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Abstract

Purpose: Maternal and child healthcare play crucial role in reducing global mortality rates, with a significant impact on the overall burden of disease. The Sustainable Development Goal 3 aims to reduce the global maternal mortality ratio to less than 70 per 100,000 live births, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births by 2030. Sub-Saharan Africa, including Tanzania, carries a high burden of mortality rates and experiences a significant share of maternal and child deaths, exacerbating the global figures. The average prevalence of below 5 years mortality in SSA between 2010 and 2018 was 4.10% according to Ahinkorah (2021). Recognizing the severity of this issue, the government of Tanzania through the Development Agenda 2025, Draft health policy 2020 and the current Health Sector strategic plan 2021-2026 plans to reduce infant and maternal mortality rates through mother and child healthcare investment. The Health Sector Strategic Plan focuses on strengthening the health systems in the country and aims to sustain the achievements made in enhancing the health of reproductive, maternal, newborn, children, and adolescent populations. This study sought to assess the benefits of investing on mother and child healthcare in Tanzania. The study was guided by the investment commodity theory developed by the economist John Maynard Keynes in 1936. The study evaluated the current status of mother and child health indicators, the benefits of investing in mother and child health on overall health outcomes and identified the existing gaps and challenges in the provision, access and utilization of mother and child healthcare services in Tanzania.

Methodology: The study was a desktop review-based study which relied on existing published information, data, and literature.

Findings: The study found out that there have been improvements in certain areas of mother and child health indicators but maternal and child mortality rates remain high. Health interventions such as vaccination programs, improved access to healthcare services, and the use of maternal and child health insurance cards showed positive effects on reducing child mortality, improving child health outcomes, and enhancing maternal healthcare utilization. The significant gaps and challenges in the provision, access, and utilization of mother and child healthcare services

include disparities in access to healthcare services based on factors such as education level and wealth status, inadequate healthcare infrastructure, long distances to health facilities, sociocultural barriers, and financial constraints.

Unique contribution to theory, practice and policy: The study recommends strengthening of healthcare infrastructure, enhancing access to maternal and child healthcare services, especially for vulnerable populations, promoting health education and raising awareness about maternal and child healthcare practices, addressing the shortage of skilled healthcare professionals, improving data collection and use and monitoring of maternal and child health indicators, addressing socio-cultural barriers that hinder access and utilization of healthcare services and increasing investment in mother and child health care programs through allocate adequate resources.

Keywords: *Investing, Mother and child healthcare, Health outcomes*

1.1 Study background

Maternal and child health play crucial roles in global mortality rates, with a significant impact on the overall burden of disease. According to the World Health Organization's 2023 report every day in 2020, approximately 800 women died from preventable causes related to pregnancy and childbirth - meaning that a woman dies around every two minutes. In 2021, 5.0 million children under 5 years of age died. Globally, infectious diseases, including pneumonia, diarrhoea and malaria, remain a leading cause of under-five deaths, along with preterm birth and intrapartum-related complications (UNICEF, 2023). The Sustainable Development Goal 3 (SDG 3) was developed by the United Nations as part of the 17 global SDGs, with a specific focus on ensuring the well-being and healthy lives of individuals of all ages. The SDGs were established to address various social, economic, and environmental challenges and promote sustainable development on a global scale. The target is to achieve these goals by the year 2030. SDG 3 aims to tackle a wide range of health-related issues, with a particular emphasis on achieving universal health coverage, enhancing access to healthcare services, and reducing the overall burden of disease. One of the key focal points within SDG 3 is maternal and child health. This involves efforts to decrease maternal mortality rates, ensure the availability of quality reproductive and maternal healthcare services, and improve the health of children by reducing mortality rates among those under the age of five and addressing prevalent childhood diseases (United Nations, 2022).

The SDG target for maternal deaths is to achieve a global maternal mortality ratio (MMR) of fewer than 70 maternal deaths per 100,000 live births by 2030. In 2020, the estimated global MMR was 223 maternal deaths per 100,000 live births. According to the World Health Organization's 2023 report, which tracks maternal deaths at national, regional, and global levels from 2000 to 2020, there were an estimated 287,000 maternal deaths worldwide in 2020. This represents a slight decrease from 309,000 in 2016 when the Sustainable Development Goals

(SDGs) were implemented. However, there were some regional variations in maternal mortality rates. In Europe and Northern America, as well as Latin America and the Caribbean, the maternal mortality rate increased by 17% and 15% respectively from 2016 to 2020. On the other hand, Australia and New Zealand, along with Central and Southern Asia, experienced significant declines of 35% and 16% respectively in their maternal mortality rates during the same period. It is worth noting that maternal deaths remain concentrated in the poorest parts of the world and countries affected by conflict. In 2020, approximately 70% of all maternal deaths occurred in sub-Saharan Africa (WHO, 2023).

These distressing statistics highlight the urgent need to address maternal and child health globally. Within the broader context of maternal and child health, Sub-Saharan Africa, including Tanzania, carries a disproportionately high burden of mortality. The region experiences a significant share of maternal and child deaths, exacerbating the global figures. In Sub-Saharan Africa, a study done in 30 countries in 2021 documented child mortality rates below 5 years of age from 2010-2018. From the study, the prevalence of death among children under 5 in the 30 countries in SSA was 4.10% (95% CI 3.65% to 4.54%). The highest prevalence of 6.95% (95% CI 6.13% to 7.77%) was in Sierra Leone while the lowest prevalence of 2.25% (95% CI 1.67% to 2.83%) was in Gambia (Ahinkorah, 2021). According to WHO (2015) sustaining progress in maternal and child health requires continued investment and collaboration between governments, international organizations, and civil society. It is essential to allocate adequate resources, strengthen health systems, improve data collection and monitoring, and promote research and innovation in this field. By prioritizing maternal and child health, implementing evidence-based interventions, and addressing the specific challenges faced by different regions and populations, we can work towards reducing the burden of mortality and improving the well-being of women and children worldwide.

