



ADDIS ABABA UNIVERSITY
**ETHIOPIAN INSTITUTE OF
WATER RESOURCES**



**FACTORS INFLUENCING THE OWNERSHIP AND UTILIZATION OF
LATRINES IN BABILLE WOREDA, FAFAN ZONE, SOMALI REGION,
EASTERN ETHIOPIA**

By

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DECLARATION

I, Biniam Endale Belete, do hereby declare to the best of my knowledge, this Thesis is my original work and has never been presented or submitted to any institution of learning for the award of a Master of Science degree or any other award. Any material herein not of my original work has the authors duly acknowledged.

Sign:

A handwritten signature in black ink, appearing to be 'Biniam Endale Belete', written on a light-colored background.

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APPROVAL SHEET

I hereby certify that I have read and evaluated this Thesis entitled “Factors Influencing the Ownership and Utilization of Latrines in, Babille Woreda, Fafan Zone, Somali Region, Eastern Ethiopia” prepared by Biniam Endale under my guidance. I recommend that it can be submitted as fulfilling the thesis requirement.

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TABLE OF CONTENTS

DECLARATION	ii
APPROVAL SHEET	iii
ACKNOWLEDGEMENT	iv
TABLE OF CONTENTS	v
LIST OF TABLES	vii
LIST OF FIGURES	viii
LIST OF ACRONYMS	ix
ABSTRACT	x
1. INTRODUCTION	1
1.1 Background	1
1.2 Statement of the problem	2
1.3 Objectives.....	4
1.3.1 General objective	4
1.3.2 Specific objectives	4
1.4 Significance of the study	4
2. LITERATURE REVIEW	5
2.1 The magnitude of latrine ownership and utilization.....	5
2.2 Factors associated with latrine ownership and utilization.....	6
2.2.1 Socioeconomic and other background characteristics	6
2.2.2 Opportunities related factors.....	7
2.2.3 Abilities related factors	10
2.2.4 Motivations related factors	10
2.3 Conceptual framework.....	12
3. METHODS and MATERIALS	13
3.1 Study areas	13
3.2 Study Design	14
3.3 Study period	14
3.4 Population.....	14
3.4.1 Source population	14
3.4.2 Study population	15
3.5 Inclusion criteria and exclusion criteria	15
3.5.1. Inclusion criteria	15
3.5.2 Exclusion criteria	15

3.6	Sample size.....	15
3.7	Sampling procedure.....	17
3.8	Study variable.....	17
3.8.1	Dependent variable	17
3.8.2	Independent variables	17
3.9	Operational definition	17
3.10	Data collection methods	17
3.11	Data Quality Assurance	18
3.12	Data processing and analysis	18
3.13	Ethical Consideration	19
3.14	Limitations of the study	19
4.	RESULTS.....	21
4.1	Socio-demographic characteristics.....	21
4.2	Latrine ownership and utilization.....	22
4.3	Access and source of information about water, hygiene, and sanitation	25
4.4	Awareness of water, hygiene, and sanitation	26
4.5	Current place of defecation and intention to build a latrine in non-adopter households	27
4.6	Preferred latrine type and features	29
4.7	Factors associated with latrine ownership.....	30
4.8	Factors associated with latrine utilization	32
4.9	Qualitative findings	34
5.	DISCUSSION.....	41
6.	CONCLUSION AND RECOMMENDATIONS.....	45
6.1	Conclusion.....	45
6.2	Recommendations	45
6.2.1	Local Administrations and Health Office	45
6.2.2	Zonal Health Department, Regional health Bureau, and Minister of Health.....	46
6.2.3	Researcher.....	46
7.	REFERENCES	47
8.	ANNEXES.....	51
8.1	Annex 1- HH survey Questionnaire	51
8.2	Annex 2- Focus Group Discussion Questions	69
8.3	Annex 3- Key Informants Interview questions	73
8.4	Annex 4- The Somali translated questionnaire	77

LIST OF TABLES

Table 1: Population of the study for assessing ownership and utilization of latrines in Babille woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022 (n=383).....	14
Table 2: Qualitative study participants for assessing factors influencing the ownership of latrines in Babille woreda, Fafan Zone, Somali Region, Eastern Ethiopia	16
Table 3: Socio-demographic characteristics of household heads for assessing ownership and utilization of latrines in Babille woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022 (n=383)	21
Table 4: Latrine availability, characteristics, and utilization among adopter households in Babille woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022 (n=228)	23
Table 5: Sources and the most trusted source of information about WaSH among household heads in Babille woreda Fafan Zone, Somali Region, Eastern Ethiopia, 2022 (n=330).....	26
Table 6: Current place of defecation and intention to build latrine among non-adopter households in Babille woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022 (n=155).....	28
Table 7: Bivariate and multivariable analysis of latrine ownership among households in Babille woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022.....	31
Table 8: Bivariate and multivariable analysis of latrine utilization among households in Babille woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022.....	32

LIST OF FIGURES

<i>Figure 1: Conceptual Framework adapted from SANIFOAM framework for a study on factors influencing the ownership and utilization of latrines in Babelle Woreda, Fafan Zone, Somali Region</i>	12
Figure 2: Map of Babelle Woreda, Fafan Zone, Somali Region (Adapted from Ethiopian Shelter NFI cluster)	13
Figure 3: Decision makers to construct the first latrine among adopters households in Babelle woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022 (n=228).....	24
Figure 4: Access to information about WaSH among household heads in Babelle woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022 (n=383)	25
Figure 5: Awareness of household heads on WaSH in Babelle woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022 (n=383)	27
Figure 6: Intention to build latrine among non-adopter households in Babelle woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022 (n=155).....	28
Figure 7: Preferred types of latrines among adopters and non-adopter households in Babelle woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022	30

LIST OF ACRONYMS

AOR	Adjusted Odds Ratio
BVIP	Blair Ventilated Improved Pit
CI	Confidence Interval
CLTS	Community Led Total Sanitation
CLTS/H	Community Led Total Sanitation/Hygiene
CSA	Central Statistical Authority
DALYs	Disability Adjusted Life Years
EDHS	Ethiopian Demographic and Health Survey
EMDHS	Ethiopian Mini Demographic and Health Survey
FGD	Focus Group Discussion
FMOH	Federal Ministry of Health
HEWs	Health Extension Workers
HH	Household
IDI	In-depth Interview
IEC	Information, Education, and Communication
IQR	Inter Quartile range
JMP	Joint Monitoring Program
KAP	Knowledge Attitude and Practice
MDG	Millennium Development Goals
NGO	Non-Governmental Organization
OD	Open Defecation
ODF	Open Defecation Free
PPS	Probability Proportional to Size
SaniFOAM	Sanitation Focus, Opportunity, Ability, Motivation
SDGs	Sustainable Development Goals
STATA	Statistical Software for Data Science
SSA	Sub-Saharan Africa
UN	United Nations
UNICEF	United Nations Children’s Emergency Fund
WASH	Water, Sanitation, and Hygiene
WHO	World Health Organization

ABSTRACT

BACKGROUND: - Latrine ownership and utilization can be affected by a variety of factors including socio-demographic factors, access to health information, behavioral factors, socio-economic and latrine conditions like a bad smell, and lack of privacy. The objective of this research was to identify the factors that influence sanitation behaviors toward the ownership and utilization of latrines in Babelle woreda, Fafan zone, Somali region, eastern Ethiopia.

METHODS: - A community-based cross-sectional study design was used. Household survey was used to collect quantitative data. Qualitative data was also gathered through focus group discussions and key informant interviews. A total of 383 respondents were included in the study. Descriptive statistics and logistic regression were used to analyze quantitative data. Adjusted odds ratio (AOR) and 95% confidence intervals (CIs) were calculated using a logistic regression model. Focus group discussion and Key Informant Interview were analyzed through thematic analysis.

RESULTS: - In the study area, 228 (59.5%) households had adopted latrines. However, only about one-third of them (111, 29.0%) utilized the latrine. Sex, occupation, income, being aware of latrine construction, use, and maintenance, and sources of information were significantly associated with household latrine ownership. The odds of consistent latrine utilization were 3.73 times higher among household heads who were aware of the consequences of open defecation than their counterparts [AOR = 3.73; 95%CI: 1.67, 8.31].

CONCLUSION and RECOMMENDATIONS: - The factors influencing the ownership and utilization of latrines are interrelated with each other. Interventions to increase latrine ownership and use in the area must be considered the differences in latrine ownership disparities across, gender of household head, occupation, and household income. Communities should also be encouraged to initiate the construction of their latrines using locally available materials through continuous promotion and awareness strategies.

Key words: Sanitation, Enablers for sanitation, Barriers for sanitation, Ownership of latrine, latrine utilization

1. INTRODUCTION

1.1 Background

Sanitation is a hygienic way of containing human waste. Improving sanitation significantly contributes to positive health outcomes in individuals and communities. In contrast, inadequate sanitation is the main cause of diseases and affects many people worldwide. Although access to sanitation has been recognized as a basic human right for the protection and promotion of individuals' and community health and enables a productive and dignified life [1], [2], it remains challenging to realize in many rural communities in Sub-Saharan Africa (SSA) [3]. Lack of adequate sanitation continues to be a major human health and environmental problem, especially in the developing world. A significant proportion of the global population, around 1.7 billion people, live without access to a basic sanitation service, of which 494 million practice open defecation [4]. Despite significant gains since 1990, sanitation was one of the most off-track Millennium Development Goals (MDGs) globally [5].

The global disease burden report showed that inadequate water, sanitation, and hygiene contribute to the death of 842,000 people in low- and middle-income countries each year, which represents 58% of total diarrheal deaths, where 280,000 deaths come from sanitation alone [6]. Universal access to basic drinking water source targets seems on track, but this is not the case for sanitation which requires additional efforts. Hence, in 2013, the United Nations (UN) Deputy Secretary-General issued a call to action on sanitation that included the elimination of open defecation by 2025 [7]. In 2015, the Sustainable Development Goals (SDGs), adopted by the UN, initiated a renewed focus on strategies necessary to achieve universal access to safe water and basic sanitation by 2030. This also acknowledges that how the challenges are defined will influence the direction and prospects for success [8].

Ethiopia has reported a significant improvement in water supply over the last two decades. According to the WHO/UNICEF Joint Monitoring Program 2015 report [9], the country has improved its water supply by 57% (97% in urban areas and 42% in rural areas), thus achieving the Millennium Development Goal (MDG) 7 target 7C. However, inadequate sanitation and hygiene are pressing problems in all regional states and cities in Ethiopia. One in three households in Ethiopia has no toilet facility (39% in rural areas and 7% in urban areas), according to the Demographic and Health Survey (EDHS) [10]. Of the households that have access to toilets, 6% use improved facilities (16% in urban areas and 4% in rural areas), whereas more than half (56%) of rural households use unimproved toilet facilities. More than one-third (35%) of toilet

facilities are shared in urban households, whereas only 2% of rural households share their toilet facilities with other households.

This research was undertaken to assess factors for ceasing open defecation and ownership of improved sanitation practices in Babile woreda, Fafan Zone, Somali region. The research could help to better understand communities' sanitation behaviors, including motivating factors and barriers to achieving sustainable sanitation behaviors in the study areas.

1.2 Statement of the problem

Latrine is very important, and when properly utilized, it can effectively keep human excreta out of the environment and prevent the spread of disease. On the contrary, inadequate sanitation and open defecation have dire consequences and are accepted as the main contributor to diarrheal disease. An estimated 829,000 WASH-attributable deaths and 49.8 million DALYs occurred from diarrheal diseases in 2016, equivalent to 60% of all diarrheal deaths. In children under 5 years, 297,000 WASH-attributable diarrhea deaths occurred, representing 5.3% of all deaths in this age group [11]. Therefore, improvement in the sanitary habits of the people is essential for overall improvement in the health status of the people and addressing multiple sanitation problems. These include lower disease burden, improved nutrition, reduced stunting, improved quality of life, increased attendance of girls at school, healthier living environments, better environmental stewardship, and economic and social gains to society more broadly [12].

However, despite all these benefits, only 68% of the world population today has access to sanitation, and 39% have access to safely managed sanitation which includes containment through safe collection and conveyance, treatment, and end-use/disposal. Sixteen of the 24 countries in which at least one person in five has limited sanitation services are found in sub-Saharan Africa (SSA). These limited sanitation services reflect both cultural practices and socio-economic constraints in densely populated areas [5]. Besides, it is difficult to know how many people use these toilets or whether they use them hygienically. And, the little evidence available suggests that many people don't use a toilet even when one is available [13]. Moreover, open defecation practice also continues to be a global health challenge. Even though the open defecation practice showed a decline from 1229 million to 892 million, with an average number of 22 million people per year between 2000 and 2015, this is not the case in developing countries. Open defecation is still widely practiced and has observed an increase from 204 million to 220 million in Sub-Saharan Africa(SSA) [5]. In 2022, 494 million still defecate in the open, for example in street gutters, behind bushes, or into open bodies of water [4].

