

Running title: The Pregnancy-Related Beliefs Questionnaire

Development and piloting of the Pregnancy-Related Beliefs Questionnaire (PRBQ)

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Abstract

Background. Psychological measures have little sensitivity in the prediction of postnatal depression. We report the development of a questionnaire of beliefs about pregnancy and motherhood.

Methods. Information from a literature review, staff working with women with postnatal depression and interviews with recently ill patients was used to develop a questionnaire called the PRBQ.

Results. The PRBQ was piloted on 42 pregnant women and achieved a Cronbach alpha of 0.85. Scores significantly correlated with scores on the Dysfunctional Attitude Scale (DAS), Beck Depression Inventory (BDI) and the Cognitive Adaptation to Stressful Events questionnaire (CASE), measuring adaptation to pregnancy. BDI scores also correlated with scores on the DAS and CASE, but the latter two did not correlate. The PRBQ and then CASE differentiated between those with ($n=5$) and those without at least moderate depression. The DAS scores did not.

Conclusions. The PRBQ has been validated against established psychological measures. It may be a helpful tool contributing to the identification of women specifically at risk of postnatal depression. Further basic research is required.

Key Words: Postnatal Depression; cognitive therapy; cognitive-behaviour therapy; questionnaire

Introduction

Depression following childbirth accounts for a substantial proportion of the established increased lifetime prevalence of depression in women. Actuarial prediction, for example using a past psychiatric history or lower occupational status (Bernazzani, Saucier, David, & Borgeat, 1997); unplanned pregnancy, not breast feeding or unemployment in the family (Warner, Appleby, Whitton, & Faragher, 1996), may be useful in screening but does not in itself lead to greater understanding of individual vulnerability.

Many aetiological theories of postnatal depression (PND) focus on the role of hormonal shifts and the subsequent changes in neurotransmission. If hormonal shifts are aetiological, this appears to be in combination (O'Hara, Schlechte, Lewis, & Varner, 1991; Steiner, 1998) with other factors such as peri-partum stressful events, social isolation (Brugha, Sharp, Cooper, Weisender, Britto *et al.*, 1998) or personal, particularly cognitive, vulnerabilities such as low self-esteem or lack of optimism (Fontaine & Jones, 1997). Research into cognitive vulnerability to PND is limited. O'Hara, Rehm, & Campbell (1982) found that the Dysfunctional Attitude Scale (DAS; Weissman and Beck, 1978) scores assessed in the second trimester of pregnancy accounted for only four per cent of the variance in postnatal depressed mood as measured using the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). Beliefs which might confer vulnerability to depression are only accessible when an individual is in a

depressed mood state (Teasdale, 1996). This may explain such poor predictive power.

During pregnancy there is evidence that many women experience anxious and/or depressed mood states and that these mood states are the most robust phenomenological antenatal predictors of PND (O'Hara, Neunaber, & Zekoski, 1984; Bridge, Little, Hayworth, Dewhurst, & Priest, 1985; Gotlib, Whiffen, Wallace & Mount, 1991; Saks, Frank, Lowe, Berman, Naftolin, *et al.*, 1985). Affonso and Sheptak (1989) also suggest that the cognitive style of pregnancy is characteristically one where a woman is "more aware of ... who and what kind of person she really is". This cognitive style plus any ante-natal mood shift may increase the accessibility of dysfunctional cognitions related to pregnancy. Consequently, it may be its lack of relevance to pregnancy that impairs prediction of PND with the DAS.

There is little research on the content of automatic thoughts in pregnancy. Anecdotally, pregnant women and women with PND often report beliefs that they are inferior as mothers, but the only published study was undertaken by Affonso and Sheptak (1989). They explored cognitive processes (search for meaning, sense of mastery and self enhancement) and developed the Cognitive Adaptation to Stressful Events (CASE) questionnaire (Affonso, Mayberry, Lovett, & Paul, 1994). Women were asked to rate the frequency of specific thoughts (e.g. "I see myself as a less adequate person in my daily functioning than before") repeatedly throughout their pregnancy to monitor the process of adapting to the pregnancy in this study.