Tanzania has been making significant progress in enhancing the well-being of mothers, newborns, children, and adolescents, from both its domestic efforts and support from international organizations and other stakeholders. Notably, USAID has been actively involved in maternal and child health (MCH) programs in Tanzania, aligning with the Ending Preventable Child and Maternal Mortality Initiative. This initiative places a strong emphasis on improving the health of the most vulnerable women, girls, newborns, and children under the age of five. At the national level, USAID plays a crucial role by providing technical assistance to the Ministry of Health, Community Development, Gender, Elderly, and Children, both on the mainland and in Zanzibar. This collaboration enables the implementation of life-saving interventions for mothers, newborns, and children. The interventions focus on delivering essential healthcare services to promote positive health outcomes and reduce preventable deaths (USAID, 2021). The government has led a robust multisectoral effort to tackle HIV, TB and malaria through prevention, care, treatment, and support services. Between 2002 and 2020, HIV incidence fell by

68%, from 395 infections per 100,000 people to 126. The country has undertaken an impressive national expansion of antiretroviral therapy, which saw the percentage of people enrolled in treatment surge from 18% in 2010 to 86% in 2021. Tanzania has stepped up the fight against malaria through investments in prevention, care, treatment and support services, which has resulted in the country nearly halving the mortality of children under 5. The number of confirmed malaria cases declined by 1 million between 2015 and 2019 (Global Fund, 2022).

Through these partnerships and interventions, Tanzania is striving to enhance its healthcare system, strengthen its capacity to provide quality care and expand access to essential maternal and child health services. The support received from development partners reinforces the country's commitment to improving health outcomes for its population, particularly in the most vulnerable and marginalized communities. By prioritizing maternal, newborn, child, and adolescent health and nutrition, Tanzania aims to achieve sustainable progress and create a healthier future for its citizens. Continued collaboration and investments in MCH initiatives will play a vital role in sustaining the positive momentum and ensuring the well-being of mothers, newborns, children, and adolescents across the country. The government's Health Sector Strategic Plan (HSSP V) for the period of July 2021 to June 2026 aims to enhance the health systems in Tanzania. The goal is to sustain the progress achieved in improving reproductive, maternal, newborn, children, and adolescent health, as well as the advancements made in controlling both communicable and non-communicable diseases. According to the Vision 2025 document, health is identified as one of the priority sectors that contribute to a higher quality of life for all Tanzanians. To achieve this, the government has outlined strategies to ensure universal access to quality primary healthcare services, provide access to quality reproductive health services for individuals of all appropriate ages, and reduce infant and maternal mortality rates by three-quarters. These initiatives are aimed at promoting a healthier population and improving the overall well-being of Tanzanian communities.

Tanzania has made significant strides in reducing child mortality, as measured by the under-five and infant mortality rates. The National Five-year Development Plan 2021/22 - 2025/26 shows that Tanzania has made significant progress in reducing under-five mortality and infant mortality rates, thanks to improvements in healthcare services across the country. The under-five mortality rate has decreased from 67 per 1,000 live births in 2015/16 to 50 per 1,000 live births in 2019/20, indicating a positive trend. Tanzania has emerged as a leading country in Africa in terms of vaccinating children under one year. In 2019/20, an impressive 98 percent of all children under one year old were vaccinated, surpassing the World Health Organization's target of 90 percent. This is a substantial increase from the 82 percent vaccination rate recorded in 2015/16. Furthermore, the percentage of pregnant women making four or more visits to antenatal clinics during 2019/20 was 81 percent, compared to only 39 percent in 2015/16. This indicates that more pregnant women are receiving high-quality care and valuable advice on safe

birth control methods. The number of pregnant women choosing to give birth at healthcare facilities also rose from 64 percent in 2015/16 to 83 percent in 2019/20, indicating an increasing preference for safe delivery environments (Government of Tanzania, 2021).

The SDGs targets aim to reduce maternal mortality to 70 per 100,000 live births and neonatal mortality to 12 per 1000 births by 2030, indicating that Tanzania has a long way to go in achieving these targets. According to the Centres for Disease Control and Prevention (CDC) in 2022, there has been an increase in the proportion of births occurring in health facilities in Tanzania. It rose from 49 percent in 2013 to 85 percent in 2018. Furthermore, the maternal mortality ratio in healthcare facilities showed a decline from 303 maternal deaths per 100,000 live births in 2013 to 174 in 2018, indicating a 43 percent reduction (CDC, 2022). These findings suggest progress in improving maternal health outcomes through increased facility-based births and a decrease in maternal mortality within healthcare settings. However, there is still a need for further efforts to meet the SDG targets and address the remaining challenges in reducing maternal and neonatal mortality in Tanzania.

1.2 Study Objectives

The paper assesses the benefits of mother and child healthcare investments overall health outcomes and the well-being of families in Tanzania.

1.3 Specific Objectives

- a) To assess the current status of mother and child health indicators in Tanzania, including maternal mortality rate, infant mortality rate, and child morbidity rates.
- b) To examine the benefits of investing in mother and child health on overall health outcomes and the well-being of families in Tanzania.
- c) To identify the existing gaps and challenges in the provision, access and utilization of mother and child healthcare services in Tanzania.

1.4 Theoretical Review

The study is guided by the investment commodity theory which was developed by the economist John Maynard Keynes in 1936. The theory has significant implications for health investment. While Keynes primarily applied his theory to macroeconomic analysis, it can be adapted to understand the dynamics of health investment and its impact on healthcare systems and population health outcomes. The theory is thus significant to the study as it helps provide insights on the role of health investment in economic growth, the demand-driven nature of health investment decisions, the potential for countercyclical policies, the multiplier effect of health investments, and the importance of government intervention to promote equitable and efficient health systems. The concept of health as an investment commodity examines the idea of treating health as a valuable asset or commodity within an economic context. It explores the potential benefits and implications of considering health as a tradable and investable entity. While health is

typically viewed as a fundamental aspect of well-being, this theory suggests looking at it through the lens of investment and market dynamics. Health investments refer to financial resources allocated to activities or interventions aimed at improving or maintaining health. These investments could include funding healthcare infrastructure, medical research, preventive measures, and healthcare services. The theory explores how such investments could generate financial returns for investors. The theory suggests that investments in health could potentially yield various forms of returns. These returns might include improved health outcomes, increased productivity, reduced healthcare costs, and enhanced quality of life. It posits that by strategically allocating resources to health, individuals and societies can benefit financially and socially.

