Reducing Perinatal Depression Among the Hard to Serve

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Perinatal depression is a prevalent condition that can adversely affect maternal health and functioning, family dynamics and infant development. However, in low and middle-income countries (LMICs) women suffering from perinatal depression rarely have their condition diagnosed and treated. This paper analyzes the problem of perinatal depression in LMICs, including risk factors and potential outcomes, then critically examines one intervention—The Thinking Healthy Programme (THP)—as a model from which to draw recommendations for future programs and studies. The THP is a cognitive behavior therapy-based intervention that was incorporated into the maternal and child health services provided by community health workers in rural Pakistan to reduce perinatal depression and improve infant health. Analysis shows that strengths of the THP include its use of a strong supervision model and application of a psychosocial approach to ensure cultural appropriateness and participant engagement. However, weaknesses in sample selection, limitations of evaluation methods, the extensiveness of formative research and concerns about sustainability and large-scale feasibility illustrate opportunities for improvement. Future interventions to address perinatal depression in low-resource settings should target the most vulnerable women, incorporate more rapid assessment procedures, utilize multiple methods for evaluating child health and development and ensure program sustainability through refined supervision processes and mechanisms for maintaining morale and motivation of CHWs.

INTRODUCTION

Perinatal depression is the presence of moderate to severe depressive symptoms at any time during a woman's pregnancy (prenatal depression) or the first year after giving birth (postpartum depression). Possible symptoms include depressed mood, loss of interest or pleasure in activities, sleep problems, loss or increase in appetite, lack of energy, irritability, anxiety and suicidal thoughts.[1] While many of these symptoms may seem mild in comparison to those of other conditions, perinatal depression can have serious adverse effects on maternal health and functioning, family relationships and infant development. Evidence-based, cost-effective and sustainable interventions are needed to address this common and disabling condition, particularly in low and middle-income countries (LMICs) where it is rarely diagnosed and treated.

Both psychosocial (for example peer support and counseling) and psychological (cognitive behavioral therapy and interpersonal therapy) interventions have been found to be effective in reducing perinatal depression symptoms, as well as in improving various maternal, infant and family outcomes.[2] In a systematic review of nine different trials, cognitive-behavioral therapy (CBT) produced the most significant reduction in relative risk of these forms.[2] CBT is based on the theory that one's thoughts are connected to feelings and actions, and if these can be modified then beliefs and behaviors will change as well.[3] In CBT, clients work with clinicians to identify their maladaptive thinking styles (such as fatalism, inability to act and somatization) and replace these with more positive thoughts, building their capacity to address their own problems and fostering their sense of self-worth. CBT is one of the only forms of psychotherapy that has produced significant results in trials in LMICs.[4] To enable implementation of CBT and other treatments in LMICs, the treatments must be proven effective, as well as cost-effective and capable of being integrated into existing health systems with limited resources.

In the largest randomized controlled trial for maternal depression in a LMIC, Rahman, Malik, et al. implemented a cognitive behavioral therapy-based intervention called the Thinking Healthy Programme (THP) using community health workers (CHWs) in the poor, rural district of Rawalpindi, Pakistan.[5] The THP provided a promising model because it integrated evidence-based psychotherapy into existing maternal and child health services provided by non-professional CHWs. The THP had several features that have been found critical for success in psychological interventions for perinatal depression by CHWs in LMICs, including: incorporation of delivery into the routine maternal and child health services beginning in the antenatal period and continuing into the postnatal period, extension beyond the mother to engage other family members in the process and adaptation for cultural and contextual relevance.[6] In meta-analysis of interventions for perinatal mental disorders, this intervention had the largest impact in the 14 trials reviewed, which was attributed to psychotherapeutic content, number of sessions and staff training and supervision practices.[7] Because of the strength of this model, the THP will be critically examined to evaluate which components should be applied to other interventions to address perinatal depression in LMICs and additional features that should be considered.

