

**A scoping review to determine themes that represent perceptions of self as mother ('ideal mother' vs 'real mother')**

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### **Abstract**

**Background:** Postnatal Depression (PND) is a key cause of maternal morbidity, with current systems of initial recognition in the UK detecting only 50% of cases. In attempts to predict those potentially at risk, this review suggests a novel approach.

**Aim:** Implementing the concept of 'ideal mother' versus 'real mother', and asking the woman to compare their 'ideal self' against 'existent self', the aim of this instrument development review was to determine themes from the literature that relate to women's perceptions of self as a mother, and from this identification develop questions for inclusion within a proposed new measure entitled the Self-Image as Mother Scale (SIMS).

**Method:** A scoping review of the literature was carried out to: (1) identify themes considered to affect perception of self as mother, and from this identification, evidence-based questions for inclusion in the SIMS were developed.

**Findings:** Themes identified included (1) marital dissatisfaction, (2) inadequate partner support, (3) lack of family support, (4) socio-economic status and associated poverty, (5) concern about infant, (6) antenatal/postnatal complications, (7) acceptance of infant gender, (8) history of mental health problems, (9) unplanned pregnancy.

**Conclusions:** From this scoping review 18 questions were developed for inclusion in the SIMS, which will then be evaluated for psychometric properties, scale refinement and validation.

**Key words:** Midwives, Perinatal Mental Illness, Post Natal Depression, ASAP, Predictors, Ideal self, Real Self, Self-Image as Mother Scale (SIMS).

## Introduction

Postnatal Depression (PND) is one of the leading causes of postpartum maternal morbidity in the UK (A. R. Gavin et al., 2011; Howard, Flach, Mehay, Sharp, & Tylee, 2011; Lewis & Drife, 2004; Pollock, Manaseki-Holland, & Patel, 2009), with incidence evidence variable 10-15% (McDonald et al., 2012), 21% (N. I. Gavin et al., 2005), and 9% (Evans, Heron, Francomb, Oke, & Golding, 2001). PND is a key cause of maternal morbidity in the UK, with current systems of initial recognition only detecting 50% of cases (Hewitt et al., 2009; Lancaster et al., 2010). Attempting to improve the precision in identifying the remaining 50% of occluded PND cases, we present a novel approach intended to compliment the use of the Edinburgh Postnatal Depression Scale (EPDS) and other screening measures in initial detection of developing PND.

At present in the UK, the National Institute of Clinical Excellence (National Institute of Health and Clinical Excellence (NICE), 2014) recommends that women are asked the 3 Whooley questions (Whooley, Avins, Miranda, & Browner, 1997) at antenatal booking between 4-6 prenatal weeks, and again at 3-4 postnatal months. NICE (2014) advises that the EPDS (Cox, Holden, & Sagovsky, 1987), the Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983) and the Patient Health Questionnaire (PHQ-9) (Spitzer, Williams, Kroenke, Hornyak, & McMurray, 2000) may be used in screening for PND. However, using the current system of detecting PND, less than 50% of women are identified (Hewitt et al., 2009; Lancaster et al., 2010). The objective of this instrument development review was to take a novel approach through developing a system for predicting problems that potentially could manifest in the development of PND. This approach was precipitated also by the desirability of 'breaking the chain' of yet another psychiatrically-anchored

screening questionnaire with inadequate precision and contextualised within a disease-orientated model of depression. This new system has been designed to evaluate postnatal women's perceptions of self as 'ideal mother' compared with 'real mother', under the rubric that discrepancies potentially arouse negative emotions (Mercer, 2004), which may culminate in an end-state of PND. This concept of comparing 'perfect self' against 'existent self' is described in terms of 'Self-Discrepancy Theory' (Higgins, 1987), which considers what happens when a woman's actions and beliefs do not align (Bessenhoff, 2006). Self-Discrepancy Theory positions that individuals (in this case new mothers) compare themselves to internal benchmarks called self-guides. These differing representations of self are sometimes contradictory, which can arouse emotional discomfort. Self-Discrepancy is the gap between two of these representations of self. In the context of this study, the theory situates that a new mother is motivated to narrow the gap between contradictory self-guides and by doing so attempts to remove disparity and its associated discomfort. Higgins (1987) describes 4 types of self-guide:

- Actual (own) versus ideal (own)
- Actual (own) versus ideal (other)
- Actual (own) versus ought (own)
- Actual (own) versus ought (other)

When mismatches occur between these self-guides, 1 of 3 responses may occur:

- No emotional reaction
- An adjustment to the self-guides
- A negative emotional reaction

Comparing participants' evaluations of self as 'ideal mother' versus 'real mother' is at the heart of this considered approach towards detecting those at risk of developing PND.

