

## Original contribution

# Prevalence and social correlates of postnatal depression in a low income country

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## Summary

**Background:** Postnatal depression is an important public health problem worldwide. Recent evidence suggests that rates may be relatively higher in developing countries. We aimed to explore the prevalence of postnatal depression and its association with social support and other risk factors in a sample of Pakistani women.

**Methods:** Population-based survey of 149 women at 12 weeks postnatal using the Edinburgh Postnatal Depression Scale (EPDS), Multi-dimensional Scale of Perceived Social Support (MSPSS) and Personal Information Questionnaire (PIQ).

**Results:** Thirty six percent women scored  $\geq 12$  on EPDS. High depression score was associated with lower social support, increased stressful life events in the preceding year and higher levels of psychological distress in the antenatal period.

**Conclusions:** There is a high prevalence of postnatal depression in Pakistani women. Early interventions should be developed that target the antenatal period and strengthen social support networks in women at risk.

**Keywords:** Postnatal depression; mental health; social support; Pakistan.

## Introduction

Postnatal depression affects approximately 10–15% of all mothers in Western societies (O'Hara & Swain, 1996). Recent epidemiological studies have reported prevalence rates for postnatal depression in 15.8% Arab women (Ghubash & Abou-Saleh, 1997), 16% Zimbabwean women (Nhiwatiwa et al, 1998), 13.5% Chinese women (Lee et al, 2001), 17% Japanese women (Yoshida et al, 2001), 23% Indian women (Patel et al,

2002), 28% Pakistani women (Rahman et al, 2003) and 34.7% in South African women (Cooper et al, 1999). Thus, prevalence rates in the developing world range from being equal to almost double that of developed countries. Risk factors identified in these studies include previous psychiatric problems, life events in the previous year, poor marital relationship and economic deprivation. Female infant gender was found to be an important determinant of postnatal depression in India (Patel et al, 2002), but not in South Africa (Cooper et al, 1999). These studies found that postnatal depression was associated with high degrees of chronicity, disability and disturbances of mother infant relationship.

The impact of postnatal depression on the mother, child and family is considerable and there has been significant research in developed countries on its risk factors. Meta analyses of these studies have identified past history of psychopathology, psychological disturbance during pregnancy, poor marital relationship, poor social support and stressful life events as the primary risk factors for developing postnatal depression (Beck, 2001; O'Hara & Swain, 1996).

There is a lack of epidemiological evidence from the low income countries for the importance of social support as a protective factor in PND. If there was an association, it might partly account for the high rates of PND rates found in many low-income developing countries where rapid social changes such as urbanization and

dislocation have taken place. Such evidence could also provide the basis to develop interventions that could help young mothers suffering from PND and their children.

We aimed to study a sample of Pakistani women to determine the prevalence of postnatal depression and systematically study its association with different dimensions of social support. Our secondary aim was to investigate the other risk factors for PND.

## Material and methods

### *Study area and subjects*

The study was carried out in Kallar Syedan, one of four Administrative Circles of a sub-district in Rawalpindi, Pakistan. According to the District Census Report of Rawalpindi (1998), the circle consists of 5 Union councils (the smallest rural administrative unit consisting of 5–10 small villages) and has a population of about 75,000. The average household consists of 6.2 members. Most families depend on subsistence farming, supported by earnings of one or more adult male members serving in the armed forces, or working as government employees, semi-skilled, or unskilled labourers in the cities. Unemployment rates are estimated to be 36%, mainly due to high population growth rate (2.7%), modernization in agriculture, and lack of non-agricultural jobs. Male and female literacy rates are 80% and 50% respectively. Infant mortality rates are 84 per 1000 live births.

Preventive care and health education in the sub-district is provided by government-employed Lady Health Workers (LHWs). Each LHW is based in the village she serves and covers about 100 households. LHWs keep a record of all pregnancies and births taking place in the households they cover.

All physically healthy women in their last trimester of pregnancy registered with these local Lady Health Workers (LHWs) were approached to participate in the study over a 4-month period. Out of 175 approached, 163 (93%) agreed to take part in the study. A further 14 (8%) mothers had stillbirths, infant deaths, or infants born with congenital abnormalities and were excluded. Thus, a total of 149 mothers completed assessments at baseline (third pregnancy trimester) and follow-up (3 months postnatal). Informed consent was obtained from all mothers participating in the study. The Research Ethics Committees of the Institute of Psychiatry, Rawalpindi General Hospital and the Pakistan Institute of Learning & Living approved the study.

