

**Research Article****Factors Influencing Low Immunization Coverage among Under-Five Children in Daynile District, Mogadishu, Somalia**Dr. Abdullahi Suleiman Hassan<sup>1</sup>, Dr. Bashir Abubakar Mohamud<sup>2</sup>

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Immunization remains one of the most cost-effective public health strategies to reduce childhood morbidity and mortality. While Somalia has recorded significant progress—with national fully vaccinated coverage rising to approximately 70% in 2025 according to recent WHO/UNICEF estimates—severe disparities persist. Conflict-affected and peri-urban districts such as Daynile in the Banaadir region continue to experience coverage rates significantly below the national average. This study aimed to assess the socio-cultural and political factors influencing immunization coverage among children under five years of age in Daynile district, contributing to the evidence base for the "Big Catch-Up" immunization strategy. A cross-sectional study design was employed, with primary data collected from 55 female guardians of children under five years using structured, close-ended questionnaires. The study targeted households in accessibility-compromised zones of Daynile. Data were analyzed using SPSS version 27 and presented in tables, figures, and descriptive narratives. Findings revealed that only 16% of children were fully immunized, 49% were partially immunized, while 35% had never received any vaccines. Socio-cultural determinants such as fear of side effects (20%), misconceptions about vaccine efficacy (14.5%), and beliefs linking vaccines to infertility (1.8%) negatively influenced immunization uptake. Additionally, partner discouragement (30%) and reliance on traditional birth attendants further limited vaccination access. Political barriers were equally significant, with all respondents reporting lack of support from NGOs, community leaders, and district authorities, compounded by ongoing insecurity in the district.

The study concludes that both socio-cultural misconceptions and inadequate political commitment contribute to persistently low immunization coverage in Daynile. Strengthening community-based awareness campaigns, integrating local leaders into health promotion, and improving government-led outreach services are essential to enhance vaccine uptake.

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**Keywords:** Immunization coverage, under-five children, socio-cultural factors, political factors, Daynile district, Somalia

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## **Introduction**

Vaccination is a key public health strategy for reducing childhood morbidity and Mortality, immunization programs aim to protect children from vaccine preventable diseases. However, vaccination coverage remains low, especially in certain regions. Understanding the factors influencing vaccination uptake is essential for improving coverage rates and safeguarding children's health[1].

Vaccination is the most effective means of combating diseases, particularly dangerous infectious diseases. In 1974, the World Health Organization (WHO) launched the Expanded Program of Immunization (EPI) to make vaccines available to all children and thereby control vaccine preventable diseases worldwide. The vaccination of children, has led to a significant reduction in morbidity and mortality from different diseases, thereby lowering the infant mortality rate[2].

Immunization is one of the key interventions to achieving the Millennium Development Goals (MDGs), especially the goal to reduce deaths among children under five years old. Childhood vaccinations have been shown to be effective in protecting children against vaccine preventable diseases in low- and middle-income countries. Vaccines prevent more than 2.5 million child deaths per year[3]

Currently, more children are getting vaccinated at the appropriate time, but approximately 20 million individuals across the globe are still not receiving vaccinations, leaving them vulnerable to severe illnesses, fatalities, handicaps, and poor health[4].

The global vaccination coverage among children aged 0–59 months was estimated to be 81% in 2020. Because of the COVID-19 pandemic, global vaccination coverage among children under five years of age decreased by 5%, compared to 86% in 2018. This coverage rate (81%) is similar to the rate in 2010, showing a significant decrease in childhood vaccination coverage during the pandemic. Globally, more than 22.7 million children do not complete essential vaccinations, accounting for 17% of children under five years of age. For instance, 17.1 million children had not received any dose of the diphtheria, tetanus, and pertussis vaccine. Low- and middle-income countries are reported to have low childhood vaccination coverage[5].

Global estimates of coverage with the third dose of DTP (DTP3) and a polio vaccine (Pol3) decreased from 86% in 2019 to 83% in 2020. Similarly, coverage with the first dose of measles-containing vaccine

(MCV1) dropped from 86% in 2019 to 84% in 2020. The last year that coverage estimates were at 2020 levels was 2009 for DTP3 and 2014 for both MCV1 and Pol3. Worldwide, 22.7 million children (17% of the target population) were not vaccinated with DTP3 in 2020 compared with 19.0 million (14%) in 2019. Children who did not receive the first DTP dose (DTP1) by age 12 months (zero-dose children) accounted for 95% of the increased number. Among those who did not receive DTP3 in 2020, approximately 17.1 million (75%) were zero-dose children. Global coverage decreased in 2020 compared with 2019 estimates for the completed series of Haemophilus influenzae type b (Hib), hepatitis B vaccine (HepB), human papillomavirus vaccine (HPV), and rubella-containing vaccine (RCV)[6]

