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Leonardo António Chavane and Célia Maria de Deus Gonçalves

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Summary

Inequity in access and utilisation of health-care services contribute to bad health outcomes, particularly among high risk groups such women and children. Since the declaration of independence in Mozambique in 1975, the newly formed government established, as a priority, maternal and child health (MCH) and the fight against the inequity between the rural and urban areas of residence. In the following years, Mozambique witnessed the improvement of access to and utilisation of the MCH services throughout the country. With the aim to examine the degree of inequity on MCH access, utilisation and outcomes across the country and among different determinants, we conducted a desk review, founded mainly on nationwide surveys like Demographic and Health Surveys (DHS), the Multi-indicator Cluster Survey (MICS) and the Aids and Malaria Indicators Survey (IMASIDA). We researched evidence from articles published in peer reviewed journals, Ministry of Health data bases and reports, International Agencies Reports and other grey literature.

The geographical area of residence, the level of education of the woman, and the level of household income appeared to be important determinants for access and utilisation of the MCH care services and therefore had impact on the respective outcomes indicators. The level of inequity has reduced throughout the time – however, the level of reduction is much higher in the child health indicators compared with the maternal health indicators. For example, the indicators show that the coverage of skilled birth attendance improved overall from 25 per cent in 1985 to 70 per cent in 2015, but important differences remain in rural and urban areas, whereby in 2015 the coverage in rural areas was estimated at 63 per cent while in urban areas it was 91 per cent, which corresponds to a difference of 28 percentage points. In the same period, access to vaccination by children under five improved overall from 47 per cent in 1997 to 66 per cent in 2015. Notably, the gap between rural and urban areas narrowed to 16 percentage points – 62 per cent for rural settings and 78 per cent for urban areas. In terms of health outcome indicators, there is less information for maternal health compared with infant health. The gap in various determinants for inequity has reduced, although it remains high when we take into account the level of education of the mother. In conclusion, there are signs of inequity reduction in the MCH health indicators. Areas requiring further investment include the need to reduce the geographical differences to access and utilisation of health services, and the need to continue investing in women's education as key to improving the health of mothers and children.

Keywords: inequity; maternal and child health; Mozambique.

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1 Introduction

WHO defines inequalities as ‘differences in health status or in the distribution of health determinants between different population groups’ (World Health Organization n.d.).

According to a recent study by the Barcelona Institute for Global Health (ISGlobal) and the World Bank, around 80 per cent of women in sub-Saharan Africa do not have access to the minimum package of essential maternal health services that could save their lives and those of their newborn babies. This statistic illustrates the extent of the inequality in health coverage for women in these countries. Moreover, this lack of access to necessary services is a major factor in the high number of maternal and neonatal deaths in these developing regions – 300,000 women and three million babies in 2016 – and the vast majority of these deaths were due to avoidable causes (ISGlobal 2017).

Addressing health inequalities is very important in efforts to improve the health status of the community. Health inequalities are unfair, avoidable and the interventions are cost-effective (Woodward 2000). This paper provides an overview of health inequality for women and children in Mozambique, highlighting the historical events that were turning points in the policy and accountability arrangements.

Mozambique’s Human Development Index (HDI) value for 2015 was estimated to be 0.418, which put the country in the low human development category – positioning it at 181 out of 188 countries and territories. It shares this rank with South Sudan. Between 1990 and 2015, Mozambique’s HDI value increased from 0.209 to 0.418, an increase of 99.8 per cent (UNDP 2016). Over 70 per cent of the population lives in rural areas, and nearly half are illiterate.

2 Methods

This Working Paper was based on a desk review. The main data sources were the Demographic and Health Survey (DHS) reports (Gaspar *et al.* 1998; INE and MISAU 2005, 2012), the Multi-Indicator Cluster Survey (MICS) (INE 2009); and IMASIDA surveys (MISAU, INE and ICF Internacional 2015).

We also included data from peer-reviewed bibliography, grey literature, reports from the Mozambique government, specifically from Ministry of Health, and International Agencies on health determinants, outcomes, and utilisation of health services for women and children.

2.1 Study setting

Mozambique is a southern African country located in the South East Region, sharing the border with Tanzania in the north, Malawi, Zambia, Zimbabwe, Swaziland and South Africa in the west and south and the west has a long coast line covered by Indian Ocean. According to the recent 2017 population census, the country has an estimated population of 28.9 million inhabitants distributed in 11 Provinces. There are three regions: north, comprised of Cabo Delgado, Niassa, and Nampula; centre, which includes Zambézia, Tete, Manica and Sofala Provinces; and south, composed of Inhambane, Gaza, Maputo Province and Maputo City. According to the recent population census, Nampula and Zambezia Provinces account for about 38.9 per cent of the total population of Mozambique.

3 Historical background of maternal and child health services in Mozambique

It is difficult to describe the evolution of health-care services without relating it to the socio, political and economic situation of the country. The evolution of health-care delivery services in Mozambique can be described in three different periods: (1) the colonial period; (2) from independence (1975) to the end of the civil war (1992); and (3) from 1992 to 2017.

3.1 Colonial period, before 1975

During this period, health-care services were concentrated in the main towns. The main concern of the colonial administration was to guarantee the wellbeing of Portuguese citizens. The health system was oriented towards providing care to the white urban population rather than for the largely rural native population. Professional jobs were reserved for Portuguese nationals because Africans were not allowed to attend the national medical schools (African people were allowed to attend nursing schools). On top of the biased distribution of services, it is important to note that up to two-thirds of the doctors in the country were practicing in the capital city (Raisler 1984). In this period, health services were separated between white and black people (called Indigene People).

The services were mainly facility-based and curative. Very few public health interventions are known from this period. At the time of national independence, Mozambique had 326 health facilities (Pavignani and Colombo 2001).

3.2 From 1975 to 1992 (post-independence, civil war and change of political orientation)

Following independence, the government nationalised all health facilities and began to build a free prevention-oriented national health system. The primary health-care approach was adopted as the strategy to reach the majority of the population. Programmes for tuberculosis control, vaccination and maternal and child health began to address the health needs of the population (Raisler 1984).

The country faced a huge challenge related to the availability of skilled human resources for health, as most of the doctors and other skilled health workers fled the country immediately after independence. Only approximately 50 out of 600 physicians remained. The country faced the need for rapid production of health workers to fill the gap in the context of a rapid expansion of health services, especially in rural areas. Despite the lack of skilled staff in the health facilities, it became apparent that there was a high demand for curative care rather for preventive services from the users. This created a need for more investment in health promotion and disease prevention activities (Jelley and Madeley 1984).

In 1978, the Ministry of Health decided to create the maternal and child health (MCH) department. A few years later, the decision was taken to create a cadre of health professionals oriented to managing maternal and infant health: the MCH nurses. The training of these professionals started in 1984 (Lourenço and Tyrrell 2009). The MCH nurse trainees were to be at least 18 years old and have had six years or more in primary schooling. Almost nine years after independence, 30 per cent of deliveries took place in health facilities (Raisler 1984).

The communities were mobilised to be involved in several actions of health promotion, which allowed the country to achieve success in areas like immunisation. Between 1976 and 1979, the health services obtained coverage rates of 95 per cent with single shot vaccines of

smallpox, BCG, measles, and tetanus in a national mass vaccination campaign. In 1980, the Expanded Program on Immunization was established (Cliff and Noormahomed 1988).

In 1984, the MCH programme enlarged its scope to include services beyond care during pregnancy, childbirth and postpartum care, and family planning services were introduced into the MCH services. While the country was structuring the national health system, it faced 16 years of civil war. As result of this, the health system infrastructure was profoundly affected. Many rural health facilities and other social infrastructures and services were destroyed. Millions of inhabitants were displaced and moved into the towns. By 1991, an estimated two to three million of the total population of 16 million had been displaced; another one million had left the country (Cliff and Noormahomed 1993). The displacement of the rural population towards urban areas contributed to pressure on the social services in the cities. The war mainly affected rural areas, where schools and hospitals were destroyed, pupils and teachers abducted, and economic infrastructure destroyed, such as bridges, roads, canteens, and tractors. Of the 5,886 primary schools, 3,498 (60 per cent) were closed or destroyed; in Zambézia, only 12 per cent continued to function until the end of the war; and in the area of health, about 500 centres and health posts were closed. Between 1981 and 1988, a total of 291 health facilities were destroyed and a further 687 looted and temporarily closed. It is estimated that at the end of civil war, almost half of the 1,195 health facilities that existed in 1985 remained closed (Lindelov 2002).

During the period of war, the Mozambican health system received support from international NGOs, which came under emergency relief programmes (Lindelov 2002; Pfeiffer *et al.* 2010). Immediately after the war, Mozambique continued to receive support from multilateral and bilateral donors. As a consequence of the war, the Ministry of Health emphasised the delivery of MCH services in towns and as result of that, several provincial capitals attained very high coverage in MCH services with an emphasis on vaccination.