So, why do people continue to practice open defecation, and those who have a latrine don't use it? To answer these questions, understanding the sanitation behavior of people in a particular context is very important, and can be influenced by many factors. Shreds of evidence show the reasons to sustain open defecation practices or the demand to adopt and utilize latrine facilities are influenced by multiple factors, such as motivations, opportunity, and ability to perform the desired behavior [14].

A review of the Ethiopian Sanitation and Hygiene development status in rural and urban areas also shows many challenges. It indicated that in rural (and to a large extent, urban) areas, a large number of populations (82%) are still living in open defecation environments, with some ODF communities reverting to old behavior patterns [15]. The estimated collective rate of open defecation-free slippage in Ethiopia was 15.9% (95% CI 12.9–19.4%) after 12 studies were systematically reviewed [16]. The major contributing factors for open defecation-free slippage were financial constraints, technical support, low-quality building materials, improper program implementation, and lack of sanitation marketing [16]. Other causes highlighted in the KAP Baseline survey on WASH conducted in eight regions of Ethiopia include less sustainability of unimproved latrines, inconsistent support from Health Extension Workers (HEWs) to households, loose soil formation, termite problems, waterlogging, and lack of access to improved latrine products [17].

Poor sanitation is also among the major public health problems in the Somali Region of Ethiopia, particularly in the Fafan zone. According to the Somali region health bureau health system assessment database, around 98.7 % of the people are either practicing open defecation or using unimproved/unhygienic latrine facilities. Lack of awareness and limited economic capacity are the main reasons that sanitation is given a low priority as households prioritize other basic needs [17].

Improving such issues needs a deep understanding of the barriers and motivators within the existing sanitation situation. While traditionally, people have been encouraged to adopt new behaviors through health or hygiene education, it is now recognized that there are other opportunities. As with any commodity, there is a need for research into socio-cultural factors, viable technical options, willingness to pay, knowledge, affordability, and others [18]. Although there are many governments and non-governmental organizations reports on sanitation, there exists no systematic and comprehensive study done in the targeted area to establish factors influencing the ownership and utilization of latrines. Hence, this research aimed to explore and analyze the various barriers and enabling factors that affect Babelle woreda communities' sanitation-seeking behaviors towards the ownership and utilization of latrines.

1.3 Objectives

1.3.1 General objective

The main objective of this research is to determine enabling factors and barriers influencing the ownership and utilization of sanitation facilities in Babelle woreda, Fafan zone, Somali region.

1.3.2 Specific objectives

The specific objectives of the research are to:

- Determine the socio-cultural, economic, and contextual factors affecting the ownership and utilization of latrines among communities of Babelle Wereda.
- Assess the opportunity, ability and motivation factors that can facilitate or inhibit sanitation behaviors among communities in Babelle Wereda.

1.4 Significance of the study

This research studied factors for ownership and utilization of latrine facilities, through a combination of qualitative and quantitative methods, with primary data inputs. This has contributed to a better comprehension and explanation of the factors that facilitate or impede community ownership and utilization of latrines in Babelle woreda, Fafan zone. Specifically, the research provides insight through a better understanding of the enabling factors and barriers for achieving sustainable sanitation behaviors and finally concludes with the outlook for future work in the field. This study also contributes to informing the Somali region's hygiene and sanitation policy and strategies for increased latrine ownership, utilization, and movement upwards on the sanitation ladder.

2. LITERATURE REVIEW

2.1 The magnitude of latrine ownership and utilization

A cross-sectional study in the rural areas of southern India showed, that 30% of households had a latrine facility [19]. On the other hand, a study among 625 households in Hattimuda Village, Morang district in Eastern Nepal reported that 76.9% of households had latrine facilities [20]. A study done in the Democratic Republic of the Congo reported that 64.0% of households own latrines [21]. On the other hand, findings from Ghana revealed that nearly half (49.8%) of households had no toilet facility at home [22].

According to the 2016 Ethiopian Demographic and Health Surveys report, one in every three households in the country has no toilet facility and 56% of the rural households use unimproved toilet facilities. About 39% of rural households had no toilet facilities [23]. In the most current national survey 2019 EMDHS, 35% and 10% of households in rural and urban areas respectively in Ethiopia have no toilet facility [24].

A cross-sectional study in a specific area in Ethiopia on the ownership of latrines reported that 58.4% in Bahidar Zuria [25], 50.2% in rural Hulet Ejju Enessie Woreda [26]; 32.3% in five districts of the Amhara region [27], 35.7% in rural villages of the Tigray region [28], 73% in Becho district [29], 47% in the Dabat district [30], and 88.0% in Ilu Aba Bor Zone [31] households own latrine facilities.

A systematic review of 17 community-based studies in Ethiopia revealed that the pooled prevalence of latrine utilization is found to be 50.2% (95% CI: 40.23, 59.81%). The highest prevalence (67.4%) was documented in the Southern Nations Nationality and People Regional State (SNNPS) and followed by Amhara Region (50.1%) [32]. Various levels of latrine utilization were reported in different geographical areas in previous Ethiopia studies: 45.2% in rural Hulet Ejju Enessie Woreda [26]; and 37.4% in Hawzen district [33], 79% in Becho district [29], 71.8% in Alansha district of South Wollo [34], 88.8% in Tullo District of West Harargie [35], 36% in Ilu Aba Bor Zone [31], 60% in Chencha District [36], 41.9% Takussa District [37], 58.9% in the Laelia Maichew district [38], 45.4% in the East Gojjam Zone [39], 61.2% in Denbia, North Gondar [40], 91.2% in Mehal Meda Town of North Shewa Zone [41], and 47.4% in Maichew District [42].

In a qualitative study conducted in the rural areas of Nepal, open defecation has been practiced for centuries and becomes engrained cultural norm and habit that created a venue for socialization among friends in the same neighborhood [43]. In a survey conducted in India, over 78% of respondents who do not have a latrine revealed the cost of a latrine as an important reason why they defecate in the open [44].

Several studies have found that the ownership of latrine facilities does not guarantee utilization. In a study conducted in India, among the 70.3% of people who have latrines, latrine utilization was only 6.5% [45].

2.2 Factors associated with latrine ownership and utilization.

People's behavior towards maintaining open defecation practices or the decision to own and use latrine facilities is influenced by many factors. The most commonly highlighted factors influencing rural sanitation behaviors include; socioeconomic and background characteristics, opportunities for individuals to have the chance to acquire the behavior, abilities of individuals, and motivations to acquire the behavior [46].

2.2.1 Socioeconomic and other background characteristics

The findings from numerous studies show that socioeconomic and other background characteristics are significantly associated with factors related to reasons for retaining the practice of open defecation or positive factors for overcoming open defecation and promoting the ownership and utilization of latrine facilities. The most highlighted influencing factors include education, sex, size of household, and income.

Social-cultural and economic factors are among the main barriers influencing latrine use [47]. Lack of resources is another limiting factor for people to construct latrines facilities, which ranges from financial to materials and land ownership [43]. Education is an essential factor affecting open defecation practices. Studies suggest that there is a relationship between educational background and ceasing to defecate in the open or ownership of latrine facilities. Possessing some levels of education were significantly associated with increased ownership and utilization of latrines [48].

The presence of educated family member/s in a household (household head and /or primary and secondary school children) is associated with a higher likelihood of not defecating in the open than those non-educated heads [40], [48], [49]. For instance, in Ghana, a household with an educated head has an 18.5% higher chance of not defecating openly than their counterparts [22]. Prior studies conducted revealed the relationship between the level of education and latrine ownership and utilization. Education helps the literate household head to access information from different sources than the illiterate household head about the advantage of latrine utilization [29], [40], [49].

Latrine ownership and sustained utilization are also influenced by the ability of households to construct a latrine. Income has a reverse relationship with open defecation practice; the higher the income level of a household head, the lesser the likelihood of the family members practicing open defecation [25], [48], [50]. In Ghana, households with lower levels of income are 34.3% more likely to defecate in the open, and this agrees with the findings of other studies [22].

Household size: The size of a household is one of the key factors that determine the practice of open defecation. This is mainly due to many people using a latrine contributing to cleaning challenges and bad smells. For instance, Female FGD participants in Uganda indicated that poor access and many users led to misuse and poor cleaning [51]. Similar findings in Ghana suggest households with large sizes are 40% more likely to defecate in the open than those with smaller sizes. Having a large family also led to waiting for a long time, especially at peak hours of morning and evening. As a result, some people resorted to unhygienic methods of human excreta disposal, including open defecation [22]. Furthermore, of the people who had unsanitary latrines, many of them were found to practice open defecation. Key factors mentioned to go for open defecation were lack of money, awareness, space, and interest [45], lack of convenience to use mainly due to the nuisance smell [43], [52], and comfort [53]

2.2.2 Opportunities related factors

Opportunity factors include institutional or structural aspects that influence whether an individual has the chance to engage in the desired behavior. Common factors influencing rural sanitation behaviors in light of opportunity include access to and availability of functioning latrines, sanitation products, and services; latrine product attributes (e.g., perceptions of cleanliness and durability); social norms around open defecation [46].

Access to and use of improved sanitation together with better hygiene practices is positively associated with healthier households and communities. The benefits of improved sanitation go well beyond reducing the risk of diarrhea. It also reduces the severity and impact of malnutrition, promoting dignity and boosting safety, particularly among women and girls, thereby promoting school attendance [7]. On the other hand, lack of access to a latrine is one of the primary reasons why people who did not have a latrine practiced open defecation [54].

Findings also demonstrate that owning a latrine, or having access to a latrine, does not ensure that it is used by household members. This is mainly due to the attributes of latrine products that affect people's perception of consistent utilization of latrine facilities. Studies conducted in different contexts demonstrate negative perceptions regarding quality, access, convenience, comfort, safety, privacy, and cleanliness affects people's behavior towards reinforcing open defecation practices and hinder decisions to build or invest in latrines. For example, cleanliness was one of the most valued benefits of latrine use, mostly mentioned by FGD research participants in Becho Woreda, Oromia region as creating a clean environment, linked to disease prevention, and is a means of preventing unpleasant smells [50]. Maintaining the cleanliness of latrines promoted consistent use of facilities in the Melo Koza district, southern Ethiopia.

Households whose latrines had been cleaned were about 4 times more likely to utilize latrines as compared to households whose latrines had not been clean [32].

Environmental factors, including soil conditions, are also other important factors that made the construction of latrines with traditional techniques and materials very difficult as constructed latrines will easily collapse during the rainy season and by a strong wind. A similar finding was reported from Borena, Ethiopia, that individuals defecating in fields, bushes, and backyards due to poor quality of latrines could pose a significant risk [53]. Lack of water supply also hinders individuals' ability to use latrines, as thinking of sanitation without water is just like putting the cart before the horse. This has been found consistent with other studies [47], [53].

Attributes of latrines also influence household satisfaction with their current sanitation facility. An important correlation between a household's defecation habits and satisfaction with its existing domestic sanitation facilities was found in Tanzania. Only slightly more than half (55%) of households utilizing latrines or toilet facilities were dissatisfied with their existing place of defecation, compared to 85% of those using OD. Users' complaints about the superstructure and flooring were frequently brought up as grounds for their displeasure. Households using latrine/toilet facilities and households practicing OD both expressed worries about safety and hygiene as the main sources of unhappiness [49]. Other studies also demonstrated similar findings, which show that frequencies of cleaning and hygienic conditions of latrines were determinant factors of satisfactory latrine utilization. For instance, in a cross-sectional study conducted in the Denbia district, Northwest Ethiopia, 94.5.% of households who rarely clean their latrines were less likely to utilize their latrines as compared with households who clean their latrines regularly [40]. In addition to cleanliness, latrines with protected doors and superstructures had a significant positive association with consistent latrine utilization [29].

People's attitudes towards latrine utilization constrained the practice of proper latrine utilization. Lack of knowledge and awareness of the dangers of poor latrine utilization is among the factors associated with the non-utilization of latrine facilities [47]. More recent approaches have focused on creating awareness and demand for improved sanitation. Community-led total sanitation and Hygiene (CLTS/H), which mobilizes communities to cease open defecation, and sanitation marketing, which affects behavior change at the individual and household levels for improved practices [55]. In many countries, CLTS has been found successful in creating awareness and demand for improved sanitation practices. However, sanitation marketing approaches, as a complement to community-led total sanitation in Ethiopia, have not been effectively applied, and this has resulted in limited (28 percent) access to improved sanitation technology

options. Generally, existing household traditional latrines do not address expressed concerns and are found to be inadequate to cut fecal-oral disease transmission [15].