In the main, prior research has concentrated upon risk factors that contribute towards developing PND. Lancaster et al. (2010), for example, studied risk factors for developing depressive symptoms during pregnancy (57 studies). Causal factors identified support that anxiety, life stress, history of depression, lack of social support, unintended pregnancy, domestic violence, lower income, lower education, smoking, single status, and poor relationship quality put women at risk of developing PND. McDonald et al. (2012) developed a prenatal psychosocial screening tool underpinned by risk factors for developing PND, which identified that depression and stress in late pregnancy, history of abuse, and poor relationship with partner contributed towards developing PND. Comparison of this screening tool with the EPDS in late pregnancy showed that the instrument had significantly better sensitivity. Edwards, Galletly, Semmler-Booth, and Dekker (2008) also examined whether the Antenatal Psychosocial Questionnaire (APQ) which screens for psychosocial risk factors for developing PND, predicts subsequent development of PND. Logistic regression identified that the only item on the APQ that predicted development of PND was emotional abuse as a child, with Edwards et al. (2008) concluding that the APQ is a useful psychosocial screening tool during the antenatal period, but not as a predictor for PND. Prior attempts to develop risk scales for developing PND have been carried out by Austin, Hadzi-Pavlovic, Saint, and Parker (2005), Blackmore et al. (2006) et al. (2006), Davis, Cross, and Lind (2008) and Oppo et al. (2009). Austin et al. (2005) examined the value of using the 18-item antenatal Pregnancy Risk Questionnaire (PRQ) and the EPDS to detect PND at 32

weeks gestation, concluding that the PRQ is better at antenatal prediction of PND than other available measures. A further study by Blackmore et al. (2006) investigated the effectiveness of using the Antenatal Psychosocial Health Assessment (ALPHA) questionnaire for detecting risk factors associated with developing PND. Risks were found to include intimate partner violence, child abuse, and couple dysfunction, with RCT's showing that women presenting with these risk factors are significantly more likely to develop PND. Further, in a prospective descriptive study, Davis et al. (2008) explored the value of using the Postpartum Adjustment Questionnaire; PAQ) as a predictor for developing PND and successfully identified 40% of women. In addition, Oppo et al. (2009) used the PND Predictors Inventory-Revised (PDPI-R) to determine predictive validity at detecting those at risk of developing PND, concluding that it presents as a valid screening tool.

Since, Austin et al. (2005), Blackmore et al. (2006), Davis et al. (2008) and Oppo et al. (2009) highlight the worth of developing predictor scales for identifying women at risk of developing PND, and with a view towards increasing detection rates of the large pool of unidentified (50%) cases (Hewitt et al., 2009; Lancaster et al., 2010), our goal was to take a new approach. Using Higgins (1987) concept of 'ideal mother' versus 'real mother', the aim was to determine themes from the literature that relate to women's perceptions of self as mother, and from this identification develop questions that compare and contrast 'ideal-self as mother' with 'real-self as mother'.

The rationale behind undertaking this study lies in the fact that prior conceptions of diagnosing PND have in the main been rooted around developing questions that measure aspects of anxiety and depression. Nearly 'no' attention has been paid to the cognitive approach of looking at women's perceptual

constructions of self and their relationships to developing PND. This successful undertaking, through development of a robust scale, will appreciably add to the theory base underpinning causes of PND and its diagnosis. As such, items on the SIMS were designed to assess women's perceptions of 'self as mother'. To develop items for inclusion on the SIMS, a scoping review of the literature was conducted to (1) determine themes that represent perceived ability to mother and from this identification (2) develop evidence-based questions for inclusion in the SIMS.

