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The midwives' role in screening for Antenatal Depression (AND) and Postnatal Depression (PND)

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Abstract

This paper is an education paper, which aims to inform midwives of tools available to help them make appropriate provisional diagnosis of perinatal depression. A second aim is to increase midwives' awareness of the relatively newer diagnosis of *Antenatal Depression (AND).* Of additional clinical importance, is for midwives to recognise that *Postnatal Depression (PND)* may be a continuation of *AND*. To date, screening for *AND* has received relatively little attention compared with *PND*, with the evidence-base supporting that the impact can be as severe. It is important for midwives to know that screening for *AND* can be undertaken using *valid and reliable psychometric self-report depression screening questionnaires*, which have known validity characteristics and threshold cut-off scores. There are several of these tools available to help midwives make the decision about whether or not to refer the women to the mental health team. Current practice in the UK involves the midwife asking an initial short 2-item 'Whooley Question' screen, which if indicates depression, can be followed up by the women completing a self-report depression screening questionnaire. To highlight their availability, a selection of valid and reliable psychometric self-report depression screening questionnaires are discussed herein, with it being important for midwives to develop a toolkit that can be given to women at clinics, in pamphlets, on-line or embedded into Apps.

Key words: antenatal depression, postnatal depression, Edinburgh Postnatal Depression Scale (EPDS), Midwives, Perinatal, Screening

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Key points:

(1) Midwives screening for *Antenatal Depression (AND)* is as important as screening for *Postnatal Depression (PND).*

(2) *AND* rates are comparable to *PND* rates, yet emphasis of perinatal screening is conventionally upon *PND*.

(3) *AND* can be successfully and cost-effectively identified by the midwife, through using valid and reliable psychometric self-report depression screening questionnaires, e.g.,

- The 'Whooley Questions'
- Edinburgh Postnatal Depression Scale (EPDS)
- The 9-item Patient Health Questionnaire (PHQ-9)
- Beck Depression Inventory (BDI)
- Hospital Anxiety and Depression Scale (HADS)
- Hamilton Depression Rating Scale (HDRS)

(4) It is important for midwives to have a toolkit that can be given to women at clinics, in pamphlets, on-line or embedded into Apps for self-detection of Perinatal Depression Disorders (PDD).

(5) Further research is needed to examine the degree of overlap of questionnaire items between measures, to determine whether they have acceptable commonality in assessing a consistent conceptual domain of depression.

The midwives' role in screening for Antenatal Depression (AND) and Postnatal Depression (PND)

Introduction

Part of the midwives' role is to be vigilant towards detecting mental health problems that childbearing women may already have or develop. Of interest to this paper, is depression experienced across the childbearing spectrum. These are referred to as *Perinatal Depression Disorders (PDD)* and include *Antenatal Depression (AND)* and *Postnatal Depression (PND)*. *PDD's* can have significant consequences for women, partner, families and infant (Rahman et al., 2004), which includes reducing women's social participation, arousing sensitivity towards her new born baby, causing infant malnutrition, physical illness, and subsequent depressive episodes (Dix & Meuner, 2009; Harvey et al., 2012; Josefsson & Sydsjö, 2010). To date and in terms of research, *AND* has received far less research attention compared with *PND*, which is noteworthy because:

(1) Rates of *AND* and *PND* are similar, with some evidence showing that the incidence of *AND* may be slightly higher than *PND* (Gavin et al., 2005).

(2) Evidence supports that *AND* may be a significant predictor for the woman developing *PND* (Beck, 2001).

(3) Research based aetiology and interventions are limited for *AND*, compared with *PND* (Chojenta et al., 2016; Dennis & Dowswell, 2013, 2013b; Morrell et al., 2016).

(4) Historical aetiological focus on *PND* has generally discounted the idea that *PND* may be an extension of pre-existing *AND* (Jomeen & Martin, 2008), yet in some cases this may be the case.