The socioeconomic situation resultant of war led to a number of political transformations. In 1983, in the Congress of FRELIMO, the ruling Party since Independence, adopted a more decentralised and capitalist-oriented development strategy. The country joined the World Bank and the International Monetary Fund (IMF) in 1984, and the first programme of economic adjustment (the Economic Rehabilitation Programme) was introduced in 1987. In 1990, this became the Economic and Social Rehabilitation Programme (Lindelov 2002).

3.3 The Surgeon Assistant (Técnicos de Cirurgia) Programme

To overcome the huge unmet need for lifesaving emergency interventions, especially in rural areas, the Ministry of Health adopted a policy of training nonphysician mid-level staff to perform surgery. By 1999, the country had 46 surgery technicians (Técnicos de Cirurgia) (Vaz *et al.* 1999). All entrants were required to have reached a level corresponding to that of a medical assistant, with three or more years of professional experience in rural areas and preferably with some surgical experience. This decision has significantly contributed to making surgical services available in rural areas, and has continued to have an important impact on the strategy for the reduction of maternal deaths, by making saving life interventions available close to the communities – especially remote rural communities. In 2007, a total of 55 Técnicos de Cirurgia were still active (Kruk *et al.* 2007).

The first evaluation of the performance of the surgery assistants found an enormous number of surgical interventions had been performed by these professionals: in total, 3,178 elective interventions and 7,080 emergency interventions, of which 40.2 per cent were obstetric emergency interventions (Vaz *et al.* 1999). This experience showed that delegation of responsibility for maternal care to other health-care workers means that many women in Mozambique who would run the risk of dying during the pregnancy or childbirth receive medical attention, thereby reducing the risk of maternal mortality. Despite the valuable

contribution of this strategy, women continue to face a huge risk of dying at primary health-care level (da Luz Vaz and Bergström 1992).

An economic evaluation of the *Técnicos de Cirurgia* approach argued that training mid-level workers to perform emergency surgical interventions is cost-effective and can be part of the response to the health workers shortage (Kruk *et al.* 2007).

3.4 The Traditional Birth Attendants programme

The recognition of lack of coverage of skilled attendants for maternal and infant health care around the world in the late 1990s made popular the strategy of training Traditional Birth Attendants (TBAs). In Mozambique, the Ministry of Health (MOH) launched a national TBA programme in 1991. This programme enjoyed large support in the following years. However, its importance was diminished by the end of the decade with new findings from the research indicating no impact whatsoever of the TBA in the reduction of maternal mortality. The MOH has only recently decided to revitalise the programme, based on the recognition of that almost half of deliveries continue to occur outside of health facilities and most of them in the hands of the TBAs. The new role of the TBAs is to promote institutional delivery and the need for earlier initiation of antenatal care, along with raising awareness in the community about the risks of pregnancy, teaching the community to identify pregnancy danger signs.

The new TBA strategy recommends a more collaborative and interactive relationship between the nurses in the maternity facilities and the community TBAs (MISAU 2009).

3.5 From 1992 up to 2017 (post-civil war reconstruction, international assistance and development)

In 1992, the civil war ended. Since then, the country has been involved in the process of democratisation and social and economic recovering efforts.

In 1995, the government launched the Health Sector Recovery Program (HSRP), a World Bank-supported sector investment programme. The main objective was to reduce infant, child and maternal mortality to overall levels for sub-Saharan Africa by the year 2000. This was to be achieved by expanding health coverage, particularly primary health care (Lindelow 2002).

Data from the DHS 1997 (Instituto Nacional de Estatística 1998) indicated that maternal mortality was still a significant problem. This resulted in pushing into the MOH agenda the need to improve maternal health-care services and make them more accessible to the population.

By May 2000, as a mechanism to regulate their relations, the Ministry of Health and its partners signed the Code of Conduct, called *Kaya kwanga Code of Conduct* (Pfeiffer 2003). The MOH and its development partners decided to establish a Sector Wide Approach (SWAp) to programming processes. The aim was to strengthen national procedures, focus attention on shared objectives, bring together resources, reduce transaction costs, improve aid effectiveness under the leadership of the MOH, and to monitor developments in the health sector against agreed benchmarks.

Since the very beginning of this process, maternal and child health indicators were used as the main benchmarks for health sector performance. This created a very important opportunity to strengthen and scaled up the interventions in this area. In 2001 the first Health Sector Strategic Plan (PESS I: 2001-2005) was launched and one of the top priority interventions was Maternal and Child Health. The objective in this area was oriented to the reduction of maternal mortality through expansion and utilisation of basic and comprehensive

essential obstetric care. This included preventive measures, like family planning, antenatal care, and post-partum care. Following the approval of the Health Sector Strategic Plan by the central government, the MOH approved its first national strategy to reduce maternal mortality in 2001. The main intervention advocated in this strategy was the promotion of availability, access, and use of emergency obstetric care services within the health facilities.

The strategy of providing emergency obstetric care was proven to be possible in a setting of low resources like Mozambique through a demonstration project, which covered three hospitals in two provinces in Mozambique. This project was able to show that after provision of skilled staff, equipment, and 24-hour service availability, there was an increase in the service utilisation for deliveries and cesarean sections (Jamisse *et al.* 2004).

3.6 The reconstruction phase, 1992–99

In 1990, the country introduced a new constitution that allowed multiparty elections, freedom of the press and the right to strike. In July 1990, the government and RENAMO began talks in Rome and in October 1992, in Rome, Joaquim Chissano and Afonso Dlakama signed the Peace Agreement. The process of the ceasefire, demobilisation and repatriation proceeded without incident, and in October 1994, the first multiparty (presidential) elections were held in Mozambique. In 1998, the first elections for the local organs were held, and the second presidential elections, scheduled for 1999, were also in preparation.

The process of political transition that was already embryonic in the 1980s was achieved in the 1990s. However, the successive economic crises and the transition processes that marked Mozambique between 1974/75 and 1999 had social costs, which were reflected in the quality of life of populations.

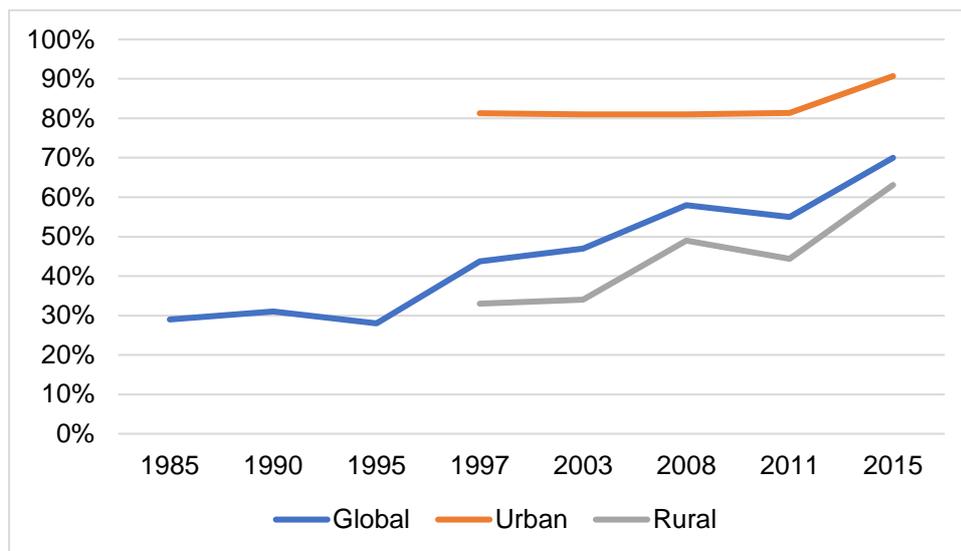
All the socio, economic and political transformations affected the provision and the health of the people in Mozambique. In the following sections, we present the trends in a sample of indicators related to the MCH health-care services and outcomes. The analysis focuses on the inequity, considering the provinces of residence, being resident in the urban or rural area, the literacy level of the women, and the difference between the quintiles of wealth.

4 Access and utilisation of health-care services

4.1 Skilled Birth Attendance (SBA)

Data available show a steady improvement of the SBA coverage with slow progression between 1985 and rapid progression from 1995 to 2015. Figure 4.1 illustrates this evolution. The progress comes immediately after the end of the civil war that affected the country until 1992.