## Method

A scoping review was selected, because they aim to map key concepts to underpin ventures (Mays, Roberts, & Popay, 2001). In this case the key concept was to examine the extent, range, and nature of prior research that has focused upon predictors for developing PND and focus on studies that were considered to represent women's perceptions of 'self as mother'. There was no intention to describe findings in any great detail, but instead to map fields that meet this requirement (Arksey & O'Malley, 2005). This scoping review has been conducted in a rigorous and transparent way (Centre for Reviews and Dissemination, 2001; Mays et al., 2001). A description of the stages follow in accordance with Arksey and O'Malley (2005):

### (1) Identifying the research question

The research question asked: what factors influence women's perceptions of self as mother?

### (2) Identifying relevant studies

Identify studies that answer the research question through electronic databases, reference lists, and hand-searching of key journals. The following electronic databases were searched:

- Cochrane Library
- Medline
- NHS National Library of Health
- Science Direct
- Web of Knowledge

A combined free-text and thesaurus approach was used to recognise relevant papers for inclusion in the scoping study. The following keywords were used:

- Anxiety
- Depression
- Postnatal Depression
- Self-worth

The above search terms were combined with:

- Validated
- Scales
- Mental health
- Pregnancy
- Antenatal
- Postnatal
- Mother

Papers retrieved were required to be published in English.

### (3) Study selection

Inclusion criteria involved counting studies or literature reviews that relate to women's feelings of self-worth, personal behavioural abilities, and capacity to mother.



#### (4) Charting the data

Charting according to Ritchie and Spencer (1994) involved sifting, recording and organising papers according to key themes. Our mapping approach was akin to a 'narrative review' (Pawson, 2002).

#### (5) Collating, summarising and reporting the results

We collated, summarized, and reported results, with no attempt to present 'weight' of evidence of relevant predictors. Having 'charted' information, our narrative account is presented in basic numbers of papers that relate to each theme. Using this approach we quickly gained a flavour of areas that underpin perceptions of 'self as mother'. The literature was organised into 9 themes, and a template developed that includes; author(s), date, method, participants, and results. Using these themes we developed questions for inclusion in the SIMS questionnaire.

#### Consultation Exercise

A 'consultation group' was gathered to inform and validate findings from the main scoping review (Oliver, 2001). The group consisted of 4 individuals; (1) a midwifery lecturer, (2) 3<sup>rd</sup> year student midwife, (3) new mother, and (4) midwife and psychologist. Contributors provided valuable insights into development and interpretation of questions for inclusion in the SIMS. The first two authors together initially developed the questions. The consultation group proceeded to review each question one-by-one, and where perceived necessary altered wording. When there was consensus of the whole group on wording, the question was accepted as fit for purpose. The next step in this study is to collect data and undertake robust psychometric validation of each question and complete scale.

## Results

The preliminary search of electronic databases yielded 107 articles. Forty-one did not reach the inclusion criteria, one paper was a duplicate, which resulted in 66 studies being considered to influence self-identity as mother. These articles were organised into 9 themes (see *Table 1*):

TABLE 1

What follows is a discussion of the 9 identified themes, a justification for inclusion in the SIMS, and questions developed by the consultation group. To view studies that have addressed themes considered to influence self-identity as mother (see *Table 2*).

TABLE 2

### Theme 1: Marital dissatisfaction

21 studies showed that marital dissatisfaction plays a significant part in a postnatal woman developing PND. It was considered that the relationship between marital dissatisfaction and 'ideal self as mother' lies in ability as a mother to provide a harmonious environment for her family to thrive in. In relation to this theme the 'consultation group' developed the following questions.

Q I have a good relationship with my husband/partner.

Q I am dissatisfied in my current relationship with my husband/partner.

### Theme 2: Inadequate partner support

21 studies showed that inadequate partner support can significantly affect whether or not a woman develops PND. Lack of engagement from an unsupportive partner can

result in additional physical workload for a mother, and at a psychological level create feelings of not being valued. In relation to this theme, the following questions were developed.

Q I have a supportive husband/partner.

Q My husband/partner does not help with the household tasks.

### Theme 3: Lack of family support

24 studies showed that help from family/friends contributes to a positive transition to motherhood. This additional help with tasks around the home and with caring for the infant can affect self-perception as a successful mother through helping to create an organised home. In addition, good relationships with family members will provide psychological support. In relation to this theme the following questions were developed.

