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Barriers and Enablers of Child Immunization (Zero dose and under Immunized) in Addis Ababa, Ethiopia; 2026: Exploratory Qualitative Study Design

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Abstract

Background

In 2023, the World Health Organization reported that approximately 14.5 million children did not receive any vaccinations. Ethiopia ranks fourth globally in the number of zero-dose children, with 1.1 million affected. The severity of this issue varies by region and geographical context. Therefore, this study aimed to explore the barriers and enablers of child immunization in Addis Ababa, Ethiopia.

Method

An exploratory qualitative design was used from March 10, 2026, to April 05, 2026. Three focus group discussions among husbands of mothers and six key informant interviews among traditional healers were included. The sample size was determined based on data saturation and analysed by ATLAS.ti version 25.00 to emerge themes and subthemes.

Results

The study explored four key themes and eight subthemes. Attitudes toward vaccination, integration of traditional and modern medicine, community health education, and challenges in coverage were explored. Furthermore, misconceptions, traditional beliefs, and limited access are explored as a major barrier, and collaboration with traditional healers and engagement of religious leaders were suggested to improve acceptance.

Conclusions

Vaccination behavior is influenced by cultural beliefs, misinformation, and health system challenges. Integrating traditional and modern practices and enhancing community education are essential to improve uptake. Therefore, targeted health education, involvement of community and religious leaders, strengthened outreach services, and collaborative research with traditional medicine practitioners are recommended.

1. Background

Child immunization is the cost-effective public health intervention for halting vaccine preventable diseases mortality and morbidity among under-five children [1]. In 2023, the World Health Organization (WHO) reported that about 14.5 million children did not receive any vaccinations [2]. About 75% of these children lived in 14 countries: Angola, Brazil, Chad, China, the Democratic Republic of Congo, Ethiopia, India, Indonesia, Mexico, Nigeria, Pakistan, the Philippines, Somalia, and South Africa [2, 3]. Remarkably, Ethiopia has the fourth-highest number of zero-dose children in the world, with 1.1 million affected, due

to multiple factors such as cultural beliefs, misconceptions, and limited access to health services (3). Zero Dose (ZD) and Under Immunized (UI) children are frequently found in urban slums, remote rural areas, and conflict-affected regions [4, 5].

Regardless of its importance in current periods, a huge number of children in Sub-Saharan Africa (SSA) remain either zero-dose (those have never received a single dose of vaccine measured by DPT 1 or PENTA 1) or under-immunized (those children who have started single dose of vaccine, yet not completed the recommended vaccination schedule) [6]. These two groups are critical indicators of equity and performance within the global Immunization Agenda 2030 (IA2030) framework.

Furthermore, SSA is disproportionately affected, by a huge number of vaccine preventable diseases of the global burden. Although the region constitutes about one-sixth of the world's population, it accounts for more than 60% of the global zero-dose children; and more than 8.7 million zero-dose children and 12.7 million under-immunized children living in Africa [6, 7].

In-spite of this, Ethiopia is one of the largest populous countries in SSA but has low utilization of immunization status. Despite the proven effectiveness of vaccinations in enhancing child health and well-being, millions of children in Ethiopia remain unvaccinated, which ranks among the leading contributors to the number of zero-dose and unimmunized children in Africa [3]. In Ethiopia, only 14% of children were classified as zero-dose, while 62% were considered under-immunized [6, 7, 8].

The continuing low immunization coverage in Ethiopia is due to a weak health system whereby, several struggles to provide services, and lacks immunization awareness; even though, there are significant regional disparities: only 9% and 60% of children in agrarian regions received no vaccinations, and under immunized respectively compared to 69 and 92% in pastoral areas; whereby, several individual and community-level factors influence the number of vaccination doses that children receive in Ethiopia [8]. Moreover, urban averages can mask important differences. In Addis Ababa, the prevalence of zero-dose children is as low as 0.9%, whereas urban slums and marginalized groups within cities can still have under-immunized children [9]. Even though different activities have been done so far, the Expanded Program on Immunization (EPI), currently, the national immunization coverage is just around 60%, which is below the global targets [10].

Child immunization uptake in Addis Ababa is relatively higher than in other regions of Ethiopia, but it remains suboptimal. Key barriers include poor awareness of vaccination schedules, missed appointments, long waiting times, and perceived poor service quality. Health system challenges such as inadequate staffing and inconsistent services, along with caregiver factors like limited knowledge, time constraints, and fear of side effects, also contribute to incomplete immunization [11, 12].

