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Research Article

Pre and Postnatal Anxiety in Women Delivering in a Private Obstetric Hospital

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Abstract

Purpose: High levels of antenatal anxiety may be an important predictor of postnatal anxiety and mood disorders, while co-morbidity of depression and anxiety disorders is common and this has also been shown to occur antenatally. Comorbidities, if depression and anxiety appear they are less prevalent postpartum than prenatal. However, few studies have followed the trajectory of anxiety symptoms perinatally to parenthood, later infancy and childhood.

Methods: This paper is part of a wider research project that implemented psychosocial assessment, including depression screening in one private hospital in New South Wales, Australia. It explores and analyses the anxiety subset questions 3A from the Edinburgh Perinatal Depression Scale.

Results: Two hundred and fifty-five women were screened antenatally and 209 postnatally. Forty-six women were lost to follow-up for various reasons, e.g. refusal or uncontactable. Fifteen percent of women scored 5 (38) or above on the anxiety subset questions at their antenatal booking-in visit, with a mean score of 2.4275. Twenty-four women (12.7%) scored 5 or higher on the anxiety subset questions postnatally, suggesting a higher rate of anxiety symptoms antenatally

Conclusions: There was a higher rate of anxiety symptoms antenatally, suggesting that anxiety requires assessment antenatally.

Keywords: Anxiety; Screening; Assessment; Perinatal women; Private hospital

1. Introduction

Anxiety appears to be more prevalent antenatally than postnatally [1]. This study is part of a larger study implementing psychosocial screening and assessment in one private hospital in NSW, Australia. The anxiety subset is questions 3,4,5 on the EPDS scale. A maximum score of 9 can be achieved. Five or more is considered concerning and potentially indicative of a dysfunctional level of anxiety [2-3]. Some researchers also suggest that a scale specific to anxiety in pregnancy or some other anxiety-specific tool should be administered to women perinatally, in addition to the EPDS [4-8]. High levels of anxiety have been shown to be associated with adverse obstetric, foetal and neonatal outcomes [9-12]. There is an association between antenatal depressive and/or anxiety disorders and increased health care use (including caesarean deliveries) during pregnancy and delivery [11]. Depression and anxiety have been reported to be more common in pregnancy than postnatally [1]. Therefore, it is useful to assess women for anxiety both prenatally and postnatally. Although depression and anxiety are often linked, treatment is often different [13].

Postpartum depression is typically characterized by feelings of sadness, irritability, tearfulness, appetite changes, and sleep disturbance. But what we now know is that many women with what we typically call "postpartum depression" also have significant anxiety symptoms. This most commonly takes the form of generalized anxiety or persistent and excessive worries, feelings of tension, and inability to relax. Often these worries are focused on the baby, their health and safety [14]. If perinatal mental health problems are diagnosed the symptoms may constitute predicament, illness or disease [15]. It is a disorder when the anxiety is exaggerated or renders the person dysfunctional. There is a spectrum and it is suggested that anxiety should be expected to be somewhat raised in pregnancy (hence the higher suggested cut-off) especially in the last trimester [3, 16]. Anxiety or agitation is often a prominent feature of perinatal depression. For a diagnosis of generalised anxiety disorder, symptoms must be present for six months; this can be problematic in pregnancy as women are often only screened once. About one third of perinatal women with depression have been found to also have anxiety, while a further 10% of women have anxiety alone [17, 18].

There is strong evidence to suggest that both anxiety and depression should be assessed perinatally [19, 20]. Anxiety disorders are common, can have an early onset, and are highly comorbid [21]. A previous history of anxiety disorder in women is a greater risk factor for a postnatal mood disorder than a history of depressive disorder [19]. When anxiety and depressive disorders co-exist, the prognosis is worse. Not all anxious women are also depressed [19]. Prevention, early detection, and treatment of anxiety disorders should therefore be a priority [22]. Women with perinatal depression and anxiety disorders require timely and efficient management with a goal of providing symptom relief for the suffering mother while simultaneously ensuring the baby's safety [23].

