Health care seeking for maternal and newborn illnesses in low- and middle-income countries: a systematic review of observational and qualitative studies [version 1; peer review: 2 approved]

Zohra S. Lassi¹, Philippa Middleton¹,², Zulfiqar A. Bhutta³,⁴, Caroline Crowther¹,⁵

¹Robinson Research Institute, The University of Adelaide, Adelaide, South Australia, Australia
²Healthy Mothers, Babies and Children, South Australian Health and Medical Research Institute, Adelaide, Australia
³Centre for Global Child Health, The Hospital for Sick Children, Toronto, Canada
⁴Center of Excellence for Women and Child Health, Aga Khan University, Karachi, Pakistan
⁵Liggins Institute, The University of Auckland, Auckland, New Zealand

Abstract
Background: In low- and middle-income countries, a large number of maternal and newborn deaths occur due to delays in health care seeking. These delays occur at three levels i.e. delay in making decision to seek care, delay in access to care, and delay in receiving care. Factors that cause delays are therefore need to be understood to prevent and avoid these delays to improve health and survival of mothers and babies.

Methods: A systematic review of observational and qualitative studies to identify factors and barriers associated with delays in health care seeking.

Results: A total of 159 observational and qualitative studies met the inclusion criteria. The review of observational and qualitative studies identified social, cultural and health services factors that contribute to delays in health care seeking, and influence decisions to seek care. Timely recognition of danger signs, availability of finances to arrange for transport and affordability of health care cost, and accessibility to a health facility were some of these factors.

Conclusions: Effective dealing of factors that contribute to delays in health care seeking would lead to significant improvements in mortality, morbidity and care seeking outcomes, particularly in countries that share a major brunt of maternal and newborn morbidity and mortality.

Registration: PROSPERO CRD42012003236.

Keywords
Health care seeking, maternal health, neonatal health, developing countries, low- and middle-income countries
**Introduction**

The majority of low- and middle-income countries (LMICs) have been unable to achieve the targets set for Millennium Development Goals (MDG) 4 and 5\(^1\). Even with improvements in maternal and child mortality rates over past decades, 303,000 mothers and 5.9 million children under the age of 5 years died in 2015\(^2\), with 99% of these deaths occurring in LMICs. LMICs lack financial and human resources and basic utilities including clean water, sanitation and education are not always readily available. Families in LMICs often unable to access and afford health care when required, and therefore, care seeking from non-skilled birth attendants is preferred when women give birth.

Rates of birthing at home are higher in LMICs, and usually skilled birth attendants (SBA) are not present\(^3\). In Sub-Saharan Africa, 50% of births occur at home with no skilled birth attendant; in South Asia, mothers and their families are the primary care givers of a third of all home births. In these regions, the inequalities are even higher among poorer people, particularly those living in very remote geographical areas\(^4\). While interventions to reduce poverty may require more time, training and deploying skilled birth attendants and upgrading emergency obstetric care are urgently needed\(^5\). Evidence suggests an association of skilled birth attendance with reduced neonatal mortality—77% of neonatal mortalities occur where coverage of skilled birth attendance is 50% or lower\(^6\).

While a systematic review that assessed the determinants of skilled attendance or health facility use for delivery in LMICs has been performed\(^7\), there was no attempt to identify the barriers and facilitators of health care seeking for maternal and newborn illnesses in LMICs. Another systematic review on effectiveness trials that has also identified strategies that can improve maternal and newborn health care seeking\(^8\); however, a review of narrative and qualitative studies is required to identify barriers and enablers of health care seeking in LMICs. We aimed to systematically review observational and qualitative studies to identify factors associated with delays that lead to serious maternal and neonatal morbidity and mortality\(^9\). These delays occur at three levels: 1) identification and decision making to seek care; 2) arranging means to reach a health facility; 3) receiving adequate care at the health facility.

**Methods**

All observational and qualitative studies from LMICs that assessed health care seeking behaviour or pattern for maternal and newborn health care and illnesses were included. We define health care seeking as ‘sequence of remedial actions that individuals undertake to rectify perceived ill-health’. The primary aim was to identify the barriers and enablers of maternal and newborn health care seeking and related pathways in LMICs. The protocol for this systematic review and meta-analysis has been registered with PROSPERO 2012: CRD42012003236.

