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Social relationships and postpartum depression in South Asia: A systematic review

Eleri Jones and Ernestina Coast
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Abstract

Background: Evidence suggests a much higher prevalence of postpartum depression in South Asia than in 'western' contexts.

Aim: To conduct a rapid systematic review of evidence on the association between social relationships and postpartum depression in South Asia.

Methods: Five databases were searched to identify relevant studies. Studies meeting the selection and quality criteria were analysed and integrated in a narrative review.

Results: Nine mostly quantitative studies were included in the review. Low support and poor relationships with the husband and parents-in-law were associated with postpartum depression, although associations were weakened in multivariate analyses. The different dimensions of support have not yet been systematically investigated and the likely complex interrelationships between social relationship risk factors are not yet well understood.

Conclusions: Findings mirror those from 'western' contexts, showing the key role of social relationships in the aetiology of postpartum depression. Yet, they also reinforce the hypothesis that the social and cultural context influences the association. The importance of relationships with the extended family, as well as the husband, in South Asia is highlighted. Further research is recommended to develop an understanding of these relationships to better inform interventions.

Keywords

Postpartum depression, relationships, support, South Asia

Introduction

Postpartum depression is a mild mental and behavioural disorder associated with the puerperium commencing within 6 weeks of delivery (World Health Organization, 2010). It is a global public health concern because of its adverse effects on the mother, infant and close others (Almond, 2009; Fisher, Cabral de Mello, Izutsu, & Tran, 2011). Historically, it was hypothesised that postpartum depression was largely absent in ‘non-western’ contexts due to greater social support during the postpartum period (Stern & Kruckman, 1983). Postpartum depression prevalence of around 13% is estimated for North American and western European contexts (Affonso, De, Horowitz, & Mayberry, 2000; O’Hara & Swain, 1996), but recent estimates suggest a much higher prevalence in South Asia, up to 36% in Pakistan (Gausia, Fisher, Ali, & Oosthuizen, 2009; Husain et al., 2006; Savarimuthu et al., 2010)

Evidence for the aetiological contribution of psycho-social factors to postpartum depression is greater than that for biological factors, with chronic social adversity in women playing a substantial role (Fisher, et al., 2011; Robertson, Celasun, & Stewart, 2003). Systematic reviews consistently highlight an association between postpartum depression and aspects of social relationships, such as low social support or low quality marital relationship (Beck, 2001; O’Hara & Swain, 1996; Robertson, et al., 2003). This is supported by a large body of literature linking social relationships with a range of physical and mental health outcomes more generally (Cohen, Gottlieb, & Underwood, 2000). Social relationships may affect cognitions, emotions, behaviours and biological responses in a manner which has implications for health, either *directly* (‘main effects’ hypothesis) or *indirectly* by influencing affective reactions to situations (‘stress buffering’ hypothesis) (Cohen, et al., 2000).

‘Social relationships’ are a complex and multi-dimensional concept. The literature focuses on ‘social support’, defined as the exchange of social resources between persons (Cohen & Syme, 1985). Support has structural dimensions, such as the size and range of the support network, as well as functional dimensions, such as the type, source and quality of support (House & Khan, 1985). Support may be emotional, practical or informational, and the impact on health depends on a match between the support provided and needed (Cohen & Syme, 1985; Stansfeld, 2006). A distinction is also made between the perceived and actual support received, which are not necessarily closely correlated with each other (Cutrona, 1986).

Most studies on risk factors for postpartum depression are from North American and Western European contexts (e.g., O’Hara & Swain, 1996; Robertson, et al., 2003). However, social and cultural factors mediate can the relationship between social relationships and postpartum depression (Collins, Dunkel-Schetter, Lobel, & Scrimshaw, 1993; Gao, Chan, You, & Li, 2010; Stuchbery, Matthey, & Barnett, 1998). Social norms create preferences or expectations for people to provide particular kinds of support (Gottlieb, 2000). Thus, it cannot be assumed that findings from limited contexts can be generalised across all societies and cultures. To date, the evidence on the social relationships-postpartum depression link in South Asia has not been reviewed.

This study conducts a rapid systematic review of evidence on the association between social relationships and postpartum depression in South Asia. The review addresses two questions. What are the nature and strength of associations between social relationships and postpartum depression in South Asia? What are the gaps in knowledge on these associations? Given frequent recommendations for social rather than medical responses to perinatal mental health problems in resource-constrained settings (Fisher, et al., 2011), this review informs policies and programmes targeting women and their families in the perinatal period in South Asian contexts.