There is a confusing landscape of *PDD's* that can be diagnosed over the antenatal and postnatal period (Jomeen & Martin, 2008; Martin & Redshaw, 2018), which is surprising because depression is a commonly observed psychological phenomenon. Yet and of relevance, is that recent studies inform that AND, akin to PND, is associated with adverse perinatal outcomes (Eastwood et al., 2017; Navaratne et al., 2016). In fact, studies have reported a higher prevalence for AND, from 6% (Eastwood et al., 2017) to 17% (Leigh & Milgrom, 2008) and PND, from 6% to 12% (Eastwood et al., 2011; Leigh & Milgrom, 2008). A recent review by Van Neil and Payne (2020) quotes that PDD affects 10-20% of women during pregnancy and the postpartum period. Also, Sawyer et al. (2010) identified rates of AND as 11.3% and *PND* to be 18.3%.

In comparison, the associated rates of antenatal and postnatal anxiety are 14.8% and 14% respectively, with anxiety traditionally thought to co-exist with depression (Christensen et al., 2020; Zigmond & Snaith, 1983). Additional figures show that rates of severe depression are 3 times higher in the first postnatal year, which is more than at any other time in a woman's life (WHO, 2008). Consequently, it is important for midwives to screen for *PDD's*, which across the continuum are labelled as *AND* and *PND*. Also worthy of consideration is whether or not *PND* is a specific type of depression that has its own distinctive aetiological pathway, or instead is simply a continuation of pre-existing *AND*.

Aetiological models that underpin *Perinatal Depression Disorder (PDD)*

The first aspect of *PDD* that is important for midwives to acknowledge is that *PND* can also profoundly affect husbands and/or partners (Cox, 2005; Psouni et al., 2017; Shaheen et al., 2019), with minimal attention paid to this position. Consequently, it is important for the midwife to have a toolkit of measures they can use to support

suspicion that *AND* or *PND* may be present, before referring the woman to a health care professional for formal assessment and diagnosis. Post endorsement of a suspected diagnosis, the midwife can refer the woman or husband/partner for a formal assessment via the 'mental health pathway' outlined by their Health Board (HB). Such action could forestall despair for a couple, with more studies needed to develop and measure effectiveness of different referral systems and treatment programs.

The second aspect of *PDD's* that requires attention, is the need to understand more about causal factors of *AND* and *PND*. For example, there is persuasive evidence to support that one cause of *PND* is routed in biology and hormones (Barry et al., 2015; Mah, 2016; Rogers et al., 2016), with a main contradiction to this argument being that males can also experience *PND* (Shaheen et al., 2019). The idea that husbands/partners can also exerience *PND* is a concept that is antagonistic to biological aetiological models and use of pharmacological interventions to treat *AND* and *PND* (e.g., selective serotonin reuptake inhibitors) (Ishikawa & Shiga, 2017; Milgrom et al., 2015; Molyneaux et al., 2018). Conflicting aetiological models about causes of *PDD's* have created an incomplete picture of cause, effect and appropriate treatments, with more research required in this arena.

A third aspect of *PDD's* that requires attention, is that currently the main screening focus of maternity care professionals is upon *PND*, with it recommended that equal attention be paid to diagnosis and treatment of *AND*. This recognition in disparity of attention is now just beginning to be acknowledged and yet has to fully infiltrate contemporary clinical guidelines (National Collaborating Centre for Mental Health, 2018). Although *AND* is as common as *PND*, mothers-to-be often miss out on proper treatment due to lack of midwife training. Midwives often do not receive

sufficient formal training in AND, and because some of the symptoms overlap with minor problems of pregnancy, such as tiredness and emotional instability, AND can be difficult to detect (Jomeen & Martin, 2008; Jomeen, 2009). Hence and of interest to the midwife, is what screening approach could be used to confirm need for referral of the woman for a formal diagnosis of *AND* or *PND*.