Q My family/friends help me around the house.

Q I have little backup from my relatives/friends.

### Theme 4: Socio-economic status and associated poverty

19 studies evidence that lack of money and resources are key predictors of developing PND. The reality of being unable to provide possessions and personal affects that create an ideal home can affect a woman's perception of capability as a mother. In relation to this theme the following questions were developed.

Q I am unable to provide my baby with the home and belongings I want.

Q I have enough money to buy all the possessions I want my baby to have.

### Theme 5: Concern about infant

13 studies showed that concern about the infant (e.g., ability to feed/settle/ill baby) play a significant part in a new mother developing PND. The reality of dealing with a persistently crying baby and being unable to settle them is likely to raise worry about the infants health and personal ability to mother. In relation to this theme the following questions were developed.

Q I constantly worry about my baby's health and well-being.

Q My baby is healthy, happy and thriving.

### Theme 6: Antenatal/postnatal complications

12 studies showed that complications and personal health problems play a significant part in a woman developing PND. Physical problems with a mothers personal health that impinge upon her ability to care for her infant are likely to affect her perceptions of self as mother. In relation to this theme the following questions were developed.

Q My physical health affects my ability to be a good mother.

Q I am fit and able to fully care for my baby.

### Theme 7: Acceptance of infant gender

6 studies showed that having a baby of the desired gender plays a significant part in developing PND. Ability to produce a male heir is paramount in some cultures, or already having infants of a particular sex and anxiously desiring one of the other may affect a woman's perception of self as mother. In relation to this theme the following questions were developed.

Q I am really happy with the sex of my baby.

Q I would have preferred that my baby was of the opposite sex.

#### Theme 8: History of mental health problems

16 studies showed that having a history of mental health problems plays a significant part in developing PND. Being unable to cope with everyday engagements, chores and relationships is likely to profoundly influence a woman's perceptions of self and ability to provide a conventional life for her baby. In relation to this theme the following questions were developed.

Q I have a history of experiencing mental health problems.

Q In general I cope well with life and the problems it throws at me.

#### Theme 9: Unplanned pregnancy

13 studies showed that having an unplanned pregnancy plays a significant part in developing PND. Having an unplanned pregnancy at a time when a woman is unprepared either materially or mentally, may profoundly influence her feelings about ideal self as a mother. In relation to this theme the following questions were developed.

Q We planned our pregnancy.

Q I was surprised to find myself pregnant.

## Discussion

A key strength of this scoping study is that we provided an evidence-centric, evidence-contextualised and transparent method for mapping themes to underpin questions for inclusion in the SIMS. However, it is important to acknowledge limitations of this scoping exercise. We have not appraised the quality of included papers, with our approach valuing breadth, contribution, and inclusivity. Nevertheless, this exercise has served its purpose of furnishing us with themes to underpin our SIMS questions. This scoping review has provided a narrative descriptive account of research to underpin each of the 9 identified themes considered to relate to perception of self as mother. It is erroneous to view this scoping exercise as an easy option with hard questions about quality appraisal and synthesis omitted, because a high degree of analytical skills have been used to develop the framework. Our approach was considered 'fit for purpose', embracing a broad range of study designs and methods, which differs from a systematic review that focuses on for example Randomised Controlled Trials (RCT) (Centre for Reviews and Dissemination, 2001)

Taking this novel approach towards identifying women at risk of developing PND, we have determined themes that represent perceived aptitude to mother and potential to develop PND, and from this identification we have developed evidence-based questions for inclusion on the SIMS (see *Table 3*).

## TABLE 3

Defining perception of self as mother is not an objective concept, like asking date of last menstrual period. Instead, it is about capturing a multi-dimensional

assortment of associated factors. We also acknowledge that women construct aspects of 'ideal mother' differently, which are informed through individual beliefs, responses, cultures, emotions, and reflections. Within the themes identified, aspects of cultural influence are noticed. For example, in some cultures men do not play a large role in childrearing (Theme 2: inadequate partner support), which may be more acceptable to a mother when this expectation is absent. In addition, in societies where having a son is culturally important (Theme 7: Acceptance of infant gender), feelings of failure when a girl is born may influence the ideal self as mother.