Methods

Systematic and explicit methods were used with restrictions on the selection criteria and search strategy. An inclusive approach was used. Epidemiological studies were eligible if they reported on the association between one or more variables relating to household and family structure, support, or relationship processes (relationship properties, partner characteristics or interpersonal events), and postpartum depression. Qualitative studies were eligible if they assessed postpartum depression and reported themes relating to social relationships. Prenatal depression, baby blues, and psychotic disorders were excluded. Studies were included if conducted in one or more South Asian countries.

The search was restricted to studies published in peer-reviewed journals in the English language between 1 January 1990 and 30 June 2010. Few epidemiological studies on common mental disorders in low and middle income countries were conducted prior to 1990 (Lund et al., 2010).

Five databases (MEDLINE, PsycInfo, ISI Web of Science, Science Direct and CAB Direct) were searched in July 2010. The following terms were used to search for items relating to postpartum depression: “postpartum depression”, “postnatal depression”, “postpartum mood disorder”, “postnatal mood disorder”, “puerperal depression”, “perinatal depression”, “maternal depression”, “depression, postpartum”, and “depression, postnatal”. These were combined with “Asia” and the names of all South Asian countries using the World Bank classification (World Bank, 2010).

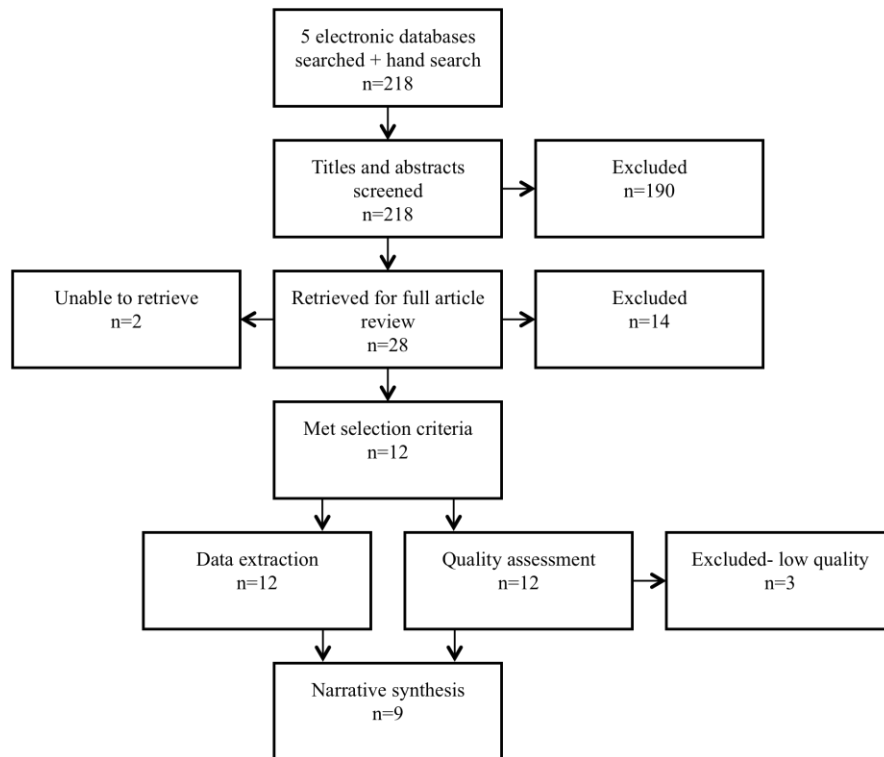
A citation search was conducted to identify additional studies that cite articles included in the review. The bibliographies of included articles and relevant literature reviews were also hand-searched.

218 references were generated by the search. These were screened initially on the basis of titles and abstracts where available. Those that did not meet the selection criteria were excluded. Full texts were retrieved for the remaining studies and the selection criteria were applied to identify the final set of studies eligible for review.

Quality assessment of all studies that met the selection criteria was carried out prior to synthesis. For quality assessment of epidemiological studies, criteria developed by Beck

(Beck, 2001) to evaluate postpartum depression research were modified and expanded. For quality assessment of qualitative research, a tool developed by Campbell et al. (Campbell et al., 2003) was used. Using these criteria, studies were given an overall assessment of high, medium or low quality, and those in the low quality category were excluded from the final synthesis.

