers in the context of PND detection. Pharmacists already engage in screening activities for physical conditions such as COPD (L. Fuller et al., 2012), sleep apnea (Tran et al., 2009) and hypertension (Mangum et al., 2003). There is also evidence supporting the feasibility of involving pharmacists in depression screening (O’Reilly et al., 2015a; Ragland et al., 2010). Given pharmacists’ foray into screening services and their inherent accessibility as professionals, there is a case to be
made for the possibility of implementing PND screening programs in the context of the community pharmacy.

The willingness and ability of pharmacists to implement services for traditionally stigmatised populations is also relevant in the context of a discussion about mental health screening. Studies have indicated that pharmacists in the US generally hold a positive view towards in-pharmacy HIV testing (Amesty, Blaney, Crawford, Rivera, & Fuller, 2012) and pharmacists in the UK would be willing to offer chlamydia testing and treatment services (Cameron et al., 2007). Positive attitudes towards service provision for drug misusers by pharmacists (Eades et al., 2011) also indicates that pharmacists are generally open to engaging with screening and treatment services for people with sensitive health issues. As such, the importance of understanding pharmacist attitudes to proposed screening and disease state management (DSM) services cannot be overstated.

The long-term implementation of services in the pharmacy context cannot occur without taking a systematic approach to first understanding the barriers, needs and attitudes of pharmacists and patients (Kaae & Christensen, 2012). Feasibility studies conducted on pharmacist-led screening and DSM services are usually informed by qualitative studies aimed at collecting stakeholder feedback about the service being proposed. A similar pattern of investigation leading to the establishment or improvement of existing screening services has been observed in relation to physical disease states such as diabetes (Blenkinsopp & Hassey, 2005; Krass, Delaney, Glaubitz, & Kanjanarach, 2009), asthma (Saini et al., 2011) and cardiovascular disease (Tod, Read, Lacey, & Abbott, 2001) but also in mental health (O’Reilly et al., 2015a) and insomnia (J. M. Fuller, Wong, Hoyos, Krass, & Saini, 2015).

The findings from the qualitative study are often used to inform the development of an educational intervention designed to equip the pharmacist with the skills to subsequently partake in a feasibility study designed to determine the overall impact of a proposed in-pharmacy and pharmacist-led screening program (Armour et al., 2007; J. M. Fuller et al., 2015; L. Fuller et al., 2012; Tran et al., 2009) (Figure 5.1). In our case too, the research team sought to follow a similar research path by initially exploring pharmacists’ understanding, experiences and attitudes in relation to PND and to identify their views on and perceived barriers to implementing PND screening in pharmacy. The
results of this effort resulted in the development of a pilot two-stage educational intervention in Phase 2 which aimed to pilot a pharmacist-focused PND training program and gather feedback which could inform future research and iterations of the program.

The training of health professionals is crucial for PND-screening programs to be successful since simply providing a screening tool will not improve detection of depression (Donoghue et al., 2004). The training should encompass more than a deliberation on the use of the screening tool; it must also improve the quality of the interaction between the health provider and woman in question by improving their listening skills and ability to manage distress (Rosenfield, 2006). Feedback gathered from participants of the PMHP program in Phase 2 of this study highlighted the importance of pharmacists undertaking further training in perinatal mental health to supplement gaps in their knowledge and experience. Pharmacists have been trained to provide specialised asthma care (Saini, Smith, Armour, & Krass, 2006) and sleep behaviour interventions (J. M. Fuller et al., 2015) which emphasises the importance of providing specialised training as a prerequisite for delivering comprehensive screening and DSM programs.

Though these educational interventions and subsequent feasibility studies have often been conducted with practising pharmacists, there is a compelling need for pharmacy schools to consider a reconfiguration of their curricula to ensure that emerging screening services (such as mental health screening) are adequately represented in the course syllabus. Pharmacy schools often do not place enough emphasis on mental health education (Cates et al., 2007). There are many opportunities within the pharmacy syllabus to introduce and consolidate student understanding in relation to PND; the topic lends itself well to integration into existing modules focusing on pregnancy, women’s health, paediatrics or mental health. Attempting to saturate all possible opportunities within the course syllabus with references to PND may increase the likelihood that graduates would commence their professional practice with an appreciation of the complexities associated with the disorder. In fact as highlighted in Chapter 3, our interview participants had indicated that the opportunities to learn about antenatal and postpartum depression at pharmacy school had been minimal, and a reference to PND in their final year of study had been brief and did not fulfill practice needs.
Participants in Phase 1 cited lack of time in the community pharmacy environment; this meant that pharmacists had competing priorities which may hinder the implementation of a pharmacist-led PND screening program. Many studies have suggested that time constraints in the pharmacy (Landau et al., 2009; O’Reilly et al., 2015a; Scheerder & Iris De Coster, 2015; Semple et al., 2006) are a significant barrier to pharmacists delivering professional services and spending quality time with patients. This barrier may be resolved through a government-funded remuneration scheme which funds extra pharmacist staff (or pharmacist hours) to conduct screening services. Twenty-eight pharmacy service remuneration models were identified in a systematic review (Chan et al., 2008) that reported government agencies as the most common financiers of remuneration systems designed to provide payment for each individual intervention delivered. In practice, such interventions often occur in the context of an established pharmacy workflow such as dispensing. Similarly, a successful (and
potentially remunerated) implementation of PND screening may need to be attached to an existing pharmacy workflow not only to enhance efficiency but also to complement existing services.

One possible avenue would be to integrate PND screening into existing in-pharmacy baby clinics (often run by nurses) (Flowers, 2008; Zadoroznyj et al., 2013). Baby clinics are often seen by mothers as a useful avenue for them to seek parenting advice and psychosocial support and referrals (Kearney & Fulbrook, 2012) and the drop-in style of engagement offered by pharmacy-run baby clinics confers benefits of convenience and accessibility to such parents. Such clinics may be a good forum for discussing mood and mental well-being in mothers with new babies; women have reported wanting an avenue to discuss their childbearing experiences with supportive health professionals (Cooke & Stacey, 2003) and the provision of supportive care by health professionals in the perinatal period contributes positively to a reduction in maternal depression symptoms (Gamble et al., 2005). Baby clinics already operate in many pharmacies and potentially serve as useful conduits for PND screening protocols or as templates for the future development of pharmacy-based PND screening programs.

In addition to in-pharmacy baby clinics, pharmacists also have a plethora of informal opportunities to initiate PND screening such as during breastfeeding consultations, discussions about treatment for a sick infant or antenatal vitamin consultations. In all of these cases, a pharmacist will need to exercise professional discretion when deciding to initiate formal PND screening procedures and as reported by participants in Phase 2, this often depends on the level of rapport between the patient and the pharmacist.

An important argument against the concept of universal screening in a pharmacy context (and potentially other venues) lies in the role that patient-provider trust and familiarity plays in the detection of mental health disorders (MaGPIe Research Group, 2005). GPs are more likely to detect mental health disorders in patients that they know since such a diagnosis often occurs as a result of multiple consultations rather than an isolated event (MaGPIe Research Group, 2005). It has been reported that public trust in the community pharmacist’s ability to deliver perceived “high-risk” services (Gidman, Ward, & McGregor, 2012) is linked to the perception that GP interactions are underpinned
by a sense of care continuity whereas interactions with pharmacists are perceived to be temporary. However, this stands in contrast to studies which report a high level of public trust and satisfaction with pharmacists (Bawazir, 2004; Hargie, Morrow, & Woodman, 1992; Perepelkin, 2011). Regardless, the development of a pharmacy model which nurtures long-term trusting relationships between mothers and their pharmacists is likely to result in better PND detection in the pharmacy setting. Given the accessibility of pharmacists to perinatal women, there is a case for investigating models which remunerate pharmacists for spending the time to develop such relationships. Practice incentives are often issued by government agencies for time spent delivering an intervention and may apply to pharmacist-led screening initiatives. The task of identifying an appropriate remuneration model for pharmacy-based PND screening may not require immediate attention but it is nonetheless a consideration that is worthwhile keeping in mind for future investigation.

The development of a pharmacist-led PND screening model would require strong interprofessional collaboration between pharmacists and other healthcare providers, general practitioners (GPs) in particular. A frequent assertion made by participants in Phase 1 was the belief that GPs would view pharmacist-led PND screening as a transgression of professional boundaries and an encroachment on GP territory. Some studies (Blenkinsopp et al., 2008; Edmunds & Calnan, 2001) do substantiate these views though the point is made that such professional tensions are facilitated by pharmacist acquiescence to GP authority and a defensive reluctance to respond to GP apprehensions about pharmacists’ clinical abilities. However, studies show, for example, that a high proportion of women with screening results that indicated possible depression often are not provided with further evaluation or treatment since clinicians who do screen for depression don’t always use the results to enable further assessment (Georgiopoulos et al., 2001; Olson et al., 2002). Many paediatricians do not consider it their responsibility to recognise maternal depression (Olson et al., 2002) whereas most primary care physicians do consider it their responsibility (Leiferman, Dauber, Heisler, & Paulson, 2008) but often do not; time pressures being a real deterrent and clinical hesitancy a close second. The gap this creates in the continuum of care for perinatal women presents an opportunity for non-medical allied health professionals operating in the community setting to step in and provide an additional opportunity for mothers to be screened. Thus the redesign of maternity care to include pharmacists (and potentially other non-medical allied health professionals) in an interprofessional
collaboration designed to improve overall PND detection rates may be warranted. Furthermore, there is a need to provide health professionals working with mothers with depression with ongoing supervision and support (Elliott, Ashton, Gerrard, & Cox, 2003) which creates a further opportunity for pharmacists to collaborate with medical professionals traditionally involved in the delivery of maternity mental health services.

Though this debate is larger than the study in question, some recommendations may be made to enhance professional trust and facilitate this collaboration. Firstly, professional networking opportunities focusing on pharmacist-GP interaction may help boost professional trust and encourage conversations about collaborative care models within primary care. Furthermore, in the context of PND specifically, collaborative education opportunities between pharmacists and GPs (Bryson & Ryan, 2016) may provide a platform for discussion about the most appropriate way to divide responsibilities in the context of perinatal care. There is strong evidence that interprofessional learning projects in the context of health promotion activities fosters positive collaboration between health students (Saini et al., 2011). The establishment of local networks of health providers and mental health organisations to enable a collaborative, closed-loop approach to PND referral and management would also depend on the ability of pharmacists to build rapport with relevant stakeholders within their local area. This is particularly important since there is a strong body of evidence supporting the need for structured procedures following a screening result that suggests possible depression (Leung et al., 2011; Segre et al., 2012; Weingarten et al., 2002). Screening models with effective follow-up and treatment should also include the provision of educational materials, treatment maintenance and medication advice (Wells et al., 2000); all of which pharmacists are capable of completing. In fact, the vast majority of participants in Phase 2 believed that pharmacists were capable of screening for PND but that pharmacists required established and coordinated referral procedures to do so effectively. This supports the finding that health staff need to be confident that resources will be available after screening to justify the effort they put into doing so (Ericksen et al., 2005).

In the pharmacy context, such coordinated approaches are particularly necessary given that mental health screening is still a relatively new concept for many pharmacists who are likely to expect an
established framework to guide them through the entire process. Whilst participants in Phase 2 suggested that the PMHP training program helped build confidence in their ability to screen for PND, their call for a standardised screening and referral framework may reflect an underlying lack of self-efficacy (Bandura, 2010) and confidence in their ability to implement a screening program without the guidance of clear-cut protocols. Thus further research may be required to understand pharmacist’s apprehensions about PND screening and measures taken to boost pharmacist’s self-efficacy by responding to these apprehensions in future iterations of the PMHP program and any pharmacist-led PND screening programs that may result. Whilst the qualitative interviews conducted in Phase 1 of this study attempted to gauge such apprehensions, a phenomenological approach utilising unstructured interviews may capture unexpected pharmacist concerns and reduce the impact of researcher assumptions on the responses collected (Englander, 2012).