### *Data ascertainment*

All questionnaires used in the study were translated and culturally adapted into the local language using a standardized protocol (Rahman et al, 2003) that included key-informant interviews with the local population, structured focus group discussions with mothers to obtain better cultural understanding of difficult concepts and translation and back-translation by a panel of experts. The local lady Health Workers (LHWs) were trained to administer these questionnaires.

### *Assessment of mental health*

The women were assessed for levels of mental distress on recruitment (mean 6 weeks before expected date of delivery) by the LHW using the World Health Organization's Self Reporting Questionnaire (SRQ-20) (WHO, 1994). This standardized screening instrument measures psychological and somatic symptoms in the past 30 days. Each of the 20 questions on the scale can be given a 'yes' or 'no' response; a sum of the responses gives a range of 0 to 20. The SRQ-20 was developed specifically for use in primary care by health workers in developing countries, and can be verbally administered to non-literate persons. This instrument has been in use in developing countries for about 20 years (WHO, 1994). It has been validated on the local population, and found to have good psychometric properties (Husain et al, 2000). As in most studies in developing countries (WHO, 1994), we used a cut-off score of 7 or above on the SRQ-20 to indicate clinically significant levels of psychological distress.

All women were reassessed in the postnatal period (mean 12 weeks after delivery) by the same LHW using the Edinburgh postnatal depression scale (EPDS) (Cox & Holden, 1994). This is a 10 item self report questionnaire with four possible responses to each item developed specifically to screen women for postpartum depression. The EPDS is reliable and valid instrument, it has been used in a number of international settings (e.g. in the US, the Netherlands, Iceland, Australia, India and Pakistan) in English and translated versions (Cox & Holden, 1994). As some women could not read, the questionnaire was administered by the LHW to all subjects for consistency. A score of  $\geq 12$ , the most commonly used cut-off, was used to distinguish cases from non-cases.

### *Assessment of social support and other risk factors*

Social support was measured in the postnatal period (mean 12 weeks after delivery) using the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet et al, 1988). This 12-item scale measures the subjective assessment of social support adequacy across three specific sources: family, friends and significant others (Table 3). Each item is scored on a 7-point rating scale ranging from *very strongly disagree* (1) to *very strongly agree* (7). By focusing on the subjective perceived support from three different sources, the MSPSS is a useful instrument in investigating how each source may be directly and differentially related to the mental health of depressed and non-depressed mothers. The scale has been found to be psychometrically sound in non-Western samples (Eker & Arkar, 1995; Eker et al, 2000).

Life events and socio demographic variables (age, education, employment, family structure and social support) were assessed in the postnatal period (mean 12 weeks after delivery) by the same LHWs using a specially designed Personal Information Questionnaire (PIQ). Items relating to life events were ascertained with a list of 14 questions addressing categories based on those included in the Quebec Health Survey, identified by Paykel et al (1971) in studies of illness and depression. Domains covered are shown in Table 2. The assessments were carried out by LHWs who lived in the same community and had intimate knowledge of the families being studied. Thus, they could con-

textually report on the experience of these life events by the mothers.

*Data analysis*

All analyses were carried out with STATA, version 7 (StataCorp, 2001). After a descriptive analysis, univariate analysis (relative risk, Fisher’s two sided exact p) was performed with potential sociodemographic risk factors, individual life events and postnatal depression. Mann-Whitney *U* test and Student’s t-test were used to compare differences between postnatally depressed and non-depressed mothers in life events scores and social support scores respectively. Associations were considered significant at the 5% level.

**Results**

The mean age of the sample was 27 years (sd 4.7; range 17 to 40). The mean number of children was 2.1 (sd 1.6). The average monthly family income was Pakistani Rupees 3000 (US\$ 55). The average number of years spent in formal schooling for the whole sample was 5.1 years (sd 4.1). There was no statistically significant dif-

ference between depressed and non-depressed women on any of these characteristics.