Overall, the evidence suggests that child immunization in Addis Ababa is influenced by a combination of enabling factors—such as urban residence, maternal education, and health service utilization—and persistent barriers related to knowledge gaps and health system constraints. Strengthening health

education, improving service quality, and ensuring consistent outreach could further enhance full immunization coverage in the city.

In summary, vaccine uptake is shaped by cultural beliefs, misconceptions, and health system challenges, while health education and community engagement offer opportunities to improve coverage. Understanding these factors is essential for designing effective, context-specific interventions. Furthermore, the extent of this issue varies by region and different geographical contexts, including in Addis Ababa. Therefore, the aim of this research was to explore the barriers and enablers of children with ZD and UI, by addressing their needs through targeted interventions, is a must to improve immunization rates in Addis Ababa, Ethiopia.

Furthermore, this study contributes to the field of public health in immunization uptake by offering concise, context specific evidence on the key barriers and enablers affecting child immunization uptake in Addis Ababa. Moreover, it identifies critical challenges such as limited awareness, misinformation and service access issues, while highlighting enabling factors like caregiver's trust on health service availability. Therefore, the findings provide practical insights to inform targeted interventions aimed at improving routine immunization coverage in similar urban and slum urban settings.

2. Methods and Materials

2.1. Study Setting and Period

The study was conducted in three selected sub cities of Addis Ababa (Lideta, Yekka and Kolfe Keranio Subcities) from March 10, 2026, to April 05, 2026. These sub cities are three of the eleven sub cities in Addis Ababa City Administration (Fig. 2.1).

2.2 Study Design

An exploratory qualitative study design was used.

2.3 Source Population

The source population for this study was all care givers (mothers and their husbands) of children 12 to 35 months of age and traditional healers involved in traditional medicine services in Addis Ababa, Ethiopia.

2.4 Study Population

The study population for this study was caring givers (mothers and their husbands) of children 12 to 35 months and Traditional healers involved in traditional medicine services selected and included in this study in Addis Ababa, Ethiopia during the study period.

2.5 Inclusion and Exclusion Criteria's

2.5.1 Inclusion Criteria

Traditional healers and mothers and their husbands who gave birth in the last two years were included for Key Informant Interviews (KII) and Focus Group Discussions (FGD), respectively.

2.5.2 Exclusion Criteria's

Traditional healers and caregivers (their husbands) who are not residents of Addis Ababa were purposively excluded. Moreover, individuals who were unavailable during the scheduled KII and FGDs after repeated attempts, those who declined to give informed consent, and participants who did not complete didn't complete the full interview session were excluded from analysis.

2.6 Sample Size

Key informants (traditional healers) were interviewed regarding routine immunization, focusing on barriers and enablers of immunization uptake (zero dose and under immunize children). In addition, care givers (husbands of mothers) were included in focus group discussion (FGDs). The sample size was determined based on data saturation.

2.7 Sampling Procedure

Purposive sampling was employed to select the traditional healers and care givers (husbands of mothers) to gather in-depth information of the barriers and enablers of routine immunization uptake (zero dose and under immunization). Local guides, gatekeepers, and researchers will purposively select these population groups. The three sub-cities were also purposively selected due to their routine immunization coverage levels and the presence of underprivileged urban communities, including slum areas and informal settlements (Fig. 2.2).

2.8 Data Collection Tools

Qualitative Data Collection Tools

In this study, an open-ended focus group discussion (FGDs) and a key informant interview (KII) guide was developed to explore barriers and facilitators of immunization uptake in selected sub-cities (Lideta, Kolfe Keranio and Yekka) of Addis Ababa, Ethiopia. To maintain anonymity, Key Informant Interview (KII) participants were assigned codes from **KII1** up to the total number interviewed. Participants in Focus Group Discussions were identified by session codes, ranging from **FGD1** to the final session number. Professional health workers were facilitating and guide the interviews along with an audio recorder and a note taker. The sample of key informants were considered rich in information related to the objective of the study. The confidentiality binding form were prepared and included for field workers and data coders. The central guiding question for FGD and Key informants was

"What are the barriers and facilitators of child immunization uptake (zero dose and under

immunized) in Lideta, Kolfe Keranio and Yekka sub-cities of Addis Ababa, Ethiopia.