According to World Health Organization (WHO) (2021), present estimations indicate that approximately US\$ 8.5 trillion is expended annually on healthcare, amounting to nearly 10% of the global gross domestic product (GDP). This shift in perception acknowledges the significance of health as an investment, aligning with a broader change in how long-term beneficial expenditures for citizens are perceived. In the realm of global health, goals and estimations of associated resource requirements have been extensively employed to mobilize resources and drive progress. However, these approaches have traditionally adopted a commodity-based perspective, treating such spending as consumption expenditure. This viewpoint often emphasizes the resources needed for scaling up specific interventions rather than focusing on overall outcomes and results, such as enhancing healthy life expectancy. Consequently, health is sometimes seen as a fragmented entity, comprised of isolated interventions that compete for a share of available funding. The WHO Council on the Economics of Health for All has taken the lead in evaluating health for all as a public policy objective, along with the structural changes required to ensure that national and global economies and finances can effectively achieve this ambitious goal. The Council asserts that investments in health exhibit substantial positive externalities, meaning that the benefits to society extend beyond the direct returns for investors. These benefits encompass monetary and non-monetary advantages and are realized over the long term. Establishing fiscal space at the governmental level is crucial for financing investments in public goods, including health (WHO, 2021).

1.5 Empirical Literature Review

Mangu et al. (2021) conducted a hospital-based retrospective survey in Tanzania to examine the trends, patterns, and causes of neonatal mortality. The study involved 35 hospitals, and data on mortality were gathered from various sources including inpatient registers, death registers, and International Classification of Diseases-10 report forms. The researchers calculated annual specific hospital-based neonatal mortality rates and analysed them separately for two periods: 2006-2010 and 2011-2015, taking into account data availability and interventions. A total of 235,689 deaths were recorded during the study, with neonatal deaths accounting for 11.3% (26,630) of the total deaths. The majority of neonatal deaths (87.5%) occurred within the

first week of life. The overall hospital-based neonatal mortality rates increased from 2.6 deaths per 1000 live births in 2006 to 10.4 deaths per 1000 live births in 2015. Early neonatal deaths consistently contributed 90% to this rate throughout the study period. The neonatal mortality rate was 3.7 per 1000 live births during 2006-2010 and 10.4 per 1000 live births during 2011-2015, indicating a stagnant trend between these years. The leading causes of early neonatal death were birth asphyxia (22.3%) and respiratory distress (20.8%). For late neonatal deaths, the primary causes were sepsis (29.1%) and respiratory distress (20.0%).

Ogbo et al. (2019) examined the factors influencing the trends in neonatal, post-neonatal, infant, child, and under-five mortalities in Tanzania from 2004 to 2016. The study utilized data from the 2004-2005, 2010, and 2015-2016 Tanzania Demographic and Health Surveys, which included a sample of 25,951 live births of singletons and 1,585 deaths among children under the age of five. Age-specific mortality rates were calculated, and trends and determinants of neonatal, post-neonatal, infant, child, and under-five mortalities were assessed using Cox regression models. The models accounted for potential confounding factors, clustering, and sampling weights. The findings of the study indicated that the neonatal mortality rate remained constant between 2004 and 2016, whereas the rates of post-neonatal mortality and child mortality decreased by half in Tanzania. Additionally, there were declines observed in infant mortality and under-five mortality rates. The study also revealed that mothers who delivered through caesarean section, younger mothers (under 20 years old), mothers who perceived their babies to be small or very small, and those with a higher birth rank (fourth or higher) and a short interval between births (two years or less) were associated with a higher risk of neonatal, post-neonatal, and infant mortalities.

Bwana et al. (2019) conducted a 10-year retrospective analysis to assess patterns and causes of hospital maternal mortality in Tanzania. The study included 34 public hospitals and examined data from 2006 to 2015. Out of the 40,052 deaths recorded among women aged 15-49, 1,987 were maternal deaths, accounting for 5.0% of all deaths in that age group. The median age at death was 27 years, and the average age at death increased from 25 years in 2006 to 29 years in 2015. The majority of deaths (67.1%) occurred among women aged 20-34 years. The proportion of deaths related to teenage pregnancy declined significantly from 17.8% in 2006-2010 to 11.1% in 2011-2015. The hospital-based maternal mortality ratio increased from 40.24 in 2006 to 57.94 per 100,000 births in 2015. Among the maternal deaths, 83.8% were due to direct causes, with eclampsia (34.0%), obstetric hemorrhage (24.6%), and maternal sepsis (16.7%) being the major contributors. Indirect causes accounted for 16.2% of the deaths, with anemia (14.9%) and cardiovascular disorders (14.0%) being the main factors. The study observed a decline in deaths due to eclampsia and abortion but an increase in deaths related to hemorrhage and cardiovascular disorders over the study period.

Mdoe et al. (2022) conducted a descriptive study to inform future interventions by performing a perinatal mortality audit in a rural referral hospital in Tanzania. The study involved reviewing the case notes of stillbirths and neonatal deaths that occurred between January 2019 and May 2020 using an adapted WHO checklist. The reviewed case notes were entered into an electronic system, and a quality control check was conducted. The data were analyzed descriptively, and the findings were presented in tables. Out of the 4,898 births and 1,175 neonatal admissions, there were 135 recorded stillbirths (2.8% of total births) and 201 early neonatal deaths (4.1% of total hospital births). Among the 1,175 neonates, 635 (54%) were born within the hospital, while 540 (46%) were admitted from other facilities and home deliveries. The researchers retrieved and audited a total of 86 stillbirth case notes and 140 early neonatal death case notes. The audit revealed that out of the 86 audited stillbirth case notes, 30 (34.9%) appeared to have occurred during labor, and among these, 5 had audible fetal heart rates during admission. The top three recorded causes of neonatal deaths were Apgar scores less than 7 at 5 minutes, prematurity, and meconium aspiration. Maternal factors likely to have contributed to perinatal deaths included inadequate/late antenatal care visits and home delivery. Provider factors that may have contributed to perinatal deaths were inadequate labor monitoring (12%) and documentation (62%).

