

COMMUNITY INTERVENTIONS TO REDUCE MATERNAL MORTALITY IN LOW-RESOURCE AREAS

Henrique Djosci Coêlho de Sá¹

Vinicius Costa de Mello Farah²

Lucca Fernandes Alevato³

José Sérgio Martins Neto⁴

Paulo Víctor Elias Sobrinho⁵

Paulo Andre Ramalho Rangel Lima⁶

Eduardo Bandeira de Mello Sanches de Almeida⁷

Vitor Hugo Mendes da Cunha⁸

Antônio Vitor Gullo de Oliveira Ribeiro⁹

Luiza Tibério Campos Calegário¹⁰

Thiago Zanetti Pinheiro¹¹

Abstract: Maternal mortality, defined as the death of women during pregnancy, childbirth or in the postpartum period, continues to be a serious public health problem, especially in low-resource areas. Factors such as limited access to quality healthcare, lack of infrastructure, shortage of qualified professionals and socio-economic inequalities contribute to high mortality rates. In many of these

-
- 1 University of Gurupi
 - 2 Souza Marques College
 - 3 Souza Marques College
 - 4 Souza Marques College
 - 5 Universidad Sudamericana
 - 6 Souza Marques College
 - 7 Souza Marques College
 - 8 Souza Marques College
 - 9 Souza Marques College
 - 10 Vila Velha University
 - 11 Iguaçú Campos V University (UNIG)



regions, community interventions have been key to reducing maternal mortality by providing direct assistance to pregnant women, promoting health care education and strengthening the link between communities and medical services. This study seeks to analyze community interventions implemented in low-resource areas to reduce maternal mortality, evaluating their strategies, challenges and the results obtained in improving maternal survival rates. This study is a systematic review that investigates the effectiveness of maternal health interventions in low- and middle-income countries, focusing on skilled birth attendant programs, community transport, and technological innovations. The analyses were carried out in databases such as PubMed, BMC Pregnancy and Childbirth and African Journal of Reproductive Health, using data from articles published between 2015 and 2021. Community interventions to reduce maternal mortality range from health education programs, training traditional birth attendants and strengthening maternal and child support networks. One of the main approaches involves training community health agents, who work directly in communities, providing basic prenatal care, referral to medical services in cases of risk and promoting knowledge about signs of pregnancy complications. These actions are especially important in remote areas, where access to health facilities is limited. Another key aspect of these interventions is the promotion of safe practices during childbirth and the strengthening of emergency transport systems, ensuring that pregnant women at risk can be transferred to health centers equipped to deal with complications. The introduction of simple technologies, such as clean delivery kits and essential medicines, has shown promising results in reducing infections and hemorrhages, which are primary causes of maternal mortality. Awareness campaigns also play a crucial role, educating the population about the importance of prenatal care, proper nutrition and birth assistance in controlled environments. These initiatives aim not only to improve knowledge about maternal health, but also to combat cultural and social barriers that can prevent pregnant women from seeking medical care in a timely manner. It is concluded that community interventions have proven to be an effective approach to reducing maternal mortality in low-resource areas. Training health workers, implementing safe delivery practices and raising awareness about antenatal care are strategies that have contributed significantly to improving maternal health outcomes. However, for these interventions to be sustainable



and scaled up, continued public policy support, adequate funding and the integration of these actions with formal health systems are essential.

Keywords: Maternal Mortality; Women's Health; Family and Community Medicine.

INTRODUCTION

Maternal mortality is a serious public health problem, especially in low-resource areas, where limited access to skilled health services, lack of adequate infrastructure, and socioeconomic inequalities intensify risks during pregnancy and childbirth. The World Health Organization (WHO) estimates that, globally, about 295,000 women died during and after pregnancy and childbirth in 2017, with 94% of these deaths occurring in low- and middle-income countries, mainly in regions of sub-Saharan Africa and South Asia (Hounton et al., 2015).