In full awareness of these complexities, we have captured aspects of the concept 'ideal mother' and from these attributes have labelled themes from which we have developed related questions for inclusion in the SIMS.

## Conclusion

From a scoping review we have identified 9 evidenced-based themes that underpin the concept 'ideal mother', and from this foundation we have developed 18 questions (2 per theme) for inclusion in the SIMS. From a research perspective, this 18 item SIMS has potential to be developed into a multi-dimensional instrument. The data has been formatted into straightforward statements that women respond to on a 5-point Likert scale based on level of agreement or disagreement. Half of the items are reverse scored with a possible range of scores between 0-90. A score of 0 (Total score of 0) represents lowest 'ideal self as mother' and 4 (Total score 72) highest 'ideal self as mother'. Our next step is to gather survey data for psychometric validation and scale refinement.

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**Table 1.** Themes considered to influence self-identity as mother

| Theme   | Theme content                                |
|---------|----------------------------------------------|
| Theme 1 | Marital dissatisfaction                      |
| Theme 2 | Inadequate partner support                   |
| Theme 3 | Lack of family support                       |
| Theme 4 | Socio-economic status and associated poverty |
| Theme 5 | Concern about infant                         |
| Theme 6 | Antenatal/postnatal complications            |
| Theme 7 | Acceptance of infant gender                  |
| Theme 8 | History of mental health problems            |
| Theme 9 | Unplanned pregnancy                          |

**Table 2. Studies that have addressed themes considered to influence self-identity as mother**

\* Themes are numbered according to Table 1

|    | Authors             | Date | Method             | Participant               | Data                                                   | Theme 1 | Theme 2 | Theme 3 | Theme 4 | Theme 5 | Theme 6 | Theme 7 | Theme 8 | Theme 9 |
|----|---------------------|------|--------------------|---------------------------|--------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1  | Abbott & Williams   | 2006 | Interview & survey | NZ Pacific women (n=1376) | EPDS found 16.4% depressed                             | √       |         |         | √       | √       |         |         |         |         |
| 2  | Abrams & Curran     | 2009 | Grounded theory    | Postnatal women (n=19)    | Symptoms of PND                                        |         |         |         | √       |         |         |         |         |         |
| 3  | Al Dallal & Grant   | 2012 | Survey             | Arabic women              | EPDS identified PND                                    |         | √       |         |         |         |         |         | √       |         |
| 4  | Akincigil et al.    | 2010 | Second-dry data    | USA women (n=4365)        |                                                        | √       |         |         |         |         |         |         |         |         |
| 5  | Bener               | 2012 | Survey             | Arab women (n=1669)       | EPDS identified PND                                    | √       |         | √       | √       | √       | √       |         |         |         |
| 6  | Beydoun, et al.     | 2012 | Review             | 37 studies                | Meta-analysis                                          | √       |         |         |         |         |         |         |         |         |
| 7  | Bielinski-Blattmann | 2009 | Survey             | Women (n=293)             | EPDS identified PND                                    |         | √       |         |         |         |         |         |         |         |
| 8  | Bilszta et al.      | 2008 | Survey             | Australian women (n=1578) | EPDS found in 15.2% (240/1578)                         |         |         |         |         |         |         |         | √       |         |
| 9  | Britton             | 2008 | Survey             | US women (n=296)          | 31.7% experience moderate to severe anxiety at 1 month |         | √       |         | √       |         |         |         | √       | √       |
| 10 | Burgut et al.       | 2013 | Survey             | Qatar women (n=1379)      | Prevalence of PND was 17.6%                            |         |         |         |         |         | √       |         |         | √       |
| 11 | Cerulli et al.      | 2011 | Survey             | Women (n=188)             | Diagnostic interview                                   |         |         |         |         |         |         |         | √       |         |
| 12 | Chojenta et al.     | 2012 | Survey             | Australian women (n=2451) | 9.8% reported having PND                               | √       |         | √       |         |         |         |         | √       |         |
| 13 | Clarke et al.       | 2014 | Survey             | Nepalese women (n=9078)   | GHQ-12 assessed depression                             |         |         |         | √       |         | √       | √       |         |         |
| 14 | Cline & Decker      | 2012 | Survey             | Women (n=238)             | 10-15% of women develop PND                            |         | √       |         |         |         |         |         |         |         |