BACKGROUND

Prevalence

Depression is the largest cause of non-fatal disease burden worldwide, responsible for almost 12% of overall years of disability.[8] The risk of depression in women is about twice what it is in men, and women are particularly vulnerable while pregnant and shortly after giving birth because of hormonal changes and parenting stressors.[9] In high-income countries, the prevalence of perinatal depression and other common perinatal mental disorders is 10% antenatally and 13% postnatally. However, in LMICs, these rates are significantly higher—15.6% antenatally and 19.8% postnatally.[10] Prevalence is highest among the most economically and socially disadvantaged women in crowded households of rural areas.[10] For example, in the two rural areas of Pakistan in which the THP was implemented,

where most families rely on subsistence farming and the average household has 6.2 members, the prevalence of perinatal depression is 25% antenatally and 28% postnatally.[5,11]

Contributing Factors

Risk factors for women experiencing perinatal mental disorders in LMICs include the following: socioeconomic disadvantage, unintended pregnancy, being younger, being unmarried or having poor marital relationships, being of a religious minority, experiencing intimate partner violence, lacking intimate partner empathy and support, having a history of mental health problems and in some cultures having a female (rather than male) infant.[10,12] Protective factors include higher educational attainment, permanent employment, being of the ethnic majority, having access to sexual and reproductive health services, having a trustworthy partner and healthy relationships with other family members.[10]

Outcomes

Perinatal depression can have numerous adverse outcomes related to maternal health and functioning, infant health and development and social relationships (Table 1). For mothers, perinatal depression has been associated with pregnancy complications and other health problems, parenting difficulties and dangerous thoughts and behaviors. Perinatal depression can also hurt children, causing death, delivery complications or immediate health problems as well as long-term delays in cognitive, physical and emotional development. In developing countries, children of mothers with depressive symptoms are more likely to be underweight or stunted, and the more severe the depression, the greater the growth deficit.[9] Effects can continue across generations, as mothers who lacked an affectionate and trusting relationship with their own mother are at increased risk for perinatal depression.[10]

Access to Care

Despite evidence of the negative impact of perinatal depression on the health and functioning of both mothers and infants, pregnant women in low-resource areas rarely receive mental health support. In fact, nearly 90% of all depressed individuals in LMICs do not have access to psychological treatment.[18] Typical barriers to implementing maternal mental health interventions in LMICs include limited resources, weak health systems and the shortage of skilled workers.[16,19]

For example, in rural areas of Rawalpindi, Pakistan, a Basic Health Unit, consisting of a doctor, midwife, vaccinator and 15-20 community health workers called Lady Health Workers (LHWs) provides primary care to about 20,000 people. The district has no psychologists in the public sector and only three psychiatrists. Consequently, the vast majority of mental health conditions go undiagnosed and untreated.[11]

Task Shifting

Task shifting skills from professional health care providers to non-specialist community health workers (CHWs) has emerged as an efficient and cost-effective way to improve accessibility of health and mental health services where human resources are scarce.[6] CHWs have been found effective in improving numerous health outcomes including reducing neonatal mortality and child mortality attributable to pneumonia and malaria, as well as promoting health behaviors such as exclusive breastfeeding, childhood immunization and early prenatal care usage.[20,21] CHWs have also effectively delivered mental health interventions. In thirteen trials in which community health workers in LMICs addressed common perinatal mental disorders specifically, meta-analysis of standardized effects showed depression was reduced by 38% among mothers in the intervention groups compared to controls (pooled effect size for maternal depression was -0.38). Intervention benefits to children included improved mother-infant interaction, better cognitive development and growth, reduced diarrhea episodes and increased immunization rates.[7]

The Thinking Healthy Programme

METHODS

The Thinking Healthy Programme (THP) is a cognitive behavioral therapy-based intervention that was delivered by community health workers to perinatally depressed women in two rural areas of Rawalpindi, Pakistan. Married women aged 16-45 in their third trimester of pregnancy who had been diagnosed with perinatal depression were eligible. Mothers were diagnosed by a psychiatrist trained to administer the structured clinical interview for the Diagnostic and Statistical Manual of Mental Disorders IV diagnosis, which has been used extensively in cross-cultural epidemiological and treatment studies of perinatal depression. Women with serious medical conditions or pregnancy-related illnesses, substantial physical or learning disabilities and psychosis were excluded.

Rahman, Malik, et al. randomized participants from 40 Union Council clusters (the smallest administrative unit in Pakistan) to intervention (N=463) or control groups (N=440).[5] In the intervention group, Lady Health Workers (LHWs) were trained to deliver the psychological intervention in 15 sessions over the course of 11 months; in the control group, untrained health workers made an equal number of visits to depressed mothers. Researchers trained the LHWs using a manual with directions for each session and provided them with a copy to use as a reference. The THP curriculum has five modules that focus on three areas relevant to mother and infant health during pregnancy and after childbirth—the mother's personal health, the mother-infant bond and the psychosocial support of others.[22] LHWs working with the treatment group used CBT techniques of active listening, collaboration with family, guided discovery (a method of questioning to probe for existing beliefs and stimulate alternative ideas) and homework assignments.