This study represents one of the first investigative forays into the topic of pharmacist-led PND screening. Whilst the findings of this study appear to support the notion of pharmacist-led PND screening, the research team recognises that these findings simply offer an introductory glimpse into the feasibility of pharmacist-led screening and that further research is required to validate the concept. Although attempts have been made to consider the role of hospital pharmacists in detecting comorbid depression in cases of gestational diabetes (Ragland et al., 2010), there appears to be very little published research exploring the role of pharmacists in perinatal depression screening, referral and management. Future research areas could include the development and validation of a PND knowledge, attitude and self-efficacy scale for pharmacists and subsequent distribution to a larger sample of pharmacists to determine training needs. An educational intervention developed as a result of such research, which may indeed be similar to the one we have piloted, may be the subject of a randomised controlled trial to test pharmacists’ knowledge, attitudes and self-efficacy outcomes and potentially form the backbone of a larger diagnostic accuracy type investigation into the impact of training on the PND outcomes of mothers screened and referred by pharmacists. The small sample size and skewed sample characteristics (limited practice locations and age range) severely restricted the generalisability of our findings. Furthermore, the lack of time to complete all planned activities limited us from pilot testing the entirety of the developed PMHP program. Whilst the PMHP program could have been extended to develop and validate a pharmacist-specific knowledge and attitude
questionnaire, lack of time and funding prevented us from doing so. As such, the limitations surrounding this study were a consequence of circumstances that should be addressed in future investigations. In addition, the conclusions drawn from the qualitative interviews may have been affected by a social desirability bias which suggests that future studies looking to validate the findings in this study may need to consider alternative ways of collecting pharmacist views about a PND training program for pharmacists through postal or online surveys. As discussed in Chapter 4, the next stage of this research may be to develop and validate a pharmacist-specific knowledge and attitude questionnaire about PND before developing an intervention study which tests the impact of PND education on pharmacist’s knowledge, attitudes and ability to screen through the use of the validated questionnaire and patient simulation exercises.

In conclusion, the community pharmacy sector represents a potentially underutilised resource in the push to detect and treat perinatal depression as early as possible. Whilst the value of primary-care based screening programs have been the subject of rigorous debate, it has also been acknowledged that the benefits likely outweigh the harms, and where screening is implemented, it should be followed up with established assessment and treatment protocols. This study represents a positive view of the potential for pharmacists to be at the frontier of public health attempts to implement primary-care based PND screening programs. Further research into the feasibility and implications of pharmacist-led PND screening is recommended.
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## Appendix A

**Modified STARD checklist for reporting of studies of diagnostic accuracy**

*(modified by Sabrine Elkhodr; Bandana Saini)*

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<td><strong>METHODS</strong></td>
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<tr>
<td><strong>Participants</strong></td>
<td>3</td>
<td>The study population: The inclusion and exclusion criteria, setting and locations where data were collected.</td>
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<td></td>
<td>5</td>
<td>Participant sampling: Was the study population a consecutive series of participants defined by the selection criteria in item 3 and 4? If not, specify how participants were further selected.</td>
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<td>6</td>
<td>Data collection: Was data collection planned before the screening test test was performed (prospective study) or after (retrospective study)?</td>
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<td><strong>Test methods</strong></td>
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<td>8</td>
<td>Technical specifications of material and methods involved including how and when measurements were taken, and/or cite references for index tests screening tool.</td>
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<td>9</td>
<td>Definition of and rationale for the units, cut-offs and/or categories of the results of the screening tests and the reference standard.</td>
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<td>The number, training and expertise of the persons executing and reading the screening test results tests and the reference standard.</td>
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<td>Participants</td>
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<td>When study was performed, including beginning and end dates of recruitment.</td>
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<td>15</td>
<td>Clinical and demographic characteristics of the study population (at least information on age, gender, spectrum of presenting symptoms).</td>
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<td>16</td>
<td>The number of participants satisfying the criteria for inclusion who did or did not undergo the index tests and/or the reference standard; describe why participants failed to undergo either test (a flow diagram is strongly recommended).</td>
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<td>Test results</td>
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<td>18</td>
<td>Distribution of severity of disease (define criteria) in those with the target condition; other diagnoses in participants without the target condition.</td>
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<td>22</td>
<td>Explanation of how indeterminate results, missing data and outliers of the index tests were handled.</td>
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<td>Discuss the clinical applicability of the study findings.</td>
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Appendix B

Research Integrity
Human Research Ethics Committee

Thursday, 17 September 2015

Dr Bandana Saini
Pharmacy; Faculty of Pharmacy
Email: bandana.saini@sydney.edu.au

Dear Bandana

I am pleased to inform you that the University of Sydney Human Research Ethics Committee (HREC) has approved your project entitled “Pharmacist perspectives on Postpartum Depression screening in community pharmacy”.

Details of the approval are as follows:

Project No.: 2015/683
Approval Date: 14 September 2015
First Annual Report Due: 14 September 2016
Authorised Personnel: Saini Bandana; Elkhodr Sabrine; Bartlett Delwyn; Bartlett Delwyn;

Documents Approved:

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<th>Date</th>
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<td>Participant Consent Form</td>
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<tr>
<td>04/09/2015</td>
<td>Interview Questions</td>
<td>Interview Guide</td>
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<tr>
<td>04/09/2015</td>
<td>Recruitment Letter/Email</td>
<td>Invitation Letter</td>
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<td>04/09/2015</td>
<td>Participant Info Statement</td>
<td>Participant Info Statement</td>
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<tr>
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<td>Telephone Scripts</td>
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<td>04/09/2015</td>
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<td>04/09/2015</td>
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<td>Thank You Letter to Participants</td>
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HREC approval is valid for four (4) years from the approval date stated in this letter and is granted pending the following conditions being met:

Conditions of Approval

- Continuing compliance with the National Statement on Ethical Conduct in Research Involving Humans.
- Provision of an annual report on this research to the Human Research Ethics Committee from the approval date and at the completion of the study. Failure to submit reports will result in withdrawal of ethics approval for the project.

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ABN 15 213 813 464
CRICOS 00035A
• All serious and unexpected adverse events should be reported to the HREC within 72 hours.

• All unforeseen events that might affect continued ethical acceptability of the project should be reported to the HREC as soon as possible.

• Any changes to the project including changes to research personnel must be approved by the HREC before the research project can proceed.

• Note that for student research projects, a copy of this letter must be included in the candidate’s thesis.

Chief Investigator / Supervisor’s responsibilities:

1. You must retain copies of all signed Consent Forms (if applicable) and provide these to the HREC on request.

2. It is your responsibility to provide a copy of this letter to any internal/external granting agencies if requested.

Please do not hesitate to contact Research Integrity (Human Ethics) should you require further information or clarification.

Yours sincerely

[Signature]

Professor Glen Davis
Chair
Human Research Ethics Committee

This HREC is constituted and operates in accordance with the National Health and Medical Research Council’s (NHMRC) National Statement on Ethical Conduct in Human Research (2007), NHMRC and Universities Australia Australian Code for the Responsible Conduct of Research (2007) and the CPMP/ICH Note for Guidance on Good Clinical Practice.
Appendix C

PHARMACIST SEMI-STRUCTURED INTERVIEW GUIDE

Community pharmacist perspectives on their role in supporting women with perinatal depression in professional practice.

Interviewer Script

First, I’d like to thank you for participating in this project. As I mentioned before, I would like to record the interview for data accuracy. May I start recording?

Thank you. Just a few basic questions to start:

- Interview/ID number
- Date
- Venue
- Job Type (pharmacist employee, pharmacy manager, pharmacy owner)
- Size of the community pharmacy (no of scripts dispensed/week, no of staff)
- Location (shopping centre, medical centre, shopping strip etc.)
- No. years in practice
- How many days per week do you work in community pharmacy?

Thanks. Now we’ll begin with the main set of questions. Just for reference purposes. When I ask about “postpartum mothers”, I am referring to a mother who has given birth within the previous 12 months, whether she is already a mother to an older child or a first time mother.
**PREGNANCY & POSTPARTUM MOTHERS IN THE PHARMACY**

First, I’d like to gain an understanding of your experiences as a community pharmacist when encountering pregnant women or women who have just given birth. What has been your experience with postpartum and pregnant mothers in the pharmacy?

**<PROMPTS>**

- Types of product queries (eg. Vitamins, baby formula etc.)
- Special Issues/Questions (eg. maternal/infant sleep, baby colic, drugs in pregnancy)
- Common counseling points (eg. vitamin supplementation, sleep hygiene, etc.)
- General services offered (eg. baby checkup clinics, lactation consultant etc.)

Thinking specifically about **postpartum or pregnant** mothers, What observations have you made in your professional capacity as a pharmacist when counselling them?

- mood, coping style, stress levels, communication style etc.?
- “change” after having a baby dealing with new responsibilities that come with motherhood?

**PERINATAL DEPRESSION IN THE PHARMACY: CURRENT PRACTICE**

Thank you for answering those questions. As you know, my area of research is exploring perinatal depression and current practice within community pharmacy. First, I will be asking you some questions in relation to postpartum or pregnant mothers and how they present to you in the pharmacy.

How frequently do you come across postpartum and pregnant mothers in your professional practice?

When new mother or pregnant woman comes in to the pharmacy, how do you or how would you gauge the possibility that she may be experiencing emotional or health problems?
**<PROMPTS>**

- Signs of exhaustion, they don’t seem as “happy” as usual etc.
- Effects on the mother/infant etc.

If these have occurred how have you approached cases (or potential cases) of perinatal depression (or PND) in your professional practice?

**<PROMPTS>**

- Referral to GP’s/mental health clinics, lifestyle advice eg. sleep hygiene, infant health/sleep etc.

**Case Study 1:** A young woman in her twenties who recently gave birth to her first child comes into the pharmacy. You’ve known her for a couple of years when she comes in to get her scripts filled and know her to be a friendly, talkative person. On this occasion however, she looks really tired, seems down and withdrawn. Her 3 month old baby is asleep in the stroller and she asks you for something to help her sleep at night because she’s too “restless” to sleep even when her baby does.

How would you approach this situation?

**<PROMPTS>**

- Your concerns, thoughts and actions

**Case Study 2:** A woman in her thirties comes in to your pharmacy and you do not recognise her as a regular patient. She is holding a baby that looks to be almost a year old and an older toddler is following her around. She seems really flustered, moody and anxious to get her scripts filled as soon as possible (She is getting her Xanax & Diabex scripts filled). She mentions that she’s been taking Xanax for a couple of months now.

How would you approach this situation?

**<PROMPTS>**

- Your concerns, thoughts and actions taken

How would your approach differ in this case compared to the previous one?
If you decided to ask a patient to consult with another health provider such as their GP in a suspected case of PND, what methods would you use to ensure this occurs?

- phone call/written letter to GP/mental health clinic

How confident and comfortable do you feel referring a woman who you suspect is experiencing perinatal depression?

What would help you feel more confident in referring suspected PND cases to an appropriate health provider?

**PERINATAL DEPRESSION IN THE PHARMACY: FUTURE PRACTICE**

Now we’ll talk about the possibility of perinatal depression screening in community pharmacy and your thoughts on this.

Do you believe community pharmacy has the capacity of screening for perinatal depression? *If yes,*

a. What steps do you feel need to be taken before it can become a professional service within community pharmacy?

b. What tools do you feel would help you screen for perinatal depression in the pharmacy?

- leaflets with information about PND, screening questionnaires etc.

c. How do you feel you would incorporate such tools into the counseling session if you suspected that a woman was experiencing PND?

What potential barriers do you believe need to be addressed before PND screening can become a reality in community pharmacy and how do you feel that they can be resolved?

What are your thoughts on:
a. the perceived stigma around PND and its implications on implementation of a screening program in community pharmacy?
b. the interaction between patient privacy and PND screening?
c. perceived acceptability of PND screening being conducted by pharmacists (according to patients and other health providers)-by patients and by other health professionals
d. cost issues in setting and sustaining a screening program?
e. (other) pharmacy owners willingness to implement such a service and the factors that may influence their decision

If a CPD-accredited training program that equips pharmacists with the skills to detect and refer women with perinatal depression were to be made available, what would you prefer for this program to be like?

If positive reaction,

a. Content, format, assessment of competence
b. Accessibility

If negative reaction,

a. May I ask why you feel that way?
b. What would change your mind?
c.