**Africa:** according to (WHO and UNICEF report, 2014) the estimate of average immunization coverage in Africa increased only from 74% in 2010 to 80% in 2014. In addition, there are disturbing disparities among countries. Most countries in northern Africa reported national coverage above 90% -the GVAP target –while most countries in sub-Saharan Africa have experienced more limited progress. The Government of Uganda is committed to achieving the targets set out in the recently-launched National Development Plan (NDP , 2010-2015), many of which are in line with the MDGs to be achieved by 2015. In spite of these efforts, huge challenges still remain. The under-five and infant mortality rates are still high at 137 and 78 per 1,000 live births respectively. In addition, Uganda's total fertility rate (TFR) of about 7 children per woman is one of the highest in the world. It is noteworthy that any efforts to reduce the total fertility rate will yield very little, if not matched with tremendous reductions in the infant mortality rate. Therefore, it is clear that, despite the universal childhood immunization programme especially in developing countries, like Uganda, poor child health still persists. Vaccination coverage in Africa has been a critical public health issue. For instance, in 2023, only 34% (16/47) of countries in the WHO African Region achieved the target of 90% coverage for the diphtheria tetanus-pertussis vaccine. Low immunization coverage has significant implications for public health, resulting in frequent outbreaks of diseases that could otherwise be prevented. The introduction of new or underutilized vaccines in the African region is essential to prevent these outbreaks.[7].

This has aroused a lot of interest among government policy-makers and other stakeholders (especially donors) in understanding the factors influencing the use of childhood immunization services. A key issue of interest is whether the children are fully immunized against all vaccine-preventable diseases and the set of associated factors that may need policy intervention. Vaccination coverage in Africa has been a critical public health issue. For instance, in 2023, only 34% (16/47) of countries in the WHO African Region achieved the target of 90% coverage for the diphtheria tetanus- pertussis vaccine. Low immunization coverage has significant implications for public health, resulting in frequent outbreaks of diseases that could otherwise be prevented. The introduction of new or underutilised vaccines in the African region is essential to prevent these outbreaks.<sup>18</sup> However, previous studies have reported that a lack of coronavirus

disease 2019 (COVID-19) vaccination impedes mpox vaccine acceptance. Low immunisation coverage may create a vicious cycle in which populations that have never been vaccinated may refuse to receive new vaccines owing to a lack of trust in vaccination programs[7]

Studies in Ethiopia revealed that full immunization coverage varied greatly in the country ranging from 47% to 65% and several studies mentioned many factors which affect the full immunization coverage in Ethiopia. The place of living, maternal and paternal literacy, income, family size, perception of the care taker about health care service are the most listed ones in the previous studies[8]

Studies have examined vaccination coverage in Nigeria, highlighting various influencing factors. For instance, a study in Kebbi State found that maternal education, knowledge, and income significantly affect complete immunization among children under two. Another study in Bayelsa State reported that community participation positively impacts childhood immunization coverage[1].

**In Somalia:** Immunization coverage is estimated at only 30-40% against six major childhood diseases- tuberculosis, diphtheria, pertussis, tetanus, polio, and measles – even though there are close to 40 International NGOs supporting immunization activities (Save the Children Report, 2018). With the support of WHO and UNICEF, the EPI program in Somalia started in 1978, with the strategy of mobile and outreach services. An evaluation of the program in 1985 showed that the strategy achieved very low immunization coverage and vaccine coverage rapidly declined when fighting broke out in 1988. The civil war of 1988–1992 devastated the health infrastructure and dispersed health workers. (Mohamed Hayir, 2020). The Federal government, its member states, and communities with help from international and local agencies established numerous mother and child health care centers which provide immunization services that make immunization among the most cost-effective public health intervention, however, unlike many other developing countries, the immunization coverage of Somalia is still relatively very low and factors behind are still unknown therefore, this study investigated factors influencing immunization coverage among children younger than five years in Daynile distract.

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## **Material and methods**

This study a cross-sectional descriptive study where study was conducted in Daynile distract Mogadishu, Somalia. The study population for this study was female guardians who had under five children permanently live in Daynile district. And the sample population was based on the age of children and mothers for these children were giving responses since children of this age cannot give proper answers. The sampling method was convenient sampling, type of non-probability sampling method. Convenient sampling assisted researchers to select the most readily available people for our study and those accepted as voluntarily. Mothers for the children was asked permission and participation process. 50 respondents were selected from the target population, where the sample was taken from a group of people easy to

contact or reach. That means the sample size was chosen as far as they are going to be part of the study participants and truly represent the target population. Quantitative (numerical) method was used for the study. Quantitative research is used to quantify the problem by way of generating numerical data or data that can be transforming into usable statistics. It let us derive important facts from research data, including differences between groups, and demographics. Quantitative studies provide data that can be expressed in numbers. Data was collected using close-ended questionnaire as data collection tool.

