# EVIDENCE OF THE EFFECTIVENESS OF LOW-COST COMMUNITY BASED INTERVENTIONS FOR MATERNAL MENTAL HEALTH: A LITERATURE REVIEW

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**Abstract**

Postnatal depression and other perinatal mental health disorders have important consequences for infant growth and development, and maternal wellbeing. As mental health specialists and services are often scarce in low and middle-income countries (LMIC), interventions involving lay health workers are being trialled. **Method**: A literature review of randomised controlled trials regarding interventions by lay health workers to improve maternal mental health outcomes was conducted. **Results**: Four trials from LMIC were included. The interventions in all trials were heterogeneous and conducted for different lengths of time. All trials showed some improvement in mental health outcomes in the intervention group. For three trials this was only at one point, and for one trial, a reduction in mental health morbidity was sustained over three years. All trials showed some improvements in neonatal outcomes. **Conclusion**: It appears that lay health worker interventions may be an effective strategy for improving maternal mental health morbidity where mental health services are scarce. However, quality training and specialist supervision and referral is necessary. Also, more research as to which interventions are most effective is required.

## 1. INTRODUCTION

Postnatal depression (PND) is a significant public health issue, which not only impacts maternal wellbeing, but also family cohesion, and infant growth and development [1] [2]. Postnatal depression refers to an episode of depression that occurs between 6 weeks and 12 months after the birth of a child [3]. Other common mental disorders such as anxiety also occur during this period. A recent systematic review of perinatal mental disorders in low and middle-income countries (LMIC) reported a weighted mean prevalence of 19.8% (95% CI 19.5-20) for postnatal disorders [4]. Due to the resource intense nature of conducting epidemiological studies, less than 10% of low and middle-income countries (LMIC) have prevalence data on PND available [5]. However, many studies available from Africa, the Middle East and South-East Asia report prevalence to be between 20-45% [6] [7] [8] [9]. Therefore emerging evidence suggests that PND in LMIC is similar to or higher than in HIC, with many studies in LMIC reporting prevalence up to three times higher than the average prevalence of 10-20% in High income countries [1] [10] .

Studies about maternal mental health in Vietnam reveal similar prevalence to other LMIC. A study of postnatal depression in Ho Chi Minh City indicated a higher prevalence of PND (33%) compared to mean prevalence in other LMIC countries, with 19% of participants explicitly acknowledging suicidal ideation [11]. Another study comparing pregnant women and mothers of newborns in urban Hanoi and the rural province of Ha Nam province found a similar prevalence of 29.9%, and that common mental disorders (CMD) were most common amongst women in rural

area [7]. A cross-sectional study of postnatal depression in urban and rural Thua Thien Hue Province found an overall prevalence of 18.1% with no significant difference between urban and rural areas (20.8% vs. 15.4%) [12]. Other research has found that 20% of mothers of one year olds had anxiety or depression in Vietnam, and that between 8 and 16.9% of recorded perinatal deaths could be attributed to suicide [13] [14].

There are many reasons a new mother may develop a common mental disorder such as postnatal depression. It is recognised that socio-cultural factors are highly influential in the aetiology and progression of perinatal mental health disorders, and risk and protective factors relevant in Vietnam are similar to other parts of Asia [3] [4]. In terms of protective factors, when compared with other LMIC, Vietnamese mothers have substantially higher levels of social support, with less than 4% of mothers receiving no support from any source and 85% receiving support from two or more sources [13][15]. Strong social support and social capital positively affects maternal coping, child nutritional status and cognitive development [16]. How postnatal confinement practices affect maternal mood and the development of PND has been explored by a number of authors with mixed conclusions, however it appears that an enforced period of rest and being cooked special foods may have some benefits for maternal mental health [17] [11] [12].

Widely recognised risk factors of PND relevant to Vietnam include unwanted pregnancy, intimate partner violence, quality of relationships with extended family (particularly in-laws), maternal self esteem, infant temperament and socio-economic status [4] [7] [10] [11]. Large systematic reviews have revealed that socioeconomic disadvantage and poverty is widely associated with postnatal depression and other common mental disorders in LMIC [4] [10]. However, a comparison of urban and rural families in northern Vietnam found the benefits of supportive nurturing intimate and family relationships can override even severe economic adversity in protecting against common perinatal mental disorders [7]. This is surprising considering that in LMIC mental ill health and poverty interact in a negative cycle, and poverty disproportionately affects women [10]. Gender of the newborn, in particular a preference for sons, has been cited as an influential factor of PND in neighbouring China, Hong-Kong, Taiwan and Korea, but there is still limited evidence regarding this association in Vietnam [4] [18].