Some researchers have suggested the use of the EPDS to screen for anxiety using the EDS-3A subset questions (3, 4, 5) [3, 17, 24, 25, 26]. Some authors recommend that the anxiety subscale should be scored separately from the total EPDS [27, 28]. However, clinicians need to be cautious before interpreting high scores on the EDS-3A, as it is not

diagnostic, although some authors suggest that a high score is indicative of anxiety. The validity of these items for screening for anxiety has not been established [29]. It is important for the accompanying consultation to explore the woman's situation sufficiently to explain the responses to the EPDS questions and provide the appropriate intervention. Pregnancy-related anxiety may be quite normal, transient and circumstantial. Once anxiety is identified, various treatments have been shown to be effective [25, 26]. Within the current research, the researcher did explore an anxiety subset of the EPDS, i.e. questions 3, 4, 5, where a total score of 5 or higher may indicate current problematic anxiety levels or potential risk. This was to ascertain the rate of anxiety and any association between anxiety and other risk factors. The median total anxiety subset scores prenatally were 2.4275 and 2.000 in the anxiety subset women and the range was 0-9. Postnatally the mean was 2.2830 for the anxiety subset women. The difference was significant. Thirty- eight women scored 5 or more prenatally (14.9%) and 24 postnatally (12.7%) Therefore, anxiety was more prevalent antenatally than at follow-up, suggesting that the subscale might be reflecting specific pregnancy-related anxiety.

Various anxiety-specific tools could be used in practice; the Matthey generic mood questions (MGMQ) that explore unhappiness, anxiety, an inability to cope and stress. The GAD-7, DASS 21, HADS-A, BDI, PRAQ-R, PDSS, BAI measures are other possible tools [29]. However, these tools seem to measure different aspects of anxiety. Furthermore, no anxiety screening is recommended currently and screening tools for perinatal anxiety require further investigation [30]. There may be perinatal specific problems which are not covered by standard psychiatric tools or classifications. Pregnancy-specific anxiety scales have been shown to be a more reliable predictor of poor birth and developmental outcomes than general stress scales [29]. There is a current debate about not using the EPDS or raising the score from 10 to 13 for a referral [26, 31, 32]. This is currently happening in the public sector to reduce the level of referrals to secondary services. However, the EPDS is widely accepted, valid, reliable and used in clinical practice. For practical purposes, there may not be time to also administer an anxiety specific screening tool in addition to the EPDS. The Perinatal Anxiety Screening Scale (PASS) is designed to screen for a broad range of problematic anxiety symptoms and is sensitive to how anxiety presents in perinatal women [8].

There is also a suggestion by some researchers that a single EPDS score may only capture transient stress. Enduring stress is ongoing and can be captured by repeating the EPDS [18]. Transient reasons may be due to family or other strains, pregnancy symptoms, anxiety about the antenatal appointment, or pre-natal testing. Approximately fifty percent of women have indicated transient distress on the EPDS. Therefore, there is merit in administering the EPDS more than once both ante- and postnatally. It is also important to consider the contributing factors to anxiety and depression and to explore these with the women. Women may only be anxious about pregnancy concerns and not have a diagnosis of anxiety disorder. On the other hand, the anxiety (and/or depression) may be a continuation or recurrence of a previous problem. Trait and state anxiety need to be distinguished here. These concerns may be relieved with counselling and other techniques proven to be efficacious in women who are not pregnant, but the context needs to be clearly acknowledged in the treatment process. If anxiety is related to a previous reproductive problem, i.e. with miscarriage or other loss, or a traumatic birth, this needs to be addressed in the support and planning offered.

2. Participants and Methods

This study is part of a larger study implementing psychosocial screening in one private hospital in NSW, Australia. Women were screened for anxiety and depression antenatally (n=255) and six weeks postpartum (n=215) using a mixed methodology. This study focuses on anxiety symptoms and any association with other psychosocial risk factors. The women were asked a series of demographic and psychosocial assessment questions, completed a pre and postnatal EPDS, and were interviewed postnatally. Their antenatal and postnatal scores were compared, and these were also compared to demographic audit data. This study focuses on the anxiety subset questions on the pre and postnatal EPDS and their association with identified psychosocial risk factors.

