

than we might have predicted, in diverse communities in Pakistan, Nigeria and India. None of these communities has access to the professional support services that might ameliorate the consequences of reproductive risk.

Atif Rahman and Siham Sikander discuss work they have done in Pakistan to identify the prevalence of depression among women in selected rural districts, both before and after delivery. No less than a quarter had depression before the birth, and the great majority continued to be depressed soon afterwards. In follow-up studies, it appeared that in over half of these women the depression persisted for at least a year. As we might expect, the care given to their newborn children was suboptimal, contributing to poor infant growth and child morbidity. Important conclusions are reached about the nature of appropriate interventions and the implications for policy – highlighting the perennial problem that mental health is a low priority on the healthcare agenda in many parts of the world.

In the second of our themed articles, Abiodun Adewuya and Olutayo Aloba address the misconception that emotional distress after birth is rare in sub-Saharan Africa. Their work in Nigeria with pregnant women has shown that both depression and severe symptoms of anxiety are relatively common during the antenatal period, affecting up to a third of women. During the post-partum period, there is probably a similar proportion of Nigerian women with mild to moderate depressive symptoms to that found in other cultures around the world. As in Pakistan, mothers with persisting depression

after childbirth are likely to have children who grow less well and who may be more susceptible to morbidity. In Nigeria, as in Pakistan, there is a social premium placed on male children and failure to produce a son is associated with social exclusion and marital disharmony.

Finally, Vikram Patel provides a fascinating insight into the association between gynaecological complaints and mental health among women in India. Remarkably, it appears that about half of all women interviewed in community surveys in that country complain of a gynaecological problem, most commonly an abnormal vaginal discharge. While it was assumed at one time that such discharges are related to sexually transmitted infections, evidence is emerging that throws doubt on that assumption. Why, then, do so many women in Indian rural communities complain of this symptom, which is often physiological and quite normal? The author presents data on the association between common mental disorders and the complaint of abnormal vaginal discharge, collected during a series of studies that attempted to clarify the natural history of the condition. The findings clearly indicate there is a complex relationship between worries and tensions in the everyday lives of women in rural India and their focus of concern on this symptom, which can be associated with diverse somatic symptoms. Vikram Patel makes recommendations for the integration of effective mental healthcare within emerging reproductive health programmes in India, with the objective of intervening in a vicious cycle that connects rising anxiety with an increased discharge.

THEMATIC PAPER – REPRODUCTIVE RISK TO MATERNAL MENTAL HEALTH

Reproductive risk and its role in maternal mental health – perspectives from Pakistan

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There is now an increased awareness of the high rates of depression among women with young children in impoverished communities. Poor maternal mental health affects the home environment, family life, child care and parenting. This paper summarises some of the issues related to the determinants, consequences and management of maternal mental health during and after pregnancy in Pakistan, a low-income country.

Maternal mental health in pregnancy and after childbirth

The mental health problem with the greatest public health implications is unipolar depression. Globally, clinical depression affects about 10–15% of women around the

time of childbirth. Contrary to previous beliefs, high rates of depression, between two and three times greater than in industrialised countries, have been observed in women after childbirth in low-income countries (Rahman & Prince, 2009).

We conducted a prospective study in rural Pakistan to determine the prevalence, outcome and risk factors associated with perinatal depression in a sample of 700 pregnant women (Rahman *et al*, 2003). The study was conducted in two rural sub-districts of Rawalpindi. The women were assessed for depression in the third trimester using culturally valid tools, and re-evaluated 3 months after they had given birth. Of 632 mothers assessed antenatally, 160 (25%) met the ICD-10 criteria for a depressive episode. Of 541 mothers assessed postnatally, 151 (28%) were diagnosed with ICD-10 depressive episode. Twenty-two mothers (4%) developed a *de novo* depressive episode in the postnatal period, while 8