Perinatal mental disorders can have long lasting effects on child development and have been associated with poor infant growth and increased infectious disease morbidity in some LMIC settings [1] [15]. They also adversely affect maternal health and symptoms can include suicidal ideation and thoughts of infanticide [3]. It is well established that large proportions of mothers suffering from perinatal mental disorders in LMIC receive no treatment due to low societal priority regarding mental health, poor access to health services, and stigma [5] [19] [20]. Despite the profound impact a CMD has on the personal lives and economic productivity of whole families, and child development, providing research to design and deliver appropriate care in LMIC remains challenging [20]. Another issue regarding treatment of perinatal mental disorders in LMIC is that mental health services are limited and there are inadequate numbers of trained mental health specialists [13] [19]. There is emerging evidence that lay health workers and primary health care professionals can effectively deliver psychosocial treatment of PND in LMIC where mental health resources are scarce. The WHO have recommended the

training of lay health workers in identifying and treating common mental disorders as part of a primary health care service and current evidence reveals this could be an effective strategy [21].

However, measuring the effectiveness of such low cost interventions for addressing maternal mental health is difficult. The types of interventions vary widely, and are delivered by different people. Interventions may include education, home visiting and counselling or other specific psychological interventions, making comparisons difficult. Also, the fact studies use different measures of maternal mental health outcomes and different methodologies make comparisons difficult. Whilst there is a paucity of research on mental health interventions in LMIC, some evidence regarding community-based interventions is now available [1] [7]. Hence the purpose of this review is explore the evidence that low-cost, community based interventions for maternal mental health in LMIC are effective. In particular, studies where high quality experimental designs (randomised controlled trials) were included.

## 2. METHOD

A systematic literature search of five electronic bibliographic databases was undertaken. These databases were Medline, Web of Science, CINAHL, Psychinfo, Psycharticles and Proquest Psychology. The exploded search terms used included 'maternal depression', 'maternal mental health', 'postnatal/postpartum depression', 'randomised controlled trial,' 'low cost intervention' and 'community intervention.' Article reference lists were hand searched for further references. The search was confined to English language publications and inclusion criteria were as follows: Randomised controlled trial design; study conducted in a low or middle income country as defined by the World Bank, and some measure of maternal mental health as an outcome variable.

## 3. RESULTS

Seven studies were identified, and four met the criteria for inclusion [22] [23] [25] [26]. Of the other studies identified, one was excluded due to quasi-experimental design [27], one was based in a tertiary hospital [24], and another was excluded as maternal mental health was not an outcome variable [28]. The studies were conducted in Orissa, India [23]; Rawalpindi, Pakistan [22]; Khayelitsha, South Africa [26]; and Santiago, Chile [25]. No studies from Vietnam were found. Two of the studies were cluster randomised controlled trials and two were randomised controlled trials.

All studies included women of reproductive age (range 15-50) and recruited women in late pregnancy, after delivery or within one year postpartum. Three of the trials involved interventions by lay health workers who had been trained to deliver an intervention. In Orissa, India, the intervention involved monthly participatory meetings about problem solving and common maternal and infant care problems led by a peer facilitator over three years (20 sessions). In South Africa, trained community workers who monitored infant development, and provided social support visited women at home for six months postpartum. In Pakistan women received visits from trained lady health workers who could deliver a psychological intervention for the last four weeks of pregnancy and nine months postnatally. In Chile the intervention involved psycho-education support, treatment adherence support and referral by primary health care staff and physicians. The measures of maternal mental health used were Edinburgh Postnatal Depression Score (EPDS) (Chile and South Africa), Kessler 10 (K10) score (India), and Psychiatrist interview (Pakistan).