Figure 1: Flowchart of Search, Screen and Data Extraction



The results of the review were integrated in a structured narrative. A narrative synthesis allowed a more nuanced examination of the relationship given the methodological diversity and the different ways in which social relationships are conceptualised and operationalised in the literature. The evidence was organised by the dimension of social relationships measured, and studies were considered by study design, type of analysis (bivariate/multivariate) and country.

Results

Twelve studies met the selection criteria: eleven quantitative epidemiological studies and one qualitative study. Three of these studies did not meet the quality criteria and were excluded from the synthesis (Irfan & Badar, 2003; Khooharo et al., 2010; Mariam & Srinivasan, 2009). The geographical coverage of the evidence-base is limited to just four out of eight countries. Within countries, studies are geographically concentrated: all

studies from India were based in Goa (Patel, Rodrigues, & DeSouza, 2002; Rodrigues, Patel, Jaswal, & de Souza, 2003) or Tamil Nadu (Chandran, Tharyan, Muliyl, & Abraham, 2002; Savarimuthu, et al., 2010) and all studies included in the synthesis from Pakistan were based in Rawalpindi District (Husain, et al., 2006; Rahman & Creed, 2007; Rahman, Iqbal, & Harrington, 2003). The earliest studies eligible for review were published in 2002 (Chandran, et al., 2002; Patel, et al., 2002).

Table 1: Studies eligible for review (high/medium quality)

Study	Location	Design	Setting	Sample size	PPD measurement	PPD Preval.	Risk factor measurement
Quantitative Studies							
Ho-Yen et al. 2007	Lalitpur District, Nepal	Cross-sectional	Urban/Rural Community/Hospital	426	EPDS (cutoff 12) Interview at 5-10 weeks postpartum	4.9%	General questionnaire
Savarimuthu et al. 2010 ¹	Tamil Nadu, India	Cross-sectional	Rural-Community	137	EPDS followed by clinical interview (ICD-10 diagnosis) at 2-10 weeks postpartum	26.3%	General questionnaire
Husain et al. 2006	Rawalpindi District, Pakistan	Cross-sectional	Rural-Community	149	EPDS (cutoff 12) Interview at ~12 weeks postpartum	35.6%	MSPSS (Zimet et al. 1988) and general questionnaire
Gausia et al. 2009	Matlab, Bangladesh	Longitudinal	Rural-Community	346	EPDS (cutoff 10) Interview at 6-8 weeks postpartum	22.0%	General questionnaire
Chandran et al. 2002	Tamil Nadu, India	Longitudinal	Rural-Community	359	Clinical Interview Schedule-Revised (ICD-10 diagnosis) at 2-10 weeks postpartum	19.8%	General questionnaire
Patel et al. 2002	Goa, India	Longitudinal	Hospital	270	EPDS (cutoff 12) Interview at 6-8 weeks postpartum	23.4%	Semi-structured interview
Rahman et al. 2003	Rawalpindi District, Pakistan	Longitudinal	Rural-Community	632	Clinical Assessment in Neuropsychiatry (ICD-10 diagnosis) at 10-12 weeks postpartum	28.0%	General questionnaire
Rahman and Creed 2007 ²	Rawalpindi District, Pakistan	Longitudinal	Rural-Community	160	Clinical Assessment in Neuropsychiatry (ICD-10 diagnosis). Several follow-up assessments.	See note below	General questionnaire
Qualitative Studies							
Rodrigues et al. 2003	Goa, India	Qualitative in-depth interviews	Rural-Community	39	EPDS (cutoff 12) Interview at 6-8 weeks postpartum	-	Themes addressed included support

¹ Described as a qualitative study by authors but here classified as a quantitative study because it analysed quantitative epidemiological data.

² Followed-up women diagnosed with prenatal depression to 1 year postpartum. Dependent variable was *persistence* of depression at 3,16, and 12 months postpartum. 56.6% followed-up to 12 months had persistent depression.

Three of the epidemiological studies used a cross-sectional design and five used a longitudinal design. However, those using a longitudinal design did not necessarily separate temporally the collection of data on social relationships and postpartum depression. Sample sizes in the quantitative studies ranged from 137 to 632 women. Most of the studies used community-based samples; one study recruited from a hospital-based antenatal clinic; and one study used several sampling strategies.