(1.5%) who had depression in the antenatal period had recovered. Events and difficulties in the previous year associated with antenatal depression included an earning member of the family being made redundant, housing problems, arguments or relationship difficulties with a significant member of the extended family, and serious marital problems. No associations were found with bereavement, major illness in the family, changes in social role, or lack of a confiding relationship. Support from the extended family was negatively associated with depression. Practice of the traditional *chilla* ritual (post-delivery confinement of mothers for 40 days, when all responsibilities for running the household are taken over by other female family members) was a protective factor. Help from family members with routine child care and the presence of the infant's grandmother were both protective factors. The risk of depression was less if the woman lived in a joint family (three generations, or one or both parents with married sons, their wives and children). Interestingly, there was no association between postnatal depression and the husband's monthly income or poor socio-economic status.

Too few women were employed for a meaningful assessment to be made of the impact of employment status, but a significant negative association was found between the financial independence of the women and depression. Financial independence was measured by asking women if they were given money to spend on running the household by the head of the household, and if they could take independent decisions on how to spend it.

Women who had two or more female children were at a higher risk of developing depression after the birth of another female child. Other South Asian studies have found that women who already had a female child faced greater stress because of their wish that their new infant be a boy, reflecting the preference for male children inherent in South Asian culture.

Outcome of depression in the first postnatal year

Few studies have examined the longer-term outcome of postnatal depression. Reviews from high-income countries suggest that in about 30% of women with postnatal depression, symptoms persist for up to 1 year after the birth. We carried out a 6-month and a 1-year follow-up of the 160 mothers who were depressed in the third trimester of pregnancy to determine their outcome (Rahman & Creed, 2007). Of the 129 women who were followed up, 98 (76%) were depressed at 6 months and 80 (62%) at 12 months; 80 (62%) were depressed 12 months postnatally but 7 of these had not been depressed at 6 months; thus, 73 (57%) were depressed at all time points. In summary, over half the mothers depressed during pregnancy continued to be depressed at 6 months and 1 year after giving birth.

The low rate of recovery could be due to the adverse circumstances experienced by many women in low-income countries. Persistent depression was associated with several factors that preceded the birth: poverty, already having five or more children, having an uneducated husband, and lack of a friend or confidant. Persistent depression was also strongly associated with a greater severity of depressive symptoms during pregnancy.

Impact of perinatal depression on the physical health of the infant

Depression is a debilitating disorder, with symptoms such as low mood, tiredness, insomnia, lack of energy, low self-esteem and a lack of interest in the environment. It is also a disabling disorder. Maternal competence in child care is likely to play a greater role in the child's physical well-being and survival chances in low-income countries, as the environment is frequently more hostile than in higher-income countries. Overcrowding, poor sanitation and food insecurity are common, and so suboptimal maternal care may result in a greater risk to the physical health of a child. There is likely to be a particularly high risk during the first year of life, not only because this is a time of increased susceptibility of mothers to a depressive episode (a state which often becomes chronic), but also because it is during this period that the infant requires most care. Unlike a 2-year-old, and certainly a 5-year-old child, who might be able to seek food for him- or herself, the young infant is completely dependent on the mother (or other carer). It is therefore at this age that deficiencies in care are most likely to manifest in a child's physical well-being.

We carried out a case-control study of healthy and age-matched infants brought to an immunisation clinic for their 8-month measles vaccine (Rahman *et al*, 2004a). The mothers of 82 malnourished and 90 well nourished infants were administered the Self-Reporting Questionnaire (SRQ-20), a psychiatric screening instrument. Mental distress, as determined by the SRQ-20, was associated with increased risk of undernutrition in infants. The association remained significant after adjustment for birth weight, economic status, maternal age and literacy, gender of infant and family structure.