Shija, Msovela and Mboera (2011) conducted a review analysing the maternal mortality situation in Tanzania over the past 50 years and identifying the efforts, challenges, and opportunities for its reduction. The review relied on desk research, including the analysis of key policy documents, technical reports, publications, and available literature from the Internet. Between 1961 and 1990, Tanzania experienced a decline in maternal mortality ratio from 453 to 200 per 100,000 live births. However, since the 1990s, there has been an increasing trend, with the ratio rising to 578 per 100,000 live births. Recent statistics indicate a slight reduction in maternal mortality ratio to 454 per 100,000 live births in 2010. Despite a high coverage rate of antenatal clinic attendance (96%) among pregnant women, only half of them (51%) have access to skilled delivery services. The coverage of emergency obstetric services is at 64.5%, and the utilization of modern family planning methods is relatively low, at 27%. Additionally, only approximately 13% of women who deliver at home have access to postnatal check-ups. These statistics highlight the gaps in the provision and utilization of essential maternal healthcare services. Despite various efforts to improve maternal health, the study found that maternal mortality in Tanzania remains unacceptably high.

In their study, Mahiti et al. (2015) conducted research on women's perspectives on antenatal, delivery, and postpartum services in rural Tanzania. They gathered qualitative data by conducting 15 focus group discussions with women who had recently given birth and attended a healthcare facility. The discussions were transcribed verbatim. Qualitative content analysis was employed to analyze the data. The analysis revealed three categories that represented women's

perceptions of maternal health care services. Women acknowledged the benefits of maternal health services. However, they encountered obstacles in accessing these services, including reliance on traditional birth attendants (TBAs) and the long distances between certain villages. Additionally, they expressed mixed feelings regarding the quality of maternal health services.

Afnan-Holmes et al. (2015) conducted a study titled "Tanzania's Countdown to 2015: an analysis of two decades of progress and gaps for reproductive, maternal, newborn, and child health, to inform priorities for post-2015." The objective of the study was to analyse the progress and gaps in reproductive, maternal, newborn, and child health in Tanzania between 1990 and 2014. The analysis focused on mortality rates, unmet needs for family planning, and the evaluation of health systems, policies, and investments using a health systems evaluation framework. The study also considered contextual changes such as economic and educational factors. To explain the reduction in child mortality in Tanzania, the researchers used the Lives Saved Tool (LiST) and multiple linear regression analyses. The study aimed to identify the reasons for the slower progress in maternal and newborn survival and family planning and to provide insights for prioritizing efforts to achieve the goal of ending preventable maternal, newborn, and child deaths by 2030. The study found that over the past two decades, Tanzania's population has doubled, necessitating a corresponding increase in health and social services to maintain adequate coverage. Total healthcare financing has also doubled, with significant donor funding for child health and HIV/AIDS. Coverage and equity of interventions along the continuum of care varied. Preventive child health services achieved high coverage and equity, while curative services, facility delivery, and family planning had lower coverage and wider inequities. The LiST analysis suggested that around 39% of the reduction in child mortality was attributed to increased coverage of interventions, particularly immunization and insecticide-treated bed nets. Economic growth was also associated with a decrease in child mortality. Child health programs primarily focused on high-impact interventions at lower levels of the health system, such as the community and dispensary levels. Maternal health care implementation was intermittent despite being a high priority. Newborn survival gained attention only since 2005, but some high-impact interventions were already being implemented. Family planning had consistent policies, but reinvestment in implementation occurred only recently.

Ruhago (2015) conducted an economic evaluation and equity impact analysis of interventions for maternal and child health in Tanzania, aiming to provide evidence for fair and efficient priority setting. The study focused on assessing the cost-effectiveness of introducing rotavirus and pneumococcal vaccines to the Expanded Programme on Immunisation, taking into account the health system implementation costs, program costs, and coverage data. Data on costs and coverage were collected from one urban and one rural district hospital, as well as a health centre in Tanzania in 2012. Disease epidemiology, national intervention coverage, and effects were obtained from published literature and government reports. The findings of the study

indicated that introducing rotavirus vaccine alongside current diarrhoea treatment was highly cost-effective compared to using diarrhoea treatment alone. The incremental cost-effectiveness ratio (ICER) for adding the rotavirus vaccine was calculated to be USD 112 per DALY (disability-adjusted life year) averted. Regarding pneumococcal vaccines, the 13-valent vaccine was found to be cost-effective with ICERs of USD 258 per QALY (quality-adjusted life year) gained and USD 245 per LY (life year) gained for Tanzanian settings, when compared to no vaccine and the 10-valent pneumococcal vaccine. However, the differences between the two pneumococcal vaccines were not consistently robust in scenario analyses, as varying key model parameters could influence the results in favor of either vaccine. The study highlighted that the probability of both vaccines being cost-effective was lower than the willingness-to-pay threshold of USD 609 per capita in Tanzania's gross domestic product (GDP) for health. Nevertheless, it was suggested that using both vaccines could be highly cost-effective at a price significantly below this willingness-to-pay threshold. Additionally, the study emphasized that scaling up highly cost-effective interventions had the potential to save more than twice as many mothers and children under five in the poorest population quintiles compared to the richest quintile in Tanzania. It also suggested that equalizing intervention coverage across quintiles could help reduce inequalities in maternal and child mortality.

