



Maternal and Child Health: The Key to a Better South African Future

Siti Hadiaty Yuningsih^{1*}, Setyo Luthfi Yohandoko², Dede Irman Pirdaus³

¹ *Department of Mathematics, Faculty of Mathematics and Natural Sciences, National University of the Republic of Indonesia, Bandung, Indonesia*

² *Master's Program of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Jatinangor, West Java, Indonesia*

³ *Faculty of computer science, University of informatics and business, Bandung, Indonesia*

*Corresponding author email: sitihadiatyy@gmail.com

Abstract

South Africa, a country rich in history and natural beauty, also faces serious challenges in the health sector, especially maternal and child health. Maternal and infant mortality rates are still high, inequality in access to health services, low levels of education and knowledge of reproductive health, as well as problems of malnutrition and HIV/AIDS are the main focus of discussion. Although the government has launched programs to improve maternal and child health, funding challenges and disparities in health resources between regions still hinder the achievement of equitable health coverage. This article highlights the importance of increasing health budget allocations, building first-level health facilities, improving the skills of health workers, reproductive health education, nutritional interventions, and multi-stakeholder cooperation to overcome these health challenges.

Keywords: South africa, maternal and child health, maternal and infant mortality rates, access to health services.

1. Introduction

South Africa is a country rich in history, culture and natural beauty, but also has major challenges in the health sector that affect the well-being of its people. As a country located on the African continent, South Africa faces a number of complex health issues, which are the result of a history of colonialism, social inequality and economic disparities, one of which is maternal and child health (Azevedo and Azevedo 2017; Barbarin and Richter 2013).

Maternal and child health is an important foundation for building a healthy and intelligent generation in South Africa. However, maternal and child health outcomes in South Africa still face various challenges. The maternal mortality rate reached 119 per 100,000 live births, while the infant mortality rate was 22 per 1,000 live births (Bwana et al., 2019; Manyeh et al., 2018). These two figures are still far from the sustainable development targets or SDGs.

One of the main causes of maternal and child health problems is inequality in access to quality health services. Poor communities in remote, rural and urban areas still face major obstacles to obtaining essential health services. Limited medical and nursing personnel are also felt in many first-level health facilities.

Apart from that, the level of education and knowledge of women's reproductive health in South Africa is still relatively low. Many young women do not have an adequate understanding of reproductive health, the risks of early pregnancy, and the importance of routine pregnancy screening. The teenage pregnancy rate in South Africa is quite high, namely 51 per 1,000 girls aged 15-19 years (Tetteh et al., 2020).

The problem of malnutrition and stunting among pregnant women and children under five is also widespread in South Africa. It is estimated that around 27% of children under five in South Africa experience stunting. This problem contributes to the high death rate of infants and toddlers. More effective nutritional interventions are urgently needed to overcome stunting among pregnant women and children. HIV/AIDS epidemic which is still high in South Africa also has an impact on maternal and child health (Burton et al., 2015). Pregnant women with HIV are at high risk of experiencing pregnancy complications and giving birth to babies with HIV. HIV screening and ARV treatment in pregnant women needs to be further increased in coverage (Ishikawa et al., 2016).

The South African government has attempted to increase access to maternal and child health services through a national health insurance program. However, funding challenges and disparities in health resources between regions still hinder the achievement of equitable health coverage. Therefore, an adequate increase in health budget allocation is urgently needed to ensure the availability of quality health facilities and personnel in each region. It is important to prioritize the construction and renovation of first-level health facilities in areas with minimal access.

In addition, recruitment and training of additional nurses and midwives needs to be carried out to overcome shortages in first-level health facilities. Increasing the skills and capacity of health workers in maternal, maternal and child health services is also absolutely necessary. Increasing public awareness regarding reproductive health and the importance of early detection of pregnancy complications also needs to be promoted. Reproductive health education for young women can help prevent early pregnancy and its risks. Counseling and psychosocial support programs are also needed for pregnant women and young mothers.

Specific nutritional interventions for pregnant women and toddlers, such as micronutrient supplementation, complementary foods, and promotion of exclusive breastfeeding must also be increased in scope. Multi-stakeholder cooperation including the community and the private sector is needed to increase access to nutritious food for mothers and children vulnerable to malnutrition. In line with these efforts, accurate surveillance and recording systems for maternal and child health data are very necessary for regular monitoring and evaluation of maternal and child health policies and programs. In this way, the achievement of SDGs targets related to maternal and child health in South Africa can be monitored and optimized.