In four studies, postpartum depression was diagnosed according to the International Classification of Diseases (ICD) diagnostic criteria (Chandran, et al., 2002; Rahman & Creed, 2007; Rahman, et al., 2003; Savarimuthu, et al., 2010), while the other five studies used a screening tool to assess depressive symptomatology (Gausia, et al., 2009; Ho-Yen, Bondevik, Eberhard-Gran, & Bjorvatn, 2007; Husain, et al., 2006; Patel, et al., 2002; Rodrigues, et al., 2003). The latter all used the Edinburgh Postpartum Depression Scale (EPDS), which had been translated and, in most cases, validated in context. Estimates of postpartum depression prevalence ranged from a very low 4.9% in Nepal (Ho-Yen, et al., 2007) to a range from 19.8% to 35.6% in all studies from Bangladesh, India and Pakistan. Only one study used a structured tool to assess social relationship variables (Husain, et al., 2006), while all other studies used questionnaires.

Household and Family Structure

Three studies examined the association between the type of household structure and postpartum depression in rural, community-based samples, with mixed findings (Gausia, et al., 2009; Rahman & Creed, 2007; Rahman, et al., 2003). Only one study from Pakistan reported a statistically significant association in multivariate analysis, showing that women living in nuclear households were at greater risk of postpartum depression (OR: 4.3, 95% CI 1.4-13.3) (Rahman, et al., 2003). There was substantial variation in the distribution of household structure types in the studies, suggesting that they may carry different meaning across the region. The same three studies all reported a null association between the husband's absence for employment and postpartum depression. One study in Nepal showed a strong, statistically significant association between polygamous marriage and postpartum depression in multivariate analysis (OR: 7.7, 95% C.I. 2.3-25.9) (Ho-Yen, et al., 2007).

Table 2: Household and family structure

Study	Location	Risk factor measure (% cases)	Unadjusted association OR (95%CI)	Adjusted association OR (95%CI)
Rahman et al. (2003)	Pakistan	Living in extended family (74%)	0.6 (0.4-0.8)*	NR
		Living in nuclear family (26%)	NR	4.3 (1.4-13.3)*
		Infant's grandmother lives with family	0.6 (0.5-0.8)*	NR
		Husband away for >6 months (25%)	0.9 (0.7-1.3)	-
Gausia et al. (2009)	Bangladesh	Live in nuclear family (58%)	1.3 (0.9-2.0)	-
		Husband stayed home (68%)	1.2 (0.8-1.8)	-
Rahman and Creed (2007)	Pakistan	Nuclear family (37%)	1.2 (0.9-1.7)	-
		Husband away for >6 months (22%)	0.9 (0.7-1.4)	-
Ho-Yen et al. (2007)	Nepal	Polygamy (5%)	16.3 (5.6-47.7)*	7.7 (2.3-25.9)*

Note: NR- Not reported; NS- Not significant

Social Support

Seven quantitative studies included at least one social support variable. Only one study used a structured tool- the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, & Farley, 1988)- with separate subscales for support from the husband, family, and friends, and questions on emotional and practical support. Two further studies differentiated between support from the husband and the mother-in-law (Gausia, et al., 2009; Patel, et al., 2002), and the other studies included a single overall measure of support. Details of the questions and conceptualisation of support were not made explicit in all articles. Some studies clearly measured the perceived availability of social resources (Chandran, et al., 2002; Husain, et al., 2006), reflecting the expectation that others will be helpful in times of need rather than the actual amount of support received. There appears to be no evidence as yet on the association between objective measures of received support and postpartum depression in this region. In terms of types of support, two studies focused specifically on practical help (Chandran, et al., 2002; Rahman, et al., 2003). Although Cohen et al. (Cohen, et al., 2000) underscore the importance of a match between the type of support and the needs of the stress stimulus, other studies did not specify or distinguish types of support to enable comparison. In sum, few dimensions of this complex concept have been addressed in the current evidence-base from South Asia.

Bivariate analyses consistently showed a significant association between low social support and postpartum depression, but not the *persistence* of depression (Rahman & Creed, 2007). However, one study in India, reported a significant association for help from the mother-in-law (RR: 0.5, 95% C.I. 0.2-0.9) but not for help from the husband (RR: 0.8, 95% C.I. 0.5-1.2) (Patel, et al., 2002). When other variables were controlled in multivariate analyses, the association was more equivocal. Completion of the ‘chilla’ period, a ritual involving confinement of the mother for 40 days when all responsibilities are taken over by female family members was associated with a lower risk of postpartum depression in multivariate analysis in a study in Pakistan (OR: 0.3, 95% C.I. 0.2-0.7) (Rahman, et al., 2003).