Hanson et al. (2013) conducted a study on the support provided by the health system for childbirth care in rural Southern Tanzania, as revealed by the findings of a health facility census. The study aimed to describe the routine care practices during childbirth at dispensaries, health centres, and hospitals in five districts of the region. Data was collected through a health facility census conducted in early 2009, which assessed a total of 159 facilities across the five districts. A comprehensive assessment was conducted, focusing on the structure and operations of the facilities, using a modular questionnaire based on staff reports. This assessment covered aspects such as staffing, workload, availability of equipment and supplies, as well as the implementation of routine interventions during childbirth. The study found that health centres attended to a median of eight deliveries per month, while dispensaries attended to a median of four. Dispensaries had a median of 2.5 health workers, including auxiliary staff, instead of the recommended four clinical officers and certified nurses. Only 28% of first-line facilities (dispensaries and health centers) reported offering active management in the third stage of labor (AMTSL). Essential childbirth care, which included eight interventions such as AMTSL, infection prevention, partograph use with fetal monitoring, and newborn care including early breastfeeding and thermal care at birth, was consistently offered by 5% of dispensaries, 38% of health centers, and 50% of hospitals. None of the first-line facilities had provided all the necessary signal functions for managing emergency obstetric complications in the six months before the study.

Niyeha et al. (2018) conducted a study to examine the progress made towards achieving Millennium Development Goal 4 for child survival in Tanzania. The researchers analysed data from six nationally representative household surveys conducted between 1999 and 2015 to understand the trends in the coverage of 22 life-saving interventions related to maternal, newborn, child health, and nutrition (MNCH&N). They also assessed the nutritional status of children (stunting, wasting) and breastfeeding practices at both national and sub-national levels in seven standardized geographic zones. Using the Lives Saved Tool (LiST), the study modeled the relative impact of these interventions on child mortality under the age of five between 2000 and 2015, compared to the baseline year of 1999, both at the national level and within the seven geographic zones. The results showed improvements in child survival and nutritional status across Mainland Tanzania as well as in each of the seven zones over the 15 years. However, the coverage of MNCH&N interventions varied significantly across different regions and zones, and several key interventions experienced declines either nationwide or in specific geographic zones during some or all of the study period. According to the national LiST model, the scale-up of the 22 MNCH&N interventions, along with improvements in breastfeeding practices, and reduction of stunting and wasting, contributed to saving approximately 838,460 child lives nationally between 2000 and 2015.

Kibesa, Kitua, and Kitua (2022) conducted a study in Dodoma, Tanzania, to examine the factors influencing the utilization of Antenatal Healthcare Services. The research employed a mixed-method approach, combining both quantitative and qualitative data collection methods. In August 2021, semi-structured questionnaires were administered to forty-five women, and in-depth interviews were conducted with ten healthcare providers at a selected health centre in Dodoma Urban District. Quantitative data collected were analysed using IBM's SPSS Statistics, employing statistical tests such as the Chi-square test or Fisher's exact test to assess the relationship between the outcome variable and predictor variables. A p-value of less than .05 was considered statistically significant. Qualitative data were analysed using manual thematic analysis, which involved a comprehensive review of transcripts and relevant documents. The findings revealed that, nearly half (48.9%) of the interviewed women attended Antenatal Care (ANC) services at least once during their last pregnancy. Factors such as low income and long travel time to reach the health facility were associated with poor ANC attendance (p-value < .05). The qualitative analysis identified several thematic factors that negatively affected ANC utilization, including cultural practices and gender norms, inadequate communication between partners, and long waiting times at ANC clinics. These findings highlight the barriers faced by women in accessing and utilizing ANC services in Dodoma, Tanzania. Factors such as socioeconomic status, geographical accessibility, and cultural beliefs play significant roles in shaping women's decisions and experiences regarding ANC utilization.

Bintabara, Nakamura, and Seino (2018) conducted a study aimed at improving healthcare access for women in Tanzania by addressing socioeconomic factors and health insurance. The researchers utilized nationwide representative data from the 2015-2016 Tanzania Demographic and Health Survey to analyse the determinants of healthcare access among women of reproductive age. A total of 13,266 women aged 15-49 years were interviewed and included in the analysis, with a median age of 27 years. The study found that approximately 65.53% of the respondents reported facing at least one of the four major challenges in accessing healthcare. To identify the factors influencing healthcare access, the researchers controlled for various variables in the final model. The results revealed that women who did not have any form of health insurance, those belonging to the poorest socioeconomic class based on the wealth index, individuals with no formal education, unemployed women, older women, and those who were divorced, separated, or widowed were more likely to experience difficulties in accessing healthcare.

Kehengu (2019) conducted a study on maternal healthcare utilization and its impact on child health outcomes in Tanzania. The objective of the study was to analyse the utilization of maternal healthcare services and its effects on child health outcomes. The researcher aimed to examine the factors influencing maternal health care utilization in Tanzania and the consequences of such utilization on child health outcomes. To achieve these objectives, the study utilized data from the Tanzania Demographic and Health Survey conducted in 2015-2016. The analysis employed various statistical methods, including Probit model estimation, Ordinary Least Squares (OLS), and the Instrumental Variable (IV) approach. Maternal health care utilization was assessed using three indicators: the number of antenatal visits, place of delivery, and postnatal check-up. Child health outcomes were measured using two indicators: child mortality (child survival probability) and child size at birth. The study found that wealth gradient and education status significantly influenced both maternal and child health outcomes. The availability of wealth within households played a crucial role in determining the extent to which pregnant mothers utilized available healthcare services. This included factors such as the number of antenatal visits, the choice of delivery location, and access to postnatal check-ups.

Kinyondo, Ntegwa, and Masawe (2022) conducted a study on socioeconomic inequality in maternal healthcare services in Tanzania. The study utilized data from the 2004/05, 2010, and 2015/16 Demographic and Health Surveys. The researchers employed the Concentration index to measure the presence of inequalities and conducted decomposition analysis to identify the factors contributing to inequality in maternal healthcare utilization. The findings from the Concentration index indicate the existence of pro-rich inequality in the utilization of maternal health services, and this inequality has increased over time. The decomposition analysis further reveals that household wealth status and women's education level significantly contribute to the observed

inequality. These factors may be attributed to challenges such as long distances to healthcare facilities, inadequate capacity of health facilities, and sociocultural barriers.