3. Results

Two hundred and fifty-five women were screened antenatally and 209 postnatally. Forty-six women were lost to follow-up for various reasons, e.g. refusal or uncontactable. Fifteen percent of women scored 5 (38) or above on the anxiety subset questions at their antenatal booking-in visit, with a mean score of 2.4275. Twenty four women (12.7%) scored 5 or higher on the anxiety subset questions postnatally, suggesting a higher rate of anxiety symptoms antenatally (Pre (Porc.A)=16.04% and post (Porc B=12.7%). Nevertheless, overall EPDS scores were higher postnatally (mean=4.44) than prenatally (mean=4.14). Three women (1.2%) scored positively on EPDS Q10 (self-harm) antenatally. Five women (2.4%) scored positively on Q10 on their postnatal EPDS. There was a large and significant association between education (1.878) and anxiety, but only a medium association between self-reported worry and anxiety (0.219). There was a small but significant association between anxiety and: a history of depression/anxiety (0.13), planned pregnancy (0.125). There were more planned pregnancies (220) 86.3% overall than unplanned (13.7%) more previous birth complications (0.116), more stressful events in the last year (0.109), and self-rated confidence (0.144). Results of study data analysis indicated a medium effect size in EPDS 2 categories and anxiety subset (0.39), and a small effect with history depression/anxiety (0.132), a stressful event in the last year (0.146), worry (0.175) and depression and anxiety association with EPDS score (0.133). All these results are illustrated in Table 1-9.

Variable	**Anxiety subset data N=255**	**Effect size; Small= 0.10; Medium= 0.30; Large= 0.50**
Age (years)		
Mean SD Min Max	31.40 4.50 20.00 43.00	-
Number of children		
0 1 2 3	178 (69.8) 59 (23.1) 13 (5.1) 5 (2.0)	-

Maternal history of depression_anxiety_other than in pregnancy		
Yes No	60 (23.5) 195 (76.5)	-0.095 small
Maternal hxt depression_anxiety previous pregnancy		
Yes No	37 (14.5) 218 (85.5)	-0.130 small
Marital status and anxiety subset	-	-0.058 nil
Education and anxiety subset	-	-1.878 large
Planned pregnancy and anxiety subset	-	-0.125 small
Pregnancy complications and anxiety subset	-	-0.125 small
Previous birth complications and anxiety subset	-	-0.116 small
DV and anxiety subset Partner hit you	-	-0.106 small
DV and anxiety subset Partner hit you in pregnancy	-	-0.019 nil
Stressful event in last year and anxiety subset	-	-0.109 small
Worry and anxiety subset	-	-0.219 medium
Confident and anxiety subset	-	-0.144 small
Death in the last year and anxiety subset	-	-0.011 nil
Family had hxt anxiety/depression and anxiety subset	-	-0.015 nil
EPDS 2 categories and anxiety subset	-	-0.39 nil
Mother and father alive and anxiety subset	-	-0.0145 nil
Support from your mother and anxiety subset	-	-0.045 nil
Talk to partner about feelings and anxiety subset	-	-0.076 nil
Talk to your mother about feelings and anxiety subset	-	-0.061 nil
First pregnancy and anxiety subset	-	-0.043 nil
Hit your partner and anxiety subset	-	-0.075 nil

Table 1: Anxiety subset.

Results indicate an association between the anxiety subset questions (ANXIETY Q'S TOTAL 3, 4, 5/9 a score of 5 or higher on the anxiety subset questions=high risk of or actual anxiety) and risk factors. There was some significance in the findings that subsequently associated anxiety with risk factors. There was a large association between education and reported anxiety (1.878) and a medium association between worry and anxiety (0.219). Several women (10.7%) scored 5 or higher on the anxiety subset questions postnatally. This indicates a higher rate

of anxiety symptoms antenatally, compared to postnatally. There was a large significance (-1.878) between education and anxiety, but only a medium significance-0.219) between worry and anxiety.

Variable	**%**	**Median**	**Range**
PRE EPDS OF CONCERN n=18/255	7	1.000	2
POST EPDS OF CONCERN n =17/213	8	1.000	3
PRE ANXIETY SUBSET n=37/255	14	2.000	9
POST ANXIETY SUBSET N=27/213	13	2.5	Missing

Table 2: EPDS and anxiety subset scores.