The study aimed to assess the effect of the THP on perinatal depression in women and to test the hypothesis that treatment of perinatal depression would lead to improved nutrition and other health outcomes in the infant. The outcome measurements included: 1) infant weight-for-age and height-for-age at 6 and 12 months, common indicators for children's healthy physical development; 2) maternal depression symptoms and severity, functioning levels and perceived social support, which was assessed by psychiatrists at 6 and 12 month follow-ups using the Hamilton Depression Rating Scale, the brief disability questionnaire, the global assessment of functioning scale and the multidimensional scale for perceived social support; 3) whether mothers were exclusively breastfeeding at 6-month follow-up (as self-reported); 4) the number of diarrheal episodes in the infants in the previous two weeks at 12-month follow-up (through use of a questionnaire); 5) the completion of infant immunizations (through assessing records); 6) women's use of contraception at 12-month follow-up (as self-reported); and 7) the time allocated by both parents for playing with infants (as self-reported).

RESULTS

At both six and twelve month follow up points, mothers in the treatment group had lower levels of depression (adjusted mean difference (AMD)= -5.86 at 6 mo. and -6.65 at 12 mo., p<.0001), lower levels of disability (AMD= -1.80 at 6 mo. and -2.88 at 12 mo., p<.0001), better overall functioning (AMD= 6.85 at 6 mo. and 8.27 at 12 mo., p<.0001) and greater perceived social support (AMD= 6.71 at 6 mo. and 7.85 at 12 mo., p<.0001), than the women in the control group (See Appendix A for full Tables of Results).[5] Families in the treatment group also reported higher use of contraception at 12 months (adjusted odds ratio (AOR)=1.6, p=.002) and more frequent play with infants at 12 months (AOR=2.4 among mothers and 1.9 among fathers, p=.0001). Infants in the intervention group had fewer bouts of diarrhea (AOR=.06, p=.04) and were more likely to have completed their scheduled immunizations (AOR=2.5, p=.001). However, their weight-for-age and height-for-age measurements did not significantly differ from controls.

DISCUSSION

The THP contained several elements that made it amenable to integration including strong training and supervision supports, cultural appropriateness, incorporation into the routine work of CHWs so as to prevent additional burden and a child-focus to ensure participation of families and avoid stigmatization.[16] The THP used a psychosocial approach, as opposed to a biomedical, which addressed perinatal depression in the environmental context and facilitated flexibility in service delivery, cultural acceptability and family en-

gagement. However, the THP had weaknesses in its sampling and evaluation processes. Further, the lack of methods for sustaining staff and the extensiveness of formative research undertaken present challenges with regard to sustainability and large-scale feasibility. Each of these components will be discussed in turn to provide recommendations for future programs aiming to address perinatal depression in low-resource settings.

SAMPLE

The THP had a robust sample of women (463 women in the intervention group and 440 in the control group) who were primarily recruited through the registries LHWs kept of all pregnant women in the area. In addition, the researchers asked local midwives and LHWs to identify any women that may be missing. As the common practice in studies of perinatal mental disorders in LMICs is to recruit participants through primary care clinics, the THP methods would have generated a strong sample that included pregnant women who may have been socially isolated and difficult to access.[10]

However, only married women were included in the sample. While social taboos in this community make would make it very uncommon to find a pregnant women who was not married, it would nevertheless be important to include these women in the intervention, and it is critical to target them in future interventions implemented in less conservative cultures. Studies have shown that the two most consistent predictors for perinatal depression are poor partner relationships and lack of social support.[17] Married women are more likely to have a partner to help provide income and childcare as well as increased social support from in-laws, which may reduce their stress and lead to lower likelihood of perinatal depression.

Moreover, mothers with serious medical conditions, physical or learning disabilities and psychosis were excluded; these women may have had more severe and difficult-to-treat forms of depression and would have also likely been dealing with additional risk factors for depression including social isolation, limited educational attainment and unstable income. Therefore, the most extreme and challenging cases might have been excluded. Other studies may wish to explore the potential impact of interventions for perinatal depression on the most vulnerable cases, including single mothers and others who are socially isolated or women with debilitating physical or mental health conditions.