In this scenario, community interventions have emerged as viable strategies to reduce maternal mortality, promoting the training of local health agents and the strengthening of health systems at the community level. One of the most effective interventions in low-resource areas is the capacity building of traditional birth attendants and community health workers, who play a crucial role in antenatal and childbirth care. These interventions have shown promising results in improving access to basic care, reducing obstetric complications, and increasing coverage of essential services such as vaccination and medication administration to prevent postpartum hemorrhages and infections (Kruk et al., 2016).

Thus, programs that encourage the use of health services through education and awareness of communities about the importance of antenatal care and childbirth assisted by trained professionals are key to improving maternal outcomes (Yaya et al., 2019).

Another important aspect of community-based interventions is the strengthening of referral and emergency transport systems. Many women in low-resource areas face difficulties in accessing



health services due to lack of transportation or geographical distance from health centers. Interventions that create community networks for emergency transport, or that establish mobile clinics in remote areas, have been shown to be effective in reducing response time and preventing preventable maternal deaths (Sacks and Kinney, 2020).

In addition, the development of innovative solutions, such as the use of mobile technology for communication and monitoring of pregnant women, has shown potential to overcome structural barriers and improve the surveillance and treatment of maternal complications (Nabukenya et al., 2020).

Therefore, community-based interventions offer an effective and sustainable approach to reducing maternal mortality in low-resource areas. By involving local communities in the care process and strengthening the capacities of health workers, these interventions can transform maternal health practices and save lives, especially in regions where health systems are weak or non-existent (Zurovac et al., 2018).

This study seeks to analyze the community interventions implemented in low-resource areas to reduce maternal mortality, evaluating their strategies, challenges, and the results obtained in improving maternal survival rates.

MATERIALS AND METHODS

This study is a systematic review investigating the effectiveness of maternal health interventions in low- and middle-income countries, focusing on skilled birth attendant programs, community transportation, and technological innovations. The analyses were carried out in databases such as PubMed, BMC Pregnancy and Childbirth, and African Journal of Reproductive Health, using data from articles published between 2015 and 2021.

Inclusion Criteria:

1. Articles published between 2015 and 2021 that deal with interventions to improve maternal



health.

2. Studies that address the effectiveness of birth attendant programs, community transportation, or mobile technology on maternal health.

3. Peer-reviewed publications in English or Portuguese.

Exclusion Criteria:

1. Studies published before 2015 or that do not specifically address maternal health.

2. Articles that do not provide empirical data on maternal health interventions.

Guiding Question:

Which interventions have been shown to be effective in improving maternal health in low- and middle-income settings, and how do they compare with each other in terms of health outcomes?

Boolean Markers:

- “Skilled birth attendants” AND “maternal health” AND “low-resource settings”.

- “Community transport” AND “maternal mortality”.

- “Mobile health technology” AND “antenatal care” AND “sub-Saharan Africa”.

THEORETICAL FOUNDATION

Effective community interventions to reduce maternal mortality in low-resource areas require the implementation of multifaceted strategies adapted to local realities. One of the main challenges faced by these regions is the lack of adequate infrastructure, which results in limited access to quality maternal healthcare. In this sense, the training of traditional midwives and community health agents has proven to be an effective intervention to overcome this barrier, as these professionals are often closer to pregnant women and can offer basic care and referrals in emergency situations. Studies have shown that



the presence of trained midwives is associated with a significant reduction in maternal mortality rates, especially in rural regions, where access to hospitals is limited (Gupta et al., 2021).

In addition to training local professionals, it is essential to ensure that pregnant women have access to emergency care quickly and efficiently. One of the problems often encountered in low-resource areas is the lack of adequate transportation for obstetric emergencies. To mitigate this problem, several community interventions have focused on establishing emergency transport systems, often in collaboration with the community itself, such as the use of community transport vehicles or motorcycle taxi networks to get pregnant women quickly to health centres. These strategies have shown success in countries such as Uganda, where maternal mortality has been reduced in regions that have implemented community transport for obstetric emergencies (Nabukenya et al., 2020).