CLTS rests on the assumption that subsidizing latrines will not ensure their utilization [56]. But, sanitation programs, including the provision of infrastructure, were historically subsidized and supplied by Government supported campaigns. Despite many efforts, these did not contribute to lasting success. This is mainly attributed to the failure to show families the value of their new latrines, as once constructed, many remained unused or were used for unintended purposes [57].

Bad smell is also one of the influencing factors for people to reinforce open defecation behaviors. In Ghana, many households preferred open defecation because they believed it prevented them from smelling unpleasant [54]. An unpleasant smell is one of the key factors commonly perceived as being a cause of infectious diseases. The strength of the smell is a sign of the severity of the disease [50]. The problem of bad smell is pronounced in shared latrines and during rainy seasons, which discouraged their use, even when they were clean. Such facilities left the user equally smelling [22].

Social norms are the rules that determine how individuals in a group or society should behave [46]. In some communities, open defecation is described as “the most natural thing”, which showed that social norms influence people’s decision to own a latrine [50]. For instance, in Mali and the Idoma people in Nigeria, open defecation is seen as an ancestral practice passed on through generations. Open defecation is culturally encouraged in Idoma communities as it is taboo to defecate in a building or superstructure, and many older people still refuse to defecate in any sort of enclosed area. Furthermore, husbands do not allow their wives or daughters to share latrines with them and will generally refuse to pay to build latrines for the use of female family members [54].

Long-time latrine possession also has some negative associations with latrine utilization: Similar studies in Ethiopia revealed latrine utilization was higher in households owning latrines for less than two years than those households owning latrines for two years and above [32]. In a research conducted in the Gulomekeda district, Tigray region, more than half (54%) of the latrines were constructed before 3 years, and 62.8% of latrines were made up of local and industrialized materials were more likely to be used than latrines from local material only [48]. Poor quality of local materials such as grass and straw failed to withstand soil and climatic conditions and resulted in the frequent collapse of latrines, especially during rainy seasons [48], [50]. This significantly hinders the reconstruction of latrines after their collapse.

2.2.3 Abilities related factors

Ability is a key factor referring to an individual's skills or proficiencies needed to engage in a certain sanitation behavior. Key ability factors that were found to influence behavior include skills and self-efficacy to build latrines, knowledge, perceived affordability, roles, and decisions in a household [46]. Both open defecators and latrine owners consistently mentioned cost as a barrier to building and upgrading latrine facilities. Influencing factors include household income, availability of cash, time of year, and availability of suitably priced sanitation options in the area. Qualitative studies conducted on sanitation demonstrated that the unaffordability of latrine construction materials and limited awareness regarding the health risks associated with open defecation practice were barriers to the ownership of sanitation facilities [48], [50]. In a study conducted in rural Tanzania, leading constraints among households planning to build a latrine were latrine cost (46%), inability to save or access credit (21%), and no one to build/advise the household on latrine construction (19%). Leading constraints mentioned among households with no plans to build a latrine were financial constraints (44%), and traditional or cultural beliefs regarding defecation practices (24%) [49].

Knowledge of sanitation and access to health information has a positive influence on latrine use among latrine adopters, as well as non-adopters. Fewer expenditures on health care and disease prevention were frequently mentioned as benefits of latrine ownership [50]. The availability of a latrine was also affected by the frequency of supervision and distance of the household from the local health facility as households located nearby from local health facilities have better access to information on the importance of building latrines and their utilization through health promotion campaigns and community mobilization [22], [25], [32], [48].

Roles and decisions making in a household also have an impact on latrine ownership and use. A study conducted in Ghana revealed that 52% and 38% of female and male-headed households, respectively, were without any form of toilet facility. The number of females headed households without toilet facilities is due, in part, to the fact that traditional influences women, no matter their status, not to see themselves as being responsible for the provision of household physical infrastructure [22].

2.2.4 Motivations related factors

For a behavior to take place, an individual must be motivated to engage in it. Motivation refers to an individual's desire to acquire a promoted behavior. Attitude and beliefs, emotional, physical, and social drivers, and competing priorities were found to influence the behavior of interest [46]. Many similarities were observed in several studies that households practicing OD, regardless of their plans to build a latrine.

Practicing OD is perceived as normal within their communities. For instance, among the reasons given by the respondents of a cross-sectional study in the Denbia district, northwest Ethiopia was a long-lived habit (60.4%) and considered open defecation as comfortable (18.9%) [40].

Even though OD is considered a major risk to human health and the environment, a study conducted in the Gulomekeda district in the Tigray region revealed that preferring to go into an open field (74.8%) and considering latrine as flies spreading place 23(14.1%) were perceived reasons for non-utilization of community latrines [48]. A similar result was also observed in a study conducted in Tanzania, where (85%) of the respondents practicing OD were dissatisfied with their current place of defecation. The top two reasons for dissatisfaction were safety concerns and unclean conditions that put children and the entire community at risk of illness [49].

Several studies highlighted health benefits and prevention of environmental contamination are the most important reasons for households to own and utilize latrines. 49.6% of households in Gulomekeda, north Ethiopia, and 60% of the households in Tanzania revealed the reasons mentioned above[48], [49]. In addition, the immediate and direct benefits of increased convenience, comfort, cleanliness, privacy, safety, and prestige offered by household sanitation contribute to latrine ownership and utilization [58].

In a household situation where several unmet needs and limited income, constructing a toilet facility does not seem to be a priority. In Ghana, financial constraints, which were mentioned by 94% of the respondents, translate into the inability to procure construction materials and pay for labor [22]. The size of a household also determines investment in latrines. Households with large family sizes may be burdened with the need to cover the basic needs of all members, thereby reducing their capacity to construct toilet facilities at home. Therefore, although they may be aware of the environmental and health benefits of owning toilets at home, their willingness to construct one will be negatively affected [50].

Intentions for latrines construction can be affected by many factors. The most relevant components include comfort, privacy, shame and embarrassment, and social status, as motivators among latrine owners and open defecators to move up the sanitation ladder [46]. The utilization of latrine is also regarded as important in terms of privacy, as being seen while defecating is often regarded as shameful and unsightly behavior in the community. Protection of family safety and dignity was a key motivation for deciding to build their latrine for most men [32], [50].

Contrary to this, in some communities in Burkina Faso and Mali, for instance, people are ashamed or embarrassed to be seen walking in the direction of a latrine or toilet—even by close relatives such as their spouses or children — as other people will know they are going to relieve themselves. Most people will

avoid walking directly toward toilets, and some prefer not to have any at home as they feel that defecating in the bush offers more privacy [54].

2.3 Conceptual framework

This study adapted the SaniFOAM framework as a means of organizing and analyzing the behavioral determinants as represented in **Figure 1**. The “FOAM” acronym helps to focus on four key elements of sanitation behaviors: F for Focus, O for Opportunity, A for Ability, and M for Motivation. Focus refers to the kind of behaviors that need to change, to improve sanitation processes. Opportunity refers to whether the individual has the chance to acquire the behavior. Ability refers to whether the individual has the capacity to engage in different sanitation behaviors. Motivation refers to multiple factors that determine whether an individual is motivated to engage in sanitation behaviors [14].

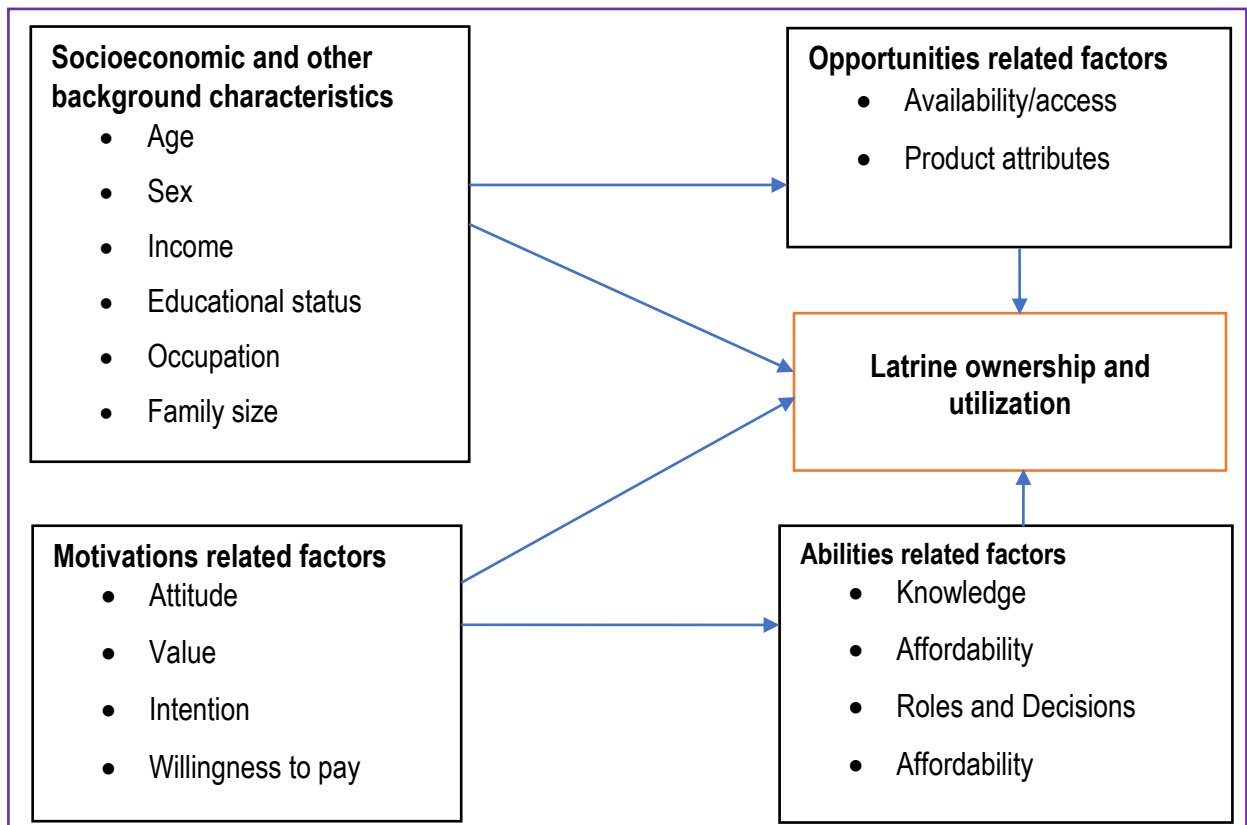


Figure 1: Conceptual Framework adapted from SANIFOAM framework for a study on factors influencing the ownership and utilization of latrines in Babelle Woreda, Fafan Zone, Somali Region

3. METHODS and MATERIALS

3.1 Study areas

This study was conducted in the Babile woreda, Fafan zone, Somali region, eastern Ethiopia. The Somali Region is approximately 350,000 square kilometers and is the second-largest region in Ethiopia after Oromia region in terms of landmass. The Somali region is located in the east and southeast of the country. Its estimated population is approximately six million people, which is about six percent of the Ethiopian population [59]. Based on the Ethiopia Central Statistical Agency (CSA) population projection of Ethiopia for all Regions at the woreda level in 2021, the Fafan zone has a total population of 1,392,284, of whom 724,943 are men and 667,341 women [60].

Babile Woreda ([Somali](#): Babille) is bordering with Oromia region in the west, with Gursum in the North, with the Fiq zone in the east and southern part, and is located at 7° 00' North Latitude and 43° 00' East Longitude. The total size of the Woreda is about 1,325 km². It is divided into 17 kebeles (the smallest administrative unit in Ethiopia). The average temperature is 26.5 Celsius with uneven rainfall distribution. Based on the CSA Population Projection Values of 2021 at zonal and woreda levels, this woreda has a total population of 109,714 of whom 56,276 are men and 53,438 women. Only about 2% are urban inhabitants, and the rest 98% of the population are rural inhabitants [60].