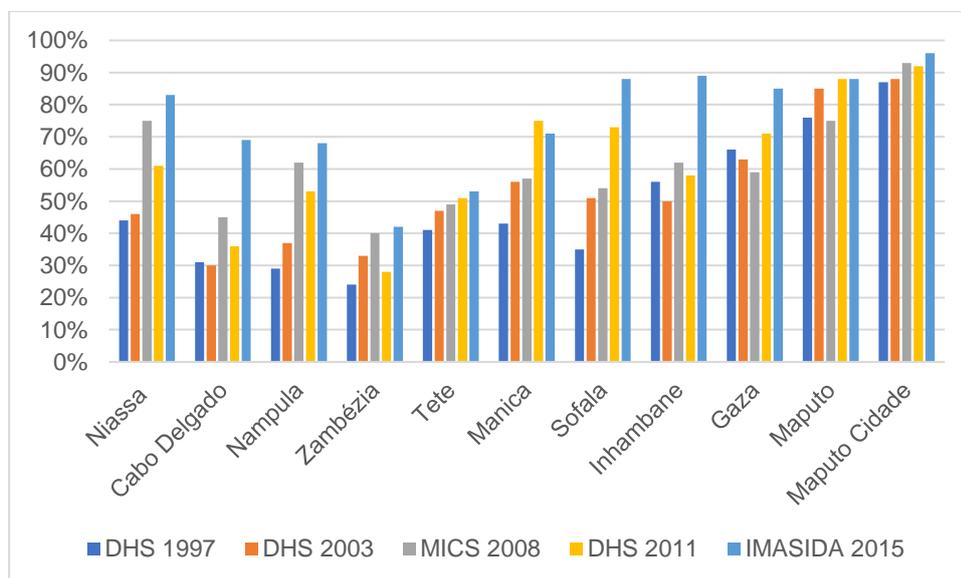
Figure 4.1 Skilled Birth Attendance evolution, Mozambique, 1985–2015



Source: Authors' own, based on 1985, 1990 & 1995 administrative data from Health Information System data base, Ministry of Health (unpublished); DHS (1997, 2003, 2011); MICS (2008); IMASIDA (2015).

Although the tendency is the reduction of the gap between the coverage in rural areas and urban areas, for a long period, the lack of coverage of deliveries with skilled attendants has been an important source of inequality in access to maternal and child health services in Mozambique.

Figure 4.2 Trend of Skilled Birth Attendance coverage by province, Mozambique, 1997–2015



Source: Authors' own, based on DHS (1997, 2003, 2011), MICS (2008), IMASIDA (2015).

Disaggregating the coverage data by provinces, we see that the provinces in the south of the country – namely Maputo City, Maputo Province, Gaza and Inhambane – have relatively better coverage compared with provinces in the centre and north of the country. In the estimations provided by the IMASIDA 2015, five provinces, in the centre and north of the country, did not manage to achieve the coverage reported in 1997 for Maputo City. Zambezia presents the worst situation, followed by Tete Province.

In Mozambique, the health policy recommends that deliveries take place in maternity wards within the health facilities. A factor to be considered in the analysis of SBA coverage is the availability of maternity beds per population, although this must be viewed with caution considering the scattered distribution of the population. Maputo City, with a smaller geographical area, has an advantage compared with Niassa, which has less population yet the largest territory size of any province.

Table 4.1 illustrates the comparison of availability of beds for maternity services and other services per province.

Table 4.1 Resources availability, maternity beds, Mozambique, 2015/16

Province	Year	Number of hospital beds			Beds/1,000 inhabitant	Beds/1,000 women of reproductive age
		Maternity	Other	Total		
Niassa	2015	563	622	1,185	0.72	1.36
	2016	576	627	1,203	0.70	1.34
Cabo Delgado	2015	706	984	1,690	0.89	1.50
	2016	706	984	1,690	0.88	1.47
Nampula	2015	966	2,163	3,129	0.62	0.77
	2016	966	2,163	3,129	0.61	0.76
Zambézia	2015	1,402	1,091	2,493	0.52	1.17
	2016	1,518	1,575	3,093	0.63	1.24
Tete	2015	789	684	1,473	0.59	1.26
	2016	789	684	1,473	0.56	1.21
Manica	2015	474	741	1,215	0.63	0.98
	2016	474	741	1,215	0.61	0.95
Sofala	2015	836	1,255	2,091	1.02	1.64
	2016	836	1,255	2,091	1.00	1.60
Inhambane	2015	752	767	1,519	1.01	2.01
	2016	752	767	1,519	1.00	1.98
Gaza	2015	1,071	602	1,673	1.18	3.04
	2016	1,096	643	1,739	1.21	3.05
Maputo Province	2015	588	632	1,220	0.71	1.38
	2016	588	632	1,220	0.68	1.32
Maputo City	2015	866	2,272	3,138	2.53	2.80
	2016	866	2,272	3,138	2.50	2.77
Total	2015	9,013	11,813	20,826	0.81	1.41
	2016	9,167	12,343	21,510	0.81	1.39

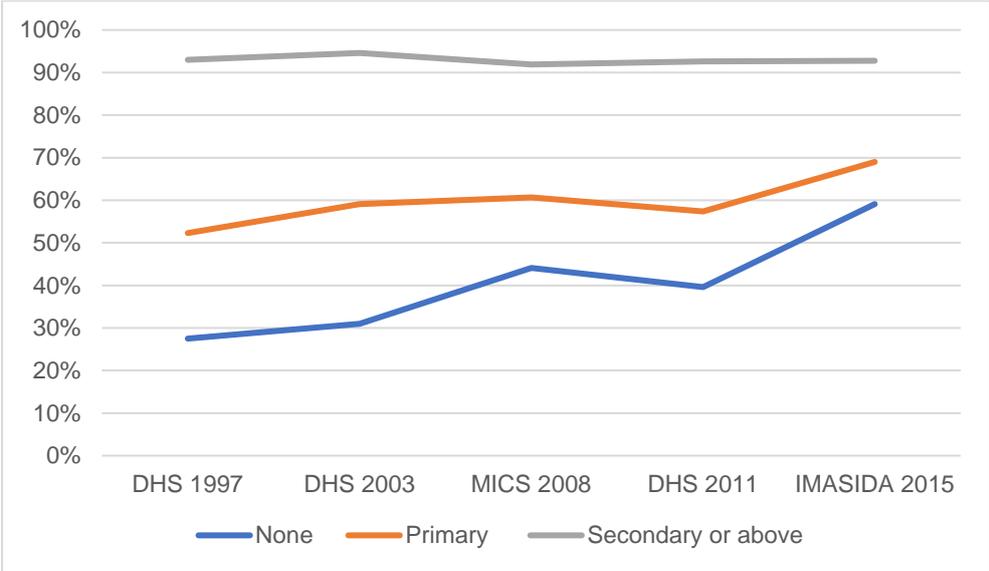
Source: Ministry of Health of Mozambique (2017: 11).

On average, the south region presents better availability of beds dedicated to maternity services per 1,000 women at reproductive age. In 2016, the south region had on average 2.28 beds per 1,000 women in reproductive age, while the centre region had 1.25 beds and north 1.19 beds for 1,000 women of reproductive age (Ministry of Health of Mozambique 2017).

4.2 The influence of education

The level of education of the mother has been reported as a determinant in the choice of place to deliver by the women (Mengesha *et al.* 2013; Asseffa, Bukola and Ayodele 2016; Belay and Sendo 2016; Smith, Tawiah and Badasu 2012; Abeje, Azage and Setegn 2014; Montagu *et al.* 2015). The coverage of SBA among women with at least secondary level education has been above 90 per cent since the first DHS data available, while the coverage among women without any level of education remained below 50 per cent until the DHS 2011, and only in the last estimation from IMASIDA 2015 did this increased to 60 per cent.

Figure 4.3 Evolution of Skilled Birth Attendance by level of education of the mother, Mozambique, 1997–2015

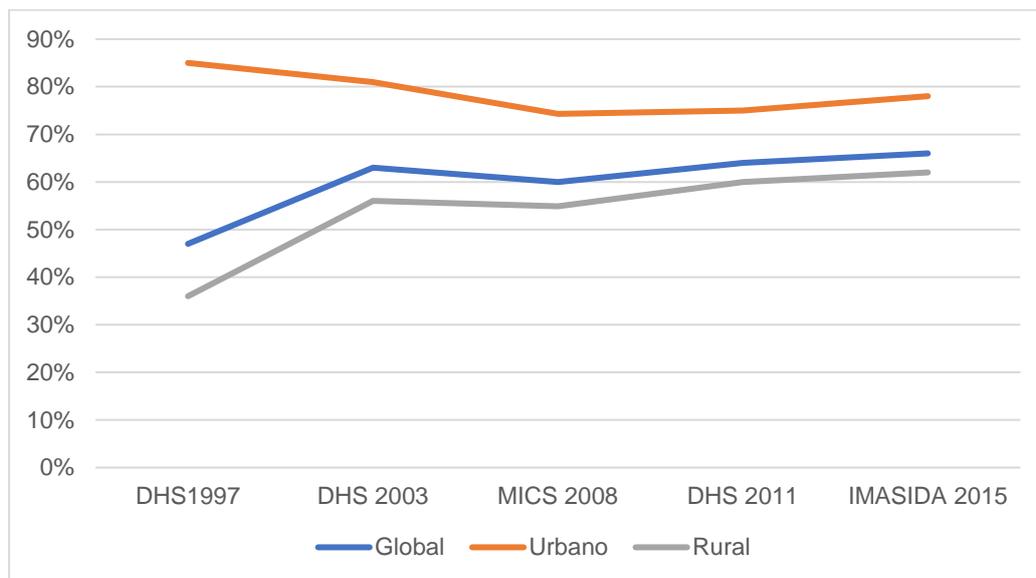


Source: Authors' own, based on data from DHS (1997, 2003, 2011), MICS (2008), IMASIDA (2015).