The data was understandably study, edit, coded, inter and summarize quantitatively, viewing the percentage. Data was analyzed and processed electronically using statistical package for social scientist (SPSS) version 27 and presented in forms of texts, tables and charts.

**Results and discussion**

**Table 1. SOCIO- DEMOGRAPHY CHARACTERISTIC**

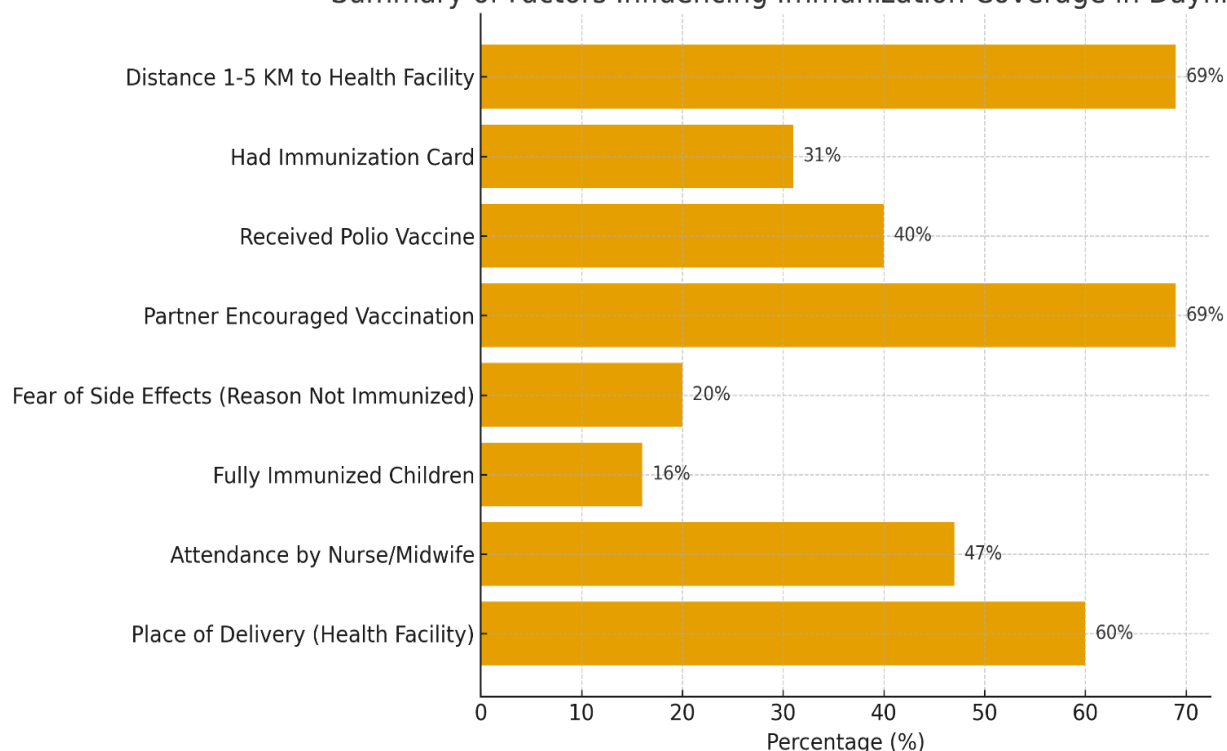
This Table shows that Most of the children (67.3%) were in the 1–2-year age range, followed by 18.2% who were below the age of 1 and 14.5% between the ages of 2 and 3. The majority of the respondents were married (83.6%) and a smaller proportion (16.4%) were divorced. With respect to the level of education, the majority of respondents (67.3%) had no formal education, 27.3% had completed primary education, and 5.5% had a diploma. In terms of employment, nearly all respondents (98.2%) were unemployed, with only 1.8% of the respondents being employed. The findings imply that the study population consisted mainly of married, unemployed mothers with low educational levels and children predominantly in the 1–2-year age range.