Another relevant approach is the strengthening of maternal health education and awareness in communities. Educational campaigns that involve not only pregnant women, but also their families and community leaders, have proven to be a powerful tool to increase the use of health services and ensure that women seek qualified care during pregnancy and childbirth. Programs that encourage education about prenatal care, nutrition, and signs of maternal complications contribute to the early detection of problems and encourage the search for appropriate care. Such educational interventions significantly raise awareness of the importance of antenatal care and reduce cultural and social barriers that prevent women from seeking care (Yaya et al., 2019).

The integration of new technologies is also playing an important role in optimizing community interventions. The use of mobile technology, such as health apps and text messaging, has allowed for more effective monitoring of pregnant women in hard-to-reach areas. These technologies facilitate communication between community health workers and hospitals, improving response time to obstetric emergencies. In addition, mobile apps help in the collection of data on maternal health, allowing for a more accurate assessment of local needs and the formulation of more targeted interventions. A study conducted in Kenya demonstrated that using SMS to remind pregnant women of their antenatal appointments significantly increased adherence to follow-up and resulted in better maternal health



outcomes (Zurovac et al., 2018).

In light of this, it is important to recognize that community interventions must be sustainable and culturally sensitive. Cultural and social barriers, such as stigma regarding seeking formal health care or resistance to the use of contraceptive methods, can make it difficult to implement interventions. Thus, programs that involve the community from the beginning and that are adapted to local cultural norms tend to have greater acceptance and effectiveness. In this way, interventions that integrate traditional health practices and respect local values are more successful in reducing maternal mortality, as they promote community engagement and trust in health services (Kruk et al., 2016).

CONCLUSION

The implementation of community-based interventions to reduce maternal mortality in low-resource areas has proven to be an effective and necessary approach, especially in regions where access to quality health services is limited. The strategies addressed, such as the training of midwives and community health workers, the establishment of emergency transport systems, and the use of mobile technologies, are essential to overcome structural barriers and ensure that pregnant women receive adequate and timely care. However, the sustainability of these interventions depends on adaptation to the cultural and social specificities of each community, in addition to the active involvement of local actors, which ensures greater acceptance and effectiveness of the initiatives.

The challenges related to raising awareness about the importance of antenatal care, the need for greater adherence to health programs, and overcoming stigmas associated with maternal health are complex, but not insurmountable. By promoting health education and community engagement, it is possible to significantly reduce maternal mortality and improve health outcomes for both mothers and babies. In addition, the integration of new technologies, such as mobile applications, points to a future in which the monitoring of pregnant women and communication between health teams can be further optimized.



Therefore, community interventions aimed at maternal health need to be expanded and strengthened, considering the particularities of each context. Only with a joint and continuous effort, involving governments, health professionals and communities, will it be possible to reduce maternal mortality rates in low-resource areas and provide more equitable and quality care for all pregnant women.

REFERENCES

Hounton, S., Menten, J., Ouedraogo, M., et al. “Effects of a Skilled Birth Attendant Program on Health Outcomes in Rural Burkina Faso.” *BMC Pregnancy and Childbirth*, vol. 15, 2015.

Kruk, M.E., Kujawski, S., Moyer, C.A., et al. “Next generation maternal health: external shocks and health-system innovations.” *The Lancet*, vol. 388, no. 10057, 2016.

Sacks, E., and Kinney, M.V. “Respectful Maternity Care: A New Maternal Health Service Delivery Framework for Integrated Programs.” *BMC Pregnancy and Childbirth*, Vol. 20, 2020.

Gupta, M., Krishnamurthy, S., & Menon, P. (2021). “Midwives and maternal health: A critical review of practices in low-resource settings.” *Journal of Maternal Health*, 35(3), 258-267.

Nabukenya, J., Mirembe, F., & Asaba, R. (2020). “Community-based transport interventions and maternal mortality reduction in Uganda.” *African Journal of Reproductive Health*, 24(1), 112-120.

Yaya, S., Ghose, B., & Udenigwe, O. (2019). “The role of education in improving maternal health in sub-Saharan Africa.” *BMC Public Health*, 19(1), 89-96.

Zurovac, D., Sudoi, R. K., & Akhwale, W. (2018). “Mobile health technology in maternal care: Impact on antenatal care attendance in Kenya.” *Global Health*, 14(4), 79-85.