4.3 Access to vaccination

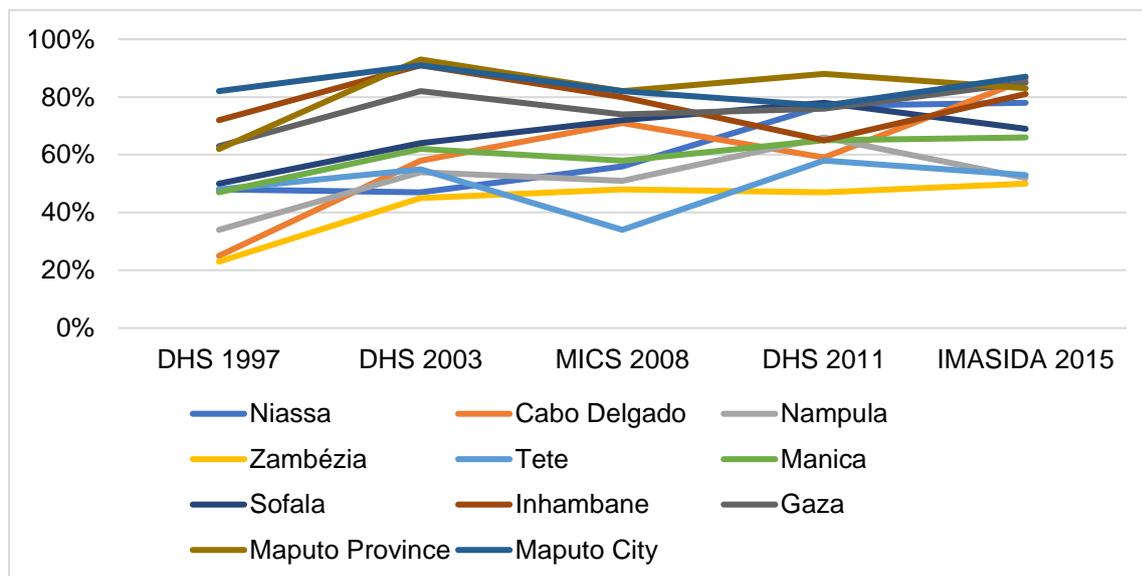
Figure 4.5 illustrates the trends by province, in the coverage of children under 12 months who are completely immunised. Overall, the trend in all provinces is the improvement of coverage over the time, although the four provinces from the south of the country performed better than the provinces from the centre and north. Zambezia province consistently achieved lower coverage during the period of evaluation. In 1997, the coverage of children completely vaccinated in this province was estimated at 23 per cent (Gaspar *et al.* 1997) and in 2015 was estimated at 50 per cent (MISAU *et al.* 2015) – way below the best performer, Maputo City, which was estimated at 87 per cent coverage.

Figure 4.4 Coverage of children under 12 months completely vaccinated in Mozambique by area of residence, 1997–2015



Source: Authors' own, based on data from DHS (1997, 2003, 2011), MICS (2008), IMASIDA (2015).

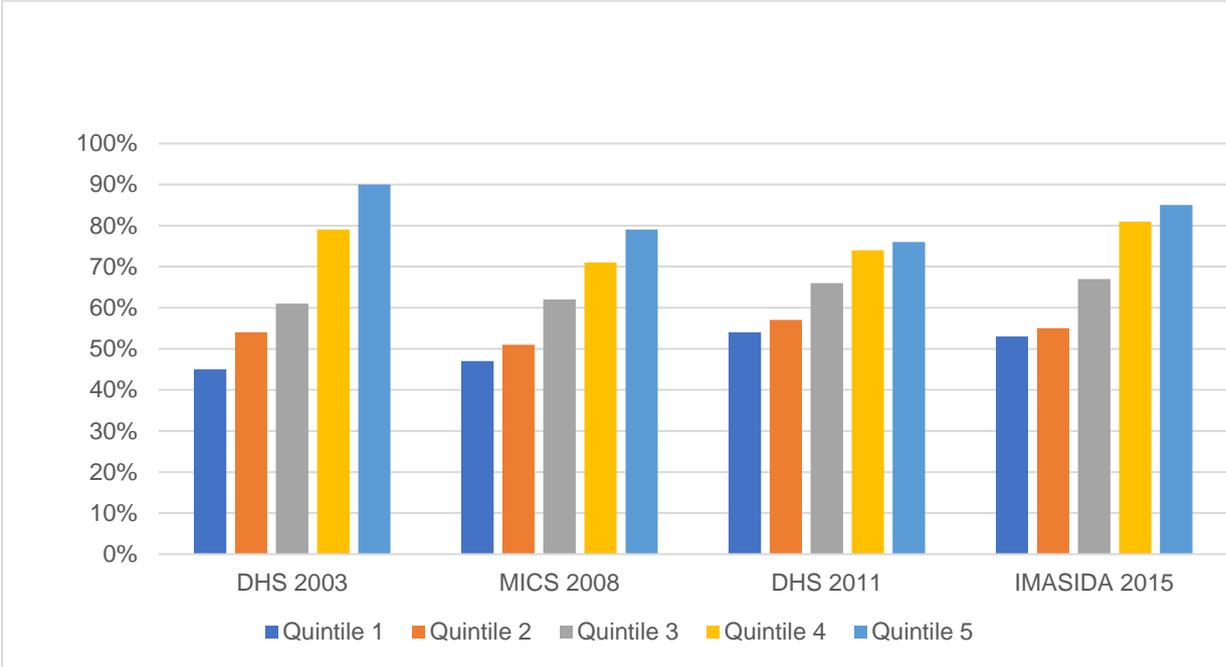
Figure 4.5 Coverage of children under 12 months completely vaccinated in Mozambique, by province, 1997–2015



Source: Authors' own, based on data from DHS (1997, 2003, 2011), MICS (2008), IMASIDA (2015).

While there was a more significant reduction of the disparity between the provinces, in the disaggregated data by quintile of wealth (see Figure 4.6) the difference remains very evident, where the better-off enjoy better coverage compared to the low coverage of the poorest. The better-off part of the population consumes almost double compared to the least wealthy in the population.

Figure 4.6 Trends in coverage of completed vaccination in children under 12 months, by wealth quintile, Mozambique, 1997–2015

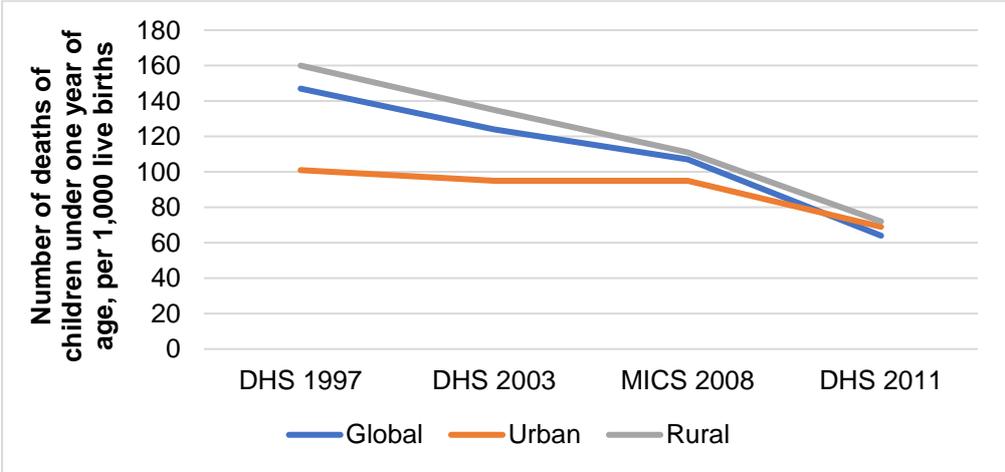


Source: Authors' own, based on data from DHS (2003, 2011), MICS (2008), IMASIDA (2015).

4.4 Infant mortality

Overall, infant mortality has declined over the years. Data from the DHS indicate a reduction from 147 per 1,000 live births in the late 1990s (INE 1998), to 64 per 1,000 live births in 2011 (INE and MISAU 2012). The level of reduction was high in rural areas compared to urban settings. Comparing the provinces, we consistently observe that the south region always presents the lower rates of mortality. However, Maputo City, the country capital, presents a unique evolution of this indicator – from a rate of 49 per 1,000 live births in 1997, it has grown to a rate of 61 per 1,000 live births in 2011.