|    |                      |      |                    |                             |                                      |   |   |   |   |   |   |   |   |   |
|----|----------------------|------|--------------------|-----------------------------|--------------------------------------|---|---|---|---|---|---|---|---|---|
| 15 | Coelho et al.        | 2011 | Survey             | Women (n=246)               | EPDS identified PND                  |   |   |   | √ |   |   |   |   |   |
| 16 | Cooklin et al.       | 2011 | Survey             | Australian women (n=1300)   | PND is linked with risk factors      | √ |   | √ | √ |   |   |   | √ |   |
| 17 | D'Amelio,et al.      | 2006 | Survey             | Women (n=222)               | EPDS 28.4% scored > 12               |   |   | √ |   |   |   |   |   |   |
| 18 | Dagher & Shenassa    | 2012 | Survey & interview | Women (n=662)               | EPDS identified PND                  |   |   |   |   | √ |   |   |   |   |
| 19 | Davey et al.         | 2011 | RCT & survey       | Canadian women (n=1,403)    | EPDS identified PND                  |   |   | √ |   | √ |   |   | √ |   |
| 20 | Dennis & Letourneau  | 2007 | Survey             | Women (n=594)               | EPDS and measures of support.        |   | √ |   |   |   |   |   |   |   |
| 21 | Dennis & Vigod       | 2013 | Survey             | Women (n=497)               | ALPHA & EPDS                         | √ |   |   |   |   |   |   |   |   |
| 22 | Dennis & Ross        | 2006 | Survey             | Women (n=585)               | EPDS identified PND                  | √ | √ |   |   |   |   |   |   |   |
| 23 | de Tychey et al.     | 2008 | Survey/ Interview  | French women (n=181)        | SF36 identified PND and life quality |   |   |   |   |   |   | √ |   |   |
| 24 | Dubey et al.         | 2012 | Interview          | New Delhi women (n=506)     | 6% scored ≥ 10 on the EPDS           | √ |   |   |   |   |   | √ | √ |   |
| 25 | Eastwood et al.      | 2011 | Survey             | Australian women (n=25 455) | EPDS >9 = 12% and >12 = 6.2%.        |   |   |   | √ | √ | √ |   |   | √ |
| 26 | Escribà-Agüir et al. | 2013 | Survey             | Spanish women (n=1,400)     | Inventory of instruments used        | √ | √ | √ |   |   | √ |   | √ |   |
| 27 | Gaillard et al.      | 2014 | Survey             | French women (n=312)        | EPDS identified PND                  | √ |   |   |   |   |   |   |   |   |
| 28 | Gold et al.          | 2013 | Survey & interview | African women (n=153)       | PHQ-9.                               | √ |   |   |   |   |   |   |   |   |
| 29 | Green et al.         | 2006 | Survey             | Arab women (n=125)          | EPDS identified (n=56)               |   |   | √ |   | √ | √ |   |   |   |
| 30 | Hassanein et al.     | 2014 | Survey             | Egyptian women (n=290)      | EPDS & Beck's identified PND         |   |   |   |   |   |   | √ |   |   |