Stronger evidence of the link between maternal depression and infant outcomes was provided by our 1-year prospective cohort study of 320 mothers and their infants in Rawalpindi (Rahman *et al*, 2004b). It showed that infants of mothers with antenatal depression had poorer growth than controls, the risk of being underweight or stunted at 6 months being four times higher in infants of mothers who were depressed compared with controls. Chronic depression (depression persisting for over 1 year) carried a greater risk of poor infant outcome than episodic depression. The associations remained significant after adjustment for confounders by multivariate analyses. Infants of mothers with depression also had lower birth weight (Rahman *et al*, 2007a) and higher rates of diarrhoea (Rahman *et al*, 2007b). Thus, it is likely that maternal depression makes an important and possibly major contribution to poor infant growth outcomes and morbidity in poorer countries.

Treatment of perinatal depression

There is considerable potential for interventions aimed at promoting the mental health of mothers not only to reduce the burden of disease in these mothers, but also to improve the physical well-being and development of their offspring. A number of individual and group interventions targeting maternal depression have been developed and tested, mostly in higher-income countries. However, differences between both health systems and cultures make it difficult for such

interventions to be extrapolated from higher-income to lower-income countries. Treatments are unlikely to be adopted by professionals and policy makers unless they are shown to be efficacious, cost-effective, integrated into existing community health services, and linked to high-priority health problems.

To address these issues, we carried out extensive formative research to develop an intervention delivered by community health workers to mothers with depression and their infants living in rural Pakistan (Rahman, 2007). This was called the Thinking Healthy Programme, which included a supportive component (non-directive empathic listening), an educational component (nutritional and healthcare advice, delivered within a cognitive-behavioural framework) and a mother-infant relationship component (warmth, attentive listening, stimulation and support for exploration and autonomy for the infant). The objective was to help mothers feel supported, empowered and confident about their parenting abilities, and through this process to influence their mood. Rather than the directive approach of the medical model, health workers were trained to adopt a more patient-centred approach, tailoring the three components according to the individual needs of the patient.

We conducted a randomised controlled trial which showed that the intervention halved the rate of depression in prenatally depressed women compared with those receiving routine care (Rahman *et al*, 2008). In addition to symptomatic relief, the women receiving the intervention had less disability and better overall and social functioning, and these effects were sustained after 1 year. The intervention also had benefits for the infants: they had fewer episodes of diarrhoea and were more likely to be immunised than those in the control group. The mothers were more likely to use contraception (birth spacing is an important factor in reducing infant morbidity) and both parents reported spending more time playing with their infants.

Policy implications

There is a widespread lack of awareness of mental health issues in lower-income countries, and mental illness carries a stigma that hinders treatment seeking. Mental health remains low on the agenda of planners and policy makers in these regions. Evidence that maternal mental health and child physical health are linked may help bring maternal mental health up the healthcare agenda in a culturally and socially acceptable manner.

In the Thinking Healthy Programme, the mental health intervention was provided by community health workers who were not trained in mental healthcare. This has implications for low-income countries, where trained mental health professionals are scarce and generally concentrated in big cities. The study showed that it was possible to train community health workers to deliver mental health interventions effectively. Such community-based approaches are likely to be more accessible to most mothers with mental health problems, and less stigmatising. We found it more beneficial to integrate the mental health component into the routine work of the health workers rather than introduce it

as a vertical programme. Health workers were more likely to accept the intervention as part of their day-to-day activity.

Another issue concerns the effectiveness of child health programmes in low-income countries. Programmes such as the World Health Organization's Integrated Management of Childhood Illness strategy (which involves infant feeding advice, sanitation, immunisation and health education) rely heavily on the mother. Unless attention is given to maternal mental health, the effectiveness of these programmes will be much reduced.

The association between maternal depression and child health could also help build bridges between disciplines in healthcare. Health policy and research are often narrowly focused – mental health professionals focus on strategies for mental healthcare provision and child health professionals on strategies for reducing child morbidity and mortality. Integrated interventions would, by definition, derive their theoretical and practical framework from many disciplines, including paediatrics, psychiatry, primary care, sociology, public health, epidemiology and medical anthropology. Such multidisciplinary and holistic approaches to healthcare are more likely to succeed than a narrowly focused one.

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