Figure 4.7 Infant mortality trends in Mozambique by local of residence, 1997–2011

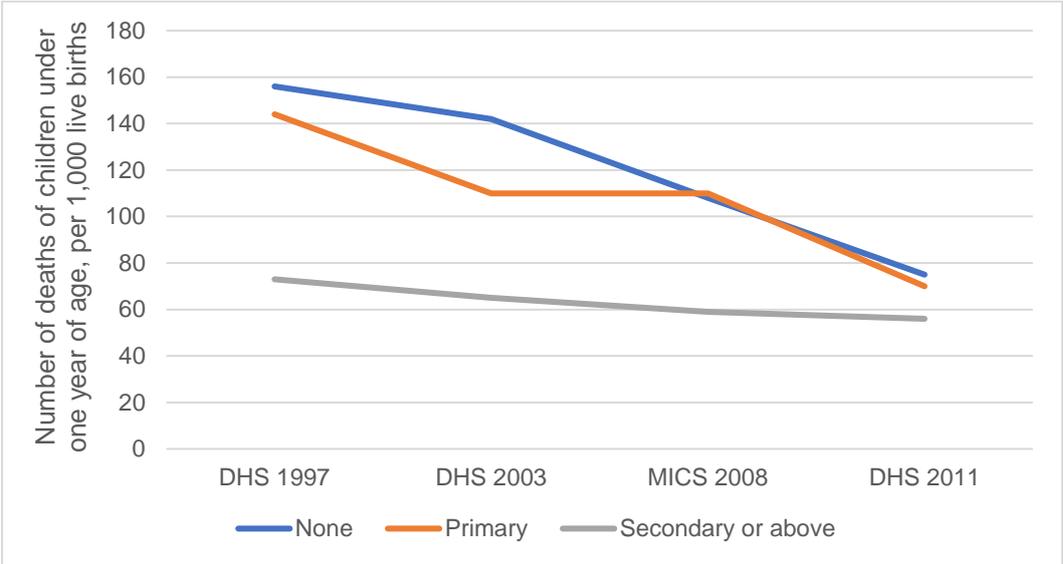


Source: Authors' own, based on data from DHS (1997, 2003, 2011), MICS (2008).

Over time, there is a tendency for the gap in infant mortality rates between rural and urban areas to be reduced.

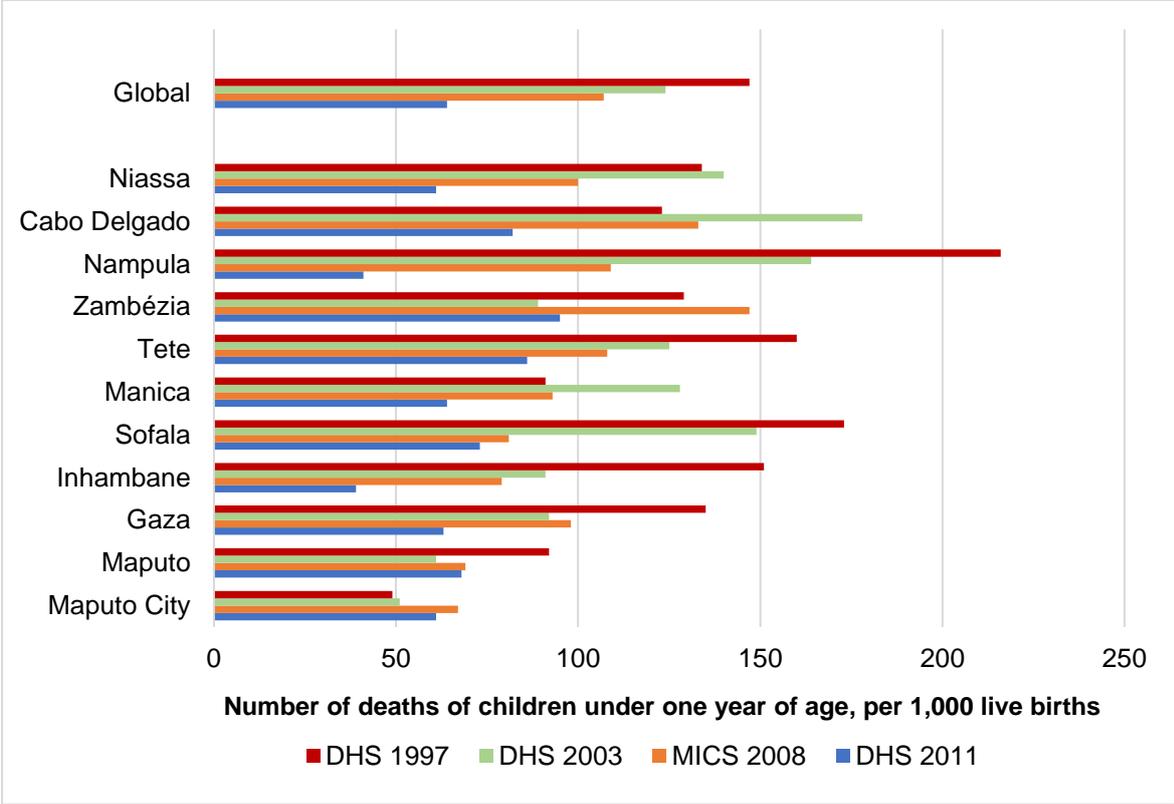
The level of education of the mothers appears to have a great influence in the level of infant mortality. Figure 4.8 illustrates that the level of infant mortality in the group of mothers with at least secondary level education has been lower compared with other groups. Although we see a great reduction in the groups of mother without any level of education and the ones with primary level of education, the rates found in the DHS 2011, are still higher than the rates from the group of women with at least secondary level of education.

Figure 4.8 Trends in infant mortality in Mozambique, by the level of education of the mother, 1997–2011



Source: Authors' own based on data from DHS (1997, 2003, 2011) and MICS (2008).

Figure 4.9 Trends in infant mortality by Province in Mozambique, 1997–2011



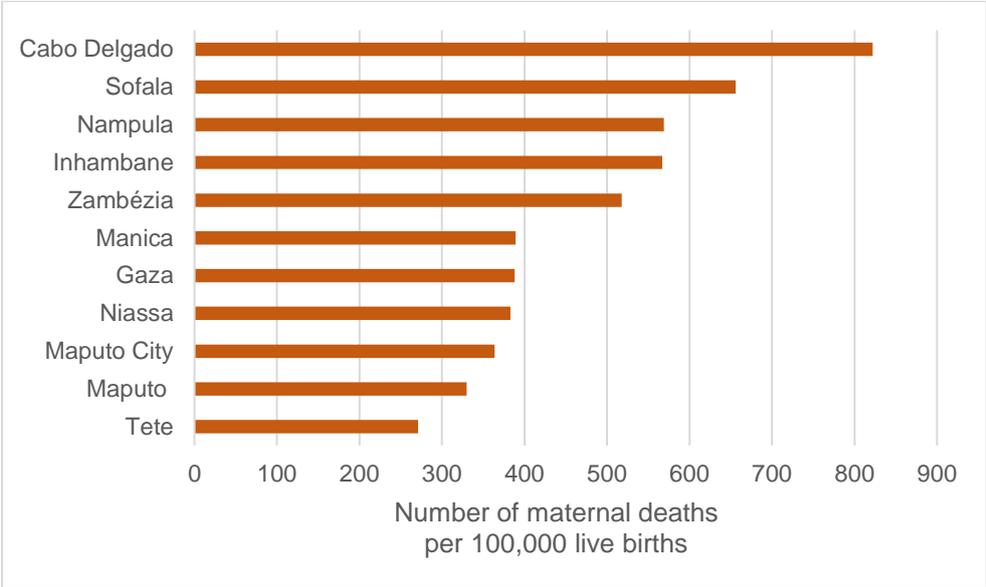
Source: Authors' own based on data from DHS (1997, 2003, 2011) and MICS (2008).

From 1997 to 2011, the country reduced infant mortality by around 56 per cent. Although in the earlier years there were huge differences among provinces, the last estimation shows fewer differences. The most impressive reduction of infant mortality was observed in Nampula Province, where the mortality rate dropped from 216 per 1,000 live births in 1997 to 41 deaths per 1,000 live births in 2011. This represents a reduction of about 81 per cent. Maputo Province and Maputo City show an increase in infant mortality in the last three measurements. This trend is completely different from the rest of the country. Aside from this trend, the mortality in these two provinces remains consistently lower than the rest of the country, except for the DHS 2011, where Inhambane and Nampula presented the lowest figures.

4.5 Maternal mortality

The maternal mortality rate at the community level has been measured during the DHS surveys, and the results present the estimation at the national level. The 2007 general census of the population estimated the mortality at province level, as described below.

Figure 4.10 Maternal mortality ratio per province, Mozambique, 2007



Source: Authors' own, adapted from Cau and Arnaldo (2013).

The interagency group, including WHO, UNICEF, UNFPA, World Bank Group and the United Nation Population Division, released the last estimation of maternal mortality for Mozambique which shows a progressive reduction between 1990 and 2015 (WHO *et al.* 2015). Table 4.2 summarises this observation.

In the absence of comprehensive data on mortality at the population level, we look at the administrative data reported by the Ministry of Health.