|    |                     |      |                    |                             |                                           |   |   |   |   |   |   |   |   |   |
|----|---------------------|------|--------------------|-----------------------------|-------------------------------------------|---|---|---|---|---|---|---|---|---|
| 31 | Horwitz et al.      | 2007 | Survey             | Women with partners (n=860) | EPDS found 17% depressed                  |   | √ | √ | √ | √ | √ |   |   |   |
| 32 | Humayun et al.      | 2013 | Survey             | Pakistani women (n= 506)    | EPDS identified 327 (64.6%) scored>12.    |   | √ |   |   |   |   |   |   |   |
| 33 | Iles et al.         | 2011 | Survey             | Women (n=373)               | Battery of questionnaires                 |   | √ | √ |   |   |   |   |   |   |
| 34 | Iranfar et al.      | 2006 | Survey             | Iranian women (n=163)       | Beck 's identified PND                    |   |   |   |   |   |   |   |   | √ |
| 35 | Kheirabadi et al.   | 2009 | Survey             | Iranian women (n=6627)      | Battery of questionnaires                 |   |   |   | √ |   |   | √ |   | √ |
| 36 | Kim et al.          | 2014 | Survey             | Canadian women (n=6421)     | EPDS identified PND                       |   | √ |   |   |   |   |   |   |   |
| 37 | Kingsbury et al.    | 2015 | Survey             | Australian women (n=2,991)  | Delusions-Symptoms-States-Inventory       | √ |   |   |   |   |   |   | √ |   |
| 38 | Leahy-Warren et al. | 2011 | Survey             | Women (n=512)               | EPDS identified PND                       |   | √ | √ |   |   |   |   |   |   |
| 39 | Luoma et al.        | 2015 | Survey             | Women (n=329)               | EPDS identified PND                       | √ |   |   |   | √ |   |   |   |   |
| 40 | Liu & Tronick       | 2013 | Survey             | USA women (n=3566)          | Pregnancy Risk System identified PND      |   |   |   | √ |   | √ |   |   |   |
| 41 | Mercier et al.      | 2013 | Interview & survey | US women (n=688)            | PND 7.3% at 3 months & 6% at 12 months    |   |   |   | √ |   |   |   |   | √ |
| 42 | Milgrom et al.      | 2008 | Survey             | Australian women (n=35,374) | EPDS identified 3144 scored >12           | √ | √ |   |   |   |   |   |   |   |
| 43 | Mohamad             | 2015 | Survey             | Malaysian women (n=2072)    | EPDS identified PND                       | √ | √ |   |   | √ |   |   | √ |   |
| 44 | Mohammed et al.     | 2014 | Survey             | Egyptian women (n=200)      | EPDS identified 99 (49.5%) depressed      | √ | √ |   | √ | √ | √ |   | √ |   |
| 45 | Mori et al.         | 2011 | Survey             | Japanese women (n=675)      | EPDS identified early 11% and late 4% PND |   | √ | √ |   |   |   |   |   |   |

|    |                     |      |                        |                              |                                          |   |   |   |   |   |   |   |   |   |
|----|---------------------|------|------------------------|------------------------------|------------------------------------------|---|---|---|---|---|---|---|---|---|
| 46 | Ngai & Ngu          | 2015 | Survey                 | Hong Kong women(n=200)       | PND symptoms assessed.                   |   |   | √ |   |   |   |   |   |   |
| 47 | Nongrum et al.      | 2014 | Survey.                | Indian women, (n=150)        | EPDS identified PND                      | √ |   |   |   |   | √ | √ |   |   |
| 48 | Northrup et al.     | 2013 | Interview & survey     | US women (n=114)             | 20% depressed                            |   |   |   | √ |   |   |   |   |   |
| 49 | Nunes & Phipps      | 2013 | Survey                 | USA Women (n=6959)           | Pregnancy Risk Assessment System         |   |   | √ |   |   |   |   |   |   |
| 50 | Nylen               | 2013 | Survey                 | Women (n=235)                | Series of instruments                    |   |   | √ |   |   |   |   | √ | √ |
| 51 | O'Hara & Wisner     | 2014 | Definition & aetiology | Review                       | 20% depressed                            | √ |   | √ |   |   |   |   | √ |   |
| 52 | Ozbaşaran et al.    | 2011 | Survey                 | Turkish women (n=293)        | EPDS found PPD in 28.3%.                 |   |   | √ |   |   |   |   | √ | √ |
| 53 | Owoeye et al.       | 2006 | Survey                 | Nigerian women (n=252)       | EPDS found 23% depressed                 | √ |   |   | √ |   |   |   |   | √ |
| 54 | Poçan et al.        | 2013 | Survey.                | Women (n=187)                | EPDS identified PND                      | √ |   | √ |   | √ |   |   |   | √ |
| 55 | Pollock et al.      | 2009 | Survey                 | Mongolian women (n=1044)     | WHO questionnaire screened PND           | √ |   |   | √ |   | √ |   |   |   |
| 56 | Pooler et al.       | 2013 | Survey                 | US women (n=75,234)          | PHQ-2 identified PND                     | √ |   | √ | √ | √ | √ |   |   | √ |
| 57 | Räsänen et al.      | 2014 | Survey                 | Finnish women (n=511,938)    | 0.8% depressed                           |   | √ |   |   |   |   |   |   |   |
| 58 | Ramchandani et al.  | 2009 | Survey/interview       | South African women (n=1035) | Pitt questionnaire identified depression | √ |   |   |   |   |   |   |   |   |
| 59 | Rich-Edwards et al. | 2006 | Survey                 | US women (n=1662)            | EPDS found 8% had PND                    |   | √ |   | √ |   |   |   |   | √ |
| 60 | Séjourné et al.     | 2012 | Survey                 | Couples (n=119)              | EPDS identified PND                      |   | √ |   |   |   |   |   |   |   |
| 61 | Silva et al.        | 2012 | Interview & survey     | Brazilian women (n=1,109)    | EPDS found 16.5% had PND                 |   | √ |   | √ |   |   |   |   |   |

