Scooping Review

The Role of Primary Healthcare in Improving the Maternal and Infant Mortality in Pakistan

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ABSTRACT

Background: Maternal and neonatal mortality remains a significant public health challenge globally, particularly in countries like Pakistan, which exhibit some of the highest rates of such mortalities. Effective primary healthcare interventions are crucial for mitigating these rates, focusing on enhancing the quality of care provided to mothers and newborns. Understanding the scope and impact of these interventions can inform future strategies to improve maternal and neonatal health outcomes.

Objective: This review aims to evaluate the existing literature on primary healthcare interventions targeting maternal and neonatal mortality, identifying the types of interventions employed, their focus areas, and the outcomes achieved, with a specific interest in the context of Pakistan.

Methods: A scoping review methodology was employed, analyzing studies that investigated primary healthcare interventions designed to reduce maternal and neonatal mortality. The review included studies published in English, utilizing a mix of research methodologies, and focused on interventions such as morbidity and mortality review processes, healthcare worker training, and community engagement strategies. Databases searched included Google Scholar, OVID, and the WHO Global Health Library, among others.

Results: Out of 25 studies reviewed, a majority concentrated on healthcare team and program-level interventions rather than systemic healthcare reforms. Key areas of focus included enhancing review processes for maternity and neonatal care, training and education for healthcare workers, and community development initiatives. However, there was a noted lack of interventions directly improving the healthcare experiences of mothers and newborns. Mixed methods were the most common research approach, aligning with the complexity of evaluating health system interventions.

Conclusion: To improve maternal and neonatal health outcomes in Pakistan, a comprehensive approach addressing the entire health system is required. This involves not only focusing on the delivery of healthcare services but also incorporating community insights, continuous education programs, and leadership modifications in healthcare services. Future strategies should prioritize the application of standardized and relevant methods to enhance the quality of maternity and newborn care initiatives, aiming for scalable improvements in healthcare outcomes.

Keywords: Maternal mortality, Neonatal mortality, Primary healthcare, Pakistan, Healthcare interventions, Community engagement, Health system reform.

INTRODUCTION

Maternal and infant mortality represent pivotal public health challenges, serving as indicators of a society's socioeconomic conditions and the efficacy of its healthcare system. The maternal mortality ratio (MMR) and infant mortality rate (IMR) are quantified respectively as the annual number of female deaths due to causes related to or aggravated by pregnancy or its management, per 100,000 live births, and the likelihood of an infant dying before reaching one year of age, per 1,000 live births. Notably, the neonatal mortality rate, indicating the risk of death within the first 28 days of life, along with the post-neonatal mortality rate, which accounts for deaths occurring from 29 days to under one year of age, highlight the heightened vulnerability of infants during the early stages of life (1, 2, 3).

The World Health Organization (WHO) has long championed global initiatives aimed at curbing these mortality rates, achieving significant reductions worldwide. Despite a 46% decrease in MMR and over a 45% reduction in neonatal and infant mortality rates, progress has been uneven, particularly among the most disadvantaged populations. This uneven progress hindered the full achievement of the Millennium Development Goals, underscoring the need for targeted interventions (3). The WHO recommends at least 24 hours of postnatal care in hospitals after childbirth and immediate postnatal visits for home births to mitigate these risks. A variety of interventions, tailored to the cause of death, are advocated to reduce mortality within the crucial first week of life (4).

Pakistan, in recent decades, has intensified its efforts to reduce maternal and neonatal mortality through public policies and increased funding. While notable progress has been made, the reduction in maternal deaths has been modest. Between February and October 2022, the MMR in Pakistan decreased by 22%, a slight improvement from the 270 maternal deaths per 100,000 live births recorded in 2000 to 248 in 2015. This slow progress underscores the persistent challenges in addressing maternal health risks (5).

Research over the last decade has established a strong link between environmental factors and both IMR and MMR, with studies highlighting the beneficial impact of primary healthcare services on reducing infant mortality and the prevalence of underweight newborns. These findings suggest that enhancements in primary care services have contributed to improved infant health outcomes in Pakistan (6). Despite these advancements, the family health strategy, though rich in resources and services, faces challenges inherent to nascent healthcare systems, including inefficiencies and resource allocation issues (7).

The persistent disparity between the reductions in maternal and prenatal mortality rates emphasizes the need for a deeper investigation into the role of primary healthcare in mitigating these deaths. This study aims to explore the contribution of primary healthcare to the reduction of maternal and infant mortality in Pakistan, offering insights into the effectiveness of current strategies and identifying areas for further improvement. By examining the temporal relationship between the implementation of the family health strategy and changes in mortality rates, this research seeks to provide a comprehensive understanding of the impact of primary healthcare interventions on maternal and infant health outcomes, thereby informing policy and practice in the quest to enhance maternal and child health in Pakistan.