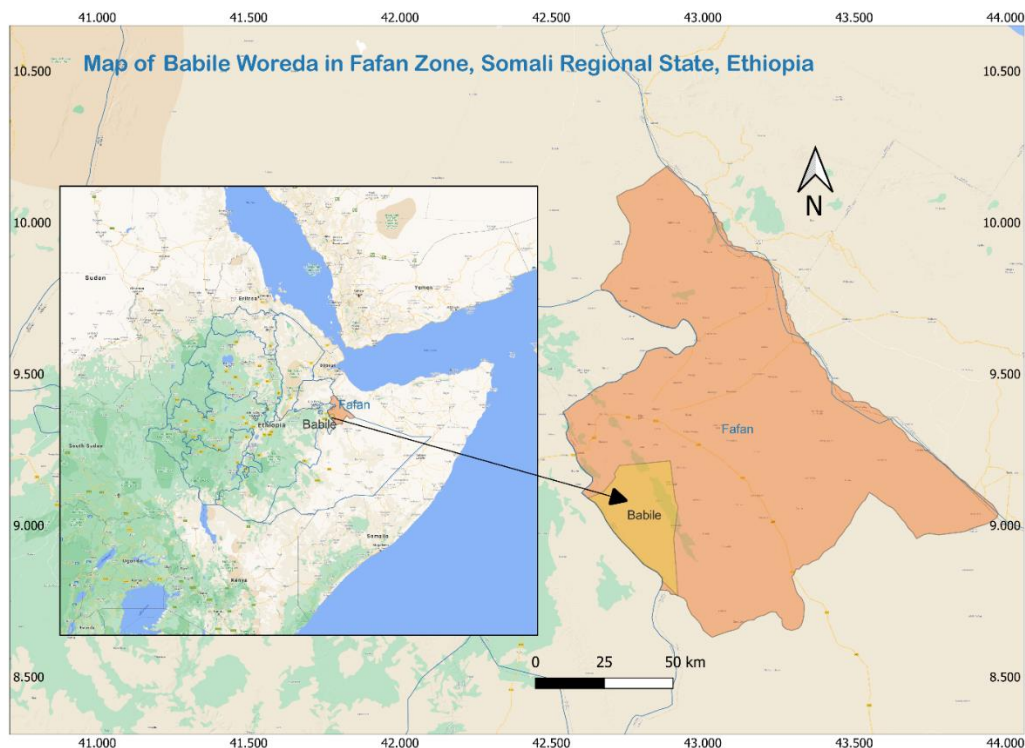


Figure 2: Map of Babile Woreda, Fafan Zone, Somali Region

3.2 Study Design

This study employed a community-based cross-sectional study design with both quantitative and qualitative data collection methods. Mixed methods research is the type of research that combines elements of qualitative and quantitative approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, and inference techniques) for breadth and depth of understanding [61], [62]. The use of mixed methods in the study is to help provide a complete understanding of a problem and to compare, validate, or triangulate the results of the study. A convergent mixed-method design was employed in this research with the quantitative and qualitative data collected and analyzed concurrently. The use of a mixed-method in this research enabled us to explore the complex multiple-level factors influencing the ownership and utilization of latrines in Babille Woreda, Fafan Zone of the Somali Region.

3.3 Study period

This study was conducted from February 2022 to April 2022.

3.4 Population

3.4.1 Source population

The source population of this study was household heads who are residents in the Anod, El Bahay, and Kora kebeles (N=3676) of the Babille woreda for at least six months before the study period.

Table 1: Population of the study for assessing ownership and utilization of latrines in Babille woreda, Fafan zone, Somali region, eastern Ethiopia, 2022 (n=383)

Name of Kebeles	Total HHs	Adopters (Owned any type of latrine)	Non-adopters (Owned no latrine)	Sample size			
				PPS	Adopters	Non-adopters	Total
Kora	1584	772	812	165	80	85	165
Anod	929	620	309	97	65	32	97
El bahay	1163	818	345	121	85	36	121
Total	3676	2210	1466	383	230	153	383

3.4.2 Study population

The study populations were both female and male households who were residents in the selected kebeles of Babelle woreda (i.e., Anod, El Bahay, and Kora kebeles) for at least six months before the study period.

Study units

For the quantitative study, the study units were household heads. Whereas, for the qualitative part of the study, the local community (male and female) members were involved in Focus Group Discussions (FGDs). In addition, community leaders, district health officers, NGO personnel working in WASH, sanitation technologies/service providers, and regional officers were included in Key Informant Interviews (KIIs).

3.5 Inclusion criteria and exclusion criteria

3.5.1. Inclusion criteria

Household heads that are residents in the Babelle district for at least six months before the study period were included.

3.5.2 Exclusion criteria

Households who were not available during data collection and did not volunteer to participate in the study were excluded. Furthermore, those household heads who were seriously sick and not able to participate during the interview were excluded from the study. Furthermore, household heads who are already involved in the survey were excluded from the qualitative part of the study.

3.6 Sample size

The required sample size for the household survey was determined using the single population proportion determination formula by considering the following assumptions.

- Population size [*number of households in the selected kebele in the woreda*] (N)= **3676**
- Hypothesized % frequency of outcome factor in the population (p) = **50%+/-5**
- Confidence interval = **95%**
- Confidence limits (margin error) as % of 100 (absolute +/- %) (d) = **5%**

$$no = \frac{(\frac{Z\alpha}{2})^2}{d^2} pq$$

Note: When $\frac{no}{N} > 5\%$, use $n = \frac{no}{1 + \frac{no}{N}}$, otherwise use $n=no$

$$no = \frac{\left(\frac{Z\alpha}{2}\right)^2}{d^2} pq = \frac{1.96^2(0.5 * 0.5)}{0.05^2} = \mathbf{384.16}$$

Since the ratio of 0.1045 is greater than 0.05, then the sample needed to compute for this research is.

$$n = \frac{no}{1 + \frac{no}{N}} = \frac{384}{1 + \frac{384.16}{3676}} = \frac{384}{1.1045} \approx \mathbf{348}$$

Based on the above assumptions, the calculated sample size is 348. By adding a 10 % non-response rate to the calculated sample size the final sample size for the household survey was **383**. Then, the final sample size for the household survey was allocated using Probability Proportional to Size (PPS) technique based on the total number of households.

For the qualitative section of the study, 8 FGDs and 8 KIIs were conducted. In each FGD 6-8 participants were involved. The number of FGDs and KIIs was determined by the saturation level of information. The table below presents the type of informants and the minimum number of participants involved during the qualitative data collection process.

Table 2: Qualitative study participants for assessing factors influencing the ownership of latrines in Babille woreda, Fafan Zone, Somali Region, Eastern Ethiopia

Method	Sources of Data	Minimum No	Remark
FGDs	Male community members from households who currently practice open defecation-non-adopters	2	1/kebele
	Female community members from households who currently practice open defecation- non-adopters	2	1/kebele
	Male community members from households currently using unimproved and unhygienic toilets- adopters	2	1/kebele
	Female community members from households currently using unimproved and unhygienic toilets- adopters	2	1/kebele
KIIs	Regional health bureau	1	Staff working in the environmental health
	District health office personnel	2	
	Experts from NGOs working on WASH	1	
	Personnel from providers of sanitation products	2	1 per kebele
	Community leaders	2	

3.7 Sampling procedure

For this study, a multistage sampling technique was employed to select the study respondents. Out of the 17 kebeles of Babile woreda, three Kebeles (Kora, Anod, and El Bahay) were randomly selected using the lottery method. The three kebeles have a total number of 3,676 households that ranges from 929 (Anod) to 1584 (Kora). Then, the samples were allocated to each kebele in proportion to household size and study subjects were selected using a systematic sampling technique.

For the qualitative section, study participants were selected using purposeful sampling methods. For the FGDs homogenous sampling was used while for the KII criteria-based sampling technique was used based on participants special expertise or knowledge on the issue under study, leadership responsibilities, and trusted sources of information.

3.8 Study variable

3.8.1 Dependent variable

- ✓ Latrine ownership and utilization

3.8.2 Independent variables

- ✓ Socio-demographic factors (age, sex, educational status, occupation, and family size)
- ✓ Socioeconomic factors (cultural factors, household income)

3.9 Operational definition

Latrine ownership: The ownership of any kind of latrine was the outcome variable of the study. It was measured by asking respondents whether they own a latrine or not, which was in parallel verified by observation for presence.

Latrine utilization: latrines Utilization was measured by asking participants whether household members use latrines in dry and rainy seasons among adopters while asking “where they defecate among non-adopters”. In the first case, responses provided for choices such as don’t know, never, sometimes, and always. In the other case, responses were provided for choices such as open defecation, neighbor’s latrine, public latrine, and latrine shared with other households. Latrine utilization was recorded as yes if the participant’s family member used any type of latrine for defecation and no for all other conditions.

3.10 Data collection methods

The data were collected using both qualitative and quantitative methods. Survey data was collected using a structured, pre-tested standardized questionnaire in the form of face-to-face interviews and latrine

observation. The questionnaire was designed with a simple pre-coded multiple-choice question. All questions were designed to be consistent with the objectives of the study. It was adopted from various literatures. Closed-ended questions were designed to gather information on variables of interest to an investigation. The questionnaire addressed key areas as defined by the SaniFOAM conceptual framework presented in Figure 1. They are designed to gather information on factors that influence people's behavior toward ceasing open defecation and latrine ownership and utilization. The questionnaire was prepared in English and then translated into the local language which is Somali language. Data collection was undertaken by android-based tablets using the Kobo-tool box. Four experienced and trained data collectors who speak the local Somali language were involved in the data collection procedure.

The qualitative data was collected through FGDs and KIIs using semi-structured guides. The guides included questions on behavioral factors influencing open defecation practice, ownership and utilization of latrines, and the demand for and supply of available sanitation services. FGDs were conducted with community members to explore issues related to the key behavioral determinants for retaining open defecation practice or latrine ownership and utilization. FGDs were held with homogenous groups of 6-8 men and women separately using the FGD guide. The KIIs were conducted with various categories of people, who are considered the key informants based on their special expertise or knowledge of the issue under study. The interviews were conducted in the local language. FGD and KII sessions were recorded using voice recorders after permission was received. Notes were also taken throughout the interviews.

3.11 Data Quality Assurance

The design of questionnaires in the Kobo collector toolbox was done carefully including the well-defined skip logic. The data collectors were trained for two days. A pre-test of data collection tools was done in a similar area before the actual data collection work, and modifications were made based on the results of the pre-testing exercise. Draft data collection tools were revised, and the final version was updated by incorporating feedback. Data quality was maintained through close supervision of the data collection process. Recordings of discussions and interviews were done to make certain that relevant information is gathered and to take appropriate corrective action. Data cleaning was done after data entry.

3.12 Data processing and analysis

The quantitative data were checked for completeness, missing values, and unlikely responses once exported from the Kobo toolbox into excel. The data was coded and then exported to STATA version 14 for data analysis. Descriptive statistics such as frequency distributions, proportions, median, interquartile range

were computed, and the results were presented using tables and graphs. A Chi-square test was also run and variables that fulfilled the chi-square assumptions were entered in simple logistic regression.

Furthermore, odds ratios (ORs) and 95% confidence intervals (CIs) were calculated using a logistic regression model to determine the association levels of predictors to the outcome variables. Crude ORs of predictors with latrine ownership and utilization among study participants were estimated using bivariate logistic regression analysis. Multivariate logistic regression analysis was used to estimate the adjusted OR of predictors and to control confounding factors. Adjusted Odds Ratio (AOR) and 95% CI were used to assess the strength and direction of associations between the dependent and independent variables. The level of statistical significance was $P < 0.05$. Hosmer-Lemeshow test was performed for the goodness of fit considering good fit at $P\text{-value} > 0.05$ level of significance.

Data from the interviews were captured using voice recorders, and each day field notes were transcribed verbatim into the English language by interviewers. The data were analyzed through thematic analysis. After reading the transcripts, the investigator identified emergent themes and then coded each theme to delineate individual topics identified during the interview. Statements were grouped by code to the corresponding theme. Themes were then compared by sub-group: male-females, and across different participants. The findings were presented in narratives by thematic areas and quotes. Finally, it was triangulated with the quantitative findings.

3.13 Ethical Consideration

The research was conducted keeping in mind the basic ethical principles of respect and willingness. A clearance and support letter were obtained from the Ethiopian Institute of Water Resources, Addis Ababa University, Ethiopia. In addition, a support letter was also obtained from the Somali Region Health Bureau. After explaining the purpose and objective of the study, verbal consent was obtained from each study participant. Confidentiality of the information was maintained throughout the research by excluding identifiers in the questionnaire and keeping their privacy during the interview.

3.14 Limitations of the study

This study revealed latrine ownership and utilization among pastoral communities with agrarian/sedentary and temporary households in Babille woreda, eastern Ethiopia. Some limitations are considered while interpreting the findings. First, the causal relationships between potential predictors and the outcome under investigation could not be established because the findings were based on a cross-sectional study design. Second, latrine utilization was measured based on the respondents' self-reported responses, and data

about latrine utilization behavior of all the family members were collected by asking the head of household, in which reliability is a concern in both cases. Third, the study showed that latrine ownership and utilization can be influenced by environmental conditions (unstable soil and rain), but these factors were not addressed by the current study. Lastly, while results provided insight into factors associated with intention to adopt latrines, no follow-up was conducted to determine if households with intent to construct latrines followed through with construction and utilization

4. RESULTS

4.1 Socio-demographic characteristics

A total of 383 household heads participated in this study. Table 3 presents the background characteristics of the respondents. Accordingly, nearly half 176 (45.9%) of the respondents were aged 40 and above years. Of the total study participants, 196 (51.2%) were males, and 187 (48.8%) were female. Concerning educational status, the majority 218 (56.9%) of them were unable to read and write and 109(28.5%) respondents attended informal or religious education. About one-third of the participants, 128 (33.4%) were farmers while 27.2% were pastoralists. Of the study participants,216 (56.4%) and 207 (54.0%) had more than 5 family sizes and a monthly income between 2000 to 4000 Ethiopian Birr (ETB), respectively.