Kuwawenaruwa et al. (2016) conducted a study to examine the impact of maternal and child health (MCH) insurance cards on promoting equitable access and utilization of maternal and child healthcare services in Tanzania. The research employed a mixed methods approach, focusing on the Rungwe district where MCH insurance cards were implemented. To assess equity in healthcare access, the study categorized beneficiaries based on their education levels and compared them to women of reproductive age in the region from previous surveys. In addition, a qualitative assessment was carried out at various levels, including district, ward, facility, and community, to explore factors influencing women's decisions regarding delivery sites, utilization of the insurance card, and their attitudes towards the childbirth experience. This qualitative assessment involved 31 in-depth interviews with women who had delivered in the past year, as well as other key informants. The findings indicated that women with lower educational attainment were less likely to report having received the MCH insurance card and utilizing it for facility-based deliveries. The qualitative analysis revealed that the decision regarding the choice of delivery site was influenced by various factors. These factors included experiences or observations of problems during previous births, individual considerations, financial constraints, and health system-related factors. For instance, women were motivated to choose facility-based deliveries if they had encountered difficulties during their current pregnancy. However, fines imposed on women who opted for home births also influenced their decision-making process.

1.6 Findings, Interpretation and Discussions

The findings of Mahiti et al. (2015) reveal that women recognized the benefits of maternal health services. This implies that by investing in improving and expanding these services, such as antenatal, delivery, and postpartum care, the health outcomes of both mothers and children can be significantly enhanced. Adequate access to quality maternal health services is crucial for ensuring safe pregnancies, reducing maternal and infant mortality rates, and promoting the overall well-being of mothers and their children.

Ogbo et al. (2019) sheds light on a significant decline in post-neonatal mortality and child mortality rates in Tanzania from 2004 to 2016. The fact that these rates have halved indicates an improvement in child health outcomes during the studied period. Additionally, there have been declines observed in infant mortality and under-five mortality rates, indicating progress in reducing deaths among infants and young children. These improvements suggest progress in reducing deaths among children in Tanzania which a benefit in investing in mother and child health. However, the study also highlights existing gaps and challenges in the provision, access, and utilization of mother and child healthcare. The stagnant neonatal mortality rate indicates the

need for focused efforts to address the persistently high mortality rate among newborns. This finding suggests that further attention and resources are required to enhance the quality and accessibility of neonatal healthcare services.

The study conducted by Mangu et al. (2021) revealed important information about the status of mother and child health indicators in Tanzania. The study reports that neonatal deaths accounted for 11.3% of the total deaths recorded during the study period. This indicates that neonatal mortality remains a significant concern in Tanzania's healthcare landscape. Furthermore, the study highlights trends in hospital-based neonatal mortality rates over time. The researchers observed an overall increase in these rates, with the rate rising from 2.6 deaths per 1000 live births in 2006 to 10.4 deaths per 1000 live births in 2015. These findings suggest that there are ongoing challenges in reducing neonatal mortality rates in Tanzania.

Bwana et al. (2019) reveals several important observations. The analysis of hospital maternal mortality data from 2006 to 2015 shows that maternal deaths accounted for 5.0% of all deaths among women aged 15-49 years. The increase in the average age at death from 25 years in 2006 to 29 years in 2015 suggests a potential improvement in maternal health outcomes. The decline in deaths related to teenage pregnancy and the majority of deaths occurring among women aged 20-34 years further indicate the importance of targeted interventions and improved access to reproductive healthcare services for different age groups. Similarly, Mdoe et al. (2022) provide insights into the status of mother and child health indicators, particularly focusing on perinatal mortality, in a rural referral hospital in Tanzania. The findings reveal important information about perinatal mortality rates. Out of the 4,898 births analysed, there were 135 stillbirths (2.8% of total births) and 201 early neonatal deaths (4.1% of total hospital births). These statistics indicate the magnitude of perinatal mortality in the hospital setting in 2020.

The study conducted by Afnan-Holmes et al. (2015) provides insights into the benefits of investing in mother and child health interventions. Through the analysis of two decades of progress and gaps in reproductive, maternal, newborn, and child health in Tanzania, the study highlights the positive impact of interventions on reducing mortality rates and improving health outcomes. One key finding of the study is the reduction in child mortality, with around 39% of the decline attributed to increased coverage of interventions such as immunization and insecticide-treated bed nets. This demonstrates the effectiveness of targeted interventions in saving the lives of children and improving their health. Additionally, the study underscores the importance of economic growth in reducing child mortality. The association between economic growth and decreased child mortality rates indicates that investments in broader development initiatives can indirectly contribute to improved mother and child health. The analysis also sheds light on the benefits of specific interventions at different levels of the health system. Child health programs focusing on high-impact interventions at the community and dispensary levels have shown positive results. This suggests that investments in primary healthcare infrastructure,

community-based interventions, and accessible healthcare services can have a significant impact on maternal and child health outcomes. Furthermore, the study highlights the importance of consistent policies and reinvestment in implementation. It emphasizes that sustained efforts and resources are necessary to ensure the continuity and effectiveness of maternal and child health interventions. By showcasing the positive outcomes and identifying the gaps in reproductive, maternal, newborn, and child health, the study provides valuable evidence for policymakers and stakeholders to prioritize and invest in interventions that can lead to improved health outcomes for mothers and children. It underscores the benefits of targeted interventions, economic growth, primary healthcare infrastructure, and consistent policy implementation in advancing mother and child health.