In the qualitative study in India, all mothers agreed that they received practical support from husbands and the wider family, although they expressed the need for more help (Rodrigues, et al., 2003). In particular, the physically demanding nature of certain household tasks carried out by many women during this period was highlighted. In the opposite direction, many women reported that their emotional state affected their motivation to complete household chores. There was also a mismatch between the type of support husbands felt they should provide and the preferences of women during the postpartum period: women valued practical help but their husbands tended to focus on financial support. Although emotional support was not explicitly addressed in any of the quantitative studies, women in the qualitative study reported a lack of emotional support.

Table 3: Social support

Study	Location	Risk factor measure (%cases)	Unadjusted	Adjusted
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			association OR (95%CI)	association OR (95%CI)
Support assessed in postpartum period				
Ho-Yen et al. (2007)	Nepal	Social support (from 0-1 persons) (19%)	3.5 (1.4-8.5)*	1.0 (0.3-3.5)
Husain et al. (2006)	Pakistan	MSPSS-significant other MSPSS- family MSPSS- friends	p=0.005* p=0.021* p=0.014*	
Chandran et al. (2002)	India	No physical help available postpartum (24%)	2.9 (1.6-5.5)*	2.8 (1.2-6.4)*
Rahman et al. (2003)	Pakistan	Daily support in childcare by at least one family member (66%) Able to complete 'chilla' period (50%)	0.5 (0.4-0.7)* 0.4 (0.3-0.6)*	0.3 (0.1-0.7)* 0.3 (0.2-0.7)*
Support assessed during pregnancy				
Gausia et al. (2009)	Bangladesh	No help received from mother-in-law (24%) No help received from husband (5%)	2.2 (1.5-3.3)* 3.3 (2.2-5.0)*	NR 1.4 (0.2-9.1)
Patel et al. (2002)	India	Received help from mother-in-law (34%) Received help from husband (55%)	0.5 (0.2-0.9)* 0.8 (0.5-1.2)	NS NS
Rahman and Creed (2007)	Pakistan	Lack of social support (67%)	0.9 (0.7-1.3) (persistence)	-

Note: NR- Not reported; NS- Not significant

Relationship Processes

In the five studies that examined variables representing marital satisfaction and conflict, findings of an association with postpartum depression were relatively consistent. Although Chandran et al. (Chandran, et al., 2002) considered their findings of a significant association to be a manifestation of the depressed state because problems were less frequently reported in the prenatal period, a study in Bangladesh in which data on all risk factors were collected in the prenatal period reported a significant association between marital relationship variables and postpartum depression (Gausia, et al., 2009). A null association between serious marital problems in the previous year and the persistence of postpartum depression was reported in a study in Pakistan (Rahman & Creed, 2007).

Studies that examined marital violence showed strong, statistically significant associations with postpartum depression in bivariate analyses. Studies in which the timing of the violence was specified suggest a stronger association for more recent experiences, although there may be issues with recall (Patel, et al., 2002; Savarimuthu, et al., 2010). Associations were weakened when other variables were controlled for in all of the studies that reported on marital violence and PPD in multivariate analyses.

Alcohol use was investigated in studies from India (Chandran, et al., 2002; Patel, et al., 2002; Savarimuthu, et al., 2010) and Nepal (Ho-Yen, et al., 2007), three of which specified use by the husband. Bivariate analyses showed a consistent and strong positive association between husband's alcohol use and postpartum depression and, in contrast to violence, the association remained significant in two cross-sectional studies that reported on multivariate analyses (Ho-Yen, et al., 2007; Savarimuthu, et al., 2010). Chandran et al. (Chandran, et al., 2002) reported a stronger association between postpartum depression and concerns about alcohol use when measured simultaneously with assessment of

depression (OR: 3.3, 95% C.I. 1.7-6.4) than when measured in the prenatal period (OR: 2.5, 95% C.I. 1.0-6.1), which they hypothesised could be due to an increase in alcohol use after the birth or a reporting bias of women with depression.

Two studies showed a strong, significant association between a poor relationship with the parents-in-law and postpartum depression (Chandran, et al., 2002; Gausia, et al., 2009). Chandran et al. (Chandran, et al., 2002) also reported a significant association for the relationship with *parents* in bivariate, but not in multivariate, analyses. Three studies assessed evidence on the association between problems in relationships in the past year as life events and postpartum depression, with inconsistent findings. A study in Pakistan reported a significant association on multivariate analysis (OR: 4.4, 95% C.I. 1.9-10.3) (Rahman, et al., 2003), whilst two other studies reported a null association (Husain, et al., 2006; Rahman & Creed, 2007).