Screening for *Perinatal Depression Disorder (PDD)*

At present there is confusion about what self-report measures a midwife could use to initially detect *AND* or *PND*, with most measures validated for use post childbirth. At present in the UK, the *Edinburgh Postnatal Depression Scale (EPDS)* (Cox et al., 1987) is considered the 'gold standard' for initial detection of *PND*, with it also validated for identifying *AND* (Murray & Cox,1990). The midwife should note that cut-off-scores differ between antenatal and postnatal use of the *EPDS* (discussed later) (Murray & Cox, 1990).

It is important that the health care professional uses the same *valid and reliable psychometric self-report depression screening questionnaire* with the same woman both antenatally and postnatally because:

(1) This provides continuity of assessment, simply because the same questions are being asked at two separate observation points.

(2) It allows a baseline to be recorded in the antenatal period, against which a second observation point can be compared, and improvement or deterioration of symptoms observed.

(3) Consistency in scores across observation points (antenatal & postnatal), opens a debate about whether *AND* and *PND* are discrete conditions or a continuation of the same disorder.

These 3 points support the inherent fidelity of using the same *valid and reliable psychometric self-report depression screening questionnaire* before and after birth.

Turning to the content of valid and reliable psychometric self-report depression screening questionnaires. There is an assumption that each scale is measuring the same thing, which raises the concept of whether they are potentially interchangeable (Fried, 2017). It is important to note, that switching scales could introduce sources of error, which is another justification for why the same instrument should be used across longitudinal observation points with the same woman. Midwives can select from a variety of *valid and reliable psychometric self-report depression screening questionnaires*, which can be used in combination to confirm or eliminate suspicion that a woman may have developed *AND* or *PND*.

(1) *The 'Whooley Questions'*

The two 'Whooley Questions' (Whooley et al., 1997) are valid screener items asked by the midwife at the woman's first antenatal 'booking visit' in the UK (McGlone et al., 2016). The 'Whooley Questions' have been shown to have acceptable utility in terms of sensitivity, specificity, and suitability as an initial screen for *PDD* (Arroll et al., 2005). The 2 'Whooley Questions' follow:

(i) During the past month have you often been bothered by feeling down, depressed, or hopeless?

(ii) During the last month have you often been bothered by having little interest or pleasure in doing things?

The two 'Whooley Questions' originate from the *PHQ-9* (Spitzer et al., 1994) and are answered by the woman with a straightforward 'yes' or 'no' response. When a positive screen is found, a third additional question is asked:

(iii) Is this something with which you would like help?

The *National Collaborating Centre for Mental Health* (2018) guidelines recommend that the midwife conduct an initial 'Whooley Question' screen, and when depression is indicated the woman is issued with a follow-up *valid and reliable psychometric self-report depression screening questionnaire*. If total scores suggest that *AND* may be present, a post-interview assessment is undertaken by a mental health professional and an official diagnosis given. Each HB will have a guideline or protocol outlining their own mental health pathway, which each midwife should be familiar with. Nonetheless, the official screening points may be limited, which supports the idea that midwives pay attention in-between when they are suspicious that a *PDD* may be present.

(2) *The Edinburgh Postnatal Depression Scale (EPDS)*

The *EPDS* (Cox et al., 1987) is a 10-item easy to administer *valid and reliable psychometric self-report depression screening questionnaire*. Scores above 9 indicate 'possible depression' and beyond 12 'probable depression'. The *EPDS* has received many validations of effectiveness at screening for *PDD* (Hewitt et al., 2010), and has been translated and validated for use in at least 37 languages (Cox et al., 2014). It should be noted that most studies have focused upon use of the *EPDS* in the postnatal period, with limited research conducted in the antenatal period. One issue that the midwife needs to be aware of, is that *EPDS* cut-off-scores for case classification differ between the antenatal and postnatal period. Murray and Cox (1990) recommend that a higher threshold for *EPDS* case classification is used in the antenatal period, compared with the postnatal period (Gibson et al., 2009). For example, the cut-off-score of the original *EPDS* in the postnatal period is 12/13 (Cox et al., 1987). In comparison, in the antenatal period the cut-off score is 14/15 in the second and third trimesters of pregnancy (Murray & Cox, 1990; Adewuya et al.,