Please share any thoughts you believe the research team should know. Thanks for your participation!
PERINATAL MENTAL HEALTH

A guide for Australian pharmacists

Prepared by Sabrine Elkhodr
in consultation with
A/Prof Bandana Saini & Dr Claire L. O’Reilly

January 2016
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Limitations of the EPDS
Acceptability of the EPDS
Cultural Diversity & Screening

Pathways to care

Dealing with a positive EPDS screen
Referring to the GP
Referring to a mental health team
Support organisations for perinatal mental health disorders
Support organisations for new mothers

Treating postpartum depression

Lifestyle advice
Psychological therapy
Psychotropic use during pregnancy
Psychotropic use while breastfeeding
Overview of Perinatal Mental Health

By the end of this chapter, pharmacists will understand:

- the spectrum of perinatal mental health disorders, prevalence, common signs and symptoms & risk factors
- the impact of untreated PPD that can facilitate positive wellbeing during the perinatal period and/or improve recovery

In this manual, all references to perinatal mental health apply to mothers unless otherwise stated. Although paternal mental health is also a significant issue that requires consideration, it will not be the focus of this guide.

Learning outcomes adapted from the National Perinatal Depression Initiative Training Matrix

WHAT ARE THE MAIN MENTAL HEALTH DISORDERS PRESENT IN THE POSTPARTUM PERIOD?

1. "BABY BLUES"
Postpartum blues (or “baby blues”) is the most common postpartum mood disturbance affecting up to 80% of new mothers (1). It is associated with symptoms such as teariness, moodiness, irritability, appetite changes & concentration problems which show up within 3-4 days of giving birth and last from several hours to a couple of weeks.

Since the “baby blues” are limited to the first couple of weeks postpartum, they do not usually require treatment. However up to 20% of women with the baby blues will go on to develop major depression in the first year postpartum (1).

2. ANXIETY
Mothers often describe anxiety as feeling like “they can’t relax”, as “losing control” or as constantly “on edge” (2). Anxiety can be just as debilitating as depression and although they may overlap, they are considered to be two separate conditions though they have similar prevalence rates. Like PPD, it is estimated to affect up to 20% of pregnant women (3). Antenatal and postpartum anxiety may be characterised by (4):

constant feelings of fear and worry
feeling irritable & always ‘on edge’
palpitations
panicky thoughts
insomnia
avoidance behaviour
repeated thoughts or images of frightening things happening to the baby

3. PUERPERAL PSYCHOSIS
Postpartum (or puerperal) Psychosis is a serious illness that can be severe and life threatening. The psychotic symptoms include delusions, hallucinations or disorganised thinking. Although this usually manifests within 48 hours of birth, it may begin up to 12 weeks postpartum. Up to 0.5% of new mothers (5) will have a psychotic episode within the first three months after birth and it is essential for such women to be evaluated and treated immediately due to the threat to maternal and infant safety. Although pharmacists are unlikely to encounter this in their practice, be aware that women with a history of bipolar disorder are at greater risk of experiencing psychosis after birth (5).

4. POSTPARTUM DEPRESSION (PPD)
Postpartum depression (PPD) is a more serious type of depression than the ‘baby blues’ as it can be more severe, more persistent and may be suspected if the depressive symptoms do not resolve within 2-4 weeks of birth (6). Studies across the world show that postpartum depression affects up to 20% of postpartum mothers and can begin at any time within the first year postpartum (3) though some have suggested it may manifest as late as 4 years postpartum (7). Depression in pregnancy is the strongest predictor of postpartum depression (3) and is particularly concerning as it may affect the mother’s capacity for self-care, possibly leading to poor nutrition, drug or alcohol abuse and poor antenatal clinic attendance. These can all disturb a woman’s health & by default, the health of her infant.

SIGNS & SYMPTOMS OF PPD

- Loss of pleasure & motivation
- Changes in weight or appetite
- Sleeping more or less than usual
- Negative feelings towards or thoughts of harming the infant
- Recurrent thoughts of death or suicide
- Feelings of worthlessness & guilt

IMPACT OF PPD ON FAMILIES

PPD has been strongly implicated in affecting the mother’s relationship with her infant and the subsequent detrimental impact on the infant’s long-term emotional development (8), cognitive delays (9) and increased risk of developing psychiatric disorders in adolescence (10). Affected mothers are less likely to breastfeed (11), to adhere to the recommended vaccination schedule (12) and are at a significantly greater risk of expressing thoughts of harming their infant compared to non-depressed mothers. PPD is strongly implicated in cases of maternal suicide – it has been reported as a leading cause of maternal death (13) and infanticide, creating an understandable sense of urgency around developing methods to identify and treat PPD before it escalates to such situations.

PPD Detection & Referral

By the end of this chapter, pharmacists will understand:

- the importance of perinatal depression screening and using basic counselling skills and client-centred communication to introduce screening to mothers
- the background of the Edinburgh Postpartum Depression Scale (EPDS), its application, acceptability and limitations.
- professional boundaries in relation to distress and disorders in the perinatal period
- the importance of knowing where and how to refer to relevant pathways
- how to encourage women to follow-up with any referrals made to other mental health professionals and engage other services

Suggested Reading


Why should we screen for PPD?

PPD is one of the most common and pervasive postpartum illnesses affecting women worldwide with many possible repercussions if left untreated. It has become a major public health concern and for good reason- it not only affects the mother but also the long-term health of her children.

Low levels of social support are a major predictor of postpartum depression with increased social support has been shown to be associated with a lower risk of developing postpartum depression 6 to 8 weeks postpartum (14). These support structures include those acting within the mother's primary healthcare team who are likely to be aware of her previous mental health state and be on the lookout for symptoms that indicate the onset of PPD. Depressed women are unlikely to recognise and seek help for their depression (15). This may be due to a multitude of factors- fearing the stigma that they perceive to be associated with PPD or feelings of shame and a fear that admitting to thoughts of self-harm or harming the baby may result in having the baby taken away from them (16). Such obstacles make it more difficult to detect PPD, necessitating the development of screening initiatives that women can easily access within their immediate environments and feel comfortable to engage with. Given the challenge PPD presents as a mental disorder that often escapes the attention of treating health providers and even the mothers themselves, the case for universal screening in primary care has been well-supported and advocated by all levels of health governance - from global health care authorities to the World Health Organisation (17).

Validated Screening Tools For PPD

- Edinburgh Postnatal Depression Scale (EPDS)
- PHQ-9 Patient Health Questionnaire
- PHQ-2 Patient Health Questionnaire
- PPDS Postpartum Depression Scale
- Beck Depression Inventory-II
- Center for Epidemiological Studies-Depression Scale (CES-D)

HELP-SEEKING BELIEFS OF NEW MOTHERS

One of the most challenging aspects of screening is overcoming barriers to help-seeking behaviours by women and their families. Up to 60% of women suffering from PPD do not seek help (18) and it is important to understand why in order to improve rates of detection.

Many studies have indicated that one of the primary reasons for lack of help-seeking behaviours is fear of stigma and associated concerns (19). A common help-seeking barrier expressed is the mother’s inability to disclose her feelings, often reinforced by health professionals’ reluctance to respond to her emotional and practical needs. The lack of awareness about postpartum depression renders mothers unable to recognize the symptoms of depression and allows them to accept myths that deem symptoms of PPD “a normal part of motherhood”. Interestingly, one particular barrier which has emerged in several studies is the fear that disclosing their feelings will necessarily result in pharmacotherapy treatment which they may prefer to avoid. Mothers from culturally and linguistically diverse (CALD) communities may have added pressures contributing to this including lack of knowledge of available resources, linguistic and cultural barriers, perceived “coldness” of health care providers and lack of understanding of mental health services (20,21).

HOW TO TALK TO WOMEN ABOUT SCREENING: A 4-STEP APPROACH

Some women may naturally be less inclined to open up about their feelings and be willing to undergo screening. The most important thing to do is attempt to build rapport with the patient before initiating any sort of screening process. As the pharmacist, you may have already built up a rapport through your previous interactions with her but the following techniques may also help facilitate that process.

1 START WITH SMALL TALK
Opening up with a conversation about the weather or your shared interest in the cricket may seem cliche but can bring down the patient’s guard just enough to let you have a deeper conversation.

2 FIND COMMON GROUND
Listen to what the patient is saying very carefully and find ways to connect through shared experiences to maintain the conversation.

3 SEARCH FOR A POINT OF ENTRY
Conversations can be steered in a particular direction by simply knowing how to listen and asking the right questions. Find a way to connect your current topic of conversation to how the patient is going with motherhood/how she’s feeling and use this as an entry point to the topic of screening.

4 MAKING THE OFFER
Once you’ve broached this potentially sensitive issue, it’s important that you remain empathetic and be mindful of the patient’s response to your questioning. One way to enter the discussion is to offer the screening as a service you provide to all new mothers.

“We actually provide a service in this pharmacy as part of our work trying to help new mums work with the challenges that can come with a new baby. We like to see how you’re going with the new demands placed on you and find ways to help you through this time. Would you be open to completing a short, 10 question form to help us start that process?”

Find your own way of opening this conversation and integrate it into your daily practise so that it becomes habit. Remember, the more women we have this conversation with in the pharmacy, the more cases of postpartum depression we can potentially detect and refer for treatment.

DEPRESSION SCREENING USING THE EPDS

What is the EPDS?

The EPDS is a 10-item questionnaire that has been validated for use in the postpartum period, is widely accepted and has been translated into many different languages, making it the most commonly used tool to screen for PPD worldwide. EPDS scores can range from 0-30 points, with higher points reflecting an increased likelihood of PPD. The widely accepted optimal cutoff point for major depression is >=13 which indicates a high chance of existent depression (22) although a wide variety of cut-off points for the EPDS have been used.

Although the EPDS may be administered anytime after birth, an optimal cut-off at 6-8 weeks postnatally (23-26) with a repeat screen at 3-6 months (27) is the most widely recommended screening routine within clinical guidelines globally. Some researchers suggest that the optimal time to initially conduct the EPDS is at 12 weeks when the initial sleep deprivation stage has been overcome (28). Very high scores in the early postpartum period can indicate a high risk of subsequent PPD (29) however conducting the EPDS at too early a stage will also conflate the results given the likely presence of the “baby blues”.

There are many different ways of detecting postpartum depression: from using screening questionnaires to exercising clinical judgement, there is no simple way to determine whether a mother is suffering from PPD. It is important to remember that screening does not equal a diagnosis. Screening is simply the first step in a process that seeks to evaluate the likelihood of existing PPD, referral for diagnosis and subsequent treatment. As a pharmacist in the community, you are not responsible for making a diagnosis of PPD (nor are pharmacists trained to do so) but can be instrumental in detecting women who may benefit from having their symptoms looked at further. To assist in this process, screening tools have been developed to standardise the screening process and help practitioners better detect cases than they would on clinical judgement alone (30,31). One such tool is the Edinburgh Postnatal Depression Scale (EPDS).

Limitations of the EPDS

As with any screening tool, the EPDS does have its limitations which pharmacists need to be aware of. First of all, it is not a diagnostic measure so may indicate that a woman is depressed when she isn’t. It will simply assess the risk of PPD being present but cannot diagnose PPD. Conversely, it may also miss cases of mothers that do have PPD. When using the EPDS, it is important to recognise that the score it yields is just a starting point and certainly not definitive. Leading on from this point, the EPDS asks questions where a positive response may also be an indication of anxiety (specifically questions 3,4 and 5). High scores on the EPDS in such cases may therefore be indicative of anxiety rather than PPD (though both often do occur together). Both of these conditions should be investigated further anyway so a high score should be referred regardless.

References:
### Acceptability of the EPDS

The EPDS is generally very well-received by mothers who are offered screening. It has a high acceptability rate by patients and health professionals alike (32) and most women will agree to filling out the EPDS when asked (33). It is important to note that some of the more common objections to screening with the EPDS from the mother’s perspective is the feeling that it is too simplistic (34) and conducted in an area with little privacy. To overcome these barriers in a community pharmacy context, you may need to be creative with your time and space available to you. Take the mother in question to a quiet corner (or consultation room if you happen to have one) and offer the EPDS as part of a larger discussion about how she's coping rather than as the basis of your interaction with her.