We wished to develop of a questionnaire to identify underlying beliefs, particularly relating to gender role, which may predispose some women to PND and which might be detected in the antenatal period. This process and data from a pilot study of this questionnaire are reported. The “PRBQ” questionnaire is compared with two measures that are often used in depression research - the BDI and the DAS - and also with the CASE questionnaire.

Development of the Questionnaire

Sources of Information

A MEDLINE search from 1966-1997 was performed using “depression” and “postpartum” or “postnatal” as key words. Prospective studies that examined predictors of PND were reviewed, as well as papers on qualitative aspects of the disorder and studies of PND questionnaires.

A further source of qualitative data was a book of interviews with women who had experienced PND (Aiken, 2001). In addition, two women who had a recent history of PND were also interviewed to identify key cognitive themes associated with the onset and the worst point of their depression.

The themes elicited from these different sources were listed and presented in questionnaire form to professionals working with women with PND. These were sent to three mother and baby units in the U.K. – the clinical team leader agreed to distribute these among the team and there is no record of the number of individuals thus

approached. They were asked to confirm whether women with PND spoke of these or other key themes and to provide examples of statements related to these themes that were made by women with PND.

The relationship between content of antenatal and postnatal depression themes

The antenatal themes identified in the development of the CASE included ambivalence about pregnancy; the maternal role; perceptions of changing body image; expectations about the behaviours of a new-born baby and re-appraisals of other relationships. (Affonso and Sheptak, 1989). Similar cognitive themes are apparent in PND; for example, changes in body proportions are associated with a lowering of self-esteem (Gjerdingen & Chaloner, 1994; Tentoni & High, 1980). Related to the antenatal theme of maternal role is the preoccupation of women with PND of living up to or doing better than the standards of care in their own childhood (Adcock, 1993). This may be associated with high expectations of ability to cope (Warner *et al.*, 1997) and that this would come naturally (Aiken, 2001).

The antenatal theme of a reappraisal of current relationships is reflected in concern about relationship insecurity identified in PND (Affonso, *et al.*, 1994) and associated with trying to please others (Aiken, 2001). Finally, women with PND demonstrate expectations of fulfilment or enjoyment of motherhood which are unattainable (Adcock, 1993) and this bears some relationship with antenatal expectations of the newborn's behaviour. Additional cognitive themes identified from the book of interviews were loss of independence and intolerance of dysphoria (Aiken, 2001).

Interviews

Using an approach similar to that of eliciting automatic thoughts both women identified themes related to being a bad mother or judged so by others at both the onset and the worst point of the depression. The first woman reported thoughts such as, “I’m not doing it right” when breast feeding which to her meant that she was “no good as a mother.” The other woman’s worst moment was when she asked her mother for help with childcare as she thought her mother would adversely judge her.

Survey of those working in PND

Twenty-eight responses were received. The response to this questionnaire ranged from ticking appropriate themes to extensive reports of work undertaken with women who had PND. Important confirmation was obtained of how women criticised their own performance as mothers and of their need to keep employers, friends and family happy while attending to their babies’ needs and neglecting their own.

Deriving the questionnaire

The content of the identified items was reviewed. Some were clear statements of belief, but others required further consideration, in relation to information from the survey, book of interviews and responses from professionals, to ascertain the underlying meaning. The list of 54 beliefs was divided into ten cognitive domains, plus an unclassified group of four items. Such allocation was determined by the content and influenced by domains in Young’s Schema Questionnaire (Young, 1999) and the Dysfunctional Attitude Scale

(Weissman and Beck, 1978). The domains were:

1. Adequacy, e.g. "I should not have to ask for help with my baby."
2. Perfectionism, e.g. "I should appreciate every single moment of the early part of my baby's life."
3. Approval, e.g. "If I do not keep up my appearance people will reject me."
4. Expectation of being problem-free, e.g. "Motherhood is an instinctive and natural state for a woman."
5. Responsibility, e.g. "If my baby was unhappy it would be because of something I had not done."
6. Achievement, e.g. "If people only see me as a mother I would be diminished as a person."
7. Independence, e.g. "I have to be able to plan my day."
8. Emotional control, e.g. "If I don't feel maternal it means I am bad."
9. Physical control, e.g. "I should be able to bring on milk if I want to."
10. Entitlement, e.g. "It is selfish to get upset in front of my family."