To successfully recruit participants, gatekeepers, including local administrators and district heads were involved. These gatekeepers were function as important links to the mothers in the community, helping to facilitate access to the KII and FGDs.

2.9: Data quality control and management

Data quality was managed and controlled by designing appropriate interview guides. Then the facilitators (field workers, co-coders), and supervisors received training before actual data collection for two days. Moreover, qualitative interview guide was tested off-site, away from the data collection locations (Arada sub-city), before the actual data gathering. Any necessary modifications will be implemented based on the results of this testing. Furthermore, the trustworthiness of the study was maintained throughout every research activity to ensure the rigor the research.

2.10: Data Analysis and Procedures

The data transcripts were ready to identify recurrent themes and to develop a coding tree. The qualitative data coding and analysis were done using computer-aided qualitative data analysis software (Atlas ti version 25.0 software). Then, codes were applied to the text. After coding the transcripts, memos and display matrices were used to thoroughly examine each code for sub-themes, themes, and patterns across the interviews and discussion (Fig. 2.3). Finally, the common themes emerged from the FGD and KII transcript verbatims were explored as enablers and facilitators of immunization uptake in the study area (Fig. 2.30.

3. Results and Discussions

3.1 Results

In this study a total of three FGDs with 25 discussants and six KIIs were included. The themes that emerged from FGDs and KIIs, along with those commonly explored across both, supported by direct quotes, are presented as follows:

2.1.1 Focus group discussion results:

The FGDs results revealed several interconnected themes related to vaccination awareness, barriers, community involvement, health system challenges, and cultural influences. These themes are presented below with supporting participant quotes. Participants demonstrated a strong awareness of the importance of vaccination, emphasizing its role in protecting children's health and development.

Therefore, three main themes such as **Awareness and Education towards vaccination**, **health System challenges**, **community norms, involvement and Support**, were emerged along with eight sub themes : **importance of Vaccination**, **role of health professionals**, **sources of information**, **infrastructure and**

accessibility, **provider- client interaction**, **role of men in vaccination**, **cultural beliefs and practices**, and **support systems for vaccination**. These were identified as key barriers and enablers of immunization in Addis Ababa, Ethiopia.

2.1.2 Key informant interview results:

The key informant interview (KII) findings reveal a complex landscape of attitudes toward vaccination shaped by cultural beliefs, misinformation, and health system challenges. Participants expressed mixed perceptions of vaccination, often comparing it with traditional medicine. Many viewed the two as separate systems, reflecting the coexistence of modern and indigenous health practices within the community. At the same time, widespread misconceptions about vaccines were reported, including behaviors such as hiding children from vaccination services, which negatively affect immunization coverage.

Therefore, four main themes emerged from KIIs: **Attitudes Towards Vaccination**, **Integration of Traditional and Modern Medicine**, **Community Health Education, and Challenges in Vaccination Coverage**. Additionally, seven subthemes were identified: *C***omparison of Vaccination and Traditional Medicine**, **Misconceptions About Vaccination**, **Collaboration Opportunities**, **Joint Research Initiatives**, **Importance of Education**, **Role of Religious Leaders**, **Traditional Beliefs Impacting Health Decisions.**

Based on the main themes that emerged from FGDs and KIIs, the common themes and subthemes, along with direct quotes illustrating the factors that hinder and enable immunization uptake, are presented as follows [13–15]:

Common themes explored as barriers and enablers of Immunization uptake

In this research, four themes and eight subthemes have emerged as barriers and enablers of child immunization in Addis Ababa. The factors explored are presented as follows:

Theme 1: Attitudes Toward Vaccination

Subtheme 1.1: Perceived Differences Between Vaccination and Traditional Medicine.

Across both FGDs and KIIs, participants consistently distinguished between vaccination and traditional medicine, viewing them as separate and sometimes competing systems of healthcare. This distinction reflects deeply rooted cultural perspectives and dual reliance on both systems. Participants emphasized this difference by stating,

There is a big difference between regular vaccination and traditional medicine.

“Vaccination is very important for children's health, meaning it prevents diseases and is also

very good for our children's development."

This shared perception highlights the need to address how modern health interventions are framed within existing belief systems.

Subtheme 1.2: Misconceptions and Misinformation About Vaccination

Both data sources revealed widespread misconceptions that negatively influence vaccination uptake. Participants described behaviors driven by misinformation, such as avoiding or partially completing vaccination schedules. A participant in both FGDs and KIIS explained as,

People with misconceptions hide their children by registering that only one child is vaccinated.