SUPERVISION MODEL

The THP used an apprenticeship model of training and supervision that has proven effective and draws upon broader dissemination and implementation literature.[23] The apprenticeship model uses three groups: trainers who are experts in the intervention, but typically from outside the project area, supervisors who are locals chosen for an advanced role and counselors who provide direct psychological support to clients. In the THP, local Lady Health Workers who understood the unique beliefs and resources in the community provided therapy and were supervised regularly by others that had been trained by expert members of the research team. The initial training was short (three days), but Lady Health Workers continued to receive intensive group supervision for a half day each month throughout the three years of the project duration, with emphasis on "experiential learning," through the use of role playing and critique of case studies, during which researchers highlighted key techniques and principles employed to achieve success and LHWs problem-solved together.[18] Research suggests that trainings should use these types of active and experiential methods and confirms that post-training supervision is vital to the success of clinical interventions.[23] Meta-analysis of interventions for perinatal mental disorders indicates that the THP's use of continuous supervision may have significantly contributed to its impact.[7]

However, potential challenges in sustaining quality supervision could jeopardize long-term sustainability and feasibility of replicating of the program. Training for the THP was provided by experienced members of the research team, which would require additional experts should the model be scaled up. Also, the apprenticeship model relies on local supervisors, which can present a challenge if staff turnover is high.[23] Rahman, Malik, et al. suggest that this issue could be overcome if supervision was instead provided through peer groups in which health workers from each area met regularly to share experiences and lessons learned.[5] This revised model would maintain experiential and continuous supervision, but there would be no experts available should significant challenges arise that the CHWs could not overcome through peer support. Further, the researchers facilitated ongoing supervision groups very actively—providing feedback on successes, key techniques and principles— and it would be challenging to create this dynamic learning experience without a leader with expertise and strong interpersonal skills.

Systematic review of the determinants in scaling up and sustaining CHW programs in LMICs illustrates the most frequently cited barrier was insufficient pay or incentives for CHWs relative to other employment opportunities.[21] Another common barrier was the lack of acknowledgement and reward for those in supervisor roles.[21] Mechanisms for maintaining the morale and motivation of CHWs and supervisors should be built into the intervention and can include both material and social incentives such as community recognition, in-kind gifts, exemption from community labor requirements and other incentives.[21] Future iterations should account for real resource limitations and the challenge of CHW burnout and supervisor atrophy to see if this is a model that can be brought up to scale.

FORMATIVE RESEARCH

Formative research over five years using mixed methods helped ensure that the THP was culturally appropriate and seen as necessary and relevant. All four stages of the Medical Research Council framework for cultural adaptation were employed (modeling/theoretical development, formative research, piloting and evaluation).[24] Crucial steps reported in this process include data synthesis by systematic triangulation of findings from multiple methods, data sources and theories; review of the synthesized data by panel of experts; in-depth interviews with 30 poor, perinatally depressed mothers; focus groups with 24 Lady Health Workers; interviews with six primary care staff; data from another epidemiological study being examined for psychosocial risk factors for pre and postnatal depression; and quantitative evaluation with LHWs.[6]

THE PSYCHOSOCIAL APPROACH

The psychosocial approach takes into consideration an individual's experience of an illness in the context of her environment, including other factors that may promote or prohibit her health. In formative research, the THP examined the many psychosocial risk factors for perinatal depression (i.e. economic insecurity, partner relations and poor social support) and employed methods to address these in treatment delivery. Key themes from formative research that were incorporated to a psychosocial program design included suggestions to focus on maternal and infant health rather than maternal depression; to make it participatory, empowering and integrated into the health care system and to apply a home-based and culturally adapted model.[11]

Flexibility in the THP design enabled the LHWs to also apply a psychosocial approach to their work. They were attuned to the needs of individual mothers and changed the intervention delivery accordingly, shifting the emphasis from empathic listening to infant care, physical health and nutrition or interpersonal relationships.[11]

CHILD FOCUS

The decision to make infant health and development the primary focus and maternal mental health secondary enhanced acceptability, reduced stigma and engendered greater family engagement, resulting in improved perceived social support and increased time devoted to play with children. Formative research showed that many in the community did not view maternal depression as a problem requiring intervention nor did they believe that improving mothers' mental health through therapy was a real gain, necessitating this alternate approach.[11] Involving families and communities in interventions can mitigate psychosocial risk factors such as poor self-efficacy, pejorative gender stereotypes, lack of financial autonomy and negative intimate partner relationships.[7] Systematic-