**Search strategy**

The search engines PubMed, Medline, EMBASE, the Cochrane Library, and Google Scholar were initially searched up to Sep 16, 2016 and then searches were revised on September 27, 2017, but we found that data was saturated, and no new themes were emerged. Search terms were a combination of [(‘care seeking’ OR ‘care-seeking’ OR ‘health care’ OR ‘health care seeking’, OR ‘community based intervention*’ OR ‘community-based intervention*’ ) AND (mother* OR maternal OR women OR newborn* OR neonat*)] used as medical subject headings and keyword terms in the title/abstract. No language restrictions were applied. Grey literature and reference lists of included studies were also searched to identify studies. We considered studies from LMICs that assessed the factors associated with health care seeking for maternal and newborn illnesses in observational or qualitative studies. We did not consider studies on health care seeking for specific maternal and newborn illnesses such as jaundice etc. or for preterm babies. We considered recommendations for systematic reviewing of qualitative studies\(^10\). We used the PRISMA checklist PRISMA statement in reporting systematic reviews from the observational studies\(^11\). The 22-items STROBE checklist was used to assess the methodological quality of the cross-sectional studies\(^12\). Studies that fulfilled the methodological criteria of more than 18 points were classified as high quality, between 12–18 as moderate quality and below 12 were classified as low quality.

ZSL and PM independently reviewed the retrieved articles in two stages. First, relevance was assessed from the title and abstract and if relevance was still unclear, the full text was read. Any disagreement was referred to a third reviewer (CC or ZAB). Factors responsible for health care seeking patterns for maternal and newborn health from observational studies and qualitative studies were separately analysed. Study design, country of study, setting, participants, and results were recorded for each study. We performed a narrative synthesis of the findings from the included studies, as included studies were observational and qualitative in nature.

**Results**

Our search strategy identified 20,944 articles, of which 232 met the inclusion criteria (Figure 1). We found and analysed 159 original studies (162 published papers), of which 115 were observational studies and 44 were qualitative studies (characteristics of included studies are included as extended data\(^13\)). Observational studies were moderate to high in quality upon quality assessment.

**Qualitative findings for delays in care and pathways of care seeking**

Health-care-seeking patterns are complex phenomena, often confounded by several interlinked factors such as education of mothers, socio-economic status and age. More than half of the included observational studies reported that poor maternal health care utilization and giving birth at home is associated with lack of antenatal care, age, parity, education and employment status of women\(^14\). On the other hand, seeking care for newborn illnesses depends on the severity of illness\(^15\) and gender of the baby, with preference being given to male children\(^16\). Studies have reported that adequate health care seeking from skilled health care providers leads to fewer deaths and morbidities\(^17\). Women who had good marital relationships with husbands were
more likely to report receiving antenatal care and institutional birth\textsuperscript{55,56,84--90}. Similarly, women who had good relationships with their mothers-in-law reported being able to attend or receive antenatal care, with the degree of bonding and communication of women with their mothers-in-law reported to be an important influencing factor\textsuperscript{91}. We identified several qualitative themes in the section below that describe the reasons for delays in health care seeking and associated pathways.

### Identifying the illness and first preferred level of care

Primary caregivers in all included studies were usually mothers; however, mothers-in-law, grandmothers, fathers, neighbours, traditional healers and opinion leaders in the community were among the many people involved as caregivers for mothers and babies. Across the studies, it was observed that mothers/families do seek care for neonatal illness\textsuperscript{80}; however, complications during pregnancy are not considered as an illness and many signs are considered as normal, even when painful and constant\textsuperscript{92--102}. In certain studies, bleeding was not considered to be a complication\textsuperscript{103}, and in such situations decisions to seek health care were often delayed. Women who expressed pain verbally were considered as disobedient and therefore maintaining silence was considered appropriate\textsuperscript{104,105}. Missing antenatal care visits were reported to be due to heavy and unavoidable workloads at home\textsuperscript{91}, and a few studies reported that mothers-in-law privileged household chores over women’s health\textsuperscript{109}. Some families perceived that some common neonatal symptoms should or cannot be treated at health facilities and therefore traditional care should be sought\textsuperscript{108}.

In India, women during pregnancy are usually advised to be cautious while eating “hot” or “cold” food, and to eat less otherwise the baby can grow too large and therefore lead to a difficult birth\textsuperscript{92}. A qualitative study from Pakistan (Baluchistan)\textsuperscript{107} described that the \textit{dai} (traditional birth attendant (TBA)) usually places mustard oil on her fingers and massages the vaginal walls to ease the birth, and inserts vaginal and anal pessaries after birth to help shrink the uterus and to provide support for the uterus and backbone. They also prefer women to eat \textit{Goandh} (edible gum) combined with turmeric powder, and dried dates in milk to induce heavy vaginal bleeding so that all unclean blood is drained from the body, thus predisposing to postpartum haemorrhage. In situations when the placenta does not expel normally, the \textit{dai} enters her bare hands in the uterus or puts hair into the mother’s mouth to induce vomiting\textsuperscript{103}. Eating vegetables rather than meat during pregnancy is preferred as it is considered to increase the production of breastmilk and fresens its taste\textsuperscript{108}. During infant illnesses, mothers prefer to give ‘rabadi’ (prepared by cooking millet flour and yogurt), ‘khichchadi’ (a semi-liquid rice and pulses mixture) and ‘mateera’ (watermelon curry) to their febrile children in conjunction with breastmilk\textsuperscript{109}.
While illnesses, particularly in women who are not pregnant, are considered unimportant, evil spirits and fate (Allah’s will) are reported to be the cause of these illnesses. Faith healing is important in many cultures. A study from Ghana named three major religions that practised faith healing and each religion has a specific healer. On the other hand, most of the communities in Asia and Africa believe that certain precautions during pregnancy or immediately after birth will ward off the evil eye (a gaze or stare superstition believed to cause harm) and will prevent the infant from getting sick. This includes isolating women and their baby in a room for a certain period of time after childbirth and lighting a fire at the entrance where they are confined. In order to prevent them from evil eyes, people reported keeping the pregnancy secret from people outside of close relations.