One concern that is often brought up by health professionals is the discomfort associated with discussing answers to Question 10 (suicide and self-harm). Understandably, this may be a difficult issue to discuss for both the pharmacist and the mother if a positive response is indicated. You will be provided with some strategies to deal with such a situation during the workshop.

Other scales that are sometimes used to screen for PPD include the PHQ-2, PHQ-9, PPDs and BDI. However, the EPDS is used most frequently as it has been widely validated for use in postpartum depression screening.

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### The EPDS Questionnaire

The EPDS is a 10-item questionnaire. Women are asked to answer each question in terms of the past seven days.

<table>
<thead>
<tr>
<th>Question</th>
<th>Possible Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I have been able to laugh and see the funny side of things</td>
<td>As much as I always could (score of 0)</td>
</tr>
<tr>
<td></td>
<td>Not quite so much now (score of 1)</td>
</tr>
<tr>
<td></td>
<td>Definitely not so much now (score of 2)</td>
</tr>
<tr>
<td></td>
<td>Not at all (score of 3)</td>
</tr>
<tr>
<td>2. I have looked forward with enjoyment to things</td>
<td>As much as I ever did (score of 0)</td>
</tr>
<tr>
<td></td>
<td>Rather less than I used to (score of 1)</td>
</tr>
<tr>
<td></td>
<td>Definitely less than I used to (score of 2)</td>
</tr>
<tr>
<td></td>
<td>Hardly at all (score of 3)</td>
</tr>
<tr>
<td>3. I have blamed myself unnecessarily when things went wrong</td>
<td>Yes, most of the time (score of 3)</td>
</tr>
<tr>
<td></td>
<td>Yes, some of the time (score of 2)</td>
</tr>
<tr>
<td></td>
<td>Not very often (score of 1)</td>
</tr>
<tr>
<td></td>
<td>No, never (score of 0)</td>
</tr>
<tr>
<td>4. I have been anxious or worried for no good reason</td>
<td>No, not at all (score of 0)</td>
</tr>
<tr>
<td></td>
<td>Hardly ever (score of 1)</td>
</tr>
<tr>
<td></td>
<td>Yes, sometimes (score of 2)</td>
</tr>
<tr>
<td></td>
<td>Yes, very often (score of 3)</td>
</tr>
<tr>
<td>5. I have felt scored or panicked for no very good reason</td>
<td>Yes, quite a lot (score of 3)</td>
</tr>
<tr>
<td></td>
<td>Yes, sometimes (score of 2)</td>
</tr>
<tr>
<td></td>
<td>No, not much (score of 1)</td>
</tr>
<tr>
<td></td>
<td>No, not at all (score of 0)</td>
</tr>
<tr>
<td>6. Things have been getting on top of me</td>
<td>Yes, most of the time I haven’t been able to cope at all (score of 3)</td>
</tr>
<tr>
<td></td>
<td>Yes, sometimes I haven’t been coping as well as usual (score of 2)</td>
</tr>
<tr>
<td></td>
<td>No, most of the time I have coped quite well (score of 1)</td>
</tr>
<tr>
<td></td>
<td>No, I have been coping as well as ever (score of 0)</td>
</tr>
<tr>
<td>7. I have been so unhappy that I have had difficulty sleeping</td>
<td>Yes, most of the time (score of 3)</td>
</tr>
<tr>
<td></td>
<td>Yes, sometimes (score of 2)</td>
</tr>
<tr>
<td></td>
<td>Not very often (score of 1)</td>
</tr>
<tr>
<td></td>
<td>No, not at all (score of 0)</td>
</tr>
<tr>
<td>8. I have felt sad or miserable</td>
<td>Yes, most of the time (score of 3)</td>
</tr>
<tr>
<td></td>
<td>Yes, quite often (score of 2)</td>
</tr>
<tr>
<td></td>
<td>Not very often (score of 1)</td>
</tr>
<tr>
<td></td>
<td>No, not at all (score of 0)</td>
</tr>
<tr>
<td>9. I have been so unhappy that I have been crying</td>
<td>Yes, most of the time (score of 3)</td>
</tr>
<tr>
<td></td>
<td>Yes, quite often (score of 2)</td>
</tr>
<tr>
<td></td>
<td>Only occasionally (score of 1)</td>
</tr>
<tr>
<td></td>
<td>No, never (score of 0)</td>
</tr>
<tr>
<td>10. The thought of harming myself has occurred to me</td>
<td>Yes, quite often (score of 3)</td>
</tr>
<tr>
<td></td>
<td>Sometimes (score of 2)</td>
</tr>
<tr>
<td></td>
<td>Hardly ever (score of 1)</td>
</tr>
<tr>
<td></td>
<td>Never (score of 0)</td>
</tr>
</tbody>
</table>

**Source:** Edinburgh Postnatal Depression Scale (EPDS Cox et al 1997)

("Developed as the Edinburgh Postnatal Depression Scale but can be used in both pregnancy and postnatal period to assess for possible depression and anxiety. Questions 3, 4 and 5 relate to possible symptoms of anxiety disorders")

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### Screening women from culturally diverse backgrounds

Please refer to the **Perinatal mental health of women from culturally and linguistically diverse (CALD) backgrounds: A guide for primary care health professionals** factsheet in the Appendix for detailed information about how to address PPD concerns in mothers from culturally diverse backgrounds.
Acting on psychosocial assessments

Psychosocial assessments such as the EPDS provide information about a woman's mental health and wellbeing but not a diagnosis. Pharmacists may suspect depression but must refer onwards for further assessment and diagnosis. Not all mothers require further assessment. In the following situations, referral for comprehensive mental health assessment is advisable (35):

- the woman has a past history of major depression, anxiety disorder, bipolar disorder or puerperal psychosis;
- the woman is experiencing abuse or has experienced abuse in the past;
- the woman or her partner has a problem with alcohol or drugs;
- there are observed difficulties with the mother–infant interaction;
- the woman's EPDS score suggests possible major depression and/or anxiety;
- the woman has a score of 1, 2 or 3 on Question 10 of the EPDS

Whether or not referral is required, pharmacists have an ongoing role in the psychosocial care of women in the perinatal period, including maintaining the therapeutic relationship, supporting the woman's emotional health and monitoring mother and infant well-being.

Pharmacists do not have the appropriate knowledge or skills to undertake comprehensive mental health assessment to diagnose PPD thus where PPD is suspected, a referral for further evaluation should be made. The most appropriate referral pathway that pharmacists should follow is to the patient's GP. This can either be done through a direct call to the GP to discuss concerns or by providing the patient with a copy of her EPDS and requesting she visit her GP to discuss further (and then following up with her). Consent from the patient should be sought if referring directly to the GP except where the safety of the woman or infant is considered to be at risk, in which case the imperative to refer for help is stronger than respect for patient autonomy. Consideration needs to be given to the urgency of the referral, particularly when women have severe symptoms or suicidal thinking. In cases of severe mental health disorders, women may need to be referred directly to the local mental health team (through your Local Health District) for urgent assessment.
Dealing with resistance to referral

In some cases, women may prefer not to undertake comprehensive mental health assessment with their GP or may want further care but not actively seek it. Some reasons for this include fear of authorities or having their child taken away, lack of money or shame. Discussing the benefits of assessment and reassuring the woman of any concerns may alleviate this hesitation to seek further treatment. Pharmacists have a strong role to play in addressing these concerns and encouraging further treatment.

For women with PPD, treatment options include psychological therapy or pharmacological treatment. Among physical therapies, there is evidence to suggest that exercise may contribute to the treatment of mild to moderate depression (35-37). Some women may express concerns about receiving pharmacological treatment. It is important to convey to them that pharmacotherapy may form part of an overall treatment plan and that their GP will be able to develop an effective and appropriate management plan for them which may or may not include pharmacotherapy.

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Examples of appropriate action</th>
<th>Who by</th>
</tr>
</thead>
</table>
| Psychosocial factors and/mild symptoms | Psychoeducation (see Section 2.3.1)  
Lifestyle advice (see Section 6.1.1)  
Peer support (see Section 6.2.4)  
Provide ongoing opportunities for further discussion  
Involve significant others (see Section 2.3) | Primary care, community settings            |
| Mild to moderate depressive symptoms | Psychoeducation (see Section 2.3.1)  
Lifestyle advice (see Section 6.1.1) and self-help strategies  
Early postnatal care  
Peer support (see Section 6.2.4)  
Provide additional opportunities for discussion  
Non-directive counselling (see Section 6.2.2)  
Psychological therapy (see Chapter 7)  
Involve significant others (see Section 2.3) | Primary care, community settings,  
mental health nurse, psychologist |
| Severe depressive symptoms | Psychological therapy (see Chapter 7)  
Medication (see Chapter 8)  
Mother–infant psychotherapy (see Section 7.4) | Mental health service  
Mental health nurse  
Psychologist/psychiatrist  
Possible inpatient care |

Courses of action depending on depression severity  
(extracted from the Perinatal Mental Health Clinical Guidelines; see for chapter references (35))

Treatment for PPD

By the end of this section, pharmacists will:

Develop an awareness of evidence-based psychosocial and pharmacotherapeutic interventions for anxiety, depression and related disorders in the perinatal period

Suggested Reading


TREATMENT PRINCIPLES

Like all mental illness, PPD is a complicated disorder which requires a multi-faceted approach to treatment. There are many factors that contribute to the development of PPD and what may work for one patient, may not work for another. PPD is particularly complicated due to the nature of the disorder. It occurs at a time of great change in a mother’s life, when unavoidable sleep deprivation is expected, hormonal imbalances are likely to occur and mothers may be breastfeeding which will greatly affect treatment choice. It is a time when parents need to completely reassess their lives and fit their own personal choices around the highly demanding needs of a very young and completely helpless child. The combination of all of these factors together with predisposing risk factors means that the treatment for PPD must be handled with a great degree of care and foresight. As a pharmacist, your role in a PPD-afflicted mother’s care will be reasonably limited but it is crucial that you have an understanding of what her care will involve.

Table 3: Overview of mental healthcare in the perinatal period (39)

### Psychosocial Treatment

#### Lifestyle Advice

| Stress reduction       | Muscle relaxation  
|------------------------|-------------------
|                        | Meditation        
|                        | Breathing exercises 
|                        | Mental imagery     

| Healthy Sleep Behaviours | Go to bed as soon as your baby does  
|--------------------------|-------------------------------------
|                          | Avoid TV & mobile screens in bed    
|                          | Do activities that will help you relax in the evening 
|                          | Avoid caffeine, alcohol or nicotine 
|                          | Get up at the same time every day  
|                          | Sleep in a dark, quiet room; use foam ear plugs and/or eye mask if required 
|                          | Consider meditative practises before bed 

| Exercise | Do 30mins of physical activity at least 3-4 times per week to improve mood  
|----------|--------------------------------------
|          | Take the baby for a walk everyday  
|          | Avoid exercising too late in the evening as this may hinder sleep 

| Nutrition | Eat plenty of fruit & vegetables and moderate amounts of lean protein and wholegrains for sustained energy  
|-----------|-----------------------------------------------
|           | Avoid fat & sugar loaded foods              

Lifestyle suggestions for new mothers (35)

Although many of the challenges associated with early parenthood are unavoidable, there are self-care strategies that may help to make this stage of life a little bit easier. Sleep deprivation & stress are often described as some of the most difficult aspects of this time and there are strategies that you can help mothers incorporate into their daily lives to improve their sleep quality and mood generally. Provide women with advice on diet, physical activity, sleep, smoking and alcohol & encourage them to discuss any nutritional or other supplements they are taking. Inadequate nutrition can be quite common at times of high stress and may contribute to poor mood so discussing this with the mothers you come across in your pharmacy is worthwhile.

### Psychotherapy

Psychotherapy is indicated in cases of mild-moderate depression and usually falls into two main categories: Cognitive Behavioural Therapy (CBT) or Interpersonal Psychotherapy (IPT). CBT is centred around trying to equip patients with necessary self-help skills to become aware of and control their own thought processes. Programs are usually individualised and are premised on the belief that patients are capable of becoming self-aware, recognising the thought patterns that create depressive feelings and be able to counter them through positive self-reinforcement, assertive communication & developing their problem-solving skills.