A 44 year and 28 years old participant noted as:

"We got the information when the health providers go for caring of children house to

house visit and besides, we got the information from the health center while we are

seeking for treatment of our own children."

These findings suggest that misinformation remains a critical barrier across communities and stakeholder groups.

Theme 2: Integration of Traditional and Modern Medicine

Subtheme 2.1: Need for Collaboration with Traditional Healers

Participants from both FGDs and KIIs strongly supported collaboration between traditional healers and modern healthcare providers. Traditional practitioners are trusted within communities and could play a key role in promoting vaccination. This was reflected in the statement,

"It would be beneficial if we could work with the involvement of traditional medicine

practitioners in our country."

Such collaboration is seen as a pathway to improving acceptance and trust in vaccination programs.

Subtheme 2.2: Opportunities for Joint Research and Knowledge Integration

There was also a shared emphasis on the importance of integrating indigenous knowledge with scientific research through joint initiatives. Participants suggested that partnerships with academic institutions could strengthen evidence-based practice while respecting traditional perspectives. One participant noted,

It is possible for traditional medicine and universities to conduct joint research.

This highlights an opportunity for sustainable and culturally inclusive health interventions.

Theme 3: Community Health Education

Subtheme 3.1: Limited Access to Health Education

Both FGDs and KIIs identified gaps in access to health education, particularly in rural and slum urban areas. Participants stressed that inadequate information contributes to low awareness and poor vaccination uptake. As one participant expressed,

I think it would be a good idea to have good education in the countryside through home-to-home continuous health education as campaign

This indicates a shared recognition of the need to strengthen community-level education efforts.

Subtheme 3.2: Influence of Religious and Community Leaders

Participants consistently highlighted the influential role of religious and community leaders in shaping health behaviors. Engaging these leaders in health promotion was seen as essential for improving vaccine acceptance. This was illustrated by the statement,

It would be beneficial if religious leaders were educated about health within religious institutions through awareness campaigns.

Their involvement could help bridge trust gaps between communities and health systems.

Theme 4: Barriers to Vaccination Uptake

Subtheme 4.1: Structural and Service Delivery Challenges

Participants from both FGDs and KIIs reported significant gaps in vaccination coverage, pointing to systemic issues such as limited access, inadequate outreach, and service delivery constraints. One participant summarized this challenge by stating,

There is a huge gap in vaccine coverage.

These barriers highlight the need for strengthening health systems and improving service accessibility.

Subtheme 4.2: Cultural Beliefs Influencing Health Decisions

Cultural and traditional beliefs were commonly identified as factors influencing vaccination decisions, sometimes discouraging uptake or promoting caution. This creates tension between public health recommendations and community practices. As one participant explained,

We do not recommend that children be vaccinated, but we advise caution.

Yes, male children are given priority than female child for the vaccination.

Addressing these cultural dynamics is essential for designing effective and acceptable vaccination strategies.

In summary the combined findings from the FGDs and key KIIs reveal a complex interplay of cultural beliefs, knowledge gaps, and health system challenges influencing vaccination uptake. Moreover, mixed attitudes toward vaccination, often shaped by comparisons with traditional medicine. While vaccination was generally recognized as a modern preventive health measure, many participants viewed it as distinct from traditional healing practices, reflecting the coexistence of dual health belief systems within the community.

Misconceptions and misinformation about vaccines were widely reported and were identified as major barriers to full immunization. Participants described behaviors such as hiding children or failing to complete vaccination schedules due to fear and misunderstanding, indicating persistent gaps in accurate health information.

Furthermore, participants emphasized the perceived value of integrating traditional and modern healthcare systems. They underlined the importance of collaborating with traditional healers and religious leaders, who strongly influence community health behaviour. They also highlighted the joint research between traditional practitioners and academic institutions that could bult trust and improve health outcomes. Engaging religious and community leaders in awareness campaigns was therefore seen as essential to strengthen trust and address misconceptions.

Overall, the findings indicate that improving vaccination uptake requires a multifaceted approach that combines health system strengthening, culturally sensitive education, and effective collaboration between traditional and modern health systems.