Out of the 149 women assessed in the postnatal period, 53 scored 12 or above (specified as the cut-off point for being a probable case of depression) on the EPDS, giving an estimated prevalence of postnatal depression of 36 percent. Sixty-six percent of the women screening positive in the postnatal period had significant levels of psychological distress in the antenatal period, indicated by scores of  $\geq 7$  on the SRQ-20.

Table 1 shows that there is no significant association between PND and female infant gender, having 4 or more children, being older than 30, having no formal education and having a family income below 2500 Rupees per month.

Table 2 shows the association between stressful life events in 9 selected domains and PND. Only domestic violence shows a statistically significant association. The low number of subjects in some of the strata does not allow meaningful interpretation of some of the effect measures. However, the lower part of Table 2 shows that depressed mothers have significantly higher total num-

Table 1. Sociodemographic risk and protective factors for depression in the postnatal period

Risk or protective factor	Non-depressed N = 96 n (%)	Depressed N = 53 n (%)	Relative risk	95% CI	P-value*
Female infant gender	45 (47)	25 (47)	1.0	0.6–1.6	1.0
Older maternal age (30 or above)	28 (30)	15 (29)	0.9	0.6–1.5	1.0
No formal education	32 (33)	19 (36)	1.1	0.7–1.7	0.8
Having 4 or more children	14 (16)	10 (20)	1.2	0.7–2.0	0.6
Income below Rs. 2500	25 (31)	11 (23)	0.8	0.4–1.3	0.4

\* Fisher two sided exact test.

Table 2. Life events in the previous year as risk factors for postnatal depression

Life events	Non-depressed N = 96 n (%)	Depressed N = 53 n (%)	Relative risk	95% CI	P-value*
Work-related	12 (13)	11 (21)	1.4	0.9–2.3	0.2
Housing problems	9 (9)	7 (13)	1.3	0.7–2.3	0.6
Problems with neighbours	3 (3)	4 (8)	1.7	0.8–3.3	0.2
Legal problems	0 (0)	1 (2)	2.8	2.3–3.5	0.3
Financial problems	21 (22)	14 (26)	1.2	0.7–1.9	0.5
Marital problems	8 (8)	5 (9)	1.1	0.5–2.2	1.0
Domestic violence	0 (0)	3 (6)	2.9	2.3–3.7	0.04
Relationship problems	10 (10)	3 (6)	0.6	0.2–1.7	0.4
Illness or bereavement	22 (23)	20 (38)	1.5	1.0–2.36	0.06

\* Fisher two sided exact test.

\*\* Student t-test.

	Median (IQR) non-depressed	Median (IQR) depressed	Mann-Whitney <i>U</i> test p
Total number of life events	0 (0–1)	1 (0–2)	0.01

Table 3. Multidimensional Scale of Perceived Social Support Item and Subscale Means, standard deviation and P-values: Depressed v. non-depressed mothers

	Non-depressed		Depressed		Difference of means	P-value*
	Mean	SD	Mean	SD		
<b>MSPSS Items</b>						
1. There is a special person who is around when I am in need.	4.60	1.06	4.01	1.13	0.58	0.002
2. There is a special person with whom I can share my joys and sorrows.	4.61	1.22	4.17	1.17	0.44	0.032
3. My family really tries to help me.	4.53	1.14	4.13	1.22	0.39	0.048
4. I get the emotional help and support I need from my family.	4.29	1.13	3.92	1.08	0.36	0.056
5. I have a special person who is a real source of comfort to me.	4.28	1.09	4.15	1.23	0.13	0.506
6. My friends really try to help me.	4.21	1.24	4.07	1.15	0.14	0.492
7. I can count on my friends when things go wrong.	4.28	1.39	3.56	1.42	0.71	0.003
8. I can talk about my problems with my family.	4.39	1.24	3.98	1.13	0.41	0.046
9. I have friends with whom I can share my joys and sorrows.	4.25	1.20	3.73	1.09	0.51	0.011
10. There is a special person in my life who cares about my feelings.	4.41	1.06	3.90	1.09	0.51	0.006
11. My family is willing to help me make decisions.	4.07	1.08	3.84	1.02	0.22	0.219
12. I can talk about my problems with my friends.	4.04	1.12	3.81	1.30	0.20	0.259
<b>MSPSS Subscales</b>						
1. Significant other	4.47	0.16	4.05	0.12	0.42	0.005
2. Family	4.32	0.19	3.96	0.12	0.35	0.021
3. Friends	4.19	0.10	3.79	0.10	0.40	0.014

\* Student t-test.

ber of stressful life events compared to non-depressed mothers.