Ruhago (2015) demonstrates the benefits of investing in maternal and child health interventions. The findings indicate that introducing the rotavirus vaccine alongside current diarrhoea treatment is highly cost-effective compared to using only diarrhoea treatment. The study calculates an incremental cost-effectiveness ratio (ICER) of USD 112 per DALY averted for the addition of the rotavirus vaccine, highlighting its cost-effectiveness in reducing the burden of disease. Furthermore, the study shows that the 13-valent pneumococcal vaccine is cost-effective, with ICERs of USD 258 per QALY gained and USD 245 per LY gained in Tanzanian settings when compared to no vaccine and the 10-valent pneumococcal vaccine. This indicates that investing in pneumococcal vaccination can lead to improved health outcomes for mothers and children. The study also highlights that scaling up these highly cost-effective interventions can have a significant impact on reducing maternal and child mortality, particularly among the poorest population quintiles. By implementing these interventions more widely and addressing inequalities in access and coverage, the study suggests that the number of lives saved can be more than doubled, benefiting those who are most vulnerable.

Hanson et al. (2013) provides insights into the benefits of investing in mother and child health interventions within the health system and the gaps and opportunities for improvement in maternal and child healthcare services. One key finding is that essential childbirth care, including important interventions such as active management in the third stage of labour, infection prevention, partograph use, and newborn care, was only consistently provided by a small percentage of facilities. This highlights the need for investment in training and resources to ensure that these crucial interventions are delivered effectively. Additionally, the study reveals the disparities in care provision between different types of healthcare facilities. While hospitals showed higher rates of consistently offering essential childbirth care, dispensaries and health centres were found to have limited capacity and resources. This emphasizes the importance of investing in strengthening lower-level facilities, such as dispensaries and health centres, to improve the availability and quality of maternal and child healthcare services in underserved areas. Moreover, the study highlights the gap in providing signal functions for managing

emergency obstetric complications. None of the first-line facilities had provided all the necessary signal functions within the six months prior to the study, indicating the need for increased investment in emergency obstetric care and training to address these gaps. Hanson et al. (2013) emphasize the benefits of investing in mother and child health interventions, including improving the availability and quality of essential childbirth care, enhancing capacity at lower-level healthcare facilities, and addressing the gaps in emergency obstetric care, investments which are crucial for reducing maternal and child mortality rates and improving the overall health outcomes of mothers and children.

Niyeha et al. (2018) demonstrate that the scale-up of these interventions, along with improvements in breastfeeding practices and addressing malnutrition, contributed to significant improvements in child survival and nutritional status across the country. The analysis using the Lives Saved Tool (LiST) estimated that the implementation of these interventions saved approximately 838,460 child lives nationally between 2000 and 2015. The study highlights the importance of investing in a comprehensive package of mother and child health interventions, including maternal care, newborn care, immunization, nutrition, and breastfeeding support. The improvements observed in child survival and nutritional status indicate that these investments have a positive impact on reducing child mortality and improving the overall well-being of mothers and children. These findings emphasize the need for continued investment in mother and child health programs and interventions to sustain and further improve the gains achieved.

One significant gap observed by Kibesa et al. (2022) was the relatively low attendance of Antenatal Care (ANC) services, with only 48.9% of the interviewed women attending ANC at least once during their last pregnancy. This indicates a substantial portion of women who do not receive the recommended level of care during pregnancy. Factors such as low income and long travel time to reach healthcare facilities were found to be associated with poor ANC attendance, suggesting financial constraints and geographical barriers as barriers to accessing care. Furthermore, the cultural practices and gender norms were identified as influential factors affecting ANC utilization. These norms may create social and cultural barriers that discourage women from seeking care or limit their decision-making autonomy regarding healthcare. Inadequate communication between partners was also highlighted as a challenge, indicating the importance of involving and engaging both women and their partners in maternal and child healthcare decisions. The study also identified long waiting times at ANC clinics as a significant challenge. Prolonged waiting periods can discourage women from seeking care or lead to dissatisfaction with the healthcare system. This highlights the need for improved efficiency and patient-centred approaches within healthcare facilities.

A significant gap in the provision of adequate and accessible healthcare for mothers and children in Tanzania was one of the major findings of the study by Bintabara et al (2018) where approximately 65.53% of the surveyed women reported facing at least one challenge in accessing

healthcare services. The study also revealed several factors that contribute to these challenges. Women without any form of health insurance, those belonging to the poorest socioeconomic class, individuals with limited or no formal education, unemployed women, older women, and those who were divorced, separated, or widowed were more likely to experience difficulties in accessing healthcare. These findings highlight the disparities and inequalities in healthcare access based on socioeconomic status and other demographic factors.

Kehengu (2019) sheds light on both the benefits of mother and child health investment and the challenges associated with the provision, access, and utilization of mother and child healthcare services in Tanzania. Regarding the benefits of health investment, the study reveals that maternal health care utilization positively impacts child health outcomes. By analyzing data from the Tanzania Demographic and Health Survey, the study shows that maternal health care utilization, as measured by indicators such as the number of antenatal visits, place of delivery, and postnatal check-up, has a significant effect on child health outcomes, including child survival probability and child size at birth. These findings underscore the importance of investing in maternal health care to improve the well-being of both mothers and children. However, the study also highlights various challenges related to the provision, access, and utilization of mother and child healthcare services. It identifies wealth gradient and education status as key indicators that influence maternal and child health outcomes. The availability of wealth within households plays a crucial role in determining the extent to which pregnant mothers utilize healthcare services. Additionally, disparities in education status and socioeconomic factors contribute to unequal access and utilization of maternal and child healthcare services. The study suggests that addressing these challenges is essential for realizing the benefits of mother and child health investment.