Qualitative evidence from India suggests that many women interpreted their distress in terms of poor relationships, particularly with the husband (Rodrigues, et al., 2003). The inter-relationship between relationship risk factors was also highlighted: for example, a poor marital relationship was expressed through inadequate support.

Table 4: Relationship processes

Study	Location	Risk factor measure (% cases)	Unadjusted association OR (95%CI)	Adjusted association OR (95%CI)
Relationships assessed in postpartum period				
Chandran et al. (2002)	India	Problems in the marital relationship (NR) Concerns about husband's alcohol use (NR)	6.3 (3.5-11.3)* 3.3 (1.7-6.4)*	NR NR
Savarimuthu et al. (2010)	India	Unhappy marriage (10%) Physical abuse in antenatal period (12%) Physical abuse in postnatal period (4%) Husband uses alcohol (20%)	12.6 (3.2-49)* 3.3 (1.1-9.7)* 12.5 (1.4-116)* 6.6 (2.6-16.2)*	9.4 (2.3-38.5)* 2.7 (0.9-8.0) 9.1 (1.0-89) 5.2 (2.0-13.5)*
Ho-Yen et al. (2007)	Nepal	Violence in marriage (7%) Husband's alcoholism (6%)	8.3 (3.0-22.5)* 16.0 (6.0-43)*	3.2 (0.9-11.6) 9.4 (3.2-28.0)*
Husain et al. (2006)	Pakistan	Marital problems (9%) Domestic violence (2%) Relationship problems (9%)	1.1 (0.5-2.2) 2.9 (2.3-2.7)* 0.6 (0.2-1.7)	
Relationships assessed during pregnancy				
Gausia et al. (2009)	Bngldsh	Poor relationship with husband (2%) Couple were unhappy (3%) Left home following arguments (13%) Beaten by husband (5%) Poor relationship with mother-in-law (6%)	4.3 (3.1-6.1)* 3.6 (2.4-5.5)* 3.4 (2.4-4.9)* 2.4 (1.4-4.1)* 3.3 (2.2-5.0)*	1.4 (0.1-31.1) NR 4.0 (1.6-10.2)* 1.0 (0.3-3.9) 3.6 (1.1-11.8)*
Chandran et al. (2002)	India	Problems in the marital relationship (NR) Concerns about husband's alcohol use (NR) Problems with in-laws (10%) Relationship with parents inadequate (2%)	1.3 (0.2-8.3) 2.5 (1.0-6.1) 3.4 (1.6-6.6)* 3.8 (1.2-11.8)*	NR NR 3.6 (1.3-9.8)* 6.4 (0.9-47)
Patel et al. (2002)	India	Ever experienced marital violence (13%) Marital violence during pregnancy (6%) Had family history of alcoholism (20%)	2.1 (1.3-3.3)* 2.6 (1.6-4.3)* 2.3 (1.5-3.6)*	NS NS NS
Rahman et al. (2003)	Pakistan	Serious arguments with family (8%)	NR	4.4 (1.9-10.3)*

Rahman and Creed (2007)	Pakistan	Serious marital problems (5%)	1.0 (0.5-1.9)	-
		Serious arguments with family (15%)	1.3 (0.9-1.8)	-
		Loss of friend or confidant (19%)	1.5 (1.1-1.9)* (Persistence)	NS

Note: NR- Not reported; NS- Not significant

Two major methodological limitations of the evidence-base are particularly noteworthy. The cross-sectional studies and some of the longitudinal studies assessed social relationships simultaneously with assessment of postpartum depression. As conclusions on the direction of causality are not possible with this design, further research should separate in time the assessment of social relationships and postpartum depression (O'Hara & Swain, 1996), and would ideally repeat measurement of social relationships at several points in time to present a more valid assessment of exchanges over the course of the perinatal period and a more powerful and reliable basis for identifying their effects (Collins, et al., 1993; Xie, He, Koszycki, Walker, & Wen, 2009). Finally, sample sizes in the current evidence base have ranged from 137 to 632. Those with small sample sizes have tended to be statistically underpowered, resulting in imprecise estimates of the strength of associations. Studies with larger sample sizes are recommended.