		<b>Frequency</b>	<b>Percent</b>
<b>The Age of Child</b>	less 1 year	10	18.2
	between 1-2 year	37	67.3
	between 2-3	8	14.5
	Total	55	100.0
<b>Marital Status</b>	Married	46	83.6
	Divorce	9	16.4
	Total	55	100.0
<b>Educational Level</b>	no school at all	37	67.3
	Primary	15	27.3
	Diploma	3	5.5
	Total	55	100.0

<b>Respondent by Occupation</b>	Employed	1	1.8
	un employed	54	98.2
	Total	55	100.0

**Family Income of the Respondent**

Summary of Factors Influencing Immunization Coverage in Daynil



**FIGURE1.SOCIO-CULTURALFACTORSTHATINFLUENCEIMMUNIZATION COVERAGE.**

This figure shows Summary of factors influencing Immunization coverage, the most dominant factor seems to be the nearness of health facilities, as reported by 69% of participants. Curiously, having an immunization card and being encouraged by a partner also have meaningful effects on the population at 31% and 40%, respectively. And fear of side effects is a significant barrier, with 20% of parents mentioning this as a reason for not vaccinating their children.

Other factors that partly point to the importance of access to health care in increasing immunization rates include the availability of a nurse or midwife (47%) and the type of health facility at which the child was born (60%). In general, the results suggest that logistical and social barriers have a great impact on the consumption of vaccinations in society

## **Discussion**

In demographic characteristics majority of children's age 37(67%) were between 1-2 year while 10(18%) were less than 1 year while 8(15%) were between 2-3. Majority of female guardians 46(84%) were married while 9(16%) were divorced. According to educational level, majority of respondent 37(67. %) were not attended school at all while 15(27%) passed primary and only 3(6%) had diploma. In employment status, majority of respondent 54(98%) were un-Employed while 1(2%) were Employed. In terms of family income, majority of respondent 31(56%) were receiving income between 100\$-200\$ while 13(24%) were receiving income between 200\$-300\$ while 11(20%) were receiving income of 100\$.

In socio-cultural factors, majority of respondents 27(49%) were partially immunized while 19(35%) were not immunized while 9(16%) were fully immunized. This means almost half of the children were partially immunized for variety of reasons and this will be discussed in the next figures. More than one third of the children have not received vaccines at all which has shown great risks to those children. Fortunately, nearly one fourth of the children have received full immunization and this can reduce the chance of vaccine preventable diseases. Majority of respondent 11(20%) said that they have not immunized there due to the fear of side effect of the vaccine and this situation always occur in many parts of the world particularly in African continent including Somalia. also 8(14%) answered that they believe vaccines cannot prevent diseases from their children and this is perception which influence immunization in the district and overall coverage in Somalia is also influenced by perception. on the other hand, 1(2%) said that she believes that vaccines can cause infertility to her children in the future.

In political factors, all respondents 55(100%) reported that other political factors have influenced their children's immunization and we have asked list of political factors but they mentioned other. all of the guardians 55(100%) have reported that they have not seen any NGOs supporting immunization programs and of course most of them were house wife and they could leave from so they could not see outside events. all of the female guardians 55(100%) who had under five children have reported that they have not seen any community leaders who are campaigning or supporting immunization services and they said this could be related cultural and education factors. This means most of the community leaders or elders are not literate and they do not believe vaccination programs.

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## **Conclusion**

This study aimed to investigate the factors influencing low Immunization coverage among under-five children in Daynile district. Cross-sectional study design was used as study design where closed ended questionnaire was also used as data collection method or tools. Data was analyzed using SPSS version 23 was presented in form of tables and figures and texts. Moreover, findings, from this has shown that most

socio-cultural factors were distance between home and health facility and this could reduce immunization coverage. On the other hand, most of the guardians didn't believe that vaccines cannot prevent diseases. Some of the cultural factors influenced by immunization coverage were side effects of the vaccine and fear of infertility to children. Most of political factors that influence immunization coverage were lack of community leaders support to immunization coverage and lack of district leaders support to immunization services.

Compliance with ethical standards (WJS-I-Heading no numbering)

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### **Conflict of interest statement**

Conflicts of Interest: There are no conflict of interest declared by the author, not available due to confidentiality reasons.

### **Statement of ethical approval**

Ethical clearance for this study was obtained from the Research Ethics Committee of the Sombridge University Formal permission to conduct the study was also secured from the Daynile District Administration and the local Ministry of Health representatives prior to data collection.

Informed verbal and written consent were obtained from all 55 female guardians who participated in the study. Participants were fully informed about the study's purpose, their right to withdraw at any time without penalty, and the measures taken to ensure confidentiality. All personal identifiers were removed during data analysis to maintain anonymity in accordance with the Declaration of Helsinki.

### **Statement of informed consent**

Informed consent was obtained from all female guardians included in this study. The purpose of the research, the voluntary nature of participation, and the measures taken to ensure confidentiality were explained to all participants prior to data collection.

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