2006). Currently, there is no universal agreement about one single *EPDS* threshold cut-off-score for indicating diagnosis of *AND* or *PND*, with this discrepancy causing differences in detection rates. Also, when considering the *EPDS* for use outside the UK, it is important to note that cut-off-scores for countries and languages differ. To identify these language specific cut-off scores, the midwife can search the data-bases for country specific validation papers. It is important to acknowledge, that substantially more is known about the screening utility of the *EPDS*, in terms of its psychometric characteristics (i.e., validity, reliability & factor structure). Validity is largely based upon sensitivity and specificity analysis, which has compared the *EPDS* against 'gold standards', such as clinical diagnosis according to the *National Collaborating Centre for Mental Health* (2018). Questions on the *EPDS* can be viewed at: https://www.fresno.ucsf.edu/pediatrics/downloads/edinburghscale.pdf

(3) *The 9-item Patient Health Questionnaire (PHQ-9)*

The 9-item *PHQ-9* (Spitzer et al., 1994) can be used to indicate *AND* or *PND* using a cut-off-score of (9/10). Please note that the *PHQ-9* has different scoring approaches, with it important to be specific about which one should be used in any screening protocol or guideline. In relation to its screening ability, the *PHQ-9* has similar sensitivity and specificity performance as the *EPDS*, with this comparable performance suggesting that both instruments are suitable for screening for *AND* and/or *PND* (Zhong et al., 2014). Questions on the *PHQ-9* can be viewed at: https://www.integration.samhsa.gov/images/res/PHQ%20-%20Questions.pdf

(4) *Beck Depression Inventory-11 (BDI-11)*

Three versions of the *Beck Depression Inventory (BDI)* (Beck et al., 1961) have been developed, with the *BDI-II* designed for use with individuals over the age of 13. The

BDI-II is a revision of the original *BDI* (Beck, 1996a), which was adapted in response to the DSM-4 changing its diagnostic criteria for major depressive disorder. The *BDI-II* consists of 21-items that the woman scores from 0 to 3, with higher total scores indicating more severe depressive symptoms. Cut-off-scores of the *BDI-II* rate 0-13 minimal depression, 14-19 mild depression, 20-28 moderate depression, and 29-63 severe depression. Questions on the *BDI-11* can be viewed at:

https://psychologicalprofessional.com/wp-content/uploads/2017/07/Becks-Depression-Inventory-BDI-II.pdf

(5) *Hospital Anxiety and Depression Scale* (HADS)

The *HADS* determines levels of both anxiety and depression, with anxiety considered to co-exist with depression (Zigmond & Snaith, 1983). The *HADS* consists of 14-items (7 measure anxiety; 7 measure depression). Items are rated on a 4-point scale from 0 to 3, creating a maximum achievable score of 21 for each subscale (42 whole scale total). Individual sub-scores of 11+ indicate significant psychiatric comorbidity, scores of 8–10 signify presence of condition, and 7 or less indicate normalcy (Herman, 1997).

There have been many explorations into the *HADS* measurement characteristics, which have shown the scale to be a reliable and valid screening instrument (Christensen et al., 2020; Martin & Thompson, 2000; Norton et al., 2013), which is suitable for use across the childbearing spectrum (Jomeen & Martin, 2004; Karimova & Martin, 2003; Waqas et al., 2019). Consistent with the *EPDS*, the *HADS* has no body related (somatic) items that affect mood, which are caused by physiological changes that occur during the antenatal and postnatal period, (e.g., morning sickness, backache, urinary frequency, anaemia, weight gain, varicosities etc.). Questions on the *HADS* can be viewed at:

https://www.svri.org/sites/default/files/attachments/2016-01-13/HADS.pdf

(6) *Hamilton Depression Rating Scale (HDRS)*

The *HDRS* is a multiple item questionnaire used to indicate depression (Hamilton, 1967). The original 1960 version contains 17-items (*HDRS-17*), but since then 4 additional questions have been added to provide extra clinical information (Hamilton. 1980). Each item is scored by the respondent on a 3 to 5 point Likert scale, with items asking about mood, feelings of guilt, suicide ideation, insomnia, agitation, anxiety, weight loss and somatic symptoms. Questions on the *HADS* can be viewed at:

https://dcf.psychiatry.ufl.edu/files/2011/05/HAMILTON-DEPRESSION.pdf

Limitations

Having described 6 options that can be used to indicate that a woman has *AND* or *PND*, it is important for the midwife to understand limitations of using such *valid and reliable psychometric self-report depression screening questionnaires*. First, responses can be easily exaggerated or minimized by the person completing items on the scale. Second, the way the midwife administers the scale can impact upon the final total score. Third, when the woman is asked to complete the questionnaire with the midwife present, social expectations may prompt responses that differ to competing the scale in private. Forth, *valid and reliable psychometric self-report depression screening questionnaires* are usually copywrited, hence only links to the scales have been provided in text for the reader to view question content. Some scales cost money to use, and others are cost free. Check with management whether they already have an annual or ongoing license for use of a chosen scale. Fifth, any *valid and reliable psychometric self-report depression screening*

questionnaire is designed to be a checking device, as opposed to a diagnostic tool. Consequently, any indicative diagnosis of *PDD* made by the midwife, must be followed up with an interview and diagnosis made by a trained mental health professional.

There is also the issue of exchangeability of scales, which involves researchers checking for instrument usefulness by comparing how closely one scale agrees with another. For example, the *BDI-II* has been positively correlated with the *HDRS* (Pearson r of 0.71), which is good agreement (Beck et al., 1996b). In terms of reliability, the *BDI-II* has also been shown to have a high one-week test-retest reliability (Pearson r =0.93), which suggests that the scale is not overly sensitive to daily variations in mood (Beck et al., 1996c). These sorts of inventories have been conducted for all the aforementioned scales, with references available for retrieval in the databases.

Discussion

Screening with *valid and reliable psychometric self-report depression screening questionnaires* is fundamentally a cost-effective approach to initially indicate whether a woman has AND or PND. The large amount of choice over which self-report measures a midwife should use is a conundrum, with it noted that apart from the EPDS the other aforementioned scales were developed to detect general depression, as opposed to screening specifically for *AND* or *PND*. Clearly, more studies are required to evaluate effectiveness and accuracy of these scales in an antenatal and/or postnatal context. It is also important to identify optimum characteristics of how best to use a single scale or combination of *valid and reliable psychometric self-report depression screening questionnaires* in a toolkit. Also of

importance, is to consistently issue the same scale at set observation points across an individual woman's childbearing spectrum.

In relation to validation of effectiveness of *valid and reliable psychometric self-report depression screening questionnaires*, many studies conducted have not been cross-sectional in terms of giving the same scale across set observational timepoints. One study that supports cross-sectional use of the *EPDS* was conducted by Martin and Redshaw (2018). Although scores changed across two observational time points (3 & 6 months), the underlying structure of the *EPDS* was found to be consistent in terms of its psychometric properties (Martin & Redshaw, 2018).

Selecting an appropriate toolkit

Conciseness is key when considering which *valid and reliable psychometric self-report depression screening questionnaires* to include in a toolkit, for the purpose of initially indicating whether or not a woman may have *AND* or *PND*. During process of selection for inclusion into clinical protocols and guidelines, it is important to state the cut-off-thresholds for *AND* or *PND*. The *National Collaborating Centre for Mental Health* (2018) states that the main criteria when selecting a *valid and reliable psychometric self-report depression screening questionnaire* is that the scale should consist of 12-items or less. This restriction is due to time costs and sustaining interest of the woman in terms of full completion. This 12-item restriction promotes that the only suitable scales for use post asking the 2 'Whooley Questions', is the 10-item *EPDS* or the 9-item *PHQ-9.* This recommended restriction in question numbers is unfortunate, precisely because there are several *valid and reliable psychometric self-report depression screening questionnaires* that have dependable utility, and which consist of more than the allocated quota of questions (i.e., the 21-item *BDI-11*; 14-item *HADS*; 17-item *HDRS*). Note that the 14-item *HADS* consists of two 7-item

scales (7-items indicate anxiety & 7-items indicate depression), with the 7-items that check for depression possibly being used independently.