Table 3: Socio-demographic characteristics of household heads for assessing ownership and utilization of latrines in Babille woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022 (n=383)

Variable	Description	Frequency (n)	Percent (%)
Age	less than 29	70	18.3
	30-39	137	35.8
	40 and above	176	45.9
Sex	Male	196	51.2
	Female	187	48.8
Kebele	Anod	98	25.6
	El Bahay	119	31.1
	Kora	166	43.3
Occupation of the respondent	Pastoralist	104	27.2
	Agriculture	128	33.4
	Daily laborer	64	16.7
	Service/Sales/Commercial	29	7.6
	Unemployed	49	12.8
	Other	9	2.4
Family size	≤ 5	167	43.6
	> 5	216	56.4
Household income	Less than 2000	78	20.4
	2001-4000	207	54.0

	Above 4001	98	25.6
The educational level of the household head	Can't read and write	218	56.9
	Informal or religious education	109	28.5
	Formal education	56	14.6
Educated children in the household	No	139	36.3
	Yes	244	63.7
Education level of the children	Informal or religious education	24	9.8
	Primary	203	83.2
	Secondary and above	17	7.0

4.2 Latrine ownership and utilization

In the study area majority of the households 228 (59.5%) had owned latrines. However, only about one-third of them 111 (29.0%) utilized the latrine. Only nearly 2% of non-adopters and 47.4% of adopters utilized latrines.

Of the adopter households' latrines, 217 (97.3%) were functional. Nearly all 225 (98.7%) didn't receive any support to build the latrine. The median cost of latrine construction was 5000.00 ETB with an interquartile range (IQR) of 4500.00 ETB for material cost and with an interquartile range (IQR) of 1500.00 ETB for labor cost. About two-thirds of the households, 154 (67.5%) hired someone to build the latrine. In more than half of the households 128 (56.1%), the latrine construction took 1-6 months. Most of the latrines, 147 (64.5%) were constructed in the past two years. One-third of adopter households 72 (32.3%) had unimproved latrines, particularly pits without slab. The ground structure of about one-third, 70 (31.4%) was lined pit offset. More than half, 125 (54.8%) of the latrines had open-hole concrete slabs and galvanized steel as shelter walls of the latrine was observed in 122 (50.8%) of the households. More than two-thirds of 163 (73.1%) of the latrines didn't have a roof structure. About 136 (59.6%) households planned to change/improve the latrine, among which, 113(83.1%), 111 (81.6%), and 117 (86.0%) planned to improve the wall, the roof, and the slab, respectively. On the other hand, among households who did not plan to change/improve their latrine, financial problems and considering the latrine as the least priority were the reasons for not planning.

Among the latrine adopter households, 206 (94.9%) and 191 (88.0%) adults have always used latrines in dry and rainy seasons, respectively. However, the latrine utilization children in the adopter households were low, 124 (57.2%) during dry and 115 (53.0%) during rainy seasons. Improved hygiene and health or

avoiding diseases were the main advantages reported by household heads who adopted latrines, 190 (83.3%) and followed by improved safety 132 (57.9%). (Table 4).

Table 4: Latrine availability, characteristics, and utilization among adopter households in Babille woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022 (n=228)

Variable	Description	Frequency (n)	Percent (%)
Have own latrine	No	5	2.2
	Yes	223	97.8
Latrine functionality	No	6	2.7
	Yes	217	97.3
Is it your first latrine?	No	28	12.6
	Yes	195	87.4
Time of the first latrine constructed	Before 2020	81	35.5
	After 2020	147	64.5
Type of latrine	Composting toilet	1	0.5
	Flush/pour into a pit latrine	21	9.4
	Pit latrine with slab	73	32.7
	Pit latrine without slab/open pit	72	32.3
	Ventilated Improved Pit (VIP) latrine	56	25.1
Ground structure of the latrine	Lined pit beneath latrine onset	65	29.15
	Lined pit offset	70	31.4
	Piped sewerage	55	24.7
	Unlined pit onset	31	13.9
	Other	2	0.9
Kind of slab of the latrine	Open hole - concrete slab	125	54.8
	Open hole - wooden slab	74	32.5
	No slab	24	10.5
	Pour flush	5	2.2
Shelter walls of the latrine	Galvanized steel	122	50.8
	Wood	41	17.1
	Mud plastered	31	12.9
	No walls	19	7.9
	Other	13	5.4
	Concrete	10	4.2

	Thatch straw	3	1.3
	Plastic sheet	1	0.4
Kind of shelter roof of the latrine	No roof	163	73.1
	Galvanized steel	38	17.0
	Wood	16	7.2
	Other	6	2.7
Do adults in the household use the latrine in the dry season?	Always	206	94.9
	Sometimes	11	5.1
Do adults in the household use the latrine in the rainy season?	Always	191	88.0
	Sometimes	26	12.0
Do children in the household use the latrine in the dry season?	Always	124	57.2
	Sometimes	78	35.9
	Never	15	6.9
Do children in the household use the latrine in the rainy season?	Always	115	53.0
	Sometimes	80	36.9
	Never	22	10.1

Regarding the decision to build the latrine, household heads 121 (53.0%) were the main decision-maker and this was followed by a joint decision of household heads with their spouse 87 (38%) (see **Figure 3**).

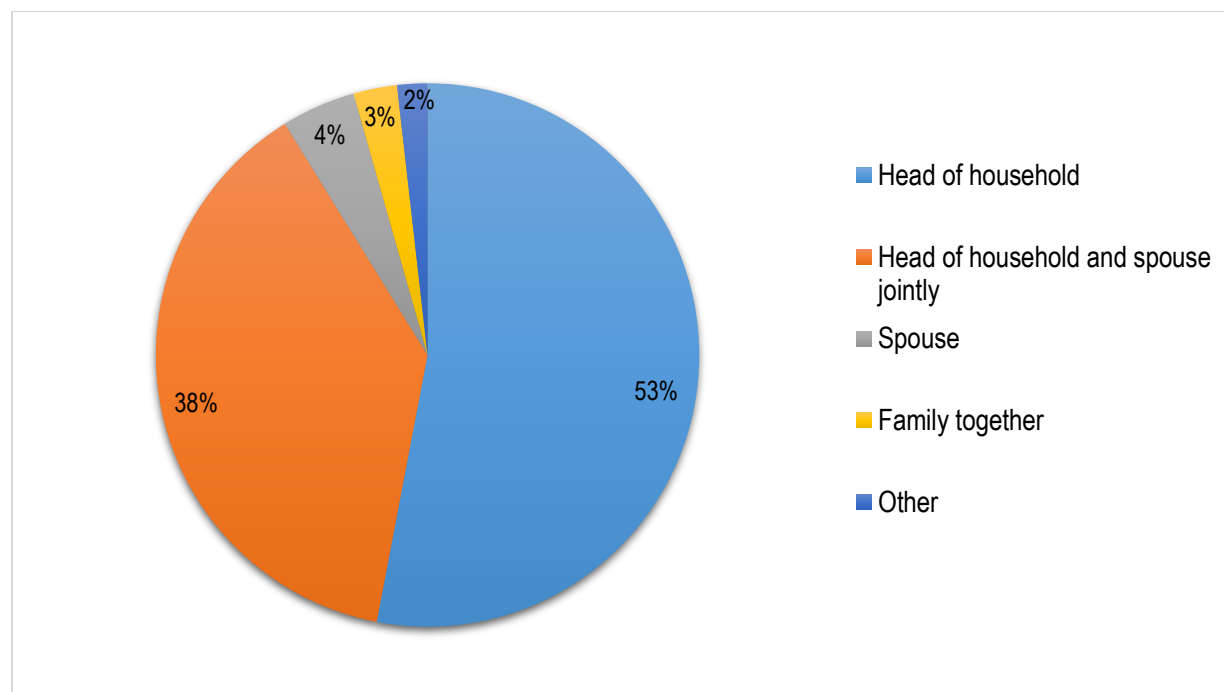


Figure 3: Decision makers to construct the first latrine among adopter households in Babille woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022 (n=228)

4.3 Access and source of information about water, hygiene, and sanitation

Most of the respondents, 330 (86.2%), heard about Water, Hygiene, and Sanitation (WASH). Of them, 214 (64.8%), 156(47.3%), and 203 (61.5%) heard about latrine construction, latrine use, maintenance, and ceasing open defecation (see Figure 4).

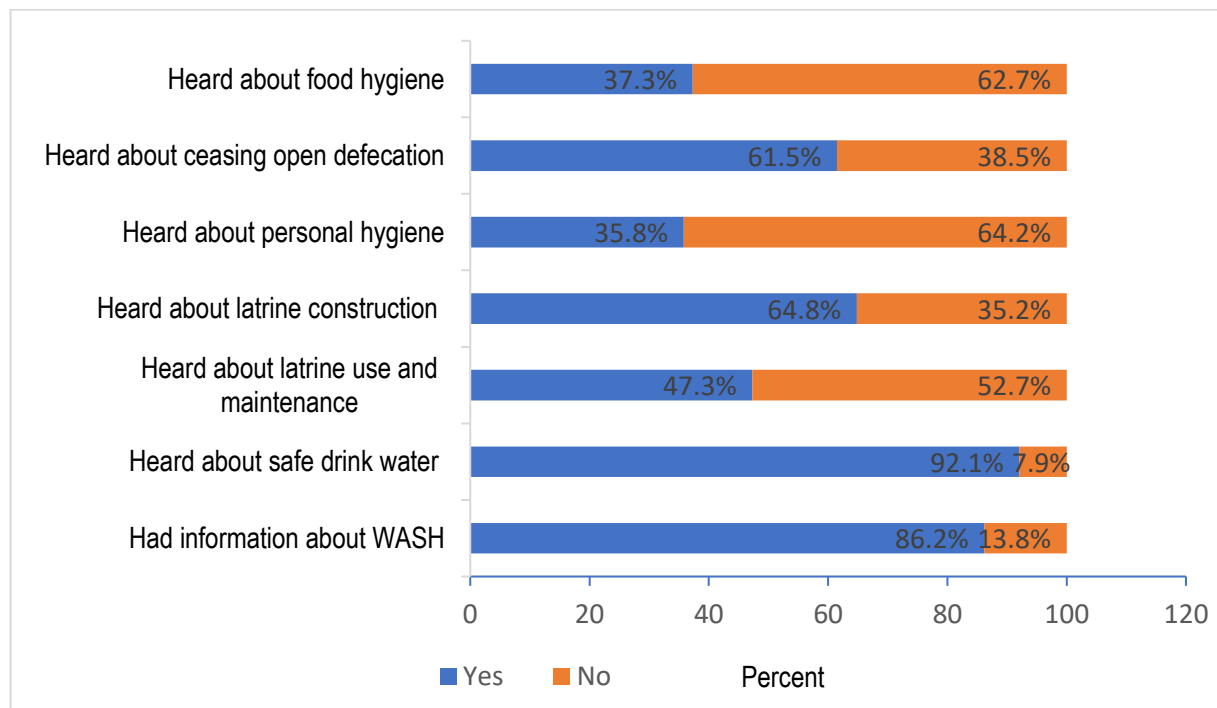


Figure 4: Access to information about WASH among household heads in Babille woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022 (n=383)

Religious leaders were the most used sources of information, 174 (52.7%) and followed by health workers 168 (50.9%), and community health workers, 164 (49.7%). On the other hand, teachers 61 (18.5%) and HEWs 70 (21.2%) were the least used sources of information in the study area. With regard to trusting the information sources, family members 137 (41.5%) and health workers 135 (40.9%) were the most trusted source of information. Conversely, HEWs 49 (14.8%), were the least trusted source of information (see Table 5).

Besides, among latrine adopters, community meetings 149 (65.4%) and relatives 118 (51.7%) were the most common sources of information about latrines. Conversely, posters 9 (4.0%) and NGO workers 28 (12.3%) were the least sources of information about latrines.

Table 5: Sources and the most trusted source of information about WASH among household heads in Babille woreda Fafan Zone, Somali Region, Eastern Ethiopia, 2022 (n=330)

Description		Sources of the information		<i>The most trusted source of information</i>	
		Frequency	Percent	Frequency	Percent
Family member	No	186	56.4	193	58.5
	Yes	144	43.6	137	41.5
Neighbors	No	221	67.0	271	82.1
	Yes	109	33.0	59	17.9
Community health workers	No	166	50.3	202	61.2
	Yes	164	49.7	128	38.8
HEWs	No	260	78.8	281	85.2
	Yes	70	21.2	49	14.8
NGO workers	No	177	53.6	277	83.9
	Yes	153	46.4	53	16.1
Health workers	No	162	49.1	195	59.1
	Yes	168	50.9	135	40.9
Teacher	No	269	81.5	314	95.1
	Yes	61	18.5	16	4.9
Religious leader	No	156	47.3	216	65.4
	Yes	174	52.7	114	34.6

4.4 Awareness of water, hygiene, and sanitation

Of the study participants, 309 (80.7%) were aware of the negative consequences of open defecation. However, less than half of the survey participants reported awareness on latrine utilization, 181 (47.3%), and knowledge of latrine construction, 185 (48.3%). Only 10.4% of the study participants were aware of where to get latrine construction materials. (**See Figure 5**).