Table 3 shows a comparison between depressed and non-depressed women on each item of the MSPSS, and also on the three subscales of social support. Eight out of 12 items show a significantly lower mean score of social support in depressed women, while all 3 subscales indicate significantly lower social support in the depressed women compared to non-depressed women. P-value is smallest for association with social support by significant other, which in the majority cases would be the husband.

## Discussion

This study confirms finding from other studies that have demonstrated high prevalence of postnatal depression in developing countries. Our finding that the majority of the women with PND have clinically significant psychological symptoms during pregnancy is also concordant with two other studies from south Asia (Patel et al, 2002; Rahman et al, 2003). As the sample is community rather than hospital based, it is more likely to be representative of the rural population where the majority of women deliver at home and do not have medical follow-up.

To our knowledge, this is the first study in the developing world that has systematically examined the relationship of social support from various sources with PND. The conclusion is that support from significant others, family and friends has a protective influence on

PND. The postnatal period is an important time where the mother is provided extra support by family members in many cultures (Posmontier & Horowitz, 2004). Breakdown of social support may be an important contributory factor to the rising rates of PND in these societies. For example, in an anthropological study, Nahas et al (1999) interviewed 22 Jordanian mothers who had immigrated to Australia and were suffering from PND. These women were of the view that in their own country, they would have received extra support for 40 days after giving birth, which would have prevented them from becoming depressed. Pillsbury (1978) in China found that during the first postnatal month, family and friends lavish mothers with attention, much more so than the infant. Kelly (1967) observed a similar practice in the Ibibio people of Nigeria, where the new mother and baby were placed in a special hut and attended to by the woman's mother and other family members for several months. Both authors found little evidence of postnatal depression in these cultures, attributing this to their traditional family practices. In the last 3 decades, communities in developing countries have undergone rapid demographic and socioeconomic restructuring, and the erosion of traditional family structures and related support practices may have become important determinants of stress and psychiatric problems in postnatal women. More research in this area is required.

The study also shows that a higher number of stressful life events in the previous year is associated with post-

natal depression. The association of depression with adverse life events has been reported in previous studies (Rahman, 2003; O'Hara & Swain, 1996). In a study of adults in the same area, female gender, low level of education, poor housing and poverty were strongly associated with depression (Husain et al, 2000). In this study, unlike findings from Goa, India (Patel et al, 2002) female gender of the infant was not a significant risk factor. It is also notable that poverty (low monthly family income) or education of mothers was not found to be significant risk factors for PND. Thus, social support and stresses may have a greater role in the aetiology of PND than poverty-related issues.

However, the findings should be interpreted within the context of certain limitations of this study. The study was carried out in only part of one sub-district of Rawalpindi and therefore the results should be generalised with caution. Although the Edinburgh Postnatal Depression Scale is the most widely used instrument in the world and has been validated in many cultures, it does not give a definitive diagnosis of depression. The assessment of social support was assessed upon interview with the mothers, and depressed mothers, due to their mental state, might not give an accurate assessment of the actual support available to them. Finally, because of the cross-sectional nature of the study, it would be difficult to comment on the direction of association between social support and postnatal depression. Further studies, employing objective measures of social support and longitudinal designs, may be required to clarify these preliminary findings.

Nevertheless, the implication of this study, given the high prevalence of postnatal depression and its likely association with lack of social support, is that attention must be paid to developing cost-effective psychosocial interventions. The first year of the child's life is crucial in terms of physical and psychological development, yet this is also a period where many mothers are susceptible to developing a depressive disorder. Treatment trials in developed countries have shown that nondirective counselling by health visitors (Elliot et al, 2000), dynamic psychotherapy (Cooper & Murray, 1997), cognitive behaviour counselling and antidepressants (Appleby, 1997) are all equally effective in PND. However, a number of health system and cultural differences make it difficult for mental health interventions to be extrapolated from the developed to the developing world (Patel, 2000). Treatments are unlikely to be adopted by professionals and policy makers unless they are shown to be efficacious, cost-effective, integrated in existing community health services. Strengthening social support net-

works could be one non-pharmacological approach that could meet these criteria.

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