Table 4.2 Trends in maternal mortality, Mozambique, 1990–2015

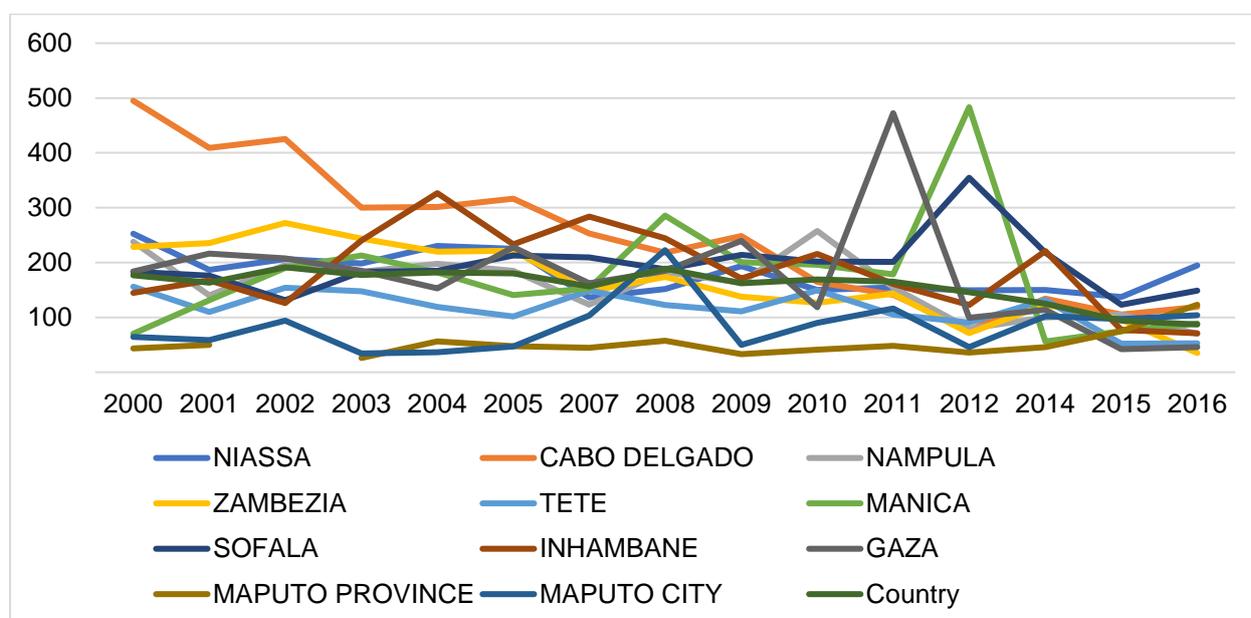
Year	Maternal mortality ratio (MMR)	Maternal deaths	AIDS-related indirect maternal deaths	Live births	Proportion of maternal deaths among deaths of female reproductive age (PM %)
	Per 100,000 live births (lb)	Numbers	Numbers	Thousands	%
1990	1,390 (992–1,880)	8,700	2	629	35.6
1995	1,150 (840–1,520)	8,300	56	723	27.4
2000	915 (706–1,160)	7,500	330	822	17.5
2005	762 (614–948)	6,900	670	911	11.8
2010	619 (481–806)	6,200	640	1,000	10.8
2015	489 (360–686)	5,300	570	1,087	9.5

Source: WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division (2015).

4.6 Facility-based maternal mortality

Administrative data from the Ministry of Health show a trend of facility-based maternal mortality reducing between 2000 and 2016. Although this information only represents a portion of the maternal deaths, as it corresponds solely to the women who were able to reach a health facility, it is interesting to see that this trend is similar to the estimated trend at the population level. It is also important to note the narrowing of the gap/difference between the provinces in recent years. As the coverage of health facility-based deliveries has increased over time, the ratio of facility-based maternal mortality becomes meaningful in order to understand what is happening at the population level, and the causes of deaths across the country.

Figure 4.11 Trends in facility-based maternal mortality ratio, by province, Mozambique, 2000–16



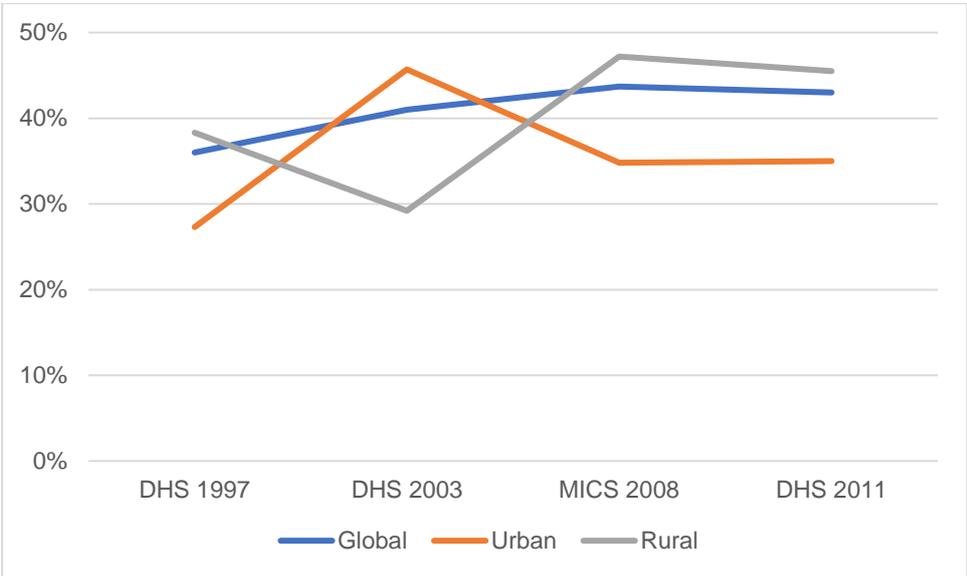
Source: Authors' own, using the Health Information System Data Base from the Ministry of Health.

Facility-based maternal mortality in Mozambique is influenced by many circumstances, including access to skilled attendants, availability of obstetric emergency care services, delays in reaching the facility for women facing pregnancy complications, and delays to accessing care whilst in the health facility (Chavane *et al.* 2017). The difference in the magnitude of mortality among the provinces illustrates, to some extent, the disparity between the maternities distribution in the country, including the distribution of skilled attendants.

4.7 Chronic malnutrition

According to the DHS 2011 data, stunting is affecting 43 per cent of children under five years in Mozambique (INE and MISAU 2012). This is one of the indicators that shows a great disparity between the provinces in the country. Figure 4.12, below, illustrates a trend of the worsening situation between 1997 and 2011. There is a prevalence increase in the rural areas, while in the urban areas we see a slight reduction.

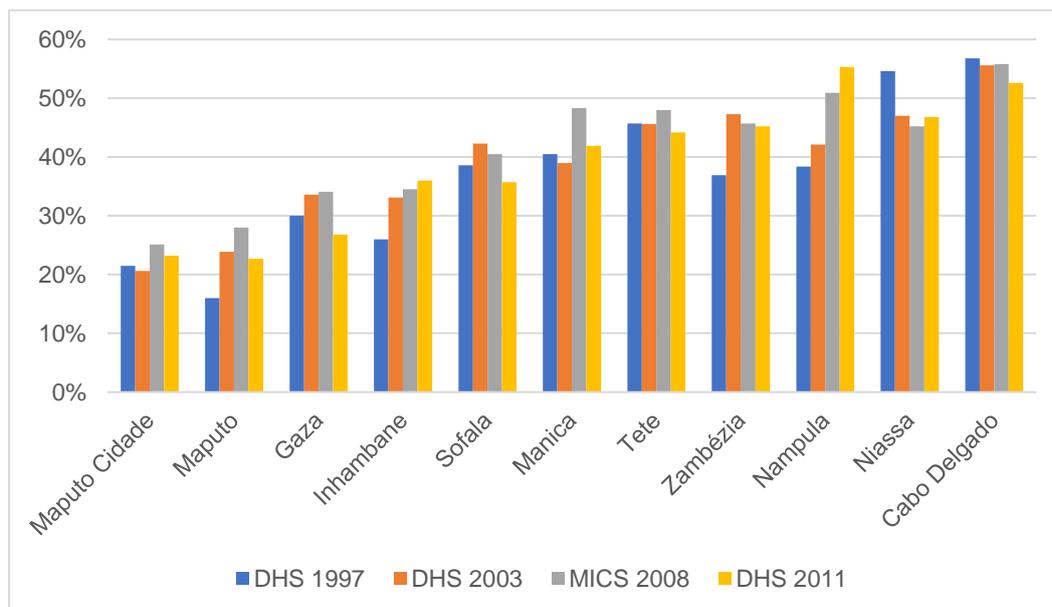
Figure 4.12 Trends of chronic malnutrition by residence area, Mozambique, 1997–2011



Source Authors' own, based on data from DHS (1997, 2003, 2011) and MICS (2008).

Figure 4.13 displays the prevalence of stunting by province between 1997 and 2011. Comparing these two surveys, five provinces – namely Cabo Delgado, Niassa, Tete, Sofala and Gaza – present a slight reduction of the level of stunting found in 1997 compared to the level found in 2011. In the rest of the provinces, the prevalence in 2011 is worse than the 1997 results. The Nampula province had the worst situation, where the prevalence increased from 38.4 per cent in 1997 to 55.3 per cent in 2011.