Variable	**Median**	**Ranges**	**SD**	**Frequency(%)**	**Test**
DEPRESSION_ANXIETY	0.000	1.0	0.50671	18 (48.6%)	-
EPDS_CATEGORISED_PRE	1.000	2.00	0.73009	1=22 (59.5%) 2=10 (27%) 3=5 (5%)	Mann-Whitney U 57.500 2 tailed=0.016
EPDS_CATEGORISED_POST	1.000	998.00	434.01144		Mann-Whitney u 19.000 2 tailed=0.143
ANXIETY_OR_DEPRESSION_OTHER_TIME	0.0000	1.00	0.49774	15 (40.5%)	-
ANXIETY_OR_DEPRESSION_PREVIOUS_PREGNANCY	0.0000	1.00	0.46337	11 (29.7%)	-
COMPLICATIONS_IN_THIS_PREGNANCY_YES_0 NO	1.0000	1.00	0.50523	20 (54.1%)	-
A DEATH IN_THE_LAST_YEAR_1YES_0 NO	0.0000	1.00	0.27672	3 (8.1%)	-
EPDS_ANXIETY_Q_ SUBSET_pre	6.0000	4.00	1.00375	5=18 (48.6%) 6=13 (35.1%) 7=3 (8.1%) 8=2 (5.4%) 9=1 (2.7%)	-
EDS_Q10_PRE	0.0000	1.00	0.16440	1 (2.7%)	Kruskill wallace Chi=0.941
STRESSFUL_IN_THE_LAST_YEAR_1YES_0NO	1.0000	1.00	0.50225	21 (56.8%)	
WORRY_MORE_THAN_MOST_P	0.0000	1.00	0.50671	18 (48.6%)	

EOPLE_1YES_0NO					
EDS_2categories	1.000	1.00	0.49774	1=22 (59.5%) 2=15 (40.5%)	Mann whitney u 64.500 2 tailed=0.001
EPDS total pre			2.72460	5=1 (2.7%) 6=2 (5.4%) 7=6 (16.2%) 8=7 (18.9%) 9=6 (16.2%) 10=3 (8.1%) 11=4 (10.8%) 12=3 (8.1%) 13=3 (8.1%) 15=1 (2.7%) 18=1 (2.7%)	PEARSON CORRELATION= 1.00 2 TAILED=0.000

Table 3: Pre anxiety subset analysis (n=37).

In Table 4, 27 women scored more than 5 on their postpartum follow-up anxiety subset score. Approximately one third had anxiety or depression with a previous pregnancy (29.7%) and nearly half had current anxiety or depression (48.6%).

Variable	**Median**	**Ranges**	**SD**	**Frequency**	**Test**
DEPRESSION_ANXIETY	0.0000	1.00	0.50071	18=(48.6%)	-
EPDS total post	4.0000	999.0	360.33834	-	Pearsons=0.174 2 tailed=0.384 Speaman.231
EPDS categorized post	1.0000	998.0	361.28996	23 (85.2%) 4 missing	-
EPDS 2 categories	1.0000	1.00	0.19245	1=22 (59.5%) 2=15 (40.5%)	Mann whitney u=8.0000 2 tailed=0.457
ANXIETY_OR_DEPRESSION_OTHER_TIME	0.0000	1.00	0.49210	15 (40.5%)	-
ANXIETY_OR_DEPRESSION_PREVIOUS_PREGNANCY	0.0000	1.00	0.32026	11 (29.7%)	-
COMPLICATIONS_IN_THIS_PREGNANCY_YES_0 NO	0.0000	1.00	0.50637	20 (54.1%)	-

A DEATH_IN_THE_LAST_YEAR_1YES_0NO	0.0000	1.00	0.36201	3 (8.1%)	-
EPDS_ANXIETY_Q_SUBSET_post	5.0000	3.00	1.15470	5=17 (63%) 6=3 (11.1%) 7=3 (11.1%) 8=4 (14.8%)	-
EPDS Q10 post	0.0000	1.00	0.32026	3 (11.1%)	-
Stressful in the last year	0.0000	1.00	0.50071	21 (56.8%)	-
Worry more than most people	0.0000	1.00	0.48038	18 (48.6%)	-

Table 4: Postpartum anxiety subset analysis (n=27).

Value	**n**
Valid	37
Missing	0
Mean	5.7838
Median	6.0000
Mode	5.00
Std.deviation	1.00375
Range	4.00
Minimum	5.00
Maximum	9.00

Table 5: prenatal anxiety subset.

Values	**n**
Valid	27
Missing	0
Mean	5.7778
Median	5.0000
Mode	5.00
Std.deviation	1.15470
Range	3.00
Minimum	5.00
Maximum	8.00

Table 6: postnatal anxiety subset.