Mothers may consult family and friends when the danger signs are not clear or unusually severe. However, in severe illness, decision-making power can be switched to more experienced members of the extended family, which can cause significant delays in decision-making. Many of the studies reported that in scenarios when women had money, they hurried to pursue treatment options from a health care facility despite several familial pressures. A study from Tanzania reported that having an option of home birth was found to be a hurdle in emphasizing the importance of skilled birth care. Trust for someone from the same community, sharing the same values and speaking the same language, was another factor that encouraged women to give birth at home and with a TBA. However, it was apparent from the studies that if women continued to suffer, then they do seek care from western-trained care providers.

Barriers on deciding to seek care for illnesses and choice of care

Decision-making emerged as a complex issue. Decision-making power is less likely to be with the woman and mostly rests with their partners and mothers-in-law. Women who had no income source were usually those who had no rights for decision making. Several studies reported that the major barrier for institutional care was gaining permission from husbands. Women are considered inferior to men and their disobedience often results in physical and emotional violence. If husbands are absent, women face difficulties in receiving permission from her husband’s parents or other elders for seeking care and this results in even greater delays. Husbands and elders often have control over finances and women are mostly dependent on them. Deciding to seek care can incur transportation costs, user fees, cost of medicines, and possibly ensuing costs of misdiagnosis and treatment failures. Considering all these barriers, women often postpone seeking help, with the hope that the problem will subside on its own.

When a family is willing to seek care and arranges the money required, other challenges such as physical transference of mothers and newborns to health facilities becomes a problem. The situation is even worse if complications arise at night, when risk of being attacked by criminals’ increases or when transport providers raise their taxi or car-hire charges. Studies on people living in very remote areas reported factors such as distance to health facility and related transportation issues, lack of financial resources, encountering swollen rivers on the way, fear of encountering wild animals, shame about too many pregnancies or being of advanced age and pregnant as some of the critical reasons for not seeking care. Studies also reported other factors responsible for not seeking health care such as non-availability of staff at facility, rude behaviour of health care staff, and poor quality of care. Fear of operative procedures was reported as a factor hindering care-seeking. These were usually based on previous experience and contact with health staff and the health care service received.

Cost is another important barrier to seeking care from trained health professional. However a study from rural Mexico reported that cost of care from TBAs is sometimes higher than facility birth but women prefer them because they can give birth at home. Many women also preferred giving birth at home because they preferred a squatting position for giving birth that was also endorsed by TBAs. Relatives being not allowed at facilities during the childbirth was another factor expressed for giving birth at home.

Women’s previous encounters with health care staff and facilities were reported as a key factor for decision making. Further, many of the danger signs are not considered as pregnancy-related complications, and thus families seek help from traditional healers, community health workers or drug sellers. Households often regard accessible and less expensive care such as herbal and home remedies or locally available drugs more highly. Workers from these types of care were often praised as they give time to patients and consider their social and cultural aspects as well.

Receiving adequate care when facility is reached

Women and families usually opt for medically qualified birth attendants where women are perceived to have possible birth complications. Where TBAs detected a complication at home, women were provided with referrals. Women also preferred SBA when they wanted to have a tubal ligation performed. Studies reported that perceived fear of being torn in hospital, where Caesarean section was required, discourages women to seek institutional care for childbirth. Lack of privacy at care facilities and being examined in the open are other factors for not seeking care at clinics.

Pregnant women or mothers with ill newborns usually experienced long waiting times when seeking hospital care. Most of the included studies cited that health professionals have poor attitudes towards poor or pregnant women, which are stigmatizing. Studies pointed out that health care staff examine women in hurry and at many occasions did not clarify their concerns. Staff may stigmatize women, criticised them for their age and number of pregnancies and judge them on their practices for family planning. Staff behaviour is therefore a major barrier for accessing care.