IPT is an approach that categorises depression as a phenomenon which occurs in response to current difficulties in our everyday interactions with others. It may occur as a result of grief, role transitions, interpersonal deficits and/or interpersonal conflict. This approach aims to help the patient identify which of the four categories their own depression is most likely linked to and working through strategies to help resolve the issues contributing to that depression.

The decision about which type of therapy to engage in is made based on several factors including severity of depression, the woman's willingness to engage in the therapy and other psychological co-morbidities.
Pharmacological Treatment

A pharmacist’s role in the pharmacological treatment of mothers with PPD is important. Pharmacological treatment of perinatal depression is similar in approach to depression at any other time with one caveat: the benefit associated with treatment must outweigh the potential harms to the fetus and breastfed infant. A decision to treat with medication must be made after careful discussion with the mother around potential adverse effects to her fetus or infant (if she is breastfeeding). This is where a pharmacist’s contribution is crucial. Having an in-depth understanding of potential harms associated with common psychotropics used to treat perinatal mental health disorders will assist a mother considering pharmacological treatment make the appropriate choice. This section will cover the most common medications used (antidepressants, benzodiazepines, anticonvulsants, mood stabilisers, antipsychotics) and advise on strategies to use when discussing them with your patients.

<table>
<thead>
<tr>
<th>Possible harms of prescribing</th>
<th>To fetus</th>
<th>To mother</th>
</tr>
</thead>
<tbody>
<tr>
<td>death</td>
<td>overdose</td>
<td></td>
</tr>
<tr>
<td>congenital abnormality</td>
<td>adverse effects</td>
<td></td>
</tr>
<tr>
<td>growth restriction</td>
<td>possible negative impact on therapeutic alliance</td>
<td></td>
</tr>
<tr>
<td>neonatal toxicity/withdrawal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>long-term neurodevelopmental effects</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Possible harms of NOT prescribing</th>
<th>To fetus</th>
<th>To mother</th>
</tr>
</thead>
<tbody>
<tr>
<td>fetal abuse/neglect</td>
<td>relapse of psychiatric illness</td>
<td></td>
</tr>
<tr>
<td>adverse impact of maternal mental state on the fetus</td>
<td>suicide/self-harm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>family/relationship deterioration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>use of harmful substitutes</td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Factors affecting prescribing decisions (40)

Decision-making about pharmacological treatment

Psychotropic medication may be indicated during the perinatal period for:

* prophylaxis of a pre-existing disorder, such as bipolar disorder; or
* treatment of a new episode of mental health disorder.

While there are risks associated with the use of psychotropic medications in this period, it should not be assumed that it is always better to avoid medication. Untreated mental health disorders in this period can significantly affect the physical and/or mental wellbeing of the woman, the infant, significant other(s) and family. For example, depression is associated with an increased rate of obstetric complications, stillbirth, suicide attempts, postnatal specialist care for the infant and low birth weight infants (41). Among women with bipolar disorder, there is also an increased rate of suicide (42), potentially significant exacerbation of the disorder if not treated, and poorer obstetric outcomes including increased preterm birth, low birth weight infants and infants who are small for their gestational age (43).

Where a pregnancy is planned, preconception planning for medication use in pregnancy and breastfeeding should be undertaken. As many pregnancies are unplanned, some women are exposed inadvertently to psychotropic medications. In such cases, women should be advised to seek advice from the prescribing doctor. In some situations, specialist advice may need to be sought through drug information services. When a woman with a past history of a severe mental health disorder has been unmedicated during pregnancy, serious consideration needs to be given to recommencing medication immediately after the birth.

40. eTG Complete [Internet]. (Melbourne: Therapeutic Guidelines Limited, 2015).
Benefits of pharmacological interventions in the perinatal period

1. DEPRESSION

There is insufficient evidence from studies specifically in antenatal or postnatal populations regarding the efficacy of antidepressant medication. However, there is limited evidence to suggest that maintaining rather than discontinuing antidepressant medication during pregnancy reduces relapse at this time (44).

2. ANXIETY

There is insufficient evidence from studies specifically in antenatal or postnatal populations regarding the pharmacological treatment of anxiety disorders (35).

3. BIPOLAR DISORDER

For pregnant women with bipolar disorder and stabilised on medication, there is some evidence that continuing lithium in pregnancy helps to reduce relapse (45,46). For women who discontinue lithium during pregnancy, there is some evidence for recommencing lithium immediately after the birth to reduce recurrence (47,48).

Supporting informed decision-making

Discussions about treatment options with a woman and her significant other should cover (49):

- the risk of relapse or deterioration in symptoms and the woman’s ability to cope with untreated symptoms;
- the severity of previous episodes, response to treatment and the woman’s preferences;
- early side-effects of antidepressants, their likely duration and the need for extra support during this time;
- the possibility that birth defects may still occur even if a medication is ceased after pregnancy is confirmed;
- the risks from stopping medication abruptly;
- the need for prompt treatment because of the potential impact of an untreated mental health disorder on the fetus or infant;
- the increased risk of harm associated with pharmacological treatments during pregnancy and the postnatal period, including the risk of overdose;
- treatment options that would enable the woman to breastfeed if she wishes, rather than recommending that she does not breastfeed; and
- possible interactions between pharmacological agents and complementary or traditional remedies.

Discussing the risks and benefits of treatment for mother and infant

When considering treatment choices for mental health disorders during pregnancy and breastfeeding, or when a pregnancy is planned, it is important to place risks from pharmacological treatment in the context of the individual woman’s condition. It should also be noted that the background risk of birth defects in the general population is between 2% and 4%.

In discussing the risks of pharmacological treatments, it is important to (NICE 2007):

- acknowledge the uncertainty surrounding the risks;
- explain the background risk of birth defects for pregnant women without a mental health disorder;
- describe risks using natural frequencies (such as 1 in 10) rather than percentages;
- in comparing risks, use the same denominator (for example, 1 in 100 and 25 in 100, rather than 1 in 100 and 1 in 4);
- if possible use decision aids in a variety of verbal and visual formats that focus on an individualised view of the risks; and
- provide written material to explain the risks (preferably individualised).

Effects of exposure to psychotropics during pregnancy

Anti-depressants

Clinical guidelines favour use of SSRI's (ADEC Category C) (except paroxetine which is ADEC Category D) during pregnancy over other anti-depressants due to current evidence which suggests that they do not confer additional risk of birth defects (50) over the rates found in the general population and its suggested association with spontaneous abortion and low birth weight has not been confirmed by the literature. They can however be responsible for up to 30% of infants suffering from withdrawal symptoms post-delivery, resulting in irritability, difficulty settling, feeding difficulties and breathing problems. Women using paroxetine who fall pregnant unexpectedly should be advised to speak with their GP regarding their medication use (remind them not to stop abruptly or without their GP's advice). Preliminary data suggest venlafaxine is not associated with congenital abnormality, but neonatal withdrawal has been reported. The safety during pregnancy of agomelatine (Cat B1), desvenlafaxine (Cat B2), duloxetine (Cat B3), moclobemide (Cat B3) and reboxetine (Cat B1) has not been adequately studied (40).

TCA's (all ADEC Category C) are also used in pregnancy as there is no evidence that they carry any increased risk of malformation (with the exception of doxepin where isolated reports have indicated a relationship). TCA's are potentially more lethal and less tolerated due to adverse effects than SSRI's which may limit their use (51). Maternal use has been associated with anticholinergic effects and rebound reaction (irritability, insomnia, fever and colic) in the infant after birth. Reducing the dose in the week before delivery may reduce the chance of withdrawal symptoms in the neonate (52). Among TCAs, clomipramine seems to be associated with more severe and prolonged neonatal symptoms - they have been associated with cardiac defects & abrupt discontinuation during pregnancy has been associated with premature delivery & seizures in the newborn.

Nortriptyline is generally considered the TCA of choice due to its lower anticholinergic side effect profile. (50) There is insufficient evidence on other antidepressant classes to warrant their routine use in pregnancy.

Anti-psychotics

All antipsychotics (both 1st and 2nd generation) are Category C in pregnancy and should only be given when absolutely required, recognising that poorly controlled psychotic disorders may pose greater harm to the mother and infant than medication use. There is insufficient evidence to suggest that either first or second generation antipsychotics are associated with birth defects (apart from olanzapine though this has also been contested) (53) however, they have been associated with adverse obstetric & neonatal outcomes. Significantly lower birth weight, gestational age and a significantly higher rate of preterm birth have been associated with the use of haloperidol (54) whilst higher birth weight have been associated with use of second generation agents, particularly clozapine and olanzapine. Little is known about the long term neurodevelopmental effects on the infant. Neonates exposed to antipsychotic drugs during the third trimester of pregnancy are at risk of extrapyramidal and withdrawal symptoms following delivery and may experience agitation, tremor, sedation, respiratory distress and feeding problems.
Lithium (Cat D) is often used for maintenance therapy in bipolar disorder and clinicians may choose to continue with it to manage risk of relapse. However, it is associated with an slightly increased risk of congenital heart defects (55). Lithium clearance increases dramatically towards the end of pregnancy so must be titrated down quickly after delivery to avoid toxicity.

Benzodiazepines

Benzodiazepine (all Cat C except clonazepam (Cat B3)) use during pregnancy has historically been associated with increased risk of cleft palate formation though more recent studies have suggested otherwise (56). If long half-life benzodiazepines are taken in late pregnancy, they can cause neonatal drowsiness, respiratory depression, poor temperature regulation, poor feeding and hypotonicity including neonatal withdrawal symptoms (57). Not enough is known about neurodevelopmental outcomes of benzodiazepine use to make a conclusion on this front. Some studies have suggested an association between zopiclone (Cat C), zolpidem (Cat B3) and adverse pregnancy outcomes such as low birth weight and preterm deliveries but no increased risk of malformations (58). However, zolpidem is known to cause abnormal sleep phenomena which should be factored into any decision to prescribe this medication during pregnancy. The AMH (59) states with respect to benzodiazepine use in pregnancy: “Avoid if possible, particularly large doses and regular use (risk of neonatal withdrawal syndrome). Administration of high doses near term or during labour may cause respiratory depression, hypothermia and floppy infant syndrome (hypotonia, lethargy and poor sucking). If used during pregnancy short-acting drugs are preferable to long-acting; plan to stop gradually before delivery; Australian category C.”

Anticonvulsants

Anti-convulsants (carbamazepine, lamotrigine and sodium valproate (all Cat D)) are often used in the treatment of bipolar disorder; however, they are associated with a high risk of birth defects due to their role as folate antagonists. This effect is particularly pronounced in cases of polytherapy (60). Sodium valproate in particular has the highest risk of neural tube defects, impaired neurodevelopment (61) and other serious malformations (up to 10-fold increase)(62); carbamazepine has a 3-fold increase in birth defects (63) and preterm delivery (63) whilst lamotrigine does not appear to increase the risk of birth defects in utero (64) though, this finding should be taken with caution. The use of anti-epileptic drugs have been associated with delay in the development of fine motor skills in infants exposed to them in utero (65).
Factors affecting drug entry into human milk
Multiple pharmacokinetic factors affect the diffusion of medication into a mother’s milk and some of these are discussed below (66).

### Milk/plasma ratio

As the level of the medication in the mother's plasma increases, so too does the milk concentration. Thus the higher the milk/plasma (M/P) ratio, the greater the amount of the drug found in breast milk. A M/P ratio greater than 1.0 suggests that the drug may be transferred in high concentrations whereas a M/P ratio less than 1.0 indicates that only low drug concentrations will be transferred into breast milk. However, even if the medication has a high M/P ratio, if the maternal plasma concentration of the drug is minute, then the dose of a drug entering breast milk will also be small.