Figure 4.13 Trends of chronic malnutrition by province, Mozambique, 1997 – 2011

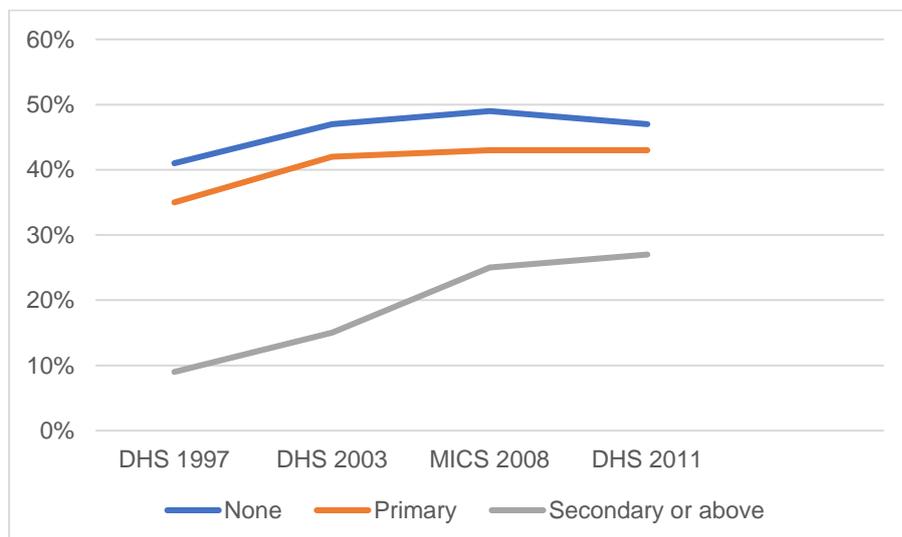


Source: Authors' own, based on data from DHS (1997, 2003, 2011) and MICS (2008).

Figure 4.13 shows the high prevalence of stunting in the provinces located in the north region of the country, with Cabo Delgado Province being in the worst situation with high prevalence in 2011 of 55.8 per cent, and Maputo Province having the lowest prevalence at 22.7 per cent.

The level of education of the mothers plays an important role in the nutrition status of the under-five children. As is illustrated in Figure 4.14 (below) the children of women with at least secondary school level education always present a better indicator.

Figure 4.14 Trends of chronic malnutrition by level of education of the mother, 1997–2011



Source: Authors' own, based on data from DHS (1997, 2003, 2011) and MICS (2008).

The 2007 WHO analysis of the 2003 DHS data in Mozambique concluded that malnutrition is a result of both inadequate food intake and illness. The analysis illustrates that underlying social and economic influences by themselves contribute to 70 per cent of existing inequality in childhood malnutrition. The source of drinking water (18 per cent), household wealth (17 per cent) and the mother's occupation (13 per cent) are the biggest three contributors in this

category. The contribution of basic influences comes only through the regional differences (16 per cent). Underlying biological and behavioural influences at mother’s level makes up most of the remaining contribution (Department of Equity, Poverty and Social Determinants of Health 2007).

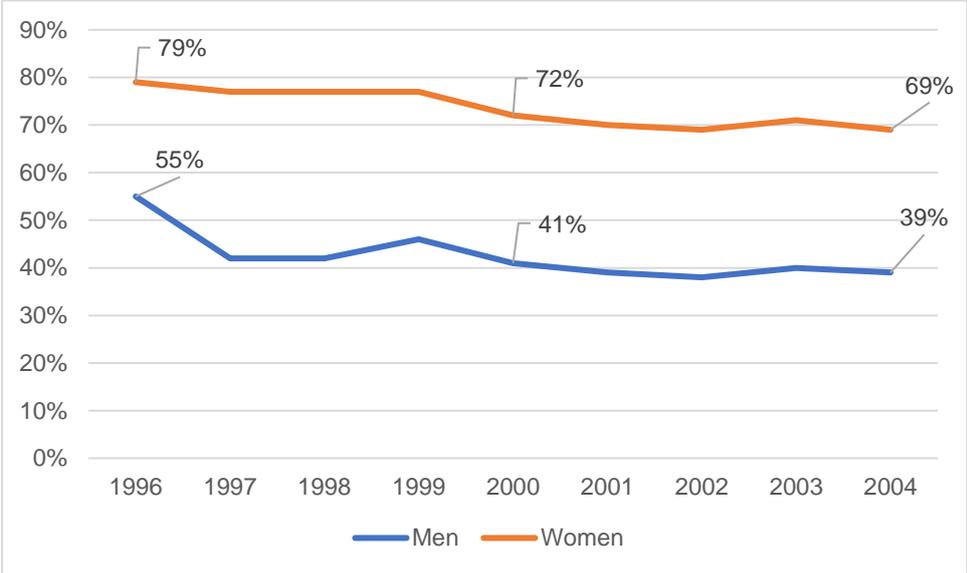
5 Some determinants of health status

An evaluation completed in the central part of the country found that the birth weight, mother’s educational status, maternal occupation, living in a rural area, number of children under five years of age in the household, cooking with charcoal, inhabiting wooden or straw housing or housing without proper floors, overall duration of breastfeeding as well as duration of exclusive breastfeeding, and time of initiation of complementary feeding, were significantly related to stunting (Cruz *et al.* 2017).

5.1 Women illiteracy rate trends in Mozambique

Available data show that between 1996 and 2004, illiteracy rates for women aged above 15 years went from 79 per cent to 69 per cent, whilst in the same period for the males in the same age group, the rate decreased from 59 per cent to 30 per cent. Recent figures illustrate that illiteracy among women of reproductive age continues to be high. Adult literacy rates among men are almost twice as high compared to women (70 per cent and 40 per cent, respectively, 2005–08). Out of the total 5,759,000 adults who are illiterate, 69 per cent are women. For persons aged 15 to 24 years, the gender difference is 18 per cent (favouring males) (Hanemann 2015).

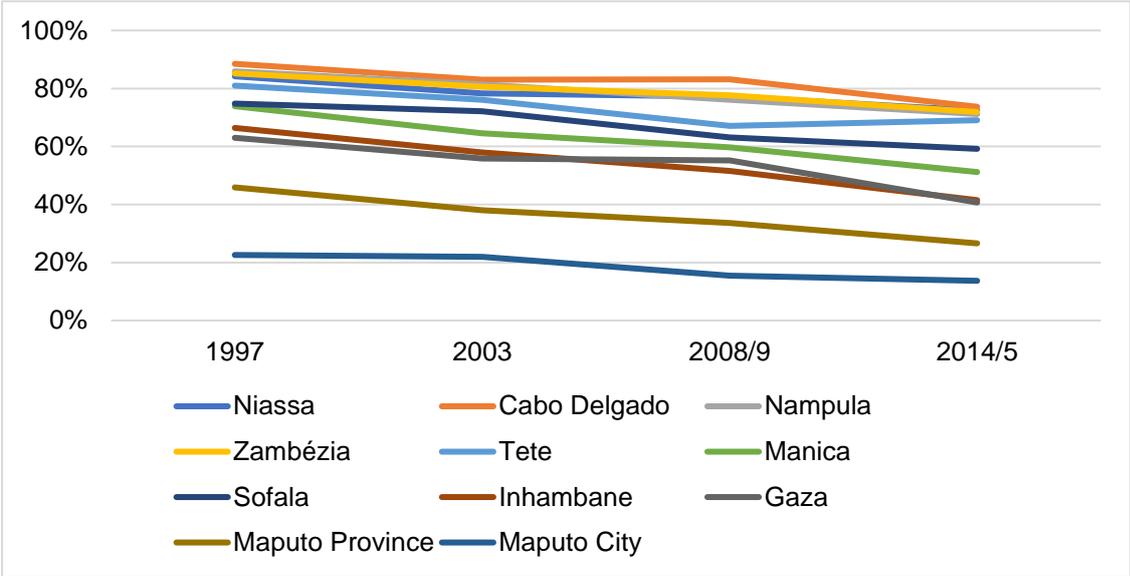
Figure 5.1 Global trends of illiteracy, 1996–2004, Mozambique



Source: The State of World Population, Monitoring ICPD Goals (1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003 and 2004), cited by Mario and Nandja (2006).

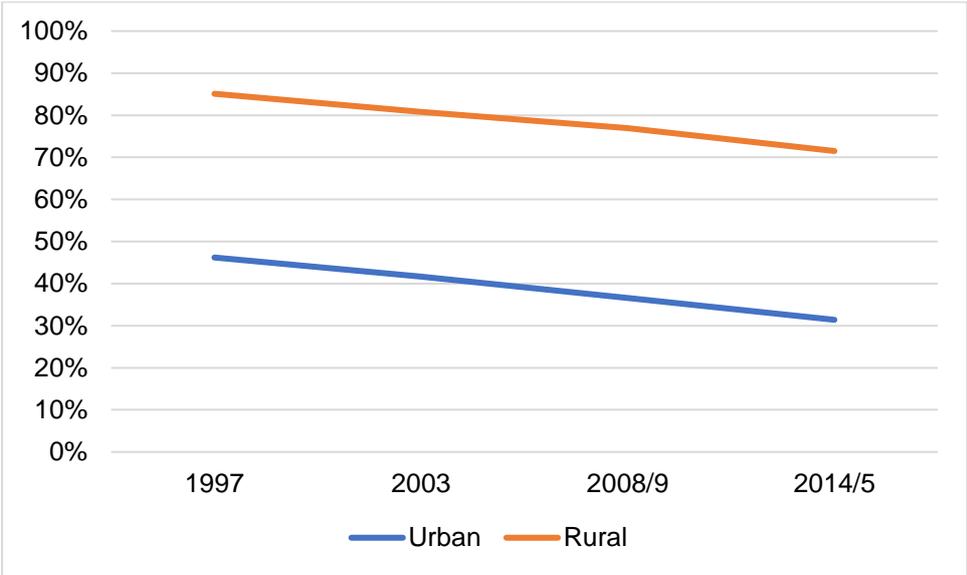
According to World Bank database, in 2009 the literacy rate among women aged above 15 years old was estimated at 36.5 per cent (World Bank n.d.).