Pilot Study Method

One hundred and fifty women attending an antenatal clinic at an inner city general practice were approached to take part in the pilot study. They were asked to complete the Pregnancy Related Empathic Themes questionnaire (PRBQ), the BDI, the DAS and CASE. The PRBQ comprises 54 items rated on a 1 - 7 scale from "totally agree" to "totally disagree." Scores range from 54 - 378 and higher scores indicate higher levels of dysfunctional belief. The BDI is a 21-item self-report measure of depressed mood, where

each item is scored from zero (absent) to three (most severe). Total scores range from 0 - 63. The DAS is a 40-item self-report measure of underlying beliefs. Each item is rated on a 7-point scale from “totally agree” to “totally disagree.” Scores range from 40 - 280 with higher scores indicating higher levels of dysfunctional beliefs.

The CASE is a 37-item self-report measure of adaptation to pregnancy. Subjects are asked to rate the frequency of specific thoughts over the preceding 2 weeks on a 0 to 10 scale. Total scores range from 0 - 370, where higher scores indicate greater distress. The CASE questionnaire demonstrates good internal reliability (minimum Cronbach alpha=0.94); contains only one factor by a principle components analysis (confirmed by the current pilot study); scores are significantly correlated with psychological distress measured by the Global Severity Index of the Symptom Checklist-90-Revised version (Derogatis, 1983) and tend to decrease through pregnancy as adjustment is accomplished (Affonso *et al.*, 1994).

Statistical Analysis

It was hypothesised that the PRBQ would correlate with all measures and would be elevated among those with greater depressive symptomatology, if issues concerning pregnancy and motherhood were active. The associations between ratings on the different questionnaires were explored using Pearson’s Product Moment Correlation. The difference between subgroups (depressed and non-depressed) was examined using a t-test, following a Kolmogorov-Smirnov test of distribution normality.

Results

Sample

Forty-two women (28%) returned a set of questionnaires. Sample size for analysis using the CASE is 40 subjects as two did not complete any items on this tool. Their mean age was 28.4 years (sd = 5.5). The women were between 6 and 40 weeks gestation (mean 26.9; sd = 9.1 weeks). Twenty-five were nulliparous. Thirteen subjects had a previous history of depression of whom three had a history of PND.

Distribution of scores on the measures

None of the measures' total scores significantly deviated from a normal distribution. Scores on the BDI ranged from 2 - 34 (mean 11.4, sd = 7.7) and this represents a distribution from normal to severe depression. Scores on the DAS ranged from 67 - 163 (mean 112.1, sd = 23.5), representing a range of scores which are equivalent to that seen among normal controls and that seen among depressives. Scores on the CASE were higher than the norms reported by Affonso and colleagues (1994) and ranged from 3 - 296 (mean 134.1, sd = 82.1). Scores on the PRBQ were normally distributed and ranged from 128 - 245 (mean 191.5, sd = 29.6).

Validation data

The PRBQ demonstrated adequate internal reliability, achieving a Cronbach alpha of 0.85. Construct validity was supported by correlation with established measures. Scores on the PRBQ were significantly correlated with scores on the DAS ($r=0.66$, $p<0.001$), BDI ($r=0.43$, $p<0.01$) and CASE ($r=0.40$, $p=0.01$). The BDI scores also significantly

correlated with all measures: CASE ($r=0.58$, $p<0.001$), DAS ($r=0.38$, $p=0.01$). The CASE and DAS scores did not correlate with each other ($r=0.24$, $p=0.13$). These results are tabulated in table 1.