MATERIAL AND METHODS

A scoping review methodology was utilized to explore the wide range of initiatives aimed at improving the quality of maternity and newborn care, necessitating a thorough mapping and assessment of the current literature (8,9). The approach to the review was informed by the systematic literature review framework developed by Tricco (8), with methodological considerations based on the PRISMA evaluation guidelines (8).

An expert committee consisting of six prominent doctors and academics specialized in maternal and child health from across Pakistan was assembled to guide the scoping review process. The committee provided valuable advice on the relevance of the research topic, criteria for inclusion and exclusion, the suitability of data extraction methods, and the integration and analysis of the results.

Eligibility for studies was determined based on their focus on quality improvement measures targeting maternal and neonatal care. Interventions considered for inclusion involved any activity aimed at elevating the standard of care within the primary healthcare system. A variety of study designs were accepted, including controlled before-after studies, disrupted time series, randomized controlled trials, before-after comparisons, retrospective and prospective cohorts, curriculum evaluations, guidelines, and qualitative research, provided they offered primary data. Case studies and working papers were also included.

Exclusion criteria were set to ensure the review's relevance to contemporary policy and practice, excluding papers not published in English, as well as editorials, letters, and commentaries.

Databases such as Google Scholar, Maternity and Infant Care (OVID), Medical Subject Headings (MeSH), and the WHO Global Health Library (GHL) were searched using specific terms related to pregnancy, childbirth, infant care, maternal health, quality of healthcare, and primary healthcare among others. The search strategy was designed to capture the broadest possible spectrum of relevant research.

Further exploration involved manual checking of reference lists from key articles for additional relevant studies, and direct searches using phrases like "quality improvement," "primary healthcare," and "maternal and infant mortality." Websites of key non-governmental organizations (NGOs) and international bodies such as the UNFPA, WHO, and UNICEF, which are active in providing maternity and newborn care in Pakistan, were reviewed for pertinent information. National health ministry websites were also directly searched for relevant materials.

References from Google Scholar were compiled in Microsoft Word, and any disputes were resolved through discussion or the involvement of a third reviewer. Data extraction was performed using Microsoft Excel, and the methodological quality of each included study was appraised by two researchers using the Mixed Methods Appraisal Tool (MMAT), accommodating the assessment

of qualitative, quantitative, and mixed-methods research (9). Not all studies provided sufficient detail for a comprehensive MMAT quality assessment. The quality of evidence was not used to include or exclude studies but to describe the quality of the available data as part of the scoping review's preparatory phase. Identified quality improvements were categorized using the WHO criteria for improving maternal and newborn care in primary healthcare and a layered health system model (10). Data were synthesized and summarized employing both descriptive statistical analysis and qualitative methods.

FINDINGS

The search conducted between November 10 and 20, 2022, yielded 235 records, including 7 from grey literature. After removing 25 duplicates, the review process proceeded with 203 unique references. Of these, 23 were excluded for not meeting eligibility criteria. Further scrutiny through full-text analysis led to the exclusion of an additional 10 citations due to various reasons: some did not focus on improving care for mothers and newborns, others were not conducted in eligible countries, or were not in English.

The remaining studies comprised a diverse set of research methodologies. Among them, 12 studies (40%) evaluated programs using mixed methods in over half of the cases. Descriptive studies, employing primarily qualitative techniques, accounted for 25% of the papers. The corpus also included two brief studies, before-and-after research, a protocol, and a case series, with strategic plans and achievement reviews constituting the final five papers as local strategy reports. Notably, no randomized controlled trials were identified. The majority of included studies were research articles (72%), with qualitative methods (20%) and mixed-methods research (8%) also represented.

The interventions identified were varied, with several studies (10, 11, 12) focusing on community development and health improvement measures, including the promotion of contraceptive use and vaccination. Other interventions involved infrastructural enhancements like staff housing and healthcare facility refurbishments, as well as improving access to essential medical supplies and equipment. Specific approaches addressed the management of perinatal deaths and bereavement services (13), auditing of morbidity and mortality (14), and antibiotic prescription policies.

Educational initiatives aimed at enhancing clinical skills in antenatal, intrapartum, and postnatal care were highlighted, with an emphasis on training for community healthcare workers, traditional birth attendants, and midwives (12-14). Additionally, some programs sought to advance tertiary education in maternal and child health and midwifery.

Interventions also extended to systemic improvements within the broader healthcare environment, including strengthening linkages between community-based services and overarching health promotion, action planning, and enhancing the academic system (15-18). Leadership training for nursing and midwifery professionals was considered at both the individual and organizational levels, with a comprehensive approach often reflected in regional policies and planning.