### Ionised vs non-ionised drug

The pKa of a drug is the pH at which a drug exists equally in ionic and nonionic states. Drugs that have a pKa higher than 7.2 (average plasma pKa is 7.4) transfer into breast milk to a slightly higher degree than those with a lower pKa since the nonionized molecule of a high pKa (weakly basic) drug is quickly ionized when it enters the weakly acidic breast milk and then is ion-trapped and prevented from diffusing out of breast milk back into the maternal circulation. Drugs with a higher pKa tend to have higher M/P ratios, so medications with a lower pKa are preferred in breastfeeding women. Conversely, drugs that are weak acids are ionized in maternal plasma, which minimizes their diffusion into breast milk.

### Size of drug

The semi-permeable lipid membrane of the mammary epithelium contains small pores that allow medications with a low molecular weight to move easily into breast milk. The smaller the drug, the higher the concentration in breast milk. Drugs with MW>200, (e.g. heparin, insulin) pass through at such low concentrations that they don't really enter human breast milk at all. Therefore, if possible, it is recommended that medications with higher molecular weights be given to lactating mothers.

### Drug half-life

The longer the half-life of a drug, the greater the likelihood of accumulation in breast milk. When prescribing medications to breastfeeding mothers, short half-life drugs are preferred since they generally peak and are eliminated from the maternal plasma quickly. Half-life can be used to determine whether the mother can successfully breastfeed by taking the medication immediately after nursing. If the half-life is short enough (<3 hours), then the drug level will usually have declined at the next feed time. This may minimize drug transfer through breast milk by avoiding peak plasma and milk drug concentrations. Sustained release medications should be avoided as their long half-life potentially exposes the infant to a medication at higher concentrations and for longer periods of time.

### Effects of exposure to psychotropics during breastfeeding

#### Anti-depressants

Fetal exposure to antidepressants in utero is much greater than breastmilk exposure thus where a woman has been taking an antidepressant during pregnancy for treatment of depression or anxiety, this should be continued into the postpartum period rather than switching to a different agent. Evidence suggests that SSRIs (67) are transferred in only low concentrations to breast milk though some infant plasma levels have been reported to up to 10% of the maternal serum levels . Fluoxetine however has the potential to accumulate in the breastfed infant, and cause insufficient weight gain, irritability, difficulty settling and GI disturbances.
Sertraline and paroxetine appear to have the lowest transmission into breastmilk and fluoxetine, escitalopram and citalopram the highest. Isolated cases of irritability, sleep disturbance and colic have been associated with SSRI use so this possibility should not be ignored if a breastfed infant presents with these symptoms. Venlafaxine may be present in infant plasma at up to 9% (51) of maternal serum levels and is best avoided. Similarly, TCA’s have been found in low levels in breastmilk though long-term adverse effects on infant cognition do not appear to occur (67). Avoid doxepin if possible (neonatal respiratory depression has been reported). Moclobemide has very low transfer into breastmilk and is probably safe. Agomelatine, desvenlafaxine, duloxetine, mianserin, mirtazapine, reboxetine and the irreversible nonselective monoamine oxidase inhibitors (MAOIs) have not been adequately studied.

Evidence concerning first & second generation antipsychotics and breastfeeding is limited. There is evidence from observational studies to support avoiding the use of clozapine (51) where relatively high breast milk concentrations can cause possible agranulocytosis in the infant; in this case, formula feeding is usually recommended. Some data suggests that olanzapine and risperidone have low infant doses relative to the maternal weight-adjusted dose however there is an association between olanzapine and jaundice, impaired weight gain, sedation, irritability and tremor in breastfed infants. Concurrent use of more than one antipsychotic while breastfeeding appears to substantially increase the likelihood of adverse infant reactions. High doses of first-generation antipsychotics have been associated with adverse reactions in breastfed infants though lower doses are usually regarded as safe. Where an antipsychotic causes adverse effects in the infant (either depot injection or oral), breastfeeding should be ceased and replaced with formula. Lithium transmission into breastmilk is highly variable & interpretation of infant serum lithium level is difficult to assess in terms of safety. Some guidelines globally have listed breastfeeding as a contraindication to lithium use (although it has been used where the infant is greater than 2 months old and the mother is only using lithium). Unless the mother insists on breastfeeding whilst using lithium, it may be preferable to formula-feed the infant. If she does continue to breastfeed, infants should be monitored closely. Serum lithium, serum creatinine, blood urea nitrogen, and TSH every 4–12 weeks during breastfeeding and maternal lithium therapy should be checked regularly and specialist monitoring is advised (68). Breastfeeding should be avoided or stopped if there are signs of infant illness, sedation, dehydration, hypothyroidism and/or respiratory depression.

Benzodiazepines are best avoided (or used for a very limited time) due to adverse effects on the infant. Diazepam in particular has a long-half life and should be avoided. Benzodiazepines with short half-lives may be used temporarily as they are transferred to breastmilk in low concentrations and pose a smaller risk than those with longer half-lives. Zolpidem /zopiclone have very low excretion into breastmilk and no short-term adverse outcomes have been reported however, the risk of abnormal sleep-related events with zolpidem must be considered before prescribing.

There is insufficient evidence for the safety of anticonvulsants during breastfeeding though valproate is generally considered safe to use (69). Carbamazepine has been associated with jaundice and impaired liver function though this is also general considered safe. Monitoring of infant biochemistry is recommended if either of these agents are used by the mother. Lamotrigine has relatively high transmission to and slow elimination from the infant and has been associated with serious skin conditions in breastfed infants.

The perinatal period is a challenging time for many mothers and the potential for mental health disorders to arise during this time is relatively high. As the most highly accessible professional within a mother’s healthcare team, pharmacist’s are in a prime position to help mothers navigate this sometimes difficult period and be able and willing to refer her to appropriate help when necessary. For more information about perinatal mental health disorders and how to detect and manage them, visit The BeyondBlue website and undertake their free online, CPD-accredited course on Perinatal Mental Health.

Further resources

NRAMP - The National Register of Antipsychotic Medication in Pregnancy
http://www.maprc.org.au/nramp

Perinatal Psychotropic Medicine Info Service
http://www.ppmis.org.au/

Perinatal Anxiety & Depression Australia (PANDA)

Motherisk
http://www.motherisk.org/women/index.jsp

Beyond Blue
http://beyondblue.org.au

Mothersafe

headspace Knowledge Centre
www.headspace.org.au/knowledge-centre

TGA Prescribing in Pregnancy Database

The Black Dog Institute

square — Suicide, QUestions, Answers and RESources
square.org.au

Living is for Everyone
www.livingisforeveryone.com.au

Lactmed
Appendix E

Perinatal Mental Health in the Pharmacy: A Guide for Australian Pharmacists

Workshop Outline

Welcome to the Perinatal Mental Health in the Pharmacy: A Guide for Australian Pharmacists held at the University of Sydney. This 3-hour workshop is an interactive, group-based learning activity which will be centred around six smaller activities intended to enhance your understanding of perinatal mental health, perinatal depression and how to detect patients with this disorder. The following learning objectives were developed in line with the Perinatal Training Matrix, a set of learning guidelines constructed under the National Perinatal Depression Initiative (NPDI). The NPDI is an initiative by the Australian Government in conjunction with Beyond Blue which aims to improve prevention and early detection of antenatal and postnatal depression and provide better support and treatment for expectant and new mothers experiencing depression.

For those who wish to access wifi during this workshop, please note wifi details below:

USERNAME = pharm_itpevent
PASSWORD = ITP2016a

Background

This workshop is a culmination of the research efforts within the Faculty of Pharmacy, University of Sydney, which aims to look at the feasibility of screening for postpartum depression in the context of community pharmacy. A series of qualitative interviews conducted with Australian pharmacists in late...
2015 as part of a larger research study highlighted the need for further training in perinatal mental health for pharmacists before PPD screening in community pharmacy can become a reality. Adult learning principles were matched with feedback from study participants to develop and deliver a workshop which was highly interactive and gave attendees the opportunity to explore their own understanding and align them with that of their peers. The following activity types will be form the backbone of this workshop.

**Activity Types during Workshop**

- **Group discussion:** Participants will be assigned discussion questions in the context of a particular patient whose journey they will follow through a series of sequential scenarios.
- **Role Plays:** Role plays will be carried out between sets of participants and facilitators around key problems in PND
- **Written reflection:** A written reflection activity will be assigned as post-work to encourage consolidation of learning through reflecting on personal professional experience with PND.
- **Production:** Participants will be assigned tasks to produce certain deliverables by the end of the workshop.

The workshop will be centred around a hypothetical patient, Stephanie, who becomes pregnant and presents to the pharmacist at various stages in her perinatal journey. All learning objectives and associated activities will be addressed in relation to Stephanie to increase active learning opportunities. Assessment of learning objectives will be made on a team-by-team basis. If all pre-work and post-work is completed as assigned (including pre-readings), participants should be eligible for up to 10 Group 1 CPD points. All participants will be provided with a certificate of participation at the end of this workshop.

**Learning Objectives**

<table>
<thead>
<tr>
<th>Learning objectives (as defined by the Training Matrix)</th>
<th>Learning Activity Associated with Learning Objective</th>
<th>Rationale for activity</th>
<th>Evaluation Criteria</th>
</tr>
</thead>
</table>

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To know the key features and prevalence rates of the most common perinatal mental health disorders; know how to differentiate between the various disorders; and understand the impact of PND on infant health and well-being.

| Activity 1: Creating Infographic (30 mins) | This activity will encourage participants to contextualise the information presented to them in Chapter 1 of the Guide to produce a tangible product that can reasonably be used in their professional practice. |
| Relevant section in Training Guide | Level and quality of participation in anticipated activities |
| Chapter 1: Overview of Perinatal Mental Health | Accuracy of information presented |
| Facilitated by: Sabrine Elkhodr | Successful completion of activity |
| | Engagement with the process |

Understand the importance of conducting a broader psychosocial assessment, including risk assessment, for comprehensive clinical care in patients with possible PND.

| Activity 2: Group discussion (15 mins) | This activity will encourage critical thinking, peer-to-peer learning and the sharing of professional experiences between colleagues to facilitate a deeper understanding of the issues presented. |
| Group discussion of Scenario 1: Stephanie Falls Pregnant preceded by a set period of time for discussion within teams. The discussion of scenario 1 will involve discussing the | Level and quality of participation in activity |
| | Observation of participant attentiveness throughout discussion |
presentation of a patient, Stephanie, at the pharmacy and her request for a sleeping aide. Points of discussion will include assessing risk factors for PND and determining possibility of PND being present in Stephanie’s case. Facilitated by: Sabrine Elkhodr

**Relevant section in Training Guide**

*Chapter 1: Overview of Perinatal Mental Health*

| Understand the background, purpose and importance of screening, its application and limitations & implement screening (using the EPDS) | **Activity 3:**  
**Group discussion & critical thinking (15 mins)**  
Group discussion of Scenario 2: *Stephanie wants St. John’s Wort* preceded by a set period of time for discussion within teams. Scenario 2 will involve discussing Stephanie’s return to the pharmacy at a future date and requesting St John’s | This activity will encourage critical thinking, peer-to-peer learning and the sharing of professional experiences between colleagues to facilitate a deeper understanding of the issues presented. | Level and quality of participation in activity  
Observation of participant attentiveness throughout discussion |
Wort. This discussion will encourage participants to think about ways to hold sensitive conversations with patients whom they suspect of experiencing PPD and approaching the topic of filling out the EPDS with them.