The EPDS was further divided into categories;

IF (EPDS le 9) EPDS_categorised=1.

IF (EPDS ge 10) AND (EPDS le 12) EPDS_categorised=2.

IF (EPDS ge 13) AND (EPDS le 19) EPDS_categorised=3.

IF (EPDS ge 20) AND (EPDS le 30) EPDS_categorised=4.

Values	**n**
Valid	255
Missing	0
Mode	2.00
Range	9.00
Minimum	0.00
Maximum	9.00

Table 7: CATEGORY3_EPDS_ANXIETY_Q_SUBSET.

Values	**Category 3EPDS Anxiety questions subset pre**	**EPDS Anxiety questions subset post**
N=valid	255	215
N=missing	0	40
Mean	2.4275	18.2756
Median	2.0000	2.5000
Mode	2.00	0.00[a]
Std.deviation	1.91184	36.04272
Range	9.00	Missing
Minimum	0.00	0.00
Maximum	9.00	Missing

Table 8: CATEGORY3_EPDS_ANXIETY_Q_SUBSET.

Values		**EPDS_TOTAL POST**	**EPDS_TOTAL PRE**	**EPDS_Q10_POST**	**EPDS_ANXIETY_Q_SUBSET_post**
N	Valid	209	255	242	254
	Missing	46	0	13	1
Mean		4.44	4.14	11.8884	18.2756
Median		4.00	3.00	0.0000	2.5000
Mode		3	0	0.00	0.00[a]

Std. Deviation	3.760	3.412	32.21002	36.04272

Table 9: EPDS scores pre and post.

3.1 Anxiety subset scores

The Promoting Action on Research Implementation in Health Services (PARIHS framework) can be used as a model, presenting successful research implementation as a function of the relations among evidence, context, and facilitation [33]. The framework considers these components to have a dynamic, simultaneous relationship. The 3 components; evidence, context, and facilitation, are each positioned on a high to low continuum. The proposition is that for implementation of evidence to be successful, there needs to be clarity about the nature of the evidence being used, the quality of context, and the type of facilitation needed to enable a successful change process [33].

3.1.1 The context: Women booking into the Private Hospital (study site) completed an EPDS questionnaire at their booking-in visit and at approximately 6 weeks post-partum. Anxiety sub-scores were calculated to ascertain if women were anxious pre and post-delivery and if there was a difference in the scores.

3.1.2 The evidence: The scores are research based, representing the patient experience, therefore, are high in evidence, according to the PARIHS (The Promoting Action on Research Implementation in Health Services) model.

3.1.3 Facilitation: The focus on facilitation is "task focused" to ascertain scores, therefore, within the PARIHS framework, facilitation would be classified as low.

4. Discussion

Other studies have found the anxiety subset total to be an average of 5.78 (SD4.69) [6]. The results were lower in this study, and it is difficult to speculate on possible reasons although the numbers are small. Anxiety is prevalent antenatally and postnatally and is often associated with other psychosocial risk factors. In this study anxiety was more prevalent antenatally than postnatally, however, depression was more prevalent postnatally. Women need to be offered support and resources if any psychosocial risk factors are present. Regardless of a woman's chosen place of birth she should equally be offered appropriate and timely resources. Help ranges from ensuring continuity of care and carer, e.g. by the same midwife [27, 34] and/or obstetrician [35], introduction to other expectant mothers in the area [36]; individual, parent-infant or couple counselling [37], through to medication and psychiatric referral [38].

5. Conclusion

Results of this study are aligned with previous studies indicating a higher anxiety rate antentally and a higher depression rate postnatally. Women in this study were noted to be more anxious prenatally than postnatally. Resources, education and support can be offered perinatally to support women experiencing a range of anxiety symptoms. This will potentially improve outcomes for both mother and infant. A positive score on Q10 on the EPDS was more prevalent postnatally than prenatally. If women are screened and assessed prenatally and offered

appropriate support, including, if necessary, referral to relevant services, perinatal outcomes can be improved through early intervention.

Limitations of the Study

Some women were lost to follow-up and the study results were derived from a single private obstetric hospital in NSW, Australia. Although lessons can be learned, further research is required before the results can be generalized.

Ethical Statement

The University of Sydney ethics committee has approved the study as part of the authors PhD.

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