Sometimes, women are referred to another facility due to lack of trained staff and functional equipment and supplies that lead to further delays. Women may be asked to pay for fuel for the
ambulance to take them to the other facility. They then may be required to pay for medicines and other supplies, and when stocks of these run out, there are further delays in receiving care.\textsuperscript{118}

**Discussion**

It is often suggested that overwhelming maternal and neonatal mortalities and morbidities are closely linked with a number of interrelated delays that prevent a pregnant women or neonate from accessing the health care needed\textsuperscript{11}. Each delay is closely related to services, logistics, facilities and conditions. Our review identified factors associated with delays (Figure 2) and the pathways for health care seeking in cases of illnesses (Figure 3). Although the pathways of seeking care were not similar across all the studies, choices usually followed the same pattern if not the same levels. Depending on predisposing factors (be it God’s will, past experiences, user affordability, accessibility, availability or acceptability), the first choices for seeking care were for spiritual healers and immediate elder members of the family and community such as mothers-in-law and TBAs, who not only hold a respected position in the community but are generally considered as experienced and knowledgeable people. If not gaining any benefits from the care received from the first level, women then consult pharmacists, homeopaths and quack healers or untrained village doctors. However, the last choice (can be second or third) is usually the trained doctors, nurses or lady health visitors in health facilities.

Ineffective or inequitable decision making was reported as the biggest hurdle for seeking care during illnesses. Several cultural, economic, and health system related factors confound this further. Prompt identification of danger signs, autonomy of decision making, availability of finances, accessibility to health facility, and perceived quality of care play a major role in institutional health care seeking. Distance and cost were highlighted as the two main reasons for causing delays in decision making. Inadequately equipped facilities further delays care\textsuperscript{116}. Improvement in medical care seeking can be achieved if behaviour change communication interventions are contextualized and meet specific needs of the community. Similar findings have been reported by an earlier review on determinants of skilled birth care and institutional births.\textsuperscript{9}

This review highlights the reasons for delays and the ramifications of these delays on morbidity and mortality outcomes. Delays at each level serve as barriers, and strategies to overcome these may help and empower the communities to select and make early decisions. Cultural norms, societal values along with limited financial resources were underscored as major hindering factors for care seeking. It is therefore important that health system reforms related to maternal and newborn health should consider societal and cultural barriers and practices to improve their health care seeking. A major obstacle is women’s self-sufficiency and lack of empowerment to make decisions about their health. A change brought about in the attitude of the family members with emphasis on the need for women’s autonomy in making these crucial health decisions will have an immediate positive impact. Women should have the right to choose where they give birth, although it is important to help the woman comprehend the risks associated with these options. This could be achieved by proper mobilization of the entire family. At the same time, health systems should train health workers to provide and manage emergencies. A specific implementation strategy could be the provision of birthing kits to the TBAs which will ensure access to this facility to those residing in remote areas. This will reduce mortality arising from delay in the provision of emergency medical aid during childbirth. In addition,

**Figure 2. Factors associated with delays in seeking care for maternal and newborn illnesses.**
government should subsidize health care costs and should introduce schemes such as conditional cash transfers particularly for places where access to health care facility is an issue. These remedies have also been found to be cost-effective. While we were able to extract the important factors associated with maternal and newborn health care seeking, the review also faced some methodological challenges. First, the findings from the observational studies need to be interpreted with caution as included studies employed different inclusion criteria. Second, the studies used different statistical modelling to control for confounders and clustering therefore made it hard to compare the results. Third, the findings, particularly from the qualitative studies, were from different geographical settings and the barriers faced in one community may not exist or differ in another community. Therefore, strategies to improve health care seeking need to be context- and community-specific. Earlier review of experimental studies suggested that simple strategies such as community mobilization and home visitation via community health workers may improve health care seeking and perinatal survival. Our findings from the observational and qualitative studies have identified the important barriers of health care seeking that need to be considered while developing strategies.

Conclusion
Despite all the progress made towards improving maternal and newborn health in past few decades, many LMICs could not reach the MDGs. This review has identified several socio-economic, cultural and health services related factors that contribute to delays in health care seeking. Effective implementation of strategies after controlling for these factors of delays such as increasing women’s autonomy would lead to significant improvement in mortality, morbidity and care seeking outcomes.

Data availability
Underlying data
All data underlying the results are available as part of the article and no additional source data are required.

Extended data
Open Science Framework: Health care seeking. https://doi.org/10.17605/OSF.IO/5UT6X. Supplementary Files contain information concerning characteristics of the studies included in this review.

Reporting guidelines
Open Science Framework: PRISMA 2009 Checklist for this study. https://doi.org/10.17605/OSF.IO/5UT6X.

Data are available under the terms of the Creative Commons Zero “No rights reserved” data waiver (CC0 1.0 Public domain dedication).

Grant information
This review was part of a doctoral thesis that was funded by the University of Adelaide, Australia.