Figure 5.2 Trends of illiteracy by province, 1996–2004, Mozambique



Source: Authors' own, based on data from IOF 2002/2003 (INE 2003) and IOF 2014/2015 (INE 2015).

Figure 5.3 Trend of women illiteracy rates, comparing urban and rural area

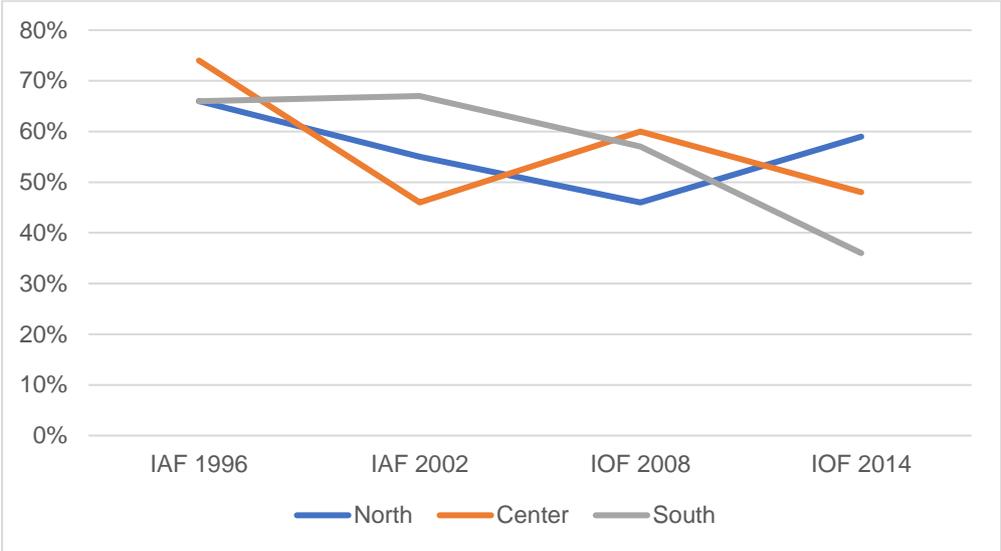


Source: Authors' own, based on data from World Bank (n.d.).

5.2 Poverty

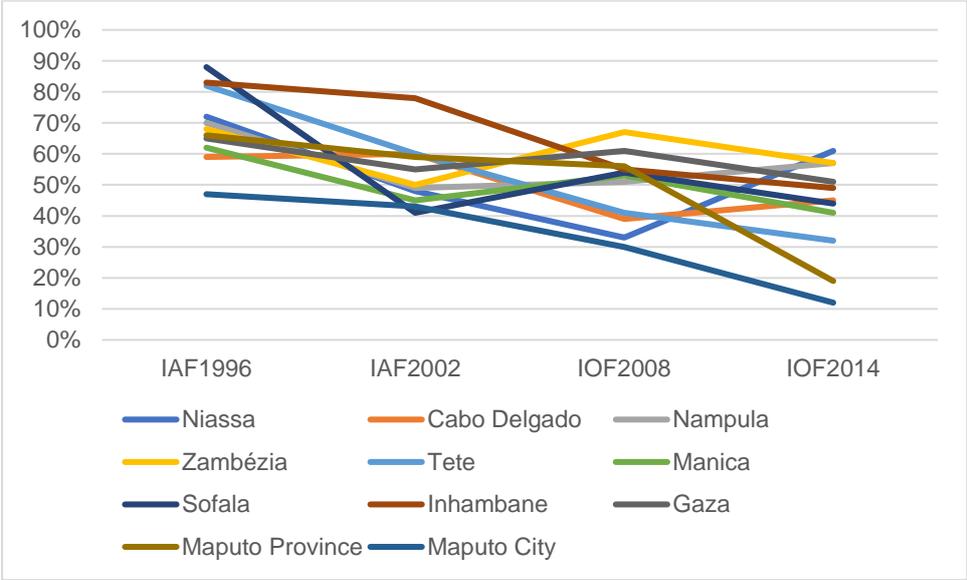
Almost all indicators of health-care services utilisation show that the poor have less access to and use of services, and therefore they have worse health outcomes. Figure 5.4 illustrates the trends of poverty incidence in Mozambique between 1996 and 2014. During this period, urban areas reduced 23.6 percentage points, and in rural areas, the reduction of poverty incidence was 21.7 percentage points. Substantial differences regarding poverty reduction can be seen between the regions – while in the north region the reduction was estimated at 12.2 percentage points, the centre and south were estimated as 27.9 and 32.7 percentage points respectively.

Figure 5.4 Trends in poverty incidence, headcount using PLEASe¹ approach, 1996–2014



Source: Authors' own, based on Ministry of Economics and Finance (2016).

Figure 5.5 Trends of poverty incidence, headcount using PLEASe approach, by province



Source: Authors' own, based on Ministry of Economics and Finance (2016).

In the 2014 assessment, Maputo Province and Maputo City had the lowest incidence, with 18.9 per cent and 11.6 per cent respectively against the national average of 46.1 per cent. Niassa, with 60.6 per cent, was the worst, followed by Nampula with 57.1 per cent and Zambezia with 56.5 per cent (Ministry of Economics and Finance 2016).

¹ The PLEASe (Poverty Line Estimation Analytical Software) approach was adopted by the Government of Mozambique to measure poverty. 'PLEASe comprises a flexible set of Stata and GAMS codes designed to estimate regional poverty lines using household budget survey data. In this approach, the estimation of absolute poverty lines is rooted in the cost of basic needs method, which forms the core PLEASe code stream. Specifically, poverty lines are based on the typical consumption patterns (food bundles and prices) of the reference population (relatively poor households). The cost of food bundles, which attain minimum caloric needs, at prices paid by relatively poor households, yields a food poverty line. The total poverty line is determined by the sum of the food poverty line and the cost of non-food items for households with total consumption levels close to the food poverty line' (Arndt *et al.* 2016: 305).

Any intervention oriented to improve maternal and child health indicators will need to consider the actions oriented to reduce the poverty level and the asymmetry in the access to the resources by the population.

According to the WHO Study on Inequities in Maternal and Child Health in Mozambique (Department of Equity, Poverty and Social Determinants of Health 2007), which analysed the 2003 DHS data, found that the differences in socioeconomic aspects accounted for 61 per cent of inequities in skilled birth attendance. The three main socioeconomic contributors to inequalities were: household wealth (24 per cent), mother's education (16 per cent) and living in rural areas (12 per cent). Other important socioeconomic contributors included frequency of accessing information (5 per cent) and mother's occupation (4 per cent). Quality of case management, approximated by antenatal care quality, contributed to another 23 per cent of inequalities in obtaining skilled birth attendance, while most of the remaining influences on inequalities were due to factors associated with utilisation of maternal health services (16 per cent). Of this, 12 per cent was attributed to perceived barriers to access, especially distance to facility, while another 4 per cent was attributed to receiving valid antenatal care.

6 Conclusion

Overall, we see a slight reduction of inequity in the indicators of access, utilisation and health outcomes in Mozambique over more recent years in maternal and child health, and these figures should be taken into account in the designing of any strategy for improving access to maternal and childcare.

Besides the overall improvement, there are important differences between the three regions of the country, whereby, in many instances, the north presents the worst indicators compared with the centre and south regions.

The level of income at the household level, the resources distribution within health services, the geographical distribution and availability of health-care services, and the level of education of the mother, among others, appear to be the contributing factors behind the reported differences.

Programmes oriented to improving women's literacy and improving access to income by the household might have an important impact on the Maternal and Child Health indicators. The interventions need to take into account the current disparity between provinces and regions. The data included in this analysis only capture the differences at province level. It would be important to extend the analysis to compare different districts within each province. This may imply a need for changes in the current monitoring and evaluation strategies implemented in the country, to focus more and more on the district level. The advantage of such an approach is the possibility to identify the inequities at district level. We believe that by using aggregate data at province level, these differences will not be captured in the final picture, leading to a lack of action.

The study shows that there is a need to have a multisector approach to the strategy to reduce the inequity in maternal and child health caused by the social determinants of health.

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