In practical terms, these prohibited scales often take similar amount of time for the woman to complete. For instance, the 14-item *HADS* has had many explorations into its measurement characteristics (Christensen et al., 2020; Martin & Thompson, 2000; Norton et al, 2013), which includes the context of pregnancy and the postnatal period (Jomeen & Martin, 2004; Karimova & Martin, 2003; Waqas et al, 2019). When considering potential utility of the 14-item *HADS* in a perinatal context, it is helpful to know that it consists of two discrete sub-scales of anxiety (7-items) and depression (7-items). The *HADS* has 4 more questions than the 10-item *EPDS* (14 versus 10 respectively). Yet, the advantage the *HADS* has over the *EPDS*, is that it screens for both depression and anxiety.

This added screening for anxiety is useful, specifically because anxiety is reported to co-exist with depression (National Collaborating Centre for Mental Health, 2018). In addition to detecting depression, the further benefit of detecting anxiety using the *HADS* with an additional 4-item effort, is its cost effectiveness in terms of time and resources. Overall and in general terms, the *HADS* is by far the most frequently used screening measure for identifying both depression and anxiety in a variety of contexts (Christensen et al., 2020). Also, the *HADS* has a substantial evidence-base to verify its use within a broad range of clinical groups (Christensen et al., 2020; Martin & Thompson, 2000; Norton, Cosco, Doyle et al., 2013; Jomeen & Martin, 2004; Karimova & Martin, 2003; Waqas et al., 2019).

Broader concepts of validity, such as assessing factor structure are generally not considered important when combining self-report measures into toolkits, guidelines and protocols. This oversight brings with it a few challenges worthy of

consideration. First, the ‘Whooley Questions’ are valid to use for a quick initial mental health screen. Post assimilating a confirmatory response to the ‘Whooley Questions’, clinical guidelines usually advise follow-up using either the *EPDS* or *PHQ-9*. However, the choice of whether to use either of these self-report measures is arbitrary and rests upon clinician preference.

This quandary about what self-report measures to use to detect *AND* and *PND*, is based upon belief that both the *EPDS* or *PHQ-9* are measuring the same, which conceptually makes them essentially interchangeable scales. In relation to this concept of exchangeability, some literature reports that there is little overlap in the content of frequently used *valid and reliable psychometric self-report depression screening questionnaires*, whilst and in contrast there are reports that exchanging measures produces errors. What this means to the midwife and researchers, is that when comparing across longitudinal observation points over the antenatal and postnatal spectrum, the same *valid and reliable psychometric self-report depression screening questionnaire* should be used. It is also important that further research in this area of measurement error and exchangeability of valid and reliable psychometric self-report depression screening questionnaires is both required and encouraged.

Conclusion

Valid and reliable psychometric self-report depression screening questionnaires can be very useful for indicating women who are struggling with depression during the antenatal or postnatal period. Such scales can help midwives screen and refer women for appropriate treatment for their depression from mental health professionals. It is a given, that any screening questionnaire that is embedded into a clinical guideline or protocol should be statistically valid and reliable, with this belief

based upon a very narrow definition of sensitivity and specificity. This paper has raised important issues for midwives that encompass identification of depression in childbearing women across the perinatal spectrum. What has been identified, is that midwives screening for *AND* is as important as screening for *PND*, simply because rates of both are similar. Prior research emphasis has traditionally been focused upon detecting *PND*. What is important, is for midwives to develop a toolkit of *valid and reliable psychometric self-report depression screening questionnaires* that they can use in conjunction with guidelines and protocols. It is also important to make these toolkits available to women free of charge in pamphlets, on-line, and embedded into Apps, so they can self-screen and optionally refer themselves.

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