3.2 Discussions

The qualitative findings from both focus group discussions (FGDs) and key informant interviews (KIIs) revealed that multiple interconnected factors act as both barriers and enablers of vaccination uptake. One of the major barriers identified was poor provider- client interaction. Participants reported that

negative attitudes of health professionals discouraged caregivers from seeking services (FGD1). This finding is supported by recent studies indicating that ineffective communication and lack of trust in healthcare providers contribute to vaccine hesitancy and reduced service utilization [16]. Similarly, strong recommendations and respectful interactions from healthcare providers have been shown to significantly improve vaccine acceptance [17]. This suggests that interpersonal communication remains a critical determinant of vaccination uptake.

Structural barriers such as distance to health facilities and transportation costs (FGD2) were also prominent in this study. These findings are consistent with evidence from low- and middle-income countries, where geographic and financial constraints continue to limit access to immunization services [18]. Studies in Sub-Saharan Africa further confirm that physical accessibility remains a major challenge despite improvements in vaccine availability [19, 7]. This highlights the need for outreach strategies and improved delivery systems.

The study also identified misconceptions and cultural beliefs as significant barriers to vaccination. Reports that “people with misconceptions hide their children” (KII3) align with global research showing that misinformation and lack of confidence in vaccines are key drivers of vaccine hesitancy [20]. In addition, cultural beliefs and reliance on traditional medicine continue to influence health decisions in many settings [19]. However, this study contributes additional insight by suggesting collaboration with traditional healers, an approach that is less emphasized in existing literature but may enhance community trust and acceptance.

On the other hand, access to reliable sources of information emerged as a strong enabler of vaccination uptake. Participants reported receiving information through health extension workers and health facility visits (FGD2). This is consistent with studies showing that healthcare providers are among the most trusted sources of vaccine-related information and play a key role in influencing caregiver decisions [16]. Furthermore, community-based education and outreach programs have been shown to improve awareness and increase immunization coverage [15]. Family and community support systems were also found to influence vaccination practices. While community encouragement facilitated uptake (FGD3), lack of support and gender bias acted as barriers. The finding that male children are sometimes prioritized reflects gender disparities that have been documented in some cultural contexts [18]. Social norms and household decision-making dynamics are known to affect access to health services, including immunization [19].

Overall, the findings of this study are consistent with current literature in identifying key barriers such as poor access, misinformation, and provider-related challenges, as well as enablers including health education and community engagement. However, the study also provides context-specific insights, particularly regarding gender norms and the integration of traditional and modern health systems. These findings underscore the importance of culturally sensitive and community-based approaches to improve vaccination uptake.

4. Conclusions and Recommendations

4.1 Conclusions:

This study revealed that vaccination uptake is influenced by a complex interplay of health system, sociocultural, and informational factors. While awareness of vaccination benefits is relatively high, barriers such as poor provider–patient interaction, accessibility challenges, misconceptions, and cultural beliefs continue to hinder uptake. At the same time, trusted information sources, community engagement, and supportive health education initiatives serve as important enablers. These findings highlight the need for integrated, context-specific approaches to improve immunization coverage.

4.2 Recommendations

Based on the above conclusion, the researchers recommend the following. Improving vaccination uptake requires a multifaceted approach focused on both service delivery and community engagement. Moreover, strengthening patient communication through respectful care training can improve trust and promote service use. Expanding outreach programs and reducing transportation barriers will improve access to vaccination services. Enhancing community-based health education is essential to address misconceptions and boost vaccine confidence. Involving community and religious leaders, as well as collaborating with traditional health practitioners, can further increase acceptance and trust. Additionally, addressing gender-related disparities is crucial to ensure all children have equitable access to vaccination services.

5. Strength and Limitation

5.1 Strengths of the study:

This study involved an exploratory qualitative study design using FGDs and KIIs in order to enrich in-depth information on barriers and enablers of immunization status in urban slum areas. Therefore, it allows exploration of complex social, cultural, and health system factors that may not be captured through quantitative studies. Furthermore, this study captures multiple perspectives and enhances contextual understanding in a flexible manner of data collection, allowing deeper probing and clarification of responses until saturation of ideas is reached, leading to more meaningful insights for program improvement in Addis Ababa.

5.2 Limitations of the study

The findings of this study are not statistically generalizable due to the small, non-random sample used in qualitative methods. Responses may also be influenced by social desirability and interviewer bias, while group dynamics in FGDs may affect individual opinions. In addition, data interpretation can be subjective, and recall bias may affect participants' accuracy. The study is also time-consuming and resource-intensive, and translation of local languages may lead to some loss of meaning.