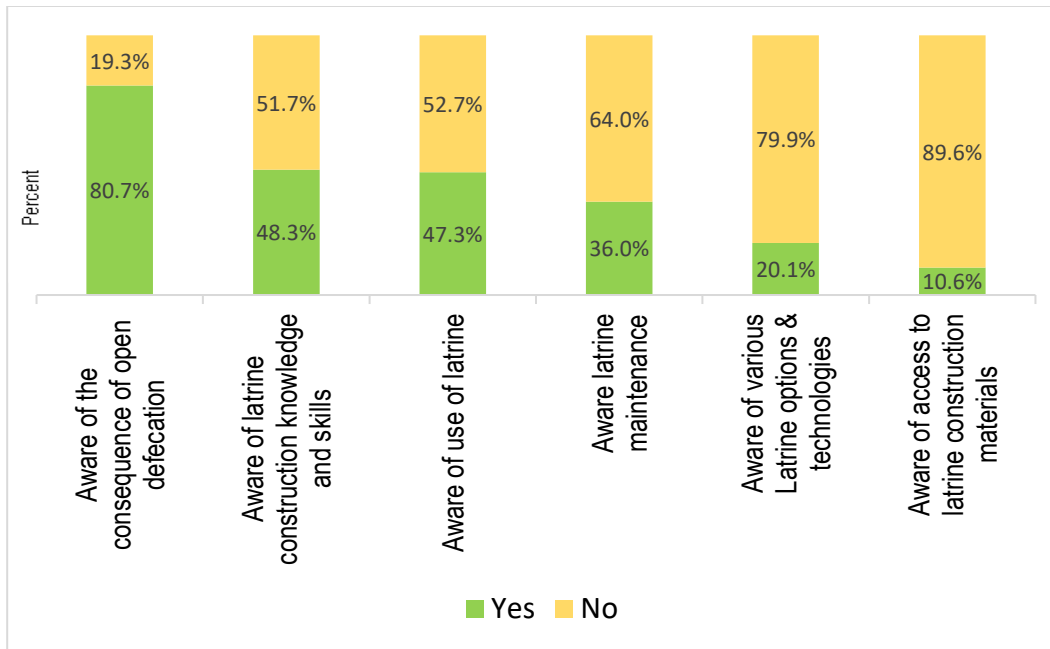


Figure 5: Awareness of household heads on WASH in Babille woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022 (n=383)

4.5 Current place of defecation and intention to build a latrine in non-adopter households

Among the non-adopter households, 94 families (60.7%) practiced open defecation. About three-fourths of non-adopting households, 117 (75.5%) reported that financial problems as a key factor for not constructing latrines. A need for a household latrine was the main source of their motivation, 44 (73.3%). Of those who didn't have intention to build a latrine, 74 (88.9%), the financial issue was the main constraint that hinder their motivation. The median cost of the latrine construction was estimated as 13,000.00 ETB with the (IQR 13,500.00 ETB). Among 112 (72.3%) non-adopter households, the final decision about latrine construction was made by household heads. Of households who intend to construct a latrine, more than half 88 (56.8%) didn't identify someone who can help them with the construction of the latrine (**Table 6**). Only 60 (38.7%) of non-adopter households intend to build a latrine (**see Figure 6**)

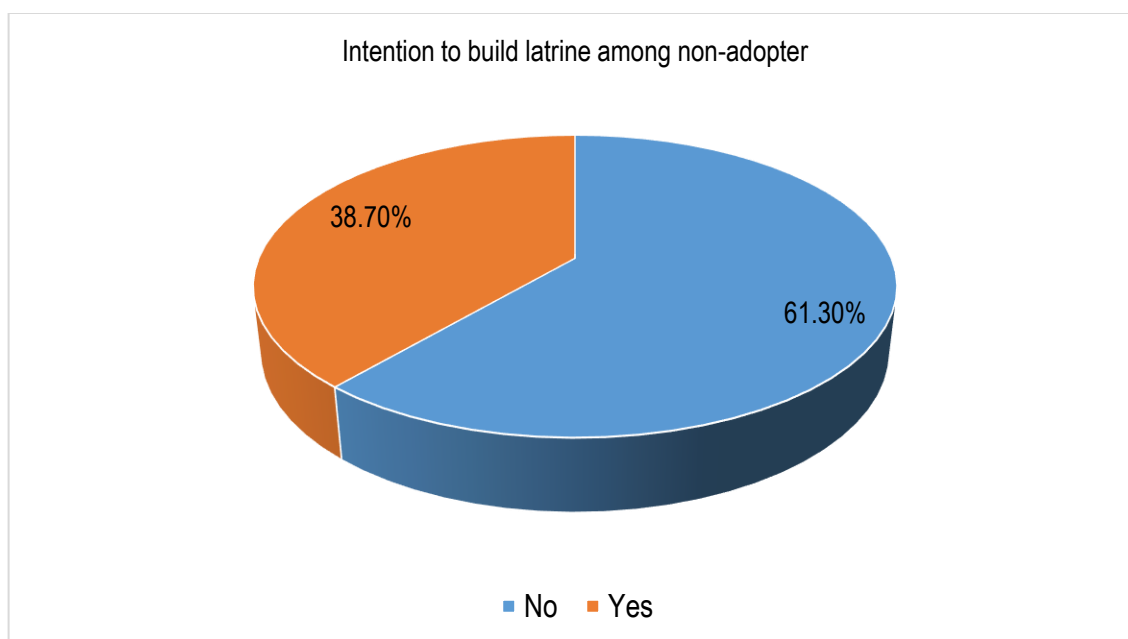


Figure 6: Intention to build latrine among non-adopter households in Babille woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022 (n=155)

Around 74.8% non-adopter households were unable to afford the latrine construction cost and of them, 106 (91.4%) were not willing to cover the cost. About 85 (54.8%) non-adopter households planned to construct the latrine from locally available materials and this was mainly due to the cost of materials. Higher costs of construction materials 150 (96.8%) was the major factor that hindered non-adopters from constructing and owning latrine. Of non-adopter households, 114 (73.5%) planned to borrow money from their family and friends, to cover the cost of latrine construction. Only 30 (19.4%) chose the site for latrine construction.

Table 6: Current place of defecation and intention to build latrine among non-adopter households in Babille woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022 (n=155)

Variable	Description	Frequency (n)	Percent (%)
Place of defecation	Open defecation	94	60.7
	Neighbor's latrine	43	27.7
	Public latrine	15	9.7
	Latrine shared with other households	3	1.9
Why didn't your household construct a latrine?	Financial problem	117	75.5
	Most of the people I know defecate in the open	36	23.2
	It is our culture to defecate in the open	25	16.1
	It is not common to use a latrine in our area	21	13.6

	Unavailability of construction materials	18	11.6
	Others	5	3.9
What kind of latrine do you intend to construct?	Pit latrine with slab and superstructure	24	40.0
	Pit latrine without slab/open pit	19	31.7
	Ventilated improved pit (VIP) latrine	12	20.0
	Flush/Pour into a pit latrine	5	8.3
Who in your household would make the final decision to build a latrine?	Household Head	112	72.3
	Husband and wife jointly	32	20.7
	Spouse	8	5.16
	others	3	1.9
Have you got someone for the construction of your latrine?	Don't know	43	27.74
	Not yet identified	88	56.77
	I will build my latrine	13	8.39
	Yes	11	7.1
Are you able to afford the cost to construct the latrine?	No	116	74.8
	Yes	39	25.2
Are you willing to cover the cost to construct the latrine?	No	106	91.4
	Yes	10	8.6
What latrine construction materials will you use?	Locally available materials	85	54.8
	Locally unavailable materials	41	26.5
	Mixed materials	29	18.7
To build a latrine, where would you buy the materials from?	Nearby town	136	87.7
	I don't know	12	7.7
	others	7	4.5
Have you chosen a site for the latrine?	No	125	80.7
	Yes	30	19.4

4.6 Preferred latrine type and features

As depicted in figure 7 below, a pit latrine with slab was known by 160 (70.2%) adopter and 67 (43.2%) non-adopter household heads. Pit latrine with slab and complete superstructure 119 (52.2%) was the most preferred latrine among latrine adopters. Besides, latrine comfortability 121 (53.1%) and safety/protection 120 (52.6%) were the most preferred features of latrines among adopters. Whereas, among non-adopter

households, cleanliness was 63 (40.7%) the most preferred feature of a latrine and followed by no bad smell 50 (32.3%).

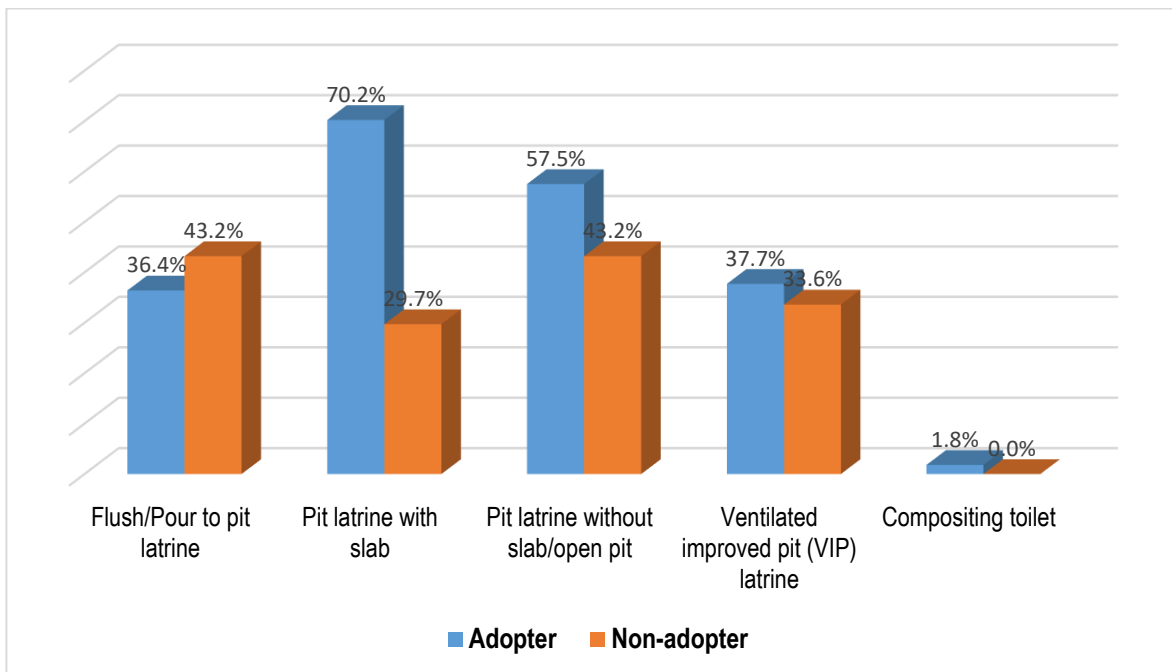


Figure 7: Preferred types of latrines among adopters and non-adopter households in Babille woreda, Fafan Zone, Somali Region, Eastern Ethiopia, 2022

4.7 Factors associated with latrine ownership

Table 7 summarizes the results from the logistic regression analysis that investigates factors associated with latrine ownership. Accordingly, from variables considered in the bivariate analysis, fourteen variables were included in the multivariable analysis model. In multivariable logistic regression, sex, occupation, income, being aware of latrine construction, use, maintenance, and sources of information were significantly associated with latrine ownership among households in Babille Woreda, Fafan Zone.

The odds of latrine ownership were nearly 2 times higher among female households as compared to male counterparts [AOR = 2.12; 95%CI: 1.20, 3.75]. Working a daily labor [AOR = 0.37; 95%CI: 0.16, 0.81] and being unemployed [AOR = 0.18; 95% CI: 0.07, 0.43] had 63% and 82% lower odds of latrine ownership, respectively. Households with 2000 to 4000 ETB [AOR = 0.18; 95% CI: 0.08, 0.38] and above 4000.00 ETB [AOR = 0.38; 95% CI: 0.15, 0.94] monthly income were 82% and 62% less likely to own latrine than households with monthly income below 2000.00 ETB. The odds of latrine ownership were 2.26 times higher among household heads who heard about latrine construction, use, and maintenance than their counterparts [AOR = 2.26; 95%CI: 1.14, 4.50]. The odds of latrine ownership among household heads

received information from local people only [AOR = 13.62; 95%CI: 3.33, 55.71], were 13.62 times higher as compared to those household heads received information from professionals only (**Table 7**).