Facilitated by: Sabrine Elkhodr

Relevant section in Training Guide
Chapter 2: PPD Detection & Referral

<table>
<thead>
<tr>
<th>Interpret the EPDS scores and integrate with other assessment material as well as communicate these results to women using basic counselling skills and client centred communication</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity 4:</strong> Role play (40 mins)</td>
</tr>
<tr>
<td>Role playing will provide participants with an opportunity to simulate a PPD screening in a safe environment free of judgement or consequence. Participants will be able to hone their counselling skills in the context of suspected postpartum depression and observe and provide feedback to each other.</td>
</tr>
<tr>
<td>Level and quality of participation in activity</td>
</tr>
<tr>
<td>Observation of participant attentiveness throughout role play</td>
</tr>
</tbody>
</table>

Role plays between the pharmacist and Stephanie (simulated patient) explaining her EPDS score. Participants will be split up into groups of three and will simulate the entire patient interaction according to a guide that will be provided to them. Groups will role play from
| Understand the importance of knowing where and how to refer to relevant referral pathways and existing treatments, interventions and support | **Activity 5:** Conceptualise PND screening professional service  
**(40 mins)**  
Groups will design (in principle) a PND-screening service in the pharmacy which will encompass the entire detection and referral process and consideration of marketing, budgeting and resource allocation. Participants will be expected to incorporate their infographic from Activity 1 and create a PND screening & referral checklist as part of this service. | Level and quality of participation in anticipated activities  
Ability to think laterally to overcome barriers to implementation  
Successful completion of activity  
Consideration of issues involved in setting up PND screening service |
| Have awareness of evidence-based interventions for anxiety, depression and related disorders in the perinatal period. | **Activity 6:**  
**Group discussion & critical thinking (15 mins)**  
Group discussion of Scenario 3: *Stephanie Gets Treatment*  
preceded by a set period of time for discussion within teams. Scenario 3 will encourage participants to draw upon their knowledge of psychotropic use in pregnancy and breastfeeding to answer Stephanie’s queries about her medications.  
Facilitated by: Dr Claire L. O’Reilly?  
Relevant section in Training Guide  
Chapter 3: Treatment for PPD | This activity will encourage critical thinking, peer-to-peer learning and the sharing of professional experiences between colleagues to facilitate a deeper understanding of the issues presented.  
Level and quality of participation in activity  
Observation of participant attentiveness throughout discussion |
<table>
<thead>
<tr>
<th>Have knowledge of Clinical Practice Guidelines for mental health disorders in the perinatal period.</th>
<th>Copy of Guidelines included in the Health Professional Kit to be handed out at workshop (kindly provided by Beyond Blue)</th>
</tr>
</thead>
</table>

**Workshop Timetable**

**5.30pm**

Dinner and refreshments + networking

**6pm**

Welcome and introductions.

**6.15pm**

Talk with Kirsten from Beyond Blue discussing her experiences with PPD + Q&A.

**6.30pm**

Activity 1: Infographic

**6.50pm**

Discussion of Activity 1

**7pm**

Team discussion of Activity 2 (Scenario 1: Stephanie falls pregnant) (Appendix C)

**7.10pm**

Workshop discussion of Activity 2

**7.15pm**

Team discussion of Activity 3 (Scenario 2: Stephanie wants St Johns wort) (Appendix D)

**7.25pm**

Workshop discussion of Activity 3

**7.30pm**

Working Break (10mins) + Activity 4: Role Play with Stephanie and the GP

**7.50pm**
Group role plays with Stephanie and the GP

8.10pm
Activity 5: PND Screening service

8.45pm
Discussion of Activity 5

9 pm
Team discussion of Activity 6 (Scenario 3: Stephanie Gets Treatment) (Appendix E)

9.15pm
Workshop discussion of Activity 6

9.25pm
Wrap Up and Next Steps

Post-workshop activities

Participants will be requested to complete a survey at the completion of the workshop and an online written reflection activity within 3 weeks of attending the workshop, reflecting upon the impact that the training has had on their understanding of PPD and their confidence in dealing with it. This activity is eligible for inclusion in your CPD plan.

Activity 1

Create an infographic for perinatal depression

Description of this activity:

Create an infographic about perinatal mental health as part of an in-pharmacy health promotion campaign you’re running. The purpose of this poster is to provide mothers in your pharmacy with quick and easy information about postpartum depression and encouraging them to seek help.
Time:

20 mins

(+ 10 mins class discussion)

Some prompts to help you along:

What’s the prevalence of PND?
What are the main symptoms?
What are treatment options?
Challenging stigma

Challenging a mother’s fears (we wont take your child away etc.)
Where can a mother get help if she feels she has PPD?

Some great websites to help you create a good-looking poster:

www.canva.com

www.piktochart.com

www.venngage.com

Or use coloured pens to do it the old-fashioned way!

Sample Infographics (next page)
POSTPARTUM DEPRESSION
IS THE MOST COMMON PROBLEM ASSOCIATED WITH CHILDBIRTH

1 in 7 women suffers from postpartum depression (PPD)

What is PPD?
PPD is a serious mental health problem characterized by a prolonged period of emotional disturbance, occurring at a time of major life change and increased responsibilities in the care of a newborn infant. PPD can have significant consequences for both the new mother and family.

PPD Symptoms
• Changes in mood
• Injury risk
• Imbalance of emotion
• Lack of interest in the baby

Women who have one episode of postpartum depression have 50% chance of experiencing it again with a second pregnancy.

PPD can affect up to 50% of individuals with PPD are never detected.

20% of postpartum deaths and is the second most common cause of mortality in postpartum women.

Symptoms can appear any time during pregnancy and the first 12 months after childbirth.

Within the first 24 HOURS after childbirth, a woman's hormone levels abruptly return to normal.

This change may contribute to PPD.

What are Baby Blues?
Baby Blues begin in the first few days following delivery and are typically gone by about two weeks postpartum. Symptoms tend to be mild.

Baby Blues Symptoms
• Emotional highs and lows
• Inability to focus
• Insomnia

It may help to talk through your concerns with a mental health professional. Through counseling, you can find better ways to cope with your feelings, solve problems and set realistic goals.

Antidepressants are a proven treatment for postpartum depression. If you’re breastfeeding, work with your doctor to weigh the potential risks and benefits of antidepressants, as any medication you take will enter your breast milk.

Suicide accounts for about 20% of postpartum deaths and is the second most common cause of mortality in postpartum women.

PPD is the most under-diagnosed obstetric complication in the United States.

PPD can affect as many as 10% of fathers within the first year.

PPD is often treated with counseling and medication.

WINNIE PALMER HOSPITAL
For Women & Babies
Supported by Arnold Palmer Hospital Care Foundation

Up to 1 in 8 new moms will experience depression during pregnancy or after birth.

loss of appetite

15% of pregnant women experience mood swings.

sadness

difficulty in focusing

mental fog

excessive worry

severe sleep disturbances

inability or lack of interest in caring for herself or her baby

Talk to your healthcare professional

Understand the triggers - Know the warning signs

Postpartum Support International 1-800-944-0773 www.postpartum.net

Enter your text here and insert your logo or the link or add these thoughts.

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In the United States...

- 1/8 women experience postpartum depression.
- 16% of women diagnosed with prenatal/postnatal depression receive inadequate treatment.
- Only 35% of women diagnosed with prenatal/postnatal depression receive adequate treatment.

Postpartum Depression

- In the United States, 1 in 7 new mothers experience postpartum depression.
- In Australia, 1 in 20 new fathers experience postpartum depression.

What is Perinatal Depression and why should I know?

Perinatal depression and anxiety, PND, includes both antenatal and postnatal mood disorders that can affect parents during the pregnancy and after the birth of the child.

The total number of people with perinatal depression in 2012 was estimated to be 96,156, including 71,177 new mothers and 24,979 new fathers.

That is 1800 new parents a week in Australia diagnosed with antenatal/postnatal depression. Learn how to spot the signs and help new parents get the information & help they need.

Depression is the leading cause of non-fatal disability in Australia, representing a significant disease burden.

Estimated cost to the Australian economy from perinatal depression for 2012: $433.52 million.

In the state of Oregon...

- 24% of women have reported symptoms of depression during or after pregnancy.

Get the help you need

In the United States...

- 1/8 women experience postpartum depression.
- 16% of women diagnosed with prenatal/postnatal depression receive inadequate treatment.
- Only 35% of women diagnosed with prenatal/postnatal depression receive adequate treatment.

Find the information you need

- pandao.org.au
- howisdadgoing.org.au

Start a conversation...

PANDA's HELPLINE 1300 726 306
Monday to Friday 10am to 5pm
is for mums, dads, family and friends

How is Dad Going?

#bePNDaware
Follow us
When to Consult a Psychologist for Postpartum Depression

It's a scary reality - Postpartum Depression is defined as severe to moderate depression affecting at most 16% of women who have given birth.

Nevertheless, experts report that up to 70% of all women experience symptoms of the baby blues within the first week of giving birth.


The latest research, however, has revealed that the symptoms of postpartum depression can be experienced even during pregnancy, and not just after. It has also been shown that women who have undergone these symptoms at such a time are more susceptible to more intensified postpartum depression symptoms after parturition.

10 thousand women having postpartum depression, which look into account symptom severity and onset, mood disorder history, and pregnancy complications, showed that the phenomenon may be categorized as having subtypes 1, 2, and 3, which are distinct.

As of now, what you can do is to look out for warning signals that may be indicative of the disease. It is not a myth any longer. Doctors have fully recognized the existence of postpartum depression and are working towards developing a cure.

Such signs may include inability to cope with daily chores and demands, intense anxiety, intense mood swings, and suicidal thoughts. These symptoms are real and serious, and should you have them, you should contact your psychologist and physician immediately and ask for help.

COMMON SIGNS OF POSTNATAL DEPRESSION

- FEAR of being alone
- Crying and feeling sad without apparent reason
- Appetite disturbance and disinterest in food
- Feeling guilty and inadequate
- Anxiety causing a knot in the stomach, most of the time and panic without cause
- Feelings of self-harm, harm to the baby or suicide
- Memory difficulties and loss of concentration
- Loss of confidence and self-esteem
- Chronic exhaustion or hyperactivity
- Inability to cope with daily chores and demands
- Negative obsessive or morbid thoughts
- Irritability often without cause

www.yrps.ca
Activity 2

Case Study: Stephanie Falls Pregnant

Time: 10 mins ( + 5 mins class discussion)

Stephanie is a regular patient at your pharmacy and was a working as a full-time teacher when she became pregnant with Emma. Stephanie was taking sertraline to treat her GAD but she stopped taking it when she discovered she was pregnant. Through previous conversations with her, you know that her mother is currently taking Lexapro® for depression and has had a “breakdown” in the past. After a long and difficult labour, Emma was born by caesarean birth in December 2015. She does not have to return to work until May though Stephanie feels torn between her new role as a mother and her desire to continue working and is concerned that she will be replaced if she goes on leave for six months. Emma is an aggressive breastfeeder and poor sleeper. She is colicky and catnaps most of the day, never sleeping for more than 20 minutes and no more than 2 hours at night. Stephanie’s nipples have become cracked because of the frequent and aggressive breastfeeding. Stephanie’s husband works in a busy law firm, comes home late each night, and often needs to work during weekends. Stephanie spends most of her time alone with the baby and rarely even has dinner with her husband. She’s the only one of her friends who has a baby, and her colleagues at work are busy with the end of the school year. She does however have a lot of family support and often has her mother or mother-in-law visit to help with the baby and give her some time to sleep. Today, Stephanie comes in to your pharmacy to buy some Restavit® because she says she “feels too wired to fall asleep even when the baby sleeps”.
What risk factors does Stephanie present with for perinatal anxiety and/or depression?

What protective factors (if any) are present which may help buffer against PND in her case?

Suggest ways to modify Stephanie’s risk for developing PND.

How would you approach this situation?

This case study was extracted from the following article and modified for a pharmacist audience: Zauderer CR (2008) A Case Study of Postpartum Depression & Altered Maternal-Newborn Attachment. MCN: The American Journal of Maternal/Child Nursing 33:173.

Activity 3

Case Study: Stephanie Wants St Johns Wort

Time: 10 mins ( + 10 mins class discussion)

Stephanie returns to your pharmacy a few weeks later with Emma, who is now 3 months old. She seems quite tired and you feel there might be something wrong. Stephanie is browsing through the vitamin aisle when you ask her if she needs any help to which she replies that she’d like some St John’s Wort and wants to know which brand to buy.

How would you respond to this request?

You will be assigned one of scenarios outlined below. Please discuss the following questions in the context of the scenario you are assigned.
How would you approach this situation?

How comfortable would you be asking Stephanie to fill out an EPDS (Edinburgh Postnatal Depression Scale) form? If so, how would you go about it?

If you had a strong suspicion that Stephanie was experiencing PPD/anxiety (and/or she had a high score on the EPDS) regardless of her response to you, what would your course of action be?