The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.
References

1. WHO: Trends in maternal mortality: 1990 to 2010. In: Geneva, Switzerland: WHO, UNICEF, UNFPA and The World Bank: estimates 2012. Reference Source

2. Lozano R, Wang H, Foreman KJ, et al.: Progress towards Millennium Development Goals 4 and 5 on maternal and child mortality: an updated systematic analysis. Lancet. 2011; 378(9797): 1139–1165. PubMed Abstract | Publisher Full Text

3. World Health Organization: Trends in Maternal Mortality: 1990 to 2015. In: Estimates by WHO, UNICEF, UNFPA, The World Bank and the United Nations Population Division. 2015. Reference Source

4. Levels & Trends in Child mortality: Report 2014. Estimates Developed by the UN Inter-agency Group for Child Mortality Estimation. In: UN Child Fund, WHO, The World Bank, UNPD. 2015. Reference Source

5. UNICEF: THE STATE OF THE WORLD’S CHILDREN 2008 In. New York: 2008. Reference Source

6. Darmstadt GL, Lee AC, Cousens S, et al.: Effect of interventions that increase intrapartum care use on stillbirths and neonatal deaths in Developing countries: a systematic review and meta-analysis. Lancet. 2008; 371(9608): 417–429. PubMed Abstract | Publisher Full Text | Free Full Text

7. Lawn JE, Kerber K, Enweronu-Laryea C, et al.: Maternal and newborn deaths in low-income countries: a systematic review and meta-analysis. Glob Health Action. 2016; 9: 31408. PubMed Abstract | Publisher Full Text | Free Full Text

8. Lawn JE, Kerber KE, Witter T, et al.: Kilogram for kilogram: the global burden of neonatal deaths and the potential for prevention. Bull World Health Organ. 2010; 88(5): 361–369. PubMed Abstract | Publisher Full Text | Free Full Text

9. Lawn JE, Kerber KE, Witter T, et al.: Hospital management of newborns: what should be included in reports of cross-sectional studies. J Health Popul Nutr. 2011; 29(2): 81–91. PubMed Abstract | Publisher Full Text | Free Full Text

10. Lawn JE, Kerber KE, Witter T, et al.: Preventing stillbirths: the evidence from home-based skilled-birth-attendant programmes in developing countries. Bull World Health Organ. 2010; 88(5): 361–369. PubMed Abstract | Publisher Full Text | Free Full Text

11. Thaddeus S, Maine D: Too far to walk: maternal mortality in context. Soc Sci Med. 1994; 39(8): 1031–1110. PubMed Abstract | Publisher Full Text | Free Full Text

12. Thaddeus S, Maine D: Too far to walk: maternal mortality in context. Soc Sci Med. 1994; 39(8): 1031–1110. PubMed Abstract | Publisher Full Text | Free Full Text

13. Moher D, Liberati A, Tetzlaff J, et al.: Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med. 2009; 6(7): e1000097. PubMed Abstract | Publisher Full Text | Free Full Text

14. Moher D, Liberati A, Tetzlaff J, et al.: Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med. 2009; 6(7): e1000097. PubMed Abstract | Publisher Full Text | Free Full Text

15. Moher D, Liberati A, Tetzlaff J, et al.: Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med. 2009; 6(7): e1000097. PubMed Abstract | Publisher Full Text | Free Full Text

16. Moher D, Liberati A, Tetzlaff J, et al.: Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med. 2009; 6(7): e1000097. PubMed Abstract | Publisher Full Text | Free Full Text

17. Moher D, Liberati A, Tetzlaff J, et al.: Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med. 2009; 6(7): e1000097. PubMed Abstract | Publisher Full Text | Free Full Text

18. Moher D, Liberati A, Tetzlaff J, et al.: Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med. 2009; 6(7): e1000097. PubMed Abstract | Publisher Full Text | Free Full Text

19. Moher D, Liberati A, Tetzlaff J, et al.: Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med. 2009; 6(7): e1000097. PubMed Abstract | Publisher Full Text | Free Full Text

20. Moher D, Liberati A, Tetzlaff J, et al.: Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med. 2009; 6(7): e1000097. PubMed Abstract | Publisher Full Text | Free Full Text

21. Moher D, Liberati A, Tetzlaff J, et al.: Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med. 2009; 6(7): e1000097. PubMed Abstract | Publisher Full Text | Free Full Text

22. Moher D, Liberati A, Tetzlaff J, et al.: Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med. 2009; 6(7): e1000097. PubMed Abstract | Publisher Full Text | Free Full Text

23. Moher D, Liberati A, Tetzlaff J, et al.: Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med. 2009; 6(7): e1000097. PubMed Abstract | Publisher Full Text | Free Full Text

24. Moher D, Liberati A, Tetzlaff J, et al.: Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med. 2009; 6(7): e1000097. PubMed Abstract | Publisher Full Text | Free Full Text
the utilization of maternal care services in rural India?: a theoretical approach. 

Soc Sci Med. 2006; 62(8): 1943–1957.

PubMed Abstract | Publisher Full Text

46. Schiltz MA, Waltzlkin H, Carson EA, et al.: Prenatal care utilization for mothers from low-income areas of New Mexico, 1989-1999. PLos One. 2010; 5(9): e12809.