Kinyondo, Ntegwa, and Masawe (2022) underscore the importance of maternal and child healthcare services in improving health outcomes. By analysing the data from multiple Demographic and Health Surveys conducted over time, the study reveals the positive impact of maternal health utilization on child health outcomes. Maternal health indicators such as the number of antenatal visits, place of delivery, and postnatal check-ups were associated with improved child health outcomes, including child survival probability and child size at birth. These findings highlight the crucial role of investing in maternal and child healthcare to promote positive health outcomes for both mothers and children. In addition, the study also highlights the challenges in the provision, access, and utilization of mother and child healthcare services. The analysis using the Concentration index demonstrates the presence of pro-rich inequality in the utilization of maternal health services, which has worsened over time. This suggests that women from wealthier households have better access to and utilization of maternal healthcare services compared to those from poorer households. Additionally, the decomposition analysis reveals that factors such as household wealth status and women's education level contribute to this inequality.

The study suggests that challenges such as long distances to healthcare facilities, inadequate capacity of health facilities, and sociocultural barriers further hinder the provision, access, and utilization of mother and child healthcare services.

The study conducted by Kuwawenaruwa et al. (2016) highlights the implementation of maternal and child health (MCH) insurance cards as an intervention aimed at improving equity in access and utilization of healthcare services. The availability of these insurance cards can potentially enhance the affordability and affordability of maternal and child healthcare, leading to improved health outcomes for mothers and children. The study also sheds light on the challenges faced in the provision, access, and utilization of these services. It identifies disparities in the distribution of MCH insurance cards based on educational attainment, indicating potential inequities in accessing healthcare among different population groups. Women with lower educational levels were found to be underrepresented among those who received and utilized the insurance cards for facility-based deliveries. Furthermore, the study reveals various factors that influence women's decisions regarding delivery site and the use of the MCH insurance cards. These factors include experiences or observations of problems during previous births, individual considerations, financial constraints, and health system-related factors such as fines imposed on women who choose home births. These challenges indicate the complexities involved in ensuring adequate provision, accessibility, and utilization of mother and child healthcare services.

1.7 Conclusion

The current status of mother and child health indicators in Tanzania presents a mixed picture. While there have been improvements in certain areas, significant challenges still persist. Maternal mortality rates in Tanzania remain high, indicating the persistent challenges faced by pregnant women during childbirth. This emphasizes the urgent need for improved access to skilled healthcare professionals, emergency obstetric care, and quality maternal healthcare services to reduce maternal deaths and complications. Infant mortality rates, although showing some improvement, are still a concern in Tanzania. Factors such as inadequate access to healthcare, limited utilization of essential interventions, and challenges in the early detection and management of childhood illnesses contribute to infant deaths. Efforts to strengthen healthcare services, enhance immunization coverage, and promote preventive measures are crucial to further reduce infant mortality rates. The study highlights the prevalence of child morbidity, indicating the burden of illness and disease among children in Tanzania.

The study demonstrates the benefits of investing in mother and child health on overall health outcomes and the well-being of families. Initiatives such as vaccination programs, improved access to healthcare services, and the use of maternal and child health insurance cards have shown positive effects on reducing child mortality, improving child health outcomes, and enhancing maternal healthcare utilization. These investments contribute to the overall well-being

of families by ensuring healthier pregnancies, safer deliveries, and improved child health, leading to reduced burdens on families and society as a whole. Investing in mother and child health is crucial for achieving sustainable development and promoting the health and prosperity of communities.

There are significant gaps and challenges in the provision, access, and utilization of mother and child healthcare services in Tanzania. These challenges include disparities in access to healthcare services based on factors such as education level and wealth status, inadequate healthcare infrastructure, long distances to health facilities, sociocultural barriers, and financial constraints. These gaps hinder the effective delivery and utilization of healthcare services, particularly among vulnerable populations. Addressing these challenges requires comprehensive strategies that prioritize equity, improve healthcare infrastructure, address sociocultural norms and barriers, and ensure financial protection for mothers and children. Bridging these gaps is essential for achieving universal access to quality maternal and child healthcare services and improving health outcomes for all.

1.8 Recommendations

There is a need for the government of Tanzania through the ministry of Health and Social welfare to strengthen healthcare infrastructure in rural and underserved areas by ensuring the availability of well-equipped health facilities, skilled healthcare professionals, and essential medical supplies. This will enhance the provision of quality maternal and child healthcare services.

The Ministry of Health and Social Welfare should implement strategies to improve access to maternal and child healthcare services, particularly for vulnerable populations. This can be achieved through initiatives such as expanding healthcare coverage, establishing mobile clinics, and providing transportation support for pregnant women and children in remote areas.

There is a need to conduct targeted health education campaigns to raise awareness about the importance of maternal and child healthcare practices. This includes promoting antenatal care visits, immunizations, breastfeeding, proper nutrition, and hygiene practices. Educating communities about the benefits and available services can contribute to increased utilization of healthcare services.

The government should address the shortage of skilled healthcare professionals by increasing the recruitment, training, and retention of doctors, nurses, midwives, and other healthcare providers. This will help ensure the availability of competent personnel to provide essential maternal and child healthcare services.

Through the relevant ministries, the government should enhance the collection, analysis, and utilization of data on maternal and child health indicators to facilitate evidence-based decision-

making. This includes strengthening health information systems, conducting regular surveys, and monitoring progress towards achieving targets and goals related to maternal and child health.

There is a need to tackle socio-cultural barriers and norms that hinder access and utilization of healthcare services. This may involve community engagement, addressing gender inequalities, involving men in maternal and child health programs, and promoting cultural sensitivity in healthcare delivery.

The government of the United Republic of Tanzania and Her development partners should increase funding to eradicate and alleviate HIV/AIDS, Tuberculosis, Malaria, forgotten tropical diseases like schistosomiasis, Malnutrition, sexual and reproductive health challenges among young people. These are a great threat to Mother and Child health efforts' investment in the country.

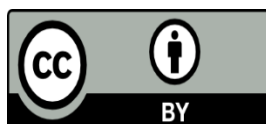
Most importantly the study recommends increased investment in mother and child health care. There is a need to allocate adequate resources and funding towards maternal and child health programs, ensuring sustainable investment in healthcare infrastructure, training of healthcare personnel, and provision of essential services. This will support the implementation and scaling up of effective interventions and improve overall health outcomes for mothers and children.

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