2. Methodology

This research uses a qualitative method with a literature study approach. Data comes from international agency reports and literature related to maternal and child health in South Africa for the last 5 years. Qualitative data analysis by categorizing the themes found.

Statistical data based on a literature study approach:

1. The Maternal Mortality Rate (MMR) in South Africa is 119 deaths per 100,000 live births (Hall and Sambu, 2019).
2. The Infant Mortality Rate (IMR) in South Africa reaches 22 deaths per 1,000 live births (Rhoda et al, 2018).
3. Approximately 18% of deaths of children under 5 years in South Africa are caused by complications of premature birth (Nannan et al, 2019).
4. The ratio of maternal deaths in urban to rural areas in South Africa is 1:2 (Moodley et al, 2020).
5. 37% of neonatal deaths in South Africa occur within the first 24 hours of birth (Masaba and Mmusi-Phetoe, 2020).
6. The prevalence of stunting (shortness due to chronic malnutrition) among children under five in South Africa is 27% (Kubeka and Modjadji, 2023).
7. Coverage of births in health facilities in South Africa is 90% (Gordon, 2020).
8. Coverage of pregnant women with HIV who receive ART to prevent HIV transmission to their babies is 95% (Woldesenbet et al, 2022).
9. South African government spending on maternal and child health has only reached 3.2% of total health spending (Achoki et al, 2022).

3. Results and Discussion

3.1. Maternal and Child Health Challenges in South Africa

Maternal and child health challenges in South Africa are complex and affect the well-being of society as a whole. Following are some of the main challenges faced:

1. **High Maternal and Infant Mortality Rates**
Despite improvements in recent years, maternal and infant mortality rates in South Africa remain high. The maternal mortality rate reached 119 per 100,000 live births, while the infant mortality rate reached 22 per 1,000 live births. These figures are still far from the targets set by the Sustainable Development Goals (SDGs).
2. **Inequality in Access to Health Services**
Poor communities in remote, rural and urban areas still face major obstacles in obtaining quality health services. Limited infrastructure and medical personnel and nurses in these areas cause significant access gaps.
3. **Low Reproductive Health Education and Knowledge**
The level of education and knowledge of reproductive health, especially among young women, is still low. Lack of understanding about reproductive health, the risks of early pregnancy, and the importance of routine pregnancy screening has led to an increase in teenage pregnancy rates. **Problems of Malnutrition and Stunting:** Problems of malnutrition and stunting among pregnant women and children under five are major health problems in South Africa. The prevalence of stunting in children under five reaches 27%, which contributes to the high death rate of infants and toddlers. **Impact of HIV/AIDS:** The HIV/AIDS epidemic which is still high in South Africa has an impact on maternal and child health. Pregnant women with HIV have a high risk of experiencing pregnancy complications and giving birth to babies with HIV, causing increased maternal and infant mortality rates.
4. **Funding and Resource Challenges**

Even though the government has made efforts to increase access to maternal and child health services through the national health insurance program, funding challenges and disparities in health resources between regions are still obstacles. This affects the availability of quality health facilities and personnel in each region.

These challenges require concerted efforts from government, non-profit organizations, the private sector, and society to improve access and quality of maternal and child health services in South Africa.

3.2. Limited access to health services

Limited access to health services is one of the main challenges faced by society in South Africa. Several factors that cause limited access include:

1. **Geographical Inequality**
Remote, rural and remote urban areas often have limited access to health facilities. Long distances and poor infrastructure make it difficult for residents in these areas to access quality health services.
2. **Infrastructure Limitations**
Several regions in South Africa still lack basic health facilities such as hospitals, clinics or community health centers. This condition makes it difficult for residents in the area to get the necessary medical care.
3. **Lack of Health Personnel**
Areas with low levels of health often also experience shortages of medical personnel and nurses. This can result in inadequate or even non-existent health services in some places.
4. **Financial Limitations**
For people living below the poverty line, the cost of accessing health services can be a major barrier. Transportation costs, medical consultation fees, medicines, and follow-up care can be a heavy financial burden for them.
5. **Lack of Health Information and Education**
Some communities may not have sufficient knowledge about health or access to correct information about available health services. Lack of understanding of the importance of preventive health care or routine screening can also reduce health care use.
6. **Cultural and Social Limitations**
Some communities may have certain cultural beliefs or practices that influence the use of health services. For example, stigma against certain medical conditions or a preference for traditional treatments may prevent individuals from seeking appropriate medical care.