Discussion

The synthesis suggests a key role for social relationships in the aetiology of postpartum depression in South Asia, mirroring findings from Western contexts (Beck, 2001; O'Hara & Swain, 1996). This narrative synthesis reinforces the view that social and cultural context influences the association between social relationships and postpartum depression (Stuchbery, et al., 1998). The importance of relationships with the extended family, and the in-laws in particular, is highlighted.

Household and family structure may be less important than the nature and quality of social relationships within them. Polygamous marriages, which affect a subgroup of women in parts of South Asia, may be associated with vulnerability and distress (Ho-Yen, et al., 2007). Findings on this risk factor in other locations are inconsistent (Ghubash & Abou-Saleh, 1997; Kadir, Nordin, Ismail, Yaacob, & Mustapha, 2005; Rushidi, Hayati, Baizuri, Amir, & Mahmood, 2005), but it is hypothesised that the association is mediated by the quality of the relationship with the husband (1997).

A consistently significant negative association between support and postpartum depression is revealed in bivariate analyses, reflecting what appears to be a universal trend (Beck, 2001; O'Hara & Swain, 1996; Ozbasaran, Coban, & Kucuk, 2011; Xie, et al., 2009), although the findings of multivariate analyses were less conclusive. The importance of the wider family is highlighted, and the mother-in-law in particular, in the provision of support, which contrasts with reviews from other contexts in which their role appears to be secondary to that of the husband (Robertson, et al., 2003). recent study of postpartum women in Pakistan (Akhtar et al., 2010) on the psychometric properties of the MSPSS (Zimet, et al., 1988) suggested that sources of support were not distinguished in this population in the same way as in other cultures. The authors suggested an interpretation based on cultural factors: the sense of communal living and extended family household structures may dilute differences between family members, friends, and

significant others as sources of support. This may also explain the lack of significance of the husband's absence for employment in this review, which differs from some other contexts (Brugha et al., 1998).

Relationship processes including conflict, dissatisfaction and violence, are also associated with postpartum depression in this region. Fairly consistent evidence on the importance of the marital relationship mirrors findings from Western contexts (Beck, 2001; O'Hara & Swain, 1996; Robertson, et al., 2003). However, there is also a strong association between postpartum depression and poor relationships and conflict with family members, and in-laws in particular. This echoes findings from other contexts in which extended family household structures are common, including China (Gao, et al., 2010) and Turkey (Danaci, Dinc, Deveci, Sen, & Icelli, 2002).

Nevertheless, Chandran et al. (2002) found a considerably weaker, null association when problems in the marital relationship were measured during pregnancy than when measured in the postpartum period, possibly because depressed mood affects subjective judgements of relationships. However, given that some studies reported a strong association despite assessing relationships during pregnancy, this does not appear to provide the complete explanation (Gausia, et al., 2009; Rahman, et al., 2003). Problems in relationships might increase in postpartum or there may be a bi-directional association between relationships and postpartum depression. Women in India interpreted poor relationships to be both a cause and consequence of their distress (Rodrigues, et al., 2003).

Whilst there is a relatively consistent association between poor relationships and support from both the husband and family and postpartum depression in bivariate analyses, many associations weaken in multivariate analyses. This may be explained partially by small sample sizes, producing imprecise estimates of associations. However, complex inter-relationships between social relationship variables and other social risk factors are also likely, which are yet to be systematically investigated. A population based survey in India shows that marital violence and alcohol-related problems, each partially mediated the relationship between partner excessive alcohol use and common mental disorders (Nayak, Patel, Bond, & Greenfield, 2010). Poor relationships can express themselves through inadequate practical and emotional support (Rodrigues, et al., 2003). Relationships imbue behaviour with supportive meaning, and its withdrawal or unexpected absence powerfully affect relationships with others (Cohen, et al., 2000). A theoretical perspective in which support is conceptualised as part of broader relationship processes (Lakey & Cohen, 2000) may provide a useful framework for further research on the association between social relationships and postpartum depression.