PubMed Abstract | Publisher Full Text | Free Full Text

47. Abraham S, John V, et al.: Indian experience of home based mothers card: ICMR task force study. Indian J Pediatr. 1991; 58(6): 785–804.

PubMed Abstract | Publisher Full Text

48. Ahmed S, Sobhan F, Islam A, et al.: Maternal mortality and care-seeking behaviour in rural Bangladesh. J Trop Pediatr. 2001; 47(2): 98–105.

PubMed Abstract | Publisher Full Text

49. Carlson M, Smith Paintain L, Bruce J, et al.: Factors that determine the use of skilled care during delivery in rural Bangladesh. Soc Sci Med. 2011; 73(1): 443–451.

PubMed Abstract | Publisher Full Text

50. Chamberlain J, Watt S, Mohide P, et al.: Access to health services and early age treatment for common childhood symptoms in rural Guatemala. Pediatr. 2007; 110(4): 301–306.

PubMed Abstract | Publisher Full Text

51. Ciccioli M, Soyer MT, Ock ZA: Factors associated with the utilization and content of prenatal care in a western urban district of Turkey. Int J Qual Health Care. 2009; 21(6): 533–539.

PubMed Abstract | Publisher Full Text

52. El-Kak F, Khawaja M, Salem M, et al.: Reproductive health problems from low-income areas of Beirut. Int J Gynaecol Obstet. 2008; 104(6): 533–539.

PubMed Abstract | Publisher Full Text | Full Text

53. Elo IT: Modelling prenatal health care utilization in Tajikistan using a two-stage approach: implications for policy and research. Health Policy Plan. 2008; 23(6): 445–451.

PubMed Abstract | Publisher Full Text

54. El-Kaak F, Khawaja M, Salem M, et al.: Care-seeking behaviour of women with reproductive health problems from low-income areas of Beirut. Int J Gynaecol Obstet. 2009; 104(1): 69–73.

PubMed Abstract | Publisher Full Text

55. Essayed A, Abood SM, et al.: The quality of family relationships and use of maternal health-care services in India. Soc Sci Med. 2002; 55(4): 785–804.

PubMed Abstract | Publisher Full Text

56. F1000Research 2019, 8:200 Last updated: 23 APR 2019

Publisher Full Text

57. van den Heuvel OA, de Mey WG, Buddingh H, et al.: Maternal mortality and delay: socio-demographic characteristics of maternal deaths with delay in Iruwa, Nigeria. Niger J Med. 2007; 16(1): 38–41.

PubMed Abstract | Publisher Full Text

58. Galovan J, Woesel GB, Mohamed K, et al.: Prenatal care utilization and foetal outcomes at Harare Maternity Hospital, Zimbabwe. Cent Afr J Med. 2001; 47(4): 87–92.

PubMed Abstract

59. Galvan J, Woelk GB, Mahomed K, et al.: The role of environmental and socio-economic factors. Afr J Med Sci. 2006; 35(3): 390–397.

PubMed Abstract | Publisher Full Text | Free Full Text

60. Galvan J, Woesel GB, Mohamed K, et al.: Prenatal care utilization and foetal outcomes at Harare Maternity Hospital, Zimbabwe. Cent Afr J Med. 2001; 47(4): 87–92.

PubMed Abstract

61. Han FX, Woesel GB, et al.: Maternal mortality and delay: a cross-sectional study of delays in seeking emergency obstetric care in rural Bangladesh. Soc Sci Med. 2001; 53(10): 1363–1373.

PubMed Abstract | Publisher Full Text

62. Han FX, Woesel GB, et al.: Maternal mortality and delay: a cross-sectional study of delays in seeking emergency obstetric care in rural Bangladesh. Soc Sci Med. 2001; 53(10): 1363–1373.

PubMed Abstract | Publisher Full Text

63. Hausen N, Vanselow S, et al.: Neonatal morbidity and care-seeking in a north Indian city. Soc Sci Med. 2000; 50(6): 849–854.

PubMed Abstract | Publisher Full Text

64. Hazarika I: Factors that determine the use of skilled care during delivery in India: implications for achievement of MDG-5 targets. Matern Child Health J. 2011; 15(6): 1381–1388.

PubMed Abstract | Publisher Full Text

65. Hashim A, Amin M, et al.: The role of the village midwife in detection of high risk pregnancies and newborns. Int J Gynaecol Obstet. 1992; 39(2): 117–122.

PubMed Abstract | Publisher Full Text

66. Ibrahim SA, Omer MI, Amin IK, et al.: The role of the village midwife in detection of high risk pregnancies and newborns. Int J Gynaecol Obstet. 1992; 39(2): 117–122.