Regarding maternal mental health outcomes, in Chile, the crude mean EPDS score was lower in the group receiving the intervention at three months, although the differences in EPDS score had decreased by 6 months. The adjusted difference in mean EPDS between the two groups at three months was -4.5 (95% CI -6.3 to -2.7; $p<0.001$). Fewer women in the intervention group also took antidepressants at three months [25]. In South Africa, interventions by previously untrained lay community workers had a significant positive effect on the quality of maternal infant interaction and infant attachment. Although mean continuous EPDS score was lower in the intervention group when measured at six and twelve months, it was only significant at 6 months ($z = 2.05$; $p = 0.041$) [26]. In India, no significant difference in K10 score was found in years one and two of a three year intervention, or overall. However in year three, there was a significant reduction (57%) of moderate depression in the intervention clusters compared with controls. Neonatal mortality was also significantly reduced in the intervention clusters (32% lower over the three years) [23]. In Pakistan, women in the intervention group had almost the rate of prenatal depression compared with routine care (23% vs. 53%), and this difference was sustained at six and twelve months postpartum. Whilst the intervention did not affect child growth, mothers in the intervention group were more likely to have infants who were fully immunized, and who had less episodes of diarrhoea [22].

## 4. DISCUSSION AND CONCLUSIONS

As there is a shortage of mental health professionals in LMIC, many health systems are trialing community based interventions, often managed by lay health workers. The randomized controlled trials included in this review provide promising evidence that lay health workers can effectively support mothers and positively impact maternal mental health. All the interventions in the trials reviewed showed some reduction in maternal mental health symptomology. However with the exception of Pakistan, such reductions often only appeared at one specific time point [22] [23] [25] [26]. The interventions were heterogeneous in terms of time frame, the training given for intervention delivery and intervention content. Further research into the effectiveness of different types of interventions is needed.

Other authors have cautioned that whilst the evidence for psychological interventions delivered by lay workers is cause for optimism, adequate supervision by mental health specialists is vital [29]. This is because whilst lay health worker interventions have successfully reduced mild and moderate postnatal depressive symptoms, specialist care is required for severe and unresponsive cases. A stepped approach, similar to that used in Chile is recommended, where intervention participants are screened at different time points and specialist referral is available for serious cases [25]. This stepped care approach was used in another large cluster randomized controlled trial ($n = 2796$) in Goa, India. This trial revealed that a lay health worker led intervention effectively reduced prevalence of CMDs by 30%, and suicide attempts/plans by 36% in adults. Lay health workers received two months training and were supervised by a psychiatrist once per month, and patients were referred to a psychiatrist if they were unresponsive to the initial intervention activities [30].

Whilst the evidence from the studies reviewed above had some improvements in maternal mental health outcomes, all the trials reported significant improvements in physical or developmental neonatal outcomes. Whilst heterogeneity of measurement makes

comparisons difficult, this is consistent with a systematic review of 89 studies of lay health worker interventions for improving maternal and child health, which found that such interventions were very effective. Such improved outcomes include increased immunization and breastfeeding rates, exclusive breastfeeding, and health seeking for ill children, and decreases in some infectious diseases morbidity [31]. In this review, improvements in maternal-infant bonding were also found [26].

The existing literature reveals that Vietnam has a prevalence of maternal mental disorders at the higher end of international averages [4] [7]. As the Vietnamese mental health system focuses on inpatient mental health care for severe mental disorders, few resources for maternal mental health exist [13]. An emerging literature suggests that in LMIC, integrating maternal mental health into existing maternal and child health services is both clinically and cost effective as mother and child are treated together. Integrating maternal mental health services into maternal and child health services increases accessibility, as stigma associated with specialist psychiatric services is reduced [31].

One of the features of mental health systems is that in order to expand they require investments in human resources and health workers, rather than technical equipment [5] [13]. Human resources in LMIC are often scarce, for example Vietnam's mental health workforce currently has 0.35 psychiatrists and 2.10 psychiatric nurses per 100,000 population [33]. The evidence from this review reveals that lay health workers can effectively deliver interventions, which reduce maternal mental health morbidity and improve neonatal outcomes. Such interventions have been recommended by the WHO as a strategy for increasing access for mental health disorders in LMIC. However, in order for such interventions to be effective, sufficient training of lay workers is required, as well as specialist supervision.

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