**SCENARIO A**
Stephanie has said “I'm just browsing, thank you”, and does not appear to want to discuss anything further.

**SCENARIO B**
Stephanie has said “I'm just having a look, thanks” but seems to be open to further conversation.

**SCENARIO C**
Stephanie seems quite receptive to having a deeper conversation about her situation. She admits to you that she’s been really tired and is home with the baby all day. She no longer gets as much help from family as they are all busy with work now and she’s feeling very isolated. Stephanie says she feels lost in her new role, with no one to talk to. She is not sure she is doing a good job with baby Emma. She’s stopped getting dressed in the mornings and even stopped showering because she feels she doesn’t have the time or energy to do so. Even when the baby sleeps, Stephanie would sometimes doze off, only to be awakened by a full-blown panic attack. She’s not sleeping at all and asks you if you think St John’s Wort would help calm her down.
You’ve been chatting with Stephanie for a few minutes and have identified that Stephanie may be experiencing PPD. You would like her to fill out an EPDS form to explore this possibility further and determine next steps. Please go through all of the scenarios below before class discussion. In groups of three, please practise the role plays below and take turns b.

**Time:**
20 mins
(+15 mins class discussion)

**Role Play 1**
You would like to ask Stephanie to sit aside with you for a few minutes to discuss her situation further and to fill out the EPDS form.

**Possible scenarios:**
- Stephanie happily agrees
- Stephanie is reluctant
- Stephanie completely refuses

**Role Play 2**

**Scenario 1:** Stephanie has completed the EPDS and the high score (>12) indicates that she may be experiencing PPD. You will now be explaining her score to her and
her options. If you choose to refer to a GP, please role play the discussion you will have with the GP.

**Scenario 2:** Stephanie has completed the EPDS but her score is lower than the cutoff. However, you still believe there is a problem and would like to take this further. You will now be explaining her score to her and her options. If you choose to refer to a GP, please role play the discussion you will have with the GP.

**Scenario 3:** Stephanie has completed the EPDS and she has a very low score. You don’t feel further investigation is necessary but you would like Stephanie to be aware of PPD symptoms and provide her with information about what to do if she suspects she may be developing PPD. You will now be explaining her score to her and her options.

**Activity 5**

Develop an in-pharmacy screening program for perinatal depression

**Description of activity:**

Groups will design (in principle) a PND-screening service in the pharmacy which will encompass the entire detection and referral process and consideration of marketing, budgeting and resource allocation. Participants will be expected to incorporate their infographic from Activity 1 and create a PND screening & referral checklist as part of this service. You will be expected to draft a brief “business plan” for this service which should take the following into consideration:
Service description: What is the service and what will it actually do? What are the aims and outcomes? Be very specific.

Operations: How will this service operate? What processes will be involved in running this service on a day-to-day basis? What resources will you need?

Marketing plan: How will you let the community know you offer this service? Where and how will you advertise this service?

Financial plan: What costs will be involved in the running of this service? How will you offset these costs?

Referral system: How will you refer patients who screen positive for PPD? Where will you refer them? How will you setup these networks?

You are welcome to present this plan anyway you see fit (interpretive song and dance is an acceptable option). If you’d prefer to follow a template, please see the Sample Plan overleaf.

Time:

30 mins + 15 min class discussion

Sample Service Plan

Strategic Direction

**Vision**: To be the community's primary referral service for provision of accessible, quality, and comprehensive patient care and education for pediatric patients with asthma.

**Mission**: The University Pediatric Asthma Clinical Pharmacy Referral Service is dedicated to providing the best patient care through clinical pharmacy services including therapy consultation and patient and family education.

**Values**: Valuing the lives of infants, children, and adolescents with asthma; encouraging patients to become self-empowered about their condition and therapy with a commitment to respect, professionalism, and cultural competence.

Strategic (SWOT) Analysis

**Strengths**: Only referral service of its kind (i.e., clinical pharmacist driven) in the community, with approximately 2,500 pediatric patients in the community with asthma. About 50% of these patients are seen by physicians in the University Health System. The University Health System has allotted 1.5 FTEs for this clinic and the local College of Pharmacy has offered another 0.5 FTE. Billing plan for services already established given success with adult clinic counterparts.

**Weaknesses**: Need for personnel to be certified as Asthma Educators to meet standards and provide opportunity for compensation by third-party payers.

**Opportunities**: Consumers and third-party payers are willing to pay for cognitive pharmacy services for chronic illnesses such as asthma. Management of asthma is imperative, as it is a common chronic illness in infants, children, and adolescents and it consumes valuable resources such as hospitalization, emergency room visits, missed school and work days.

**Threats**: Possible utilization of other healthcare professionals to provide general asthma education services due to lack of understanding the value of comprehensive cognitive consultative services regarding diseases state management paired with education. Local private pediatric pulmonologist practices are offering asthma education services provided by registered nurses or respiratory therapists who are also Certified Asthma Educators.

Long-Term Goals

**Goal 1**: Establish clinical pharmacy services (consultation of disease state management and patient education) for pediatric patients with asthma within one year and demonstrate positive patient outcomes including reduced hospitalization, emergency department visits, and need for systemic corticosteroid courses (e.g., prednisone).

**Goal 2**: Expand services to other pediatric chronic illnesses such as cystic fibrosis and diabetes.

Action Plan

**Objective 1**: Hire 2 pediatric clinical pharmacists within 6 months with specialty experience in pediatric asthma and/or ambulatory care.

**Strategy 1**: Recruit experienced pediatric clinicians with specialty experience in pediatric pulmonary medicine or recruit PGY2 Pediatric Pharmacy Residency graduate from well-known program.

**Tactic 1a**: Identify residency or fellowship programs located at other institutions with an established pediatric asthma program.

**Tactic 1b**: Once strong candidates are identified, offer incentives such as performance-based bonuses, increased vacation time, funding for professional development activities.

**Tactic 1c**: Support clinicians in becoming (1) Board Certified in Pharmacotherapy (BCPS) or (2) Certified Asthma Educator (ACAC).
Objective 2: Reduce emergency department visits and hospitalizations (and thus systemic corticosteroid use and other acute care needs) for asthma in our patient population.

Strategy 2: Successful completion of acute therapy and maintain optimal asthma controller medication use immediately after discharge.

Tactic 2a: Evaluate patients' acute and controller medications, and recommend medication regimens that are both effective and feasible to optimize adherence to regimen.

Tactic 2b: Increase medication adherence to controller asthma medications through patient empowerment in own health (with family support) gained through an asthma education session within 48-72 hours of any emergency department visits or hospitalizations for asthma. Education would include reinforcement of the asthma action plan, follow-up regarding frequency of rescue medication use immediately following discharge, and adherence to completing systemic corticosteroid course (and other medications such as antibiotics if found to have concurrent respiratory infection requiring treatment).

Objective 3: Reduce asthma severity, thereby reducing outpatient systemic corticosteroid use, improving spirometry measures (FEV₁, FEV₁/FVC), and patient quality of life.

Strategy 3: Optimize patients' asthma controller medications through regular evaluation of regimen and patient education.

Tactic 3a: Evaluate patients' controller medications, recommend medication regimens that are both effective and feasible to optimize adherence to regimen.

Tactic 3b: Increase medication adherence to controller asthma medications through patient empowerment in own health (with family support) gained through regular (quarterly) asthma education sessions. Education would include items such as inhaler technique, treatment schedules, and asthma action plan.

Objective 4: Provide support for patients and families in regard to medication use in school.

Strategy 4: Optimize medication adherence through utilization of school-based interventions such as accessibility to rescue medication in school, and supervised asthma controller therapy.

Tactic 4a: Work with local schools in providing additional interventions (e.g., supervised therapy in school), if needed to optimize adherence and patient outcomes regarding asthma, including provision of necessary authorization paperwork/forms, written orders, and asthma action plans.

Tactic 4b: Provide education sessions to local school officials (e.g., administration, school nurses, teachers, athletic coaches) in providing support and care for children with asthma.

Monitoring and Evaluation Plan

Monitoring Strategies: Patient outcomes, patient and family satisfaction, and prescriber satisfaction will be measured and monitored.

Evaluation:

Schedule: Patient outcomes, patient and family satisfaction, and prescriber satisfaction will be evaluated annually and divided by season (quarters), comparisons will be made season to season (i.e., winter season will be compared to winter season in previous year), especially regarding asthma symptom or spirometry measures.

Metrics: Patient outcome metrics include (1) frequency of asthma-related hospitalization, emergency department visits, and outpatient-initiated systemic corticosteroid use will be reduced by at least 10%; (2) percentage of patients with FEV₁ and FEV₁/FVC greater than or equal to 80 will increase by at least 20%; and (3) percentage of patients classified as well controlled regarding their asthma will increase by at least 25% within 12-18 months post service enrollment. Patient, family, and prescriber satisfaction surveys will demonstrate improved patient care and quality of life for patients in comparison to pediatric asthma care prior to initiation of clinical pharmacy services.

Activity 6
Stephanie Gets Treated

Stephanie saw her GP on your request who prescribed sertraline and short-term lorazepam while the sertraline takes effect. She has also been referred to a local psychologist but the earliest she can be seen is 3 weeks from now. She mentions that she is still breastfeeding and is concerned that taking “all these drugs” will harm her baby.

What factors must be considered before psychotropics can be safely used whilst breastfeeding?

In Scenario 1, we found out that Stephanie was on Zoloft when she fell pregnant but stopped. Was this an appropriate choice given Stephanie’s situation and background?

How do you respond to Stephanie’s concerns about breastfeeding while on sertraline & lorazepam?

What organisations and resources can you point Stephanie to for support and trusted information?

How do you respond to Stephanie’s request for herbal remedies?

What lifestyle advice can you offer Stephanie to help her manage her PPD?
Appendix A: Sample GP Referral Letter

Template referral letter to the GP

Pharmacy Stamp

Dr........

..........

..........

.....NSW....

Dear Dr {name},

I recently saw Ms. {patient name} at the pharmacy and based on our conversation and her EPDS score, I believe there is a possibility she may be experiencing perinatal depression. She exhibited symptoms suggestive of this disorder and subsequent administration of the EPDS (see attached) delivered a score of ......

I have discussed these EPDS results with Ms. {patient name} and with her permission, have sent the attached form to you for further appraisal. I have advised Ms. {patient name} that her score is not a diagnosis of perinatal depression and that it is recommended she see you as soon as possible for a deeper discussion.

Dispensing History

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<thead>
<tr>
<th>Medication</th>
<th>Directions</th>
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Please do not hesitate to contact me on ........ if you would like to discuss this further.
Appendix B: Self-reflection Activity

Dear Pharmacist

Thank you for attending the *Perinatal Mental Health in the Pharmacy Workshop* on the 31st March 2016. As a valuable member of the primary healthcare team, you have an important role to play in the detection and management of women with perinatal depression. The workshop was the first step to equipping you with the confidence and skills to fulfill this role. In order to complete this course and gain your certificate of completion, we ask that you complete the following activity by the **21st April 2016**.

_____________________________________________________________________________

**Self-reflection activity**

Your task is to take the opportunity to speak to at least **one pregnant or postpartum mother** in the pharmacy within the next three weeks and have a conversation about her mental health using the skills you developed during the workshop. You are then to **write at least 200-300 words reflecting on this experience**; what you learned, what you could have done better and how you applied the skills you learnt in the workshop.

As you are aware, this is potentially a very sensitive issue for some so we ask that you exercise great care and professional judgement when completing this task. We are not expecting you to detect or even refer a case of suspected PND (though if you do, that’s great). We simply want you to take the opportunity to consolidate what you learnt at the workshop and share that experience with us.

**Due date: Friday 21st April**
Once this activity is complete, you will receive your certificate of completion to keep for CPD recording purposes.

Appendix F

Photographic Images from the PMHP Workshop
BABY BLUES?

DO YOU CRY A LOT?

DO YOU HAVE DIFFICULTY SLEEPING?

HAVE YOU FELT MAD OR MISERABLE?

ARE YOU ANXIOUS OR WORRIED?

ARE THINGS PILING UP?

YES?? SPEAK TO YOUR PHARMACIST

DO YOU HAVE LOSS OF PLEASURE