Table 1: Adverse Outcomes Associated with Perinatal Depression[9,10,13,14,15, 16,17]

Outcomes for Mother	Outcomes for Child
Health	***Health***
Gestational hypertension	Spontaneous abortion
Preeclampsia	Preterm delivery/ Operative delivery
Spontaneous abortion	Neonatal growth retardations
Preterm delivery/ Operative delivery	Fetal death
Bleeding during gestation	High cortisol levels
Chronic health problems	Low birth weight
	Stunted growth
	Malnutrition during the first year of life
	Higher rates of disease (infectious and diarrheal)
	Hospitalization
	Reduced immunization
Mental Health	***Mental Health***
Low self-esteem	Increased risk for mental health conditions
Suicidality	
Behavioral/Functionality	***Behavioral/Functionality***
Lack of adherence to medical care recommendations	Irritability
	Hostility
Sleep problems	Erratic sleep patterns
Poor nutrition	Enhanced stress response
Poor functionality	Impaired language learning
Inhibited decision making capacity	Reduced educational attainment/ performance
Substance abuse	Reduced economic productivity
	Lifelong behavioral problems
Parenting/Attachment issues	***Attachment issues***
Reduced attachment	Lack of secure attachment to mother, which may perpetuate across generations
Reduced child bonding	
Poor parenting	
Nonresponsive caregiving	
Lower likelihood and shorter duration of breast feeding	
Social Relations	
Damage to marital bond	
Damage to social relations	

review of interventions for perinatal mental disorders suggests that interventions that directly address infant health (rather than as a secondary outcome) and integrate maternal and infant components have more significant effects on infant growth and development, neonatal mortality rate and infectious disease rates.[7]

CULTURAL ADAPTATION

Although CBT has been found cross-culturally applicable, psychiatric labels and conceptualizations of illnesses vary considerably, necessitating cultural adaptations to intervention design and execution.[7] Adaption of evidence-based mental health treatments for the cultural contexts in which they are being delivered can lead to increased acceptability, patient satisfaction and effectiveness.[24] Modifications to the CBT model for the THP included: translating materials into the local language and replacing technical jargon with common terms, pairing therapists and patients based on their home community and language, using pictorial guides, de-emphasizing components of the intervention found inappropriate and involving family members in the process.[6,18] These activities were done to increase understanding, adherence and engagement of participating families and thus the likelihood of achieving successful outcomes. For example, the term "depression" was never used and was instead replaced by terms like "burdened" and "stressed" to avoid medicalization of the condition and reduce stigma.[11] Matching providers with participants by community and language would have facilitated trust, an essential component for any psychological treatment.

However, tailoring the THP to each community is costly and time consuming. The potential for implementing and scaling up effective mental health services in LMICs may be substantially limited if they are dependent upon lengthy and in-depth ethnographic assessments and treatment development.[25] Rapid Assessment (RA) procedures may have been a more efficient method of gaining the knowledge necessary to effectively implement the THP. This is a more rapid, cost effective and pragmatic method than traditional ethnographic research, which is used to generate information on a specific health or social problem and aid in the design of culturally appropriate interventions.[26] In RA, interviews or focus groups are conducted with small samples of key informants and respondents using directive questions (probing) in a short period of research.[27] While assessing context is critical because mental health interventions are influenced by the social, economic, cultural institutional and gendered environments in which they operate, Belkin et al. suggest that the THP may have been improved by drawing upon local "home-grown" methods based on familiar practices and social strategies rather than adapting treatments based on Western research and practice.[25] RA with key informants may have uncovered alternative models.

EVALUATION

The THP evaluation included key outcomes and utilized validated and reliable procedures. Previous quantitative and qualitative studies done in a rural sub-district of Pakistan found perinatal depression correlated with high rates of infant malnutrition, diarrhea and reduced uptake of immunization, all of which were tracked to determine program gains.[5] Other factors that had been found to protect against perinatal depression such as access to contraception and father engagement were also included.

However, the study failed to find significant results for improving infant malnutrition and missed opportunities to measure other critical factors including the mother-infant bond and infant development gains. Simon suggests that the intervention's failure to produce significant growth gains could be explained by the relatively small difference in standard deviations of growth between children of depressed and non-depressed mothers (0.6 SD) yielding clinically significant but undetectable results for a study with this power (or sample size).[28] The THP authors acknowledge that the high prevalence of underweighted infants likely reflected the sustained effect of untreated maternal depression in both intervention and controlled groups and indicate that longer follow-up might have shown significant impact of the intervention.[5] Additionally, the program effect may have been negated if the control group experienced unintended gains as a result of LHWs providing more structured and monitored care than is usual in the community.