PubMed Abstract | Publisher Full Text

67. Regassa N: Antenatal and postnatal care service utilization in southern Ethiopia: a population-based study. Afr Health Sci. 2011; 11(3): 390–397.

PubMed Abstract | Publisher Full Text | Free Full Text

68. Galvan J, Woesel GB, Mohamed K, et al.: Prenatal care utilization and foetal outcomes at Harare Maternity Hospital, Zimbabwe. Cent Afr J Med. 2001; 47(4): 87–92.

PubMed Abstract

69. Galvan J, Woesel GB, Mohamed K, et al.: Prenatal care utilization and foetal outcomes at Harare Maternity Hospital, Zimbabwe. Cent Afr J Med. 2001; 47(4): 87–92.

PubMed Abstract

70. Galvan J, Woesel GB, Mohamed K, et al.: Prenatal care utilization and foetal outcomes at Harare Maternity Hospital, Zimbabwe. Cent Afr J Med. 2001; 47(4): 87–92.

PubMed Abstract
community, South Africa. Curationis. 2006; 29(1): 54–61. Published Abstract | Publisher Full Text

136. Moore BM, Alex-Hart BA, George IO: Utilization of health care services by pregnant mothers during delivery: a community based study in Nigeria. East Afr J Public Health. 2011; 8(1): 49–51. Published Abstract | Publisher Full Text

137. Okwareyi YB, Cousens S, Berhane Y, et al.: Effect of geographical access to health facilities on child mortality in rural Ethiopia: a community based cross sectional study. PLoS One. 2012; 7(3): e33664. Published Abstract | Publisher Full Text | Free Full Text

138. Phoxay C, Okumura J, Nakamura Y, et al.: Prevalence of childhood illnesses and care-seeking practices in rural South Africa. J Epidemiol Community Health. 1998; 52(3): 270–275. Published Abstract | Publisher Full Text

139. Why do women seek antenatal care late? Perspectives from rural South Africa. J Midwifery Womens Health. 2009; 54(6): 561–573. Published Abstract | Publisher Full Text

140. Why are women dying when they reach hospital on time? A systematic review of the ‘third delay’. PLoS One. 2013; 8(5): e63846. Published Abstract | Publisher Full Text | Free Full Text

141. Yoon F: An assessment of a rural health programme on child and maternal care: the Ogbomoso Community Health Care Programme (CHCP), Oyo State, Nigeria. Soc Sci Med. 1989; 29(8): 933–938. Published Abstract | Publisher Full Text

142. Hunt LM, Glantz NM, Halperin DC: Childbirth care-seeking behavior in Chipas. Health Care Women Int. 2002; 23(1): 98–118. PubMed Abstract | Publisher Full Text

143. MacLeod J, Rhode R: Retrospective follow-up of maternal deaths and their associated risk factors in a rural district of Tanzania. Trop Med Int Health. 1998; 3(2): 130–137. PubMed Abstract | Publisher Full Text

144. Mambu Nyangi Mondo T, Malengreau M, Kalambayi P, et al.: Influence of women’s knowledge on maternal health care utilization in southern Laos. Asia Pac J Public Health. 2001; 13(1): 13–19. Published Abstract | Publisher Full Text

145. Myer L, Harrison A: Barriers in Utilization of Maternal Health Care Services: Perspectives of Rural Women in Eastern Nepal. J Ayub Med Coll Abbottabad. 2015; 33(2): 843–9. Published Abstract | Publisher Full Text

146. Faye A, Faye M, Bâ IO, et al.: Factors determining the place of delivery in women who attended at least one antenatal consultation in a health facility (Senegal). Rev Epidemiol Sante Publique. 2010; 58(5): 323–329. Published Abstract | Publisher Full Text

147. Yakong VN, Rush KL, Bassett-Smith J, et al.: Women’s experiences of seeking reproductive health care in rural Ghana: challenges for maternal health service utilization. J Adv Nurs. 2010; 66(11): 2431–2441. Published Abstract | Publisher Full Text

148. Foster J, Burgos R, Tejada C, et al.: A community-based participatory research approach to explore community perceptions of the quality of maternal-newborn health services in the Dominican Republic. Midwifery. 2010; 26(5): 504–511. Published Abstract | Publisher Full Text | Free Full Text

149. An assessment of a rural health programme on child and maternal care: the Ogbomoso Community Health Care Programme (CHCP), Oyo State, Nigeria. Soc Sci Med. 1989; 29(8): 933–938. Published Abstract | Publisher Full Text

150. Mambu Nyangi Mondo T, Malengreau M, Kalambayi P, et al.: Prevalence of childhood illnesses and care-seeking practices in rural South Africa. J Epidemiol Community Health. 1998; 52(3): 270–275. Published Abstract | Publisher Full Text

151. Yoon F: An assessment of a rural health programme on child and maternal care: the Ogbomoso Community Health Care Programme (CHCP), Oyo State, Nigeria. Soc Sci Med. 1989; 29(8): 933–938. Published Abstract | Publisher Full Text