A unique patient-level intervention was identified: an incentive program that encouraged mothers to deliver in medical facilities by offering a mother-baby support gift. This program also impacted the collaborative care level, providing staff incentives and training in neonatal and emergency obstetric care.

Facilitators and barriers to effective maternal and neonatal mortality reduction initiatives were identified across different healthcare system levels. At the environmental level, effective facilitators included strong ties with policymaking bodies and alignment with key goals and policies (18). At the care team level, educational and training interventions, dedicated personnel, rural postings, and opportunities for communication and relationship building (19) were significant enablers. Conversely, challenges at this level were associated with insufficient and underqualified staff and poor adherence to protocols. The mother-baby gift program highlighted the importance of integrating sociocultural norms with financial incentives to encourage childbirth in medical facilities, showcasing a nuanced approach to patient-level interventions.

DISCUSSION

In this review, we analyzed 25 studies to understand how primary healthcare can mitigate maternal and neonatal mortality, revealing a concentration on interventions tailored to healthcare teams and programs rather than broader systemic reforms. These studies primarily highlighted efforts to refine morbidity and mortality review processes for maternity and neonatal care and to enhance the training and education of healthcare providers. However, there was a notable gap in initiatives directly addressing the healthcare experiences of mothers and newborns.

Pakistan, with one of the highest rates of maternal and newborn mortality globally (19), emerges as a critical area for focused interventions. Over half of the analyzed studies were based in Pakistan, employing predominantly mixed-methods approaches. This aligns with the recommendation for health systems research, where mixed methods provide a comprehensive evaluation of the impact of quality care interventions—given the complexity of measuring health outcomes through quantitative methods alone (18).

A significant oversight in the literature is the limited discussion on patient and public perspectives or patient-centered outcomes. Engaging patient and community insights is crucial for effectively reducing maternal and child health mortality. The importance of community support, local leadership, and participation in managing maternal and child health services cannot be understated (20). Previous analyses of maternal and infant health initiatives in Pakistan have shown a similar focus on health worker interventions and service delivery performance, reinforcing the trend towards targeting healthcare providers and services.

The indispensable role of health personnel in delivering high-quality healthcare is clear. For healthcare staff to provide exceptional care, they must be empowered, equipped, and engaged, with services that are accessible, acceptable, and of high quality. In Pakistan, healthcare professionals face a shortage of opportunities for professional development, limiting their ability to update their skills and knowledge (21). A sustained education program, supported by the employer and health system, is essential beyond short-term medical interventions that target specific groups of healthcare workers.

Interprofessional collaboration is vital for enhancing women's healthcare, enabling the identification and management of risks to ensure safe and straightforward deliveries. Prenatal care plays a key role in reducing maternal mortality by facilitating early intervention plans (22). However, these efforts require robust government regulations and administrative support.

Patients and lay caregivers can significantly improve the quality of maternal and newborn care by facilitating early consultations, assisting with routine checks, and ensuring the care received during labor is appropriate and respectful. Yet, the treatment of women and their newborns in healthcare settings leaves little room for improvement without integrating gender issues into continuous quality improvement efforts globally recognized (23,27). Achieving quality in healthcare necessitates equal focus on the care experience and its delivery, emphasizing respectful, considerate, and dignified care for all pregnant women and newborns. Instances of disrespect or abuse in healthcare settings can deter women from seeking care, increasing the risk of adverse outcomes (24).

This study highlights a critical barrier to maternal and newborn mortality reduction: the challenges some populations face in accessing healthcare due to geographical constraints and resource limitations (25,26). Quality care must be universally accessible, regardless of location, underscoring the need for enhanced infrastructure, resources, and skilled maternity and infant healthcare professionals in remote areas.

The strengths of this review include the application of a robust scoping review methodology, comprehensive searches across various databases and websites, quality assessment of included studies, and a consultative discussion group. The involvement of researchers and field experts throughout the review process enriched the study's insights (25). Limitations arose from restricting the review to English-language publications and possibly overlooking interventions not available online or reported in the literature. Consequently, many innovative and effective actions might remain undocumented, with their outcomes obscure. Enhancing the visibility and dissemination of research findings could be facilitated by clear guidelines on ethical research conduct and publication processes.

CONCLUSION

In conclusion, addressing maternal and neonatal healthcare mortality in Pakistan necessitates a holistic approach to the health system, incorporating comprehensive, effective, and sustainable strategies to improve care quality. While numerous primary healthcare programs focus on the delivery location, expanding these to include insights from women and their communities, continuous education, and healthcare service leadership modifications is essential for promoting quality maternity and newborn care. Future efforts should evolve from consistently applying relevant and standardized methods to improve program quality, demonstrating the potential to enhance maternal and neonatal health outcomes at scale.

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