Extending the evaluation period and tracking additional outcomes may have produced more significant results for multiple outcomes. Depression and growth outcomes were measured at only 6 and/or 12-month follow-ups and the number of diarrhea episodes was only reported for the two weeks prior to follow-up. However, clinical trials for treating common perinatal mental disorders in LMICs evaluate outcomes as much as three years later and other early interventions in HICs show results up to 15 or 20 years later.[7,29] The THP could have tracked infants' cognitive and emotional development using one of the many validated developmental screening tools, as well as infant and caregiver attachment—a critical element in infant development and one threatened by perinatal depression. For example, Cooper et al. tracked gains of an intervention to improve mother-infant relationship and security of infant attachment using the strange situation procedure (whereby young children are observed alone, interacting with a stranger and reuniting with a primary caregiver) and using an established, reliable parent/caregiver involvement scale (that measures the responses of the mother to her infant's needs and initiations).[30] Alternatively, the THP authors could have explored local practices and methods for examining the infant-mother relationship and developmental gains.

Finally, the evaluation did not assess which of the intervention's numerous strategies and components contributed most significantly to successful outcomes. The THP Curriculum has five modules. The intervention employs numerous strategies including child health education, activating social networks, psychoeducation, psychostimulation, cognitive restructuring and problem solving.[6] Intervention success was attributed to improved maternal knowledge, caregiving skills, sensitivity and responsiveness enhancing the mother-child interaction, maternal self-efficacy and satisfaction.[7] However, no efforts were made to determine which strategies produced the greatest results. Post intervention quantitative evaluations were conducted, which showed LHWs were strongly in favor of the intervention, but these did not include perceptions of program or activity efficacy. Future iterations should explore the effectiveness of the various strategies and components.

SUSTAINABILITY AND SCALABILITY

Because increased work pressure, potential burnout, low motivation and high staff turnover among CHWs are common challenges that inhibit sustainability and feasibility of psychological interventions for perinatal depression when taken to scale, the authors should explore simplifying their curriculum.[6] Pallas et al. recommend that interventions should appropriately design the scope of a CHW's work to fit with the levels of financial and human resources available for training, supervision and incentives in order to maintain CHW morale and motivation.[21] Because of the complexity of this model and the training and supervision necessary for its implementation, it may be beneficial to determine if a simpler version may still provide significant results. Further, as scalability is a common challenge in psychological interventions for perinatal depression by non-specialist health workers in LMICs, an assessment of the intervention's cost-effectiveness would be critical for advocating for its expansion or replication.[6] A simpler version may be more cost-effective, sustainable, feasible and readily accepted by policymakers in LMICs.

CONCLUSION

Because of perinatal depression's high prevalence and burden of disability and low rates of diagnosis and treatment, interventions are urgently needed to provide cost-effective and sustainable mental health support to pregnant women and new mothers in LMICs. Interventions should target the most vulnerable populations, including single mothers, the socially isolated and women in crowded households of rural areas.

Analysis of the Thinking Healthy Programme identified critical processes for success. The THPs used a psychosocial approach to adapt the therapeutic intervention for context, facilitate family engagement and address individual needs. This contributed to its effectiveness in reducing maternal depression, improving functioning and increasing perceived social support among mothers in the treatment group. The formative research and continuing supervision components were also very strong, though these processes may be difficult to sustain and scale up. However, the intervention's failure to achieve significant results with regard to infants' healthy development suggests the possibility of biases and the need for additional and extended evaluation methods including of mother-infant attachment and infant development. In addition, incentives should be provided to bolster CHW and supervisor morale and motivation and reduce the likelihood of turnover. Finally, steps should be taken to measure and potentially improve the cost-effectiveness of the THP model, such as utilizing more rapid assessment procedures to dictate adaptations, modifying supervision processes and/or simplifying the design to eliminate less vital components.

Nevertheless, the THP provided multiple benefits to a poor, rural community and illustrates successful methods for psychological interventions to address perinatal depression. This model for implementing an evidence-based, culturally-adapted psychological treatment in a resource-poor setting provides great promise to the field of global mental health. With some adjustments, it could be scaled up to support the health and development of many women and children worldwide.

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