Table 7: Bivariate and multivariable analysis of latrine ownership among households in Babilile woreda, Fafan Zone, Somali Region, eastern Ethiopia, 2022.

Variables	Description	Latrine ownership		COR (95%CI)	AOR (95% CI)
		No n (%)	Yes n (%)		
Kebele	Anod	33 (21.3)	65 (28.5)	1	1
	El Bahay	37 (23.9)	82 (36.0)	1.13 (0.64 , 1.99)	0.94, (0.46, 1.91)
	Kora	85 (54.8)	81 (35.5)	0.48 (0.29, 0.81)	0.32 (0.16, 0.63)*
Sex	Male	85 (54.8)	111 (48.7)	1	1
	Female	70 (45.2)	117 (51.3)	1.28 (0.85, 1.93)	2.12 (1.20, 3.75)*
Age	less than 29	27 (17.4)	43(18.9)	1	1
	30-39	48 (31.0)	89(39.0)	1.16 (0.64, 2.11)	1.08 (0.52, 2.26)
	40 and above	80 (51.6)	96 (42.1)	0.75 (0.43, 1.33)	0.81 (0.36, 1.79)
The educational level of the household head	Can't read and write	93 (60.0)	125 (54.8)	1	1
	Informal education	41 (26.5)	68 (29.8)	1.23 (0.77, 1.98)	1.19 (0.65, 2.16)
	Formal education	21 (13.5)	35 (15.4)	1.24 (0.68, 2.27)	1.18 (0.52, 2.66)
Occupation of the respondent	Pastoralist	40 (25.8)	64 (28.1)	1	1
	Agriculture	45 (29.0)	83 (36.4)	1.15 (0.67, 1.97)	1.45 (0.75, 2.79)
	Daily laborer	29 (18.7)	35 (15.4)	0.75 (0.40, 1.42)	0.37 (0.16, 0.81)*
	Service/Sales/Commercial	10 (6.5)	19 (8.3)	1.19 (0.50, 2.81)	0.74 (0.26, 2.09)
	Unemployed	28 (18.1)	21 (9.2)	0.47 (0.24, 0.93)	0.18 (0.07, 0.43)*
	Other	3 (1.9)	6 (2.6)	1.25 (0.29, 5.28)	0.50 (0.09, 2.63)
Educated children in the household	No	58 (37.4)	81 (35.5)	1	1
	Yes	97 (62.6)	147 (64.5)	1.09 (0.71, 1.66)	0.85 (0.45, 1.58)
Family size	≤ 5	62 (40.0)	105 (46.1)	1	1
	> 5	93 (60.0)	123 (53.9)	0.78 (0.52, 1.18)	0.83 (0.47, 1.48)
Household income	Less than 2000	21 (13.6)	57 (27.0)	1	1
	2001-4000	102 (65.8)	105 (46.0)	0.38 (0.21, 0.67)	0.18 (0.08, 0.38)*
	Above 4001	32 (20.6)	66 (29.0)	0.76 (0.39, 1.46)	0.38 (0.15, 0.94)*

Heard about latrine construction, use and maintenance	No	33 (21.3)	25 (11.0)	1	1
	Yes	122 (78.7)	203 (89.0)	2.20 (1.25, 3.87)	2.26 (1.14, 4.50)*
Source of information	Professionals only	40 (25.8)	36 (15.8)	1	1
	Local people only	3 (1.9)	25 (11.0)	9.26 (2.58, 33.28)	13.62 (3.33, 55.71)*
	Professionals and local people	87 (56.1)	139 (61.0)	1.78 (1.05, 3.00)	1.98 (1.05, 3.74)*
	All source of information	25 (16.1)	28 (12.3)	1.24 (0.62, 2.51)	0.60 (0.23, 1.58)
Aware of the consequences of open defecation	No	34 (21.9)	40 (17.5)	1	1
	Yes	121 (78.1)	188 (82.7)	1.32 (0.79, 2.20)	1.65 (0.82, 3.32)

4.8 Factors associated with latrine utilization

In multivariable logistic regression income, awareness of the consequences of open defecation, and sources of information were significantly associated with latrine utilization among households in Fafan Zone. Households with 2000 to 4000 ETB [AOR = 0.23; 95% CI: 0.11, 0.45] and above 4000.00 ETB [AOR = 0.03; 95% CI: 0.01, 0.09] monthly income were 77% and 97% less likely to consistently utilize latrine than households with monthly income below 2000.00 ETB. The odds of consistent latrine utilization among household heads who received information from local people only [AOR = 14.69; 95%CI: 4.23, 50.96], were 14.69 times higher as compared to those household heads who received information from professionals only. The odds of latrine utilization were 3.73 times higher among household heads who were aware of the consequences of open defecation than their counterparts [AOR = 3.73; 95%CI: 1.67, 8.31] (Table 8).

Table 8: Bivariate and multivariable analysis of latrine utilization among households in Babille woreda, Fafan Zone, Somali Region, eastern Ethiopia, 2022.

Variables	Description	Latrine utilization		COR (95%CI)	AOR (95% CI)
		No n (%)	Yes n (%)		
Kebele (District)	Anod	57 (20.96)	41(36.9)	1	1
	El Bahay	89 (32.7)	30 (27.0)	0.47 (0.26, 0.83)	0.71 (0.33, 1.56)

	Kora	126 (46.3)	40 (36.1)	0.44 (0.26, 0.75)	0.52 (0.24, 1.11)
Sex	Male	135 (49.6)	61 (54.9)	1	1
	Female	137 (50.4)	50 (45.1)	0.81 (0.52, 1.26)	1.24 (0.66, 2.32)
Age	less than 29	52 (19.1)	18 (16.2)	1	1
	30-39	93 (34.2)	44 (39.6)	1.37 (0.72, 2.60)	1.14 (0.50, 2.58)
	40 and above	127 (46.7)	49 (44.1)	1.11 (0.59, 2.09)	0.85 (0.35, 2.05)
The educational level of the household head	Can't read and write	167 (61.4)	51 (45.9)	1	1
	Informal/religious education	74 (27.2)	35 (31.5)	1.55 (0.93, 2.58)	1.38 (0.70, 2.70)
	Formal education	31 (11.4)	25 (22.6)	2.64 (1.43, 4.88)	1.46 (0.63, 3.38)
Occupation of the respondent	Pastoralist	79 (29.0)	25 (22.5)	1	1
	Agriculture	89 (32.7)	39 (35.1)	1.38 (0.77, 2.49)	2.07 (0.99, 4.32)
	Daily laborer	43 (15.8)	21 (18.9)	1.54 (0.77, 3.07)	0.73 (0.30, 1.76)
	Service/Sales/Commercial	23 (8.5)	6 (5.4)	0.82 (0.30, 2.25)	1.21 (0.36, 4.08)
	Unemployed	32 (11.8)	17 (15.3)	1.68 (0.80, 3.52)	0.78 (0.31, 1.93)
	Other	6 (2.2)	3 (2.7)	1.58 (0.37, 6.78)	4.92 (0.76, 31.97)
Educated children in the household	No	100 (36.8)	36 (35.1)	1	1
	Yes	172 (63.2)	72 (64.9)	1.07 (0.68, 1.70)	0.94 (0.47, 1.87)
Family size	≤ 5	113 (41.5)	54 (48.6)	1	1
	> 5	159 (58.5)	57 (51.4)	0.75 (0.48, 1.17)	1.08 (0.57, 2.05)
Household income	Less than 2000	34 (12.5)	44 (39.6)	1	1
	2001-4000	146 (53.9)	61 (55.0)	0.32 (0.19, 0.55)	0.23 (0.11, 0.45)*
	Above 4001	92 (33.8)	6 (5.4)	0.05 (0.02, 0.13)	0.03 (0.01, 0.09)*
Heard about latrine construction, use, and maintenance	No	47 (17.3)	11 (9.9)	1	1
	Yes	225 (82.7)	100 (90.1)	1.90 (0.95, 3.81)	1.15 (0.48, 2.74)
Source of information	Professionals only	69 (25.4)	7 (6.3)	1	1
	Local people only	9 (3.3)	19 (17.1)	20.81 (6.85, 63.18)	14.69 (4.23, 50.96)*
	Professionals and local	162 (59.6)	64 (57.7)	3.89 (1.70)	2.67 (1.06, 6.69)*

	people			8.93)	
	All sources of information	32 (11.8)	21 (18.9)	6.47 (2.49, 16.77)	2.12 (0.64, 7.08)
Aware of the consequences of open defecation	No	59 (21.7)	15 (13.5)	1	1
	Yes	213 (78.3)	96 (86.5)	1.77 (0.96, 3.28)	3.73 (1.67, 8.31)*

4.9 Qualitative findings

Latrine availability and choice

Many of both adopter and non-adopter qualitative study participants know the various types of latrines. This includes pit latrine with slab, flush/pour latrine, Ventilated Improved Pit Latrine (VIP), traditional latrine, and unprotected latrine. Latrine adopters had reported on the different types of latrines they owned based on their capacity. FGD participants explained this saying:

“Most of the different types of latrines are available in our area and every household builds according to his/her capacity. Some households have VIP latrines, others have traditional latrines, and pit latrines with slab” Anood kebele Female FGD participants.

“Rural villages didn’t often use latrines, rather they use open defecation, but those who use latrines have traditional pit latrines. VIP latrines have also been used by some better of households” Kora Kebele KII participant.

The key informant from an NGO explained, “traditional pit latrines are the commonly used ones with an average depth of 2m-5m depending on the ground water table and nature of the soil. Most of the pits are not lined. The key informant also added, “Two types of latrines are commonly available- onsite and offsite. Those onsite are where the slab is directly attached to the pit, whereas in the off-site latrines the slab is linked to a septic tank via a sloppy vent pipe that uses a lot of water which is a typical culture of Somali people”.

Many of the adopters had VIP latrines and it was also the most preferred latrine. FGD participant stated that: *“The favorite latrines are VIP and pit latrine with slab, because of ventilation, safety/protection, easy for cleaning, and prevents falling off, especially children.” Kora Kebele Male Latrine adopter FGD participants.*

The key informant from an NGO explained, *“Households adopt different types of latrines depending on their economy-those better off households use VIP latrines which are a kind of offset latrines with slab and floor made of cement and attached vent pipes. Those who are less able economically, use traditional pit latrines by covering the slab with wood and putting some plastic sheets and covering it with soil.”*

The key informant from the regional health bureau explained, *“VIP and traditional latrines with square and circular pits are commonly used ones. The superstructures are constructed from locally made mud bricks and woods”.*

Similar information was also received from the sanitation service providers. “A latrine that can be used for many years and ensure protection and safety are the attributes of latrine always asked by the head of the household”.

Importance of owning a latrine

According to many adopter FGD participants, the latrine was the most important place for defecation to enhance health and prevent diseases. Latrine also provides privacy and ensures environmental hygiene and sanitation.

“A good place for defecation is using latrines like house latrines which are easy to clean, comfortable and ensure privacy. Utilizing latrines protect our health and prevents disease, as well as important for environmental hygiene and sanitation.” Male FGD participants from Anood Kebele.

Latrine requires everyday cleaning to avoid the potential bad smell and flies around it. These were the most disliked features of latrines among adopters as well as non-adopters. which was considered a barrier to building latrines. A participant explained this:

“No dislike regarding our latrines except some which have some smell and fly nuisance and the need for everyday cleaning.” Kora Kebele Female latrine adopter FGD participants.

“Bad odor from the latrine is a barrier to constructing latrines” NGO worker KII participant.

The key informant from NGO also highlighted traditional beliefs as a barrier to owning a latrine.

“Sometimes households believe that latrines are the sources of hemorrhoid. Those shallow onsite pit latrines with no ventilation, when the sun is hot, they believe something come out from the pit to cause hemorrhoid”.

On the other hand, most latrine adopters want to improve the overall structure of their latrines. A participant explained this saying:

“The improvement that we would like to see is updating the whole structure including floor, wall, slabs, separation of latrine and the shower room.” Kora Kebele Female latrine adopter FGD participants.

Decision-making to build a latrine

Many respondents stated that husbands were the main decision-maker to build latrines among latrine adopters. Then, spouses were the immediate person to be consulted on the issue. Friends, neighbors, other family members, health professionals, and local governors participated in the decision by providing advice. However, there were no bylaws relating to sanitation that influenced people to decide and build a latrine. A participant mentioned this by saying the following:

“Mostly our families and friend are involved in the decision in building our latrines by providing advice, even though, the final decision is made by the household head.” Anood Kebele Male latrine adopter FGD participants.