To overcome limited access to health services in South Africa, joint efforts from government, non-profit organizations, the private sector and society are needed. This includes improving health infrastructure, providing better access to health workers, addressing financial issues, increasing health education and public awareness, and respecting and understanding local culture in providing effective and inclusive health services.

3.3. Lack of Reproductive Health Education and Knowledge

Lack of education and knowledge about reproductive health is one of the factors that contributes to maternal and child health problems in South Africa. Some aspects that need to be considered regarding this problem are:

1. **Lack of Sexual Education in Schools**
The educational curriculum in some schools may not include adequate information about reproductive health. This can result in teenagers not fully understanding body anatomy, menstruation, contraception, and the importance of protection from sexually transmitted infections (STIs).
2. **High Rate of Teenage Pregnancy**
Lack of understanding about reproductive health often causes high rates of teenage pregnancy. Adolescents often do not have access to or knowledge of effective contraception, and they may not be aware of the risks associated with pregnancy at a young age.
3. **Stigma Against Reproductive Health Discussions**
Some people may still consider it taboo to discuss reproductive health topics, especially among teenagers. This can lead to a lack of open communication between parents and children, as well as a lack of access to accurate information on this topic.
4. **Lack of Access to Reproductive Health Services**
Some areas may lack health facilities that provide reproductive health services, such as reproductive health clinics or youth service centers. This can make it difficult for individuals to get the information and services they need.

To address the lack of education and knowledge about reproductive health in South Africa, several steps that can be taken include:

- a. **Integration of Reproductive Health Education in the School Curriculum**
- b. **It is important to expand school curricula to include comprehensive information about reproductive health, including body anatomy, menstruation, contraception, and STI prevention.**
- c. **Community Education and Awareness Program**

- d. Efforts are needed to increase public awareness about the importance of reproductive health education. This can be done through information campaigns, workshops and community events aimed at removing stigma and encouraging open discussion about this topic.
- e. Increasing Access to Reproductive Health Services It is important to expand access to quality reproductive health services, especially in remote or less developed areas. This could include building more reproductive health facilities and providing youth services programs.
- f. Improved Training of Health Personnel
- g. Health workers, including doctors and nurses, need to receive adequate training in providing culturally sensitive and comprehensive reproductive health services to adolescents and other populations.

3.4. Problems of Malnutrition and Stunting

The problem of malnutrition and stunting is a serious issue that affects the health of pregnant women and children under five in South Africa. Some aspects that need to be considered regarding this problem are:

1. Lack of Access to Nutritious Food.
Some communities in South Africa may experience difficulty accessing nutritious and affordable food. Factors such as poverty, lack of access to productive agricultural land, and volatility in food prices can lead to hunger and nutritional deficiencies.
2. Limited Access to Health Services
Some pregnant women may not have access to adequate prenatal health services, leading to malnutrition during pregnancy. This can have a negative impact on fetal growth and development.
3. Lack of Knowledge about Balanced Nutrition
Some communities may lack understanding of the importance of balanced nutrition in maintaining the health of pregnant women and the growth of children. Lack of knowledge about nutrient-rich foods and how to prepare them healthily can lead to malnutrition.
4. Economic and Social Factors
Malnutrition and stunting problems are often related to economic and social factors, such as poverty, lack of education, and limited access to health services. These factors can lead to unstable social and economic conditions that exacerbate nutritional problems.
5. Long-term Impact on Health and Development
6. Stunting in children can have long-term impacts on their physical and cognitive health and development. This can reduce their ability to learn, develop, and contribute to society later in life.