Abbreviations

EPI
Expanded Program on Immunization
FGD
Focus Group Discussion
KII
Key Informant Interviews
UI
Under Immunized
WHO
World Health Organization
ZD
Zero dose
COREQ
Consolidated Criteria for Reporting in qualitative research.

Declarations

Ethical declarations

This research was conducted in accordance with internationally accepted ethical standards for research involving human participants, including the principles outlined in the Declaration of Helsinki.

Ethical approval and consent to participate

Ethical approval to conduct this research was obtained from the Institutional Review Board of Menelik II Medical and Health Science College (Ref No: 5/38/12/4757). Additionally, letters of support and permission further obtained from the Addis Ababa City Administration Health Bureau (Ref No: /2/1364/18) and from the selected subcity health offices (Lideta, Yeka and Kolfe Keranio Subcities). Moreover, infomed concent was obtaimed from all study paricipants. Confidentiality of the respondents' infomation and audio records was maintained using password protected files and coded identifiers, and computer based data was secured with passwords and stored for at least two years. The collected data will be used only for the intended research purposes and will not be shared with any third parties.

Consent for Publication

Not applicable

Data and Materials Availability

The data set used for this study was not publicly available and was used as a baseline for further routine immunization implementation. However, the data can be shared upon reasonable request.

Standard of Reporting

Consolidated Criteria for Reporting in qualitative research (COREQ/SRQR) were followed.

Conflict of interset

The authors declare no conflict or competeing of interests

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Authors Contribution

All authors made significant contributions. AK and AT were contributed from the conception of the study throughout the result dissemination. Furthermore, AT contributed to the development of the manuscript. SG and LH contributed to the reported work, including study design, execution, analysis and interpretation of research findings. Finally, all authors provided the final approval for publication, selected the journal for submission, and agreed to be responsible for all aspects of the work. Furthermore, AT contributed to revising the manuscripts, approving the final version and participating in decision regarding publication.

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Participants and Public Involvement

Participants in this study and/or the public were not involved in conception of the study, setting design, data analysis, reporting and dissemination plans for of this study.