|    |                  |      |           |                       |                                                     |   |   |   |  |  |  |  |   |  |
|----|------------------|------|-----------|-----------------------|-----------------------------------------------------|---|---|---|--|--|--|--|---|--|
| 62 | Siu, et al.      | 2012 | Interview | Chinese women (n=805) | Interview for DSM-IV Axis I Disorders diagnosed PND | √ |   | √ |  |  |  |  | √ |  |
| 63 | Smith & Howard   | 2008 | Survey    | Women (n=582)         | 8% @ 6 months<br>5% @ 12 months<br>8% @ 24 months   |   | √ | √ |  |  |  |  |   |  |
| 64 | Yağmur & Ulukoca | 2010 | Survey    | Turkish women         | EPDS identified PND                                 |   |   | √ |  |  |  |  |   |  |
| 65 | Xie et al.       | 2009 | Survey    | Chinese women (n=534) | (n=103) developed PND                               | √ |   | √ |  |  |  |  |   |  |
| 66 | Yehia et al.     | 2013 | Survey    | Arabic women (n=300)  | EPDS identified PND                                 |   |   | √ |  |  |  |  |   |  |

**Table 3. Self-Image as Mother Scale (SIMS)**

|                                                                            |    |   |    |   |    |
|----------------------------------------------------------------------------|----|---|----|---|----|
| Q1. I have a good relationship with my husband/partner                     | SA | A | NA | D | SD |
| Q2. I have a supportive husband/partner                                    | SA | A | NA | D | SD |
| Q3. I have enough money to buy all the possessions I want my baby to have  | SA | A | NA | D | SD |
| Q4. My family/friends help me around the house                             | SA | A | NA | D | SD |
| Q5. I am really happy with the sex of my baby                              | SA | A | NA | D | SD |
| Q6. In general I cope well with life and the problems it throws at me      | SA | A | NA | D | SD |
| Q7. I have little backup from my relatives/friends*                        | SA | A | NA | D | SD |
| Q8. I am unable to provide my baby with the home and belongings I want*    | SA | A | NA | D | SD |
| Q9. I constantly worry about my baby's health and well-being*              | SA | A | NA | D | SD |
| Q10. I was surprised to find myself pregnant*                              | SA | A | NA | D | SD |
| Q11. My baby is healthy, happy and thriving                                | SA | A | NA | D | SD |
| Q12. My physical health affects my ability to be a good mother*            | SA | A | NA | D | SD |
| Q13. I am dissatisfied in my current relationship with my husband/partner* | SA | A | NA | D | SD |
| Q14. I am fit and able to fully care for my baby                           | SA | A | NA | D | SD |
| Q15. My husband/partner does not help with the household tasks*            | SA | A | NA | D | SD |
| Q16. I would have preferred that my baby was of the opposite sex*          | SA | A | NA | D | SD |
| Q17. I have a history of experiencing mental health problems*              | SA | A | NA | D | SD |
| Q18. We planned our pregnancy                                              | SA | A | NA | D | SD |

Note: SA = Strongly Agree; A=Agree; NA=Neither Agree or Disagree; D=Disagree; SD=Strongly Disagree. Each item is scored from 4 (SA) through to 0 (SD) with the exception of those items with an asterisk which are reverse-scored.