To overcome the problem of malnutrition and stunting in South Africa, several steps that can be taken include:

- a. Increasing Access to Nutritious Food: Efforts are needed to increase people's access to nutritious and affordable food, especially for families with low incomes. This could include food assistance programs, food subsidies, or agricultural development programs.
- b. Providing Nutrition Education: It is important to provide nutrition education to the public about the importance of healthy and balanced food in maintaining health. Nutrition education programs can help increase knowledge and awareness about nutritional needs during pregnancy and the growth period of children.
- c. Increasing Access to Health Services: There is a need to expand access to prenatal health services and child health services, including nutritional screening and nutritional counseling. This can help detect and treat nutritional problems early.
- d. Public Health Interventions: Public health programs are needed that focus on preventing malnutrition and stunting, including promotion of exclusive breastfeeding, micronutrient supplementation, and promotion of healthy eating patterns.

3.5. The Impact of HIV/AIDS on Maternal and Child Health

The impact of HIV/AIDS on maternal and child health in South Africa is significant and has serious consequences. Here are some of the main impacts:

1. Vertical Transmission
One of the most direct impacts of HIV/AIDS on maternal and child health is vertical transmission, namely the transmission of the HIV virus from an infected mother to a baby during pregnancy, childbirth, or breastfeeding. Without proper precautions, the risk of vertical transmission can reach 15-45%.
2. Health Complications in Pregnant Women
Pregnant women infected with HIV have a higher risk of experiencing health complications during pregnancy, such as respiratory tract infections, urinary tract infections and miscarriage. HIV infection can also worsen the general health condition of pregnant women.
3. Higher Maternal Mortality Rates

Pregnant women infected with HIV have a higher risk of death compared to pregnant women who are not infected. This is primarily due to the increased risk of medical complications associated with HIV infection, such as tuberculosis and other opportunistic infections.

4. Disturbed Growth and Development of Toddlers

Children born to HIV-infected mothers have a higher risk of experiencing impaired growth and development, including stunting, failure to thrive, and delayed cognitive development. This can have a negative impact on children's health and well-being in the long term.

5. Increased Risk of Infection in Children

Children born to HIV-infected mothers have a higher risk of becoming infected with HIV themselves, either during pregnancy, at birth, or through breastfeeding. Additionally, they are also susceptible to other opportunistic infections due to their weak immune system.

6. Challenges in Health Services

Management of HIV/AIDS in pregnant women and children requires a comprehensive and coordinated approach involving a variety of health services, including prenatal HIV screening, access to antiretroviral therapy (ART), HIV-sensitive child health services, and psychosocial support for mothers and child.

3.6. Government Efforts and Funding Challenges

Government efforts to address maternal and child health problems in South Africa include a variety of programs and policies, however, they are faced with a number of funding challenges. The government has launched a national health insurance program to increase access to health services for all citizens, with the aim of reducing the burden of health costs for poor families. However, limited health budgets remain a major challenge, with budget allocations still limited compared to existing needs. There are also disparities in the allocation of health resources between more affluent and poorer regions, leaving some regions lacking the funds and infrastructure to provide adequate health services. Additionally, South Africa still relies on aid and donor funding to support maternal and child health programs, but this dependency may become unstable and unsustainable in the long term. Economic crises and currency fluctuations may also reduce the government's ability to allocate additional funds to the health sector. To overcome funding challenges, the government needs to increase budget allocations, optimize the use of available funds, look for ways to diversify funding sources, and increase the financial independence of the health sector through the development of an efficient and sustainable health insurance system.

4. Conclusion

In the context of efforts to improve maternal and child health in South Africa, we have witnessed serious challenges, including limited access to health services, lack of reproductive health education and knowledge, problems of malnutrition and stunting, as well as the significant impact of HIV/AIDS. Although governments have launched various programs to address these problems, they are faced with significant funding challenges.

In the introduction, we highlighted the importance of maternal and child health as a foundation for a better future for South Africa. However, we also highlight that achieving maternal and child health is still far from sustainable targets, with statistics showing high maternal and infant mortality rates.

During the discussion, we identified various issues and factors that influence maternal and child health in South Africa. We highlight the challenges of limited access to health services, lack of reproductive health education and knowledge, problems of malnutrition and stunting, as well as the serious impact of HIV/AIDS. We also highlight the government's efforts to address these issues through programs such as national health insurance and improving access to primary health services.

However, in the results and discussion we also recognize the funding challenges the government faces in implementing these programs. Although there have been efforts to increase health budget allocations, the available budget is still limited compared to existing needs. This creates an imbalance in the allocation of health resources between wealthier and poorer regions, as well as an over-reliance on donor funding.