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Figures

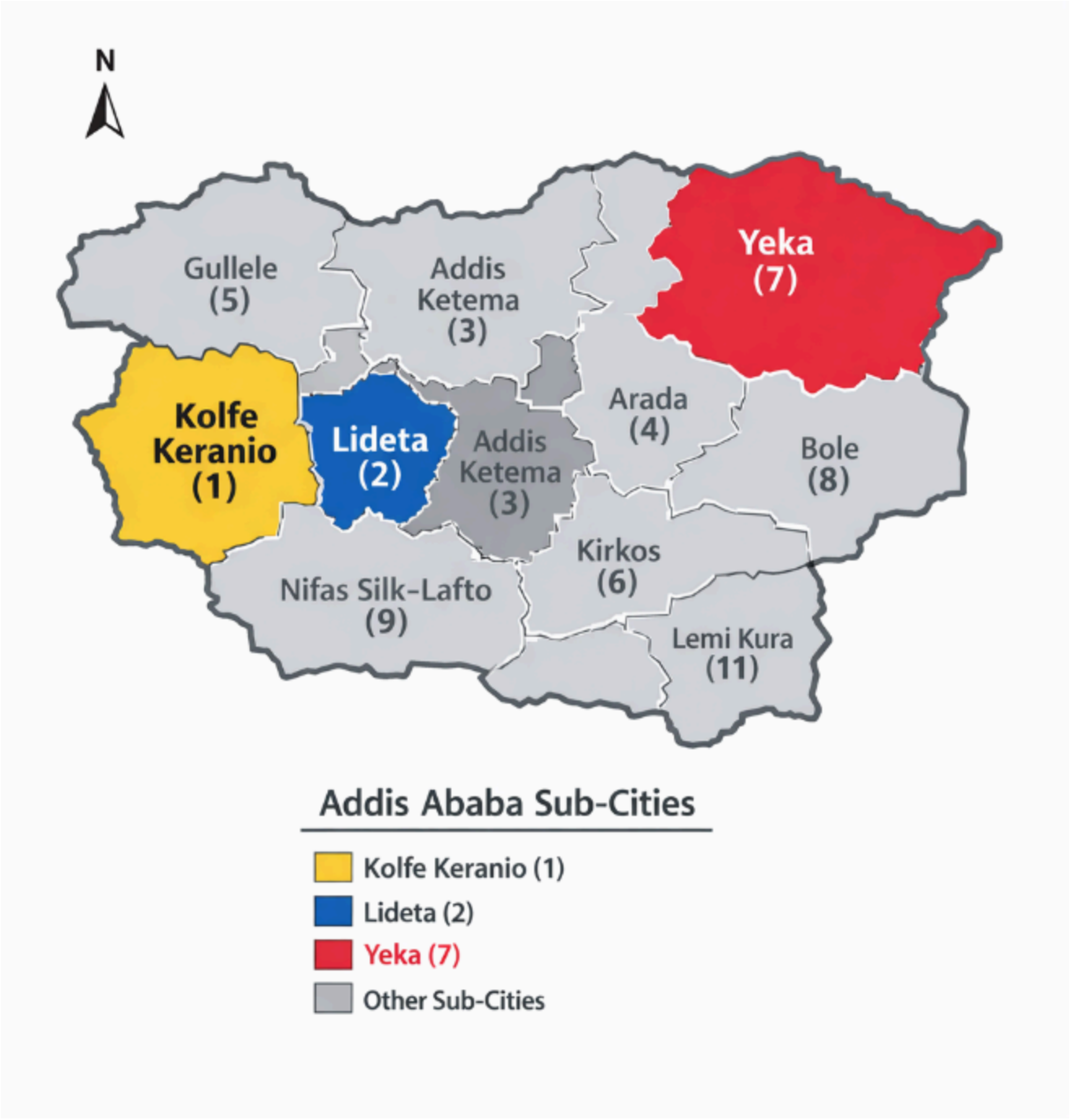


Figure 1

Map of the study area

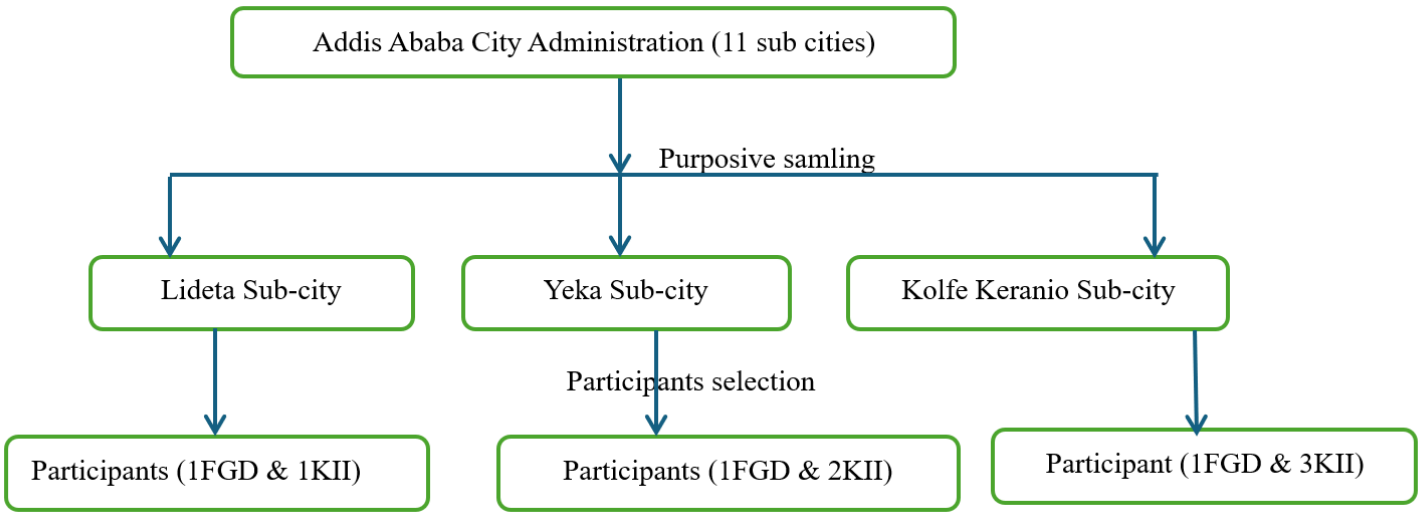


Figure 2

Sampling Procedure of the study



Figure 3

Schematic Process of thematic analysis [13, 14, 15)