152. Mambu Nyangi Mondo T, Malengreau M, Kalambayi P, et al.: Prevalence of childhood illnesses and care-seeking practices in rural South Africa. J Epidemiol Community Health. 1998; 52(3): 270–275. Published Abstract | Publisher Full Text

153. Terra de Souza AC, Peterson KE, Andrada FM, et al.: Circumstances of post-neonatal deaths in Ceara, Northeast Brazil: mothers’ health care-seeking behaviors during their infants’ fatal illness. Soc Sci Med. 2000; 51(11): 1675–1693. Published Abstract | Publisher Full Text

154. Kongnyuy EJ, Hofman J, Mavu G, et al.: Availability, utilisation and quality of basic and comprehensive emergency obstetric care services in Malawi. Matern Child Health J. 2009; 13(5): 687–694. Published Abstract | Publisher Full Text

155. Mcnoltie AK: Prevalence of childhood illnesses and care-seeking practices in rural Uganda. ScientificWorldJournal. 2003; 3: 721–730. Published Abstract | Publisher Full Text | Free Full Text

156. Why are women dying when they reach hospital on time? A systematic review of the ‘third delay’. PLoS One. 2013; 8(5): e63846. Published Abstract | Publisher Full Text | Free Full Text

157. Cost-effectiveness of strategies to improve the utilization and provision of maternal and newborn health care in low-income and lower-middle-income countries: a systematic review. BMC Pregnancy Childbirth. 2014; 14: 243. Published Abstract | Publisher Full Text | Free Full Text
Open Peer Review

Current Referee Status: ✔️ ✔️

Version 1

Referee Report 23 April 2019
https://doi.org/10.5256/f1000research.19492.r44643

Alfonso Rosales
World Vision US, Washinton, DC, USA

This systematic review of maternal and newborn care-seeking practices adds important information regarding maternal and newborn care seeking patterns and associated barriers.

With its methodology clear and sound, results provide important findings to support future health program design in service provision for mothers and newborn.

One important aspect not clearly addressed, in the results and discussion section, is related to the difference or lack of thereof between maternal and newborn care-seeking pathway. There seems to be published evidence on this subject, which seems to lead on the different care-seeking pathways, with consequences in future program design. Authors, may want to include a special issue on this theme published at the Journal of Health, Population and nutrition in December of 2017.

The conclusion, seems to be rather short and not conclusive enough for relevant findings. It leaves out important common factors such as the need to include community/user context for strategy/intervention design, for example.

Are the rationale for, and objectives of, the Systematic Review clearly stated? Yes

Are sufficient details of the methods and analysis provided to allow replication by others? Yes

Is the statistical analysis and its interpretation appropriate? Yes

Are the conclusions drawn adequately supported by the results presented in the review? Partly

Competing Interests: No competing interests were disclosed.

I have read this submission. I believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.
Aastha Kant
Harvard Global Research Support Centre India (HGI), Mumbai, Maharashtra, India

The present article is a systematic review of qualitative and observational research studies on care seeking for maternal and newborn illness in low and middle income countries. There has been a knowledge gap in synthesizing studies to understand barriers and facilitators in the context of the Three Delay Model and pathways of care seeking.

The literature search has been conducted in a robust manner. The authors could expand a little more on 'narrative synthesis' of the findings in the context of qualitative and observational studies.

The authors have included literature search up to September 2017. A special issue of the Journal of Health, Population and Nutrition (December 2017), focuses on illness recognition and care seeking pathways of maternal and newborn illness in seven countries. The authors might like to update the search to include more recent articles.

The authors have synthesized the findings of the studies, combining maternal and newborn illness. They may want to present the care seeking pathways for maternal and newborn illness independently to explore the effect of the timing of the onset of illness (during pregnancy, childbirth or post childbirth for maternal illness, for instance) on care seeking behavior. This will also allow the authors to explore how the different perceptions of the causes of illness- supernatural or medical - often influence care seeking pathways.

Overall, this is a very relevant work that can add to the body of knowledge in the context of maternal and newborn health.

Are the rationale for, and objectives of, the Systematic Review clearly stated?
Yes

Are sufficient details of the methods and analysis provided to allow replication by others?
Yes

Is the statistical analysis and its interpretation appropriate?
Not applicable

Are the conclusions drawn adequately supported by the results presented in the review?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Qualitative research methodology, reproductive, maternal, newborn and child health

I have read this submission. I believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.
The benefits of publishing with F1000Research:

- Your article is published within days, with no editorial bias
- You can publish traditional articles, null/negative results, case reports, data notes and more
- The peer review process is transparent and collaborative
- Your article is indexed in PubMed after passing peer review
- Dedicated customer support at every stage

For pre-submission enquiries, contact research@f1000.com