Thus, the takeaway from all this is that despite efforts being made to improve maternal and child health in South Africa, funding challenges remain a significant obstacle. It requires joint efforts from governments, non-profit organizations, the private sector, and society to overcome these challenges and ensure that every mother and child has access to quality health services.

References

- Achoki, T., Sartorius, B., Watkins, D., Glenn, S. D., Kengne, A. P., Oni, T., ... & Naghavi, M. (2022). Health trends, inequalities and opportunities in South Africa's provinces, 1990–2019: findings from the Global Burden of Disease 2019 Study. *J Epidemiol Community Health*.
- Azevedo, M. J., & Azevedo, M. J. (2017). *The state of health system (s) in Africa: challenges and opportunities*. Historical

perspectives on the state of health and health systems in Africa, volume II: the modern era, 1-73.

- Barbarin, O. A., & Richter, L. M. (2013). *Mandela's children: Growing up in post-apartheid South Africa*. Routledge.
- Burton, R., Giddy, J., & Stinson, K. (2015). Prevention of mother-to-child transmission in South Africa: an ever-changing landscape. *Obstetric medicine*, 8(1), 5-12.
- Bwana, V. M., Rumisha, S. F., Mremi, I. R., Lyimo, E. P., & Mboera, L. E. (2019). Patterns and causes of hospital maternal mortality in Tanzania: A 10-year retrospective analysis. *PloS one*, 14(4), e0214807.
- Gordon, T., Booyesen, F., & Mbonigaba, J. (2020). Socio-economic inequalities in the multiple dimensions of access to healthcare: the case of South Africa. *BMC Public Health*, 20(1), 1-13.
- Hall, K., & Sambu, W. (2019). *Demography of South Africa's children*. South African child gauge, 216-220.
- Ishikawa, N., Dalal, S., Johnson, C., Hogan, D. R., Shimbo, T., Shaffer, N., ... & Baggaley, R. (2016). Should HIV testing for all pregnant women continue? Cost-effectiveness of universal antenatal testing compared to focused approaches across high to very low HIV prevalence settings. *Journal of the International AIDS Society*, 19(1), 21212.
- Kubeka, Z., & Modjadji, P. (2023). Association of stunting with socio-demographic factors and feeding practices among children under two years in informal settlements in Gauteng, South Africa. *Children*, 10(8), 1280.
- Manyeh, A. K., Nathan, R., & Nelson, G. (2018). Maternal mortality in Ifakara health and demographic surveillance system: spatial patterns, trends and risk factors, 2006–2010. *PLoS One*, 13(10), e0205370.
- Masaba, B. B., & Mmusi-Phetoe, R. M. (2020). Neonatal survival in Sub-Saharan: a review of Kenya and South Africa. *Journal of multidisciplinary healthcare*, 709-716.
- Moodley, J., Fawcus, S., & Pattinson, R. (2020, December). 21 years of confidential enquiries into maternal deaths in South Africa: reflections on maternal death assessments. In *Obstetrics and Gynaecology Forum* (Vol. 30, No. 4, pp. 4-7). In House Publications.
- Nannan, N. N., Groenewald, P., Pillay-van Wyk, V., Nicol, E., Msemburi, W., Dorrington, R. E., & Bradshaw, D. (2019). Child mortality trends and causes of death in South Africa, 1997-2012, and the importance of a national burden of disease study. *South African Medical Journal*, 109(7), 480-485.
- Rhoda, N. R., Velaphi, S., Gebhardt, G. S., Kauchali, S., & Barron, P. (2018). Reducing neonatal deaths in South Africa: Progress and challenges. *South African Medical Journal*, 108(3), 9-16.
- Tetteh, J., Nuertey, B. D., Dwomoh, D., Udofia, E. A., Mohammed, S., Adjei-Mensah, E., & Yawson, A. E. (2020). Teenage pregnancy and experience of physical violence among women aged 15-19 years in five African countries: Analysis of complex survey data. *PloS one*, 15(10), e0241348.
- Woldesenbet, S., Cheyip, M., Lombard, C., Manda, S., Ayalew, K., Kufa, T., & Puren, A. (2022). Progress towards the UNAIDS 95-95-95 targets among pregnant women in South Africa: Results from the 2017 and 2019 national Antenatal HIV Sentinel Surveys. *PLoS One*, 17(7), e0271564.