Heterogeneity in the strength of associations between social relationships and postpartum depression may be accounted for by methodological differences and/or diverse study populations. The timing of measurement of social relationships may affect the strength of associations (Chandran, et al., 2002; Xie, et al., 2009), and simultaneous assessment of risk factors and postpartum depression weakens conclusions on the direction of the association. Second, various methods were used to assess depression and at different

stages of the postpartum period. O'Hara and Swain (1996) found that the strength of associations was influenced by the assessment method. Third, relationship processes and support factors were operationalised in different ways in the literature. These may represent different constructs (Lakey & Cohen, 2000), some of which may be more strongly associated with postpartum depression than others. Too few dimensions of the concept have been addressed in the current evidence base to explore this hypothesis. Finally, given that women in Goa, India, were wary of discussing their problems with others (Rodrigues, et al.), the influence of how data is collected, and by whom, are important considerations that are rarely explicitly discussed in this evidence base.

Socio-cultural context influences the association between social relationships and postpartum depression. Despite socio-cultural commonalities within South Asia (Trivedi, Mishra, & Kendurkar, 2007), there is also considerable diversity. For example, there are differences in the proportion living in extended families across the region (Gausia, et al., 2009; Rahman, et al., 2003). Indeed, estimates of postpartum depression prevalence vary widely across the region, which may be explained by methodological issues or may itself reflect differences in social environments with implications for mental well-being in the postpartum period. Most noteworthy are the low estimates of prevalence in some studies in Nepal (Ho-Yen, Bondevik, Eberhard-Gran, & Bjorvatn, 2006; Regmi, Sligl, Carter, Grut, & Seear, 2002). Epidemiological literature on postpartum depression in South Asia does not consider female empowerment, although low female empowerment was reported to be an independent risk factor for common mental disorders among women in India (Nayak, et al., 2010) and was raised as an issue by women themselves (Rodrigues, et al., 2003). Finally, there is potential impact of social change on relationships and support (Gao, et al., 2010; Rahman, et al., 2003; Rodrigues, et al., 2003), the implications of which may be relevant to findings in this region which is undergoing rapid social transition.

Implications for Research

There are four priorities for further research. First, there is a paucity of qualitative research relevant to this topic. Recent research from Pakistan (2010) suggests a cultural interpretation for apparent differences in the construct of support, highlighting the potential contribution of qualitative studies using emic methodologies. Second, few studies have systematically examined the various dimensions of relationships and support. Further research could usefully differentiate between perceived and received social resources, using a combination of subjective and objective measures. Studies may also usefully distinguish between types of support. Although support from the husband and in-laws is prominent in the evidence-base, little is known about other sources of support that may have a protective effect. Third, further research is required on the complex inter-relationships between social risk factors for postpartum depression. Finally, the evidence-base would benefit from expanded geographical coverage across and within countries in the region.

Implications for Policy and Programmes

Health workers who come into contact with women in the prenatal or postpartum period need to be aware of factors which place women at greater risk of postpartum depression.

Context-specific, support-based interventions should be developed and evaluated in this region. As women tend to interpret their distress in terms of social adversity (Rodrigues, et al., 2003), social interventions may be more acceptable in this context than psychotropic interventions. Support groups that provide opportunities for positive interpersonal exchanges and emotional support could be considered. An intervention involving women's groups was recently evaluated in India with evidence of some success in preventing maternal depression (Tripathy et al., 2010). Alternatively, interventions may involve the use of strategies to promote positive relationship processes within existing network structures, including the extended family.

Limitations

First, two full texts could not be retrieved (Muneer, Minhas, Tamiz-ud-Din Nizami, Mujeeb, & Usmani, 2009; Tashakori, Shanesaz, & Rezapour, 2009). Second, as restrictions were placed on the search, the possibility that some relevant evidence was missed cannot be excluded. Third, the screening and quality assessment was carried out by a single researcher. Fourth, the limited geographical coverage of the studies, across and within countries, means that the findings may not be generalisable across the region.

Conclusions

The evidence-base on the association between social relationships and postpartum depression in South Asia is in its infancy, and raises more questions than it answers. Nevertheless, it shows that social relationships are important determinants of mental well-being in the postpartum period in the South Asian context, mirroring findings from other contexts. The findings also reinforce the hypothesis that social and cultural norms influence the association through their effect on what is preferred, expected and exchanged in interpersonal interactions. In many parts of South Asia, the close involvement of family members within extended family household structures can provide more opportunities for support but also for interpersonal conflict and negative consequences.

Further research is required to address the gaps in our knowledge. In particular, qualitative research is needed on the conceptualisation of support in this South Asian context and its links with mental well-being. Given that the aetiological role of poor relationships and low support is reflected in women's own interpretations of the reasons for their distress, these should be an intervention focus. Interventions should be tailored to the specific social and cultural context, and should include the wider family.

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