Table 1 about here

Criterion validity was assessed. Five women met the BDI criterion for at least moderate depression (BDI score of 19 or more; Beck, Steer & Garbin, 1988). They had a significantly higher mean scores than the 37 who did not meet this criterion on the PRBQ (219.1 vs. 187.8; $t=2.23$, $p=0.02$) and CASE (223.6 vs 121.3; $t=2.83$, $p<0.01$). On the other hand, the difference in DAS scores between these groups did not reach statistical significance (131.0 vs. 109.5; $t=1.98$, $p=0.06$).

Discussion

We report the development of a new questionnaire concerning beliefs about motherhood. The questionnaire items were identified from a literature review, correspondence with professionals working the area of PND and interviews with women who had recovered from PND.

The identification of the cognitive themes was thorough, but limitations were the paucity of research providing information on the content of automatic thoughts in PND and the small number of face to face interviews with women who had a recent history of PND. However, all available sources of information confirmed that the beliefs detailed in the questionnaire accurately reflected the adjustment issues facing pregnant women.

Given the size of the sample, the pilot study findings must be treated with caution. Whilst a response rate of nearly one third is typical of questionnaire studies, the return rate in this project may reflect a reluctance to answer the sheer number of items posed in the four questionnaires. Another explanation may be that many potential respondents were nulliparous or at a very early stage of pregnancy and consequently found low face validity in a questionnaire that invited them to consider a situation that they had not previously encountered or that would occur several months in the future. There was no formal assessment of item ambiguity or understandability among the sample and such defects may have contributed to the low response rate.

The subjects were not reliably screened for current or past psychiatric disorders. The presence of current or past depression might have identified a group of individuals who scored higher than others. Despite these issues, the results of this project are of interest.

Scores on the PRBQ questionnaire were significantly correlated with scores on the most established measure of dysfunctional beliefs, the DAS, the established measure of depression, the BDI and the pregnancy-specific adjustment tool, the CASE. These results imply that with increasing depression, the beliefs measured by the PRBQ become more dysfunctional. Its correlation with the other published measure exploring the content of cognitive processes in pregnancy is reassuring. It was able to differentiate between those with moderate depression and those without. The advantage of the PRBQ over the CASE is that it identifies underlying beliefs, whilst its advantage over the DAS is that the PRBQ has greater salience in pregnancy and childbirth. Furthermore, the DAS and CASE scores were not correlated. Research has suggested that a sub-group of women who develop PND do not have depression at other times (Cooper and Murray, 1995). The PRBQ may offer a way of identifying these different subgroups.

Obviously further basic research is required. It is likely that the questionnaire could be refined with a larger sample, and a subsequent factor analysis and exclusion of redundant items. However, if the early promise of this questionnaire is confirmed it might be employed in antenatal work. Two processing factors identified in the third trimester have been shown to predict depression at 2 months postpartum (Hipwell & Reynolds, 2001). These are a low specificity of Autobiographical Memory and a tendency to self-devaluation. The beliefs identified in this questionnaire may represent the structural component of these findings. If women with dysfunctional beliefs which increase their vulnerability to PND can be identified, it may be possible to target preventative interventions towards this group during pregnancy or in the early postnatal period. From the research perspective the PRBQ provides a psychological tool which might be useful in biological, psychological or social investigations into the aetiology or management of PND. Clinically, this tool may be helpful in identifying beliefs which may be helpful to target for intervention and its mood-sensitivity suggests it may be used as a measuring tool to monitor progress.

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	BDI	DAS	CASE
PRBQ	0.43*	0.66*	0.40*
BDI		0.38*	0.58*
DAS			0.24

* $p \leq 0.01$

Table 1

Pearson product moment correlation of scores on the BDI, DAS, CASE and PRBQ questionnaires (see text for details).