“There were no bylaws that enforce or influence this in our area....” Kora Kebele Male latrine adopter FGD participants.

Latrine construction process and constraints

Having the necessary money and availability of masons for the construction of latrines makes the latrine construction process easy. However, getting that money, the firm ground structure for excavation, and transportation of latrine construction materials were the main constraints for constructing a latrine. On the other hand, the money that masons ask for was also another main constraint in the latrine ownership process. These constraints also prevented non-adopter from realizing the latrine construction intention. Participants explained this as follows:

“Now we don’t have enough money for latrine construction. Shortage of money and lack of resources are the main constraints. On the other hand, in our area, the ground is very hard to dig, so it needs more money for constructing a latrine.” Kora kebele Latrine non-adopter Male FGD participant

“... The factors that make it hard were masons requested too much money, some part of our ground is hard to excavate, and some materials come from other towns were expensive.” Anood kebele Latrine adopter Female FGD participant

“I want to construct a latrine in my home. I am in the process of saving money. Latrine construction isn't easy; it needs more money and time to save money” Anood kebele Female latrine non-adopter FGD participant.

“The major problems or difficulties people faced in latrine construction are hard soil/ground structure and transportations of latrine construction materials from town.” Anood Kebele service provider KII Participant

“Transportation is another main challenge for the latrine construction process. Some woredas are sometimes hard to reach and the cost of transportation became very high. So, they are forced to use locally available materials for latrine construction.” NGO worker KII participant.

“It is difficult to dig in this area which is very hard ground. Digging more than a meter is difficult. Therefore, in such a situation masons need more assistants and request us more money. Masons pour water into the pit, so it becomes soft and this is the only way that we solve issues related to digging hard grounds” Kora kebele Latrine adopter Male FGD participant.

“Household economy, affordability and willingness to pay, commitment from the woreda to enforce households to construct latrines are the key constraints”. NGO and regional Health bureau workers-KII Participants.

Moreover, latrine construction is a process that requires time. According to the study participant, this process requires around a year. The main task in this period was saving money to cover the overall latrine construction cost including the mason's fee. A study participant explained this:

“The process takes nearly a year from deciding to constructing a latrine, and the main factor determining to build was saving of money that takes at least one year.” Anood kebele Female latrine adopter FGD participant.

According to many FGD participants, masons were the right person to construct quality and reliable latrines. Masons were also available in the area and built a lot of latrines for the community members. The main challenge is the cost they ask to construct the latrine. On average, they will ask around 5000

Ethiopian Birr to construct a single latrine. Overall, the cost of a latrine may reach 10,000 ETB in the current context.

“The advantage of hiring a mason is that they are knowledgeable about latrines, and they construct quality and reliable latrines. But they ask too much money and took time for building it” Anood kebele Female latrine adopter FGD participant.

“Nowadays, constructing a latrine may take around 10,000 birr...” Kora kebele Male latrine non-adopter FGD participant.

The sources of latrine construction materials are small towns and woreda capitals, and getting the supplies is constrained by several factors. The NGO worker KII highlighted,

“The materials mostly used in the study areas are PVC pipes or Vent pipes, and cement which are mostly transported from woreda capital. Households willing and able to transport the items pay for the truck owners who usually bring food supplies to the kebeles from the woreda capital. Sand and gravel are easily available to use for floor concrete/slab/. For the superstructure, the household uses corrugated iron sheets purchased from the local market. If not, available they use mud bricks locally made to construct the superstructure.

“Key challenges include high prices, transportation, accessibility, and proximity to the woreda capital. In areas where the kebele is hard to reach, they use locally available materials such as old thermos flasks/plastic bottles to join together to make a form of PVC pipe for ventilation”.

On the other hand, lack of awareness about sanitation, open defecation, and latrine utilization were barriers for households to constructing a latrine. The participants explained this as follows:

“Lack of awareness among community members, and lack of understanding on the impacts of not having a latrine are barriers for constructing a latrine” NGO worker KII participant.

Latrine use and defecation place

Most household members from latrine adopters use latrine to defecate. But some people didn't use latrines such as the elderly and children, especially during nighttime. During the nighttime and rainy seasons, some of the household members practice open defecation. Study participants explained this saying:

“Yes, there are people who didn't use the latrine: the elderly and children, especially during nighttime. They used open defecation” Anood kebele Female latrine adopter FGD participant.

On the other hand, members of latrine non-adopter households currently share their neighbor's latrine and practice open defecation. However, defecating in a neighbor's latrine was frowned upon in the community, and the elderly, children and the sick were unable to do so, contributing to the practice of open defecation. A participant explained this as follows:

"We defecate in our neighbors' latrines since our neighbors have agreed to share theirs, and we don't have the funds or the opportunity to build a latrine." Kora kebele Male latrine non-adopter FGD participant

"... It is far away from my house, and sharing someone's latrine is not good, so it is not a shame to practice open defecation. It is better than using neighbors or shared latrines." Anood kebele Male latrine non-adopter FGD participant

"Rural villages don't often use latrines they use open defecation and those who use latrines, have traditional pit latrines." Kora Kebele KII participant

Furthermore, because of a shortage of lights and a belief that the latrine had become a home for the evil/demon, household members' latrine utilization was greatly influenced at night. Study participants explained this as follows:

"Most of them are satisfied with the latrine, but they dislike using it during nighttime. They believe the latrine is the house of evil at night as a result, the elderly and children used open defecation at night." Anood kebele Female latrine adopter FGD participant

Many participants said that keeping the latrine clean was crucial for latrine utilization, and female household members are in charge of doing so. Participants explained this as follows:

"Females are responsible for cleaning ... But, if the household doesn't have a female member, it is difficult to keep clean, and their latrines are always dirty" Kora kebele Male latrine adopter FGD participant.

Source of information

Better access to information, knowledge, and awareness increases latrine ownership. The government, NGOs, and community leaders are the main source of information and the best communication channels considered by the community. Study participants explained this as follows:

“We can get from government health workers, community leaders, and sometimes NGOs” Anood kebele Male latrine adopter FGD participant.

“Information provision is one of the key factors to motivate people to construct latrines.” NGO worker KII participant

On the issues of less engagement at the local level to promote better ownership and utilization of latrines, the regional health bureau, and NGO worker KII participants explained as follows:

“Traditional leaders- clan leaders, religious leaders- have a great influence on the people they locally administrator. The male-dominant health extension workers have less impact in promoting sanitation behaviors as most of the sanitation activities are managed by women. Furthermore, the lack of strong linkage between the woreda/kebele leadership and health extension workers in terms of creating a common understanding toward improving the desired sanitation behavior is another concern. If the kebele level leadership get continuous training and awareness on the health extension packages, they can better support the HEWs and mobilize the community”.

5. DISCUSSION

The purpose of this cross-sectional study was to assess factors associated with latrine ownership and utilization among households in Babille woreda, Fafan zone, Somali Region. The study highlighted the percentage of latrine utilization as well as how various factors interact to influence latrine ownership and utilization behavior in the study area. In this study, more than half of households (59.5%) had owned any type of latrines. However, only about one-third of them (29.0%) utilized the facilities for defecation. In the analysis district, sex, occupation, income, being aware of latrine construction, use, maintenance, and sources of information were significantly associated with latrine ownership. Whereas income, awareness of the consequences of open defecation, and sources of information were significantly associated with latrine utilization.

According to the finding, the ownership of any type of latrine in the study area was 59.5%. This study finding shows an improvement in the level of latrine ownership reported by studies in the past decade in Ethiopia. Furthermore, this study finding is in line with the national 2016 Ethiopian Demographic and Health Survey report, which found that 39% of rural households had no toilet facilities [23]. In the current 2019 EMDHS, more than one in four households (27%) in Ethiopia have no toilet facility (35% in rural areas and 10% in urban areas)[24]. The latrine ownership percentage in this study is less than the national EDMHS report. Variations were reported on the ownership of latrines in previous Ethiopia studies: 58.4% in Bahidar Zuria [25], 50.2% in rural Hulet Ejjū Enessie Woreda [26]; 32.3% in five districts of the Amhara region [27], 35.7% in rural villages of the Tigray region[28], 73% in Becho district [29], 47% in the Dabat district [30], 88.0% in Ilu Aba Bor Zone Southwest Ethiopia [31]. Similarly, 64.0% of the Democratic Republic of the Congo [21], 30% of the rural areas in southern India [19], and 76.9% of the rural village of Morang district in Eastern Nepal had latrines [20]. The discrepancy could be attributed to the difference in socioeconomic status, availability of latrine building materials, livelihoods of the population, and enrollment of urban households in some studies. For example, the livelihoods in Somali Region, Ethiopia are primarily based on both pastoralism and agro-pastoralism. Pastoralism is widely practiced in arid and semi-arid lands. Pastoral communities seasonally migrate from their usual place of residence to commonly known places in search of pasture and water for their livestock. This non-sedentary lifestyle of pastoralism may influence the latrine ownership rate in the study area. On the other hand, the climate or difference in the temperature may contribute to such discrepancy by affecting the land and soil structures. Previous studies also reported that households in highland climate zone were more likely to adopt latrines compared to their counterpart lowlanders [26], [30].

The present study also found that only 29.0% of household members utilized latrine for defecation. This study's finding is lower than what was reported by a systematic review in which nearly half of the households in Ethiopia utilized latrines [32]. Various levels of latrine utilization with some level of geographical variations were reported in previous studies in Ethiopia : 45.2% in rural Hulet Ejju Enessie Woreda [26]; and 37.4% in Hawzen district [33], 79% in Becho district [29], 71.8% in Alansha district of South Wollo [34], 88.8% in Tullo District of West Harargie [35], 36% in Ilu Aba Bor Zone in Southwest Ethiopia [31], 60% in Chencha District, Southern Ethiopia [36], 41.9% Takussa District, Northwest Ethiopia [37], 58.9% in the Laelai Maichew district, northern Ethiopia [38], 45.4% in the East Gojjam Zone [39], 61.2% in Denbia, North Gondar [40], 91.2% in Mehal Meda Town of North Shewa Zone, Ethiopia [41], and 47.4% in Maichew District [42]. A possible explanation for this difference may be due to the difference in the study areas. This study was conducted in rural and small rural town areas, whereas the other ones were done in the urban and semi-urban areas, and it is clear that the awareness of latrine utilization among urban dwellers is better than the rural residents. Some other studies were focused on model families and non-model families. The observed differences could also be partly explained by the difference in the implementation level of the health extension program and the CLTSH approach implemented in the study population [63].

In this study households in the Kora district had lower ownership than those in the Anod district. This may be due to differences in socio-demographic factors and access to latrine-related information and latrine-building materials. The difference in land structure, climate, and temperature may contribute to this discrepancy. In this regard, Zeleke et al. and O'loughlin et al. reported that households in highland areas are more likely to own latrines than their lowland counterparts [26], [30]. The likelihood of latrine ownership was 2-fold higher among female-headed households than in households headed by male counterparts. Occupation was the other factor associated with latrine ownership. Working daily labor and being unemployed were associated with 63% and 82% lower odds of latrine ownership respectively. This is consistent with findings from the Tigray region where government employees were more likely to adopt latrines than unemployed [28]. The study findings from Benin also reported occupation was related to ownership of a latrine [58]. A study from Zimbabwe revealed that there was less likelihood of adopting a latrine by a household whose main source of income was paid labor than one with gainfully (self)-employed members [64]. A possible explanation could be that daily labor earns little and can only cover daily expenses or meet critical needs of their families, and unemployed people have few opportunities to receive support from relatives and friends, so having latrines at home is the least important priority.

Poverty seemed to stifle prestige drives for latrines, while wealthier individuals could afford and might need the material symbols of status [58]. In this regard, the cost is one of a barrier to the ownership of latrines. Evidence shows that increasing household income significantly increased the likelihood of adopting a latrine [64]. In contrast to the previous study findings [25], [27], in this study, the likelihood of owning a latrine was lower in households that had a higher income than those with a lower income. This could be explained in rural areas materials for the construction of superstructures and substructures (pit digging and lining) were mainly from locally available resources and household members are responsible for the excavation and construction of superstructures. This may not require a higher household income. Another explanation could be that the availability of improved technology options and latrine designs are limited for better off households to show off the material symbol and social status in their neighborhood, which inhibits their drive.

Knowledge of alternative sanitation options was one of the significant factors that determine latrine ownership. In the current study, household heads who heard about latrine construction, utilization, and maintenance were 2.26 times more likely to own latrines than their counterparts. Ngondi et al., also reported that having received health education was associated with increased latrine ownership [27]. A study done in Zimbabwe reported that a house head with knowledge of at least three on-site rural sanitation options was significantly less likely to adopt a BVIP latrine than one who did not know [64]. This study also revealed that household heads who received information from local people only (including religious leaders), were 13.62 times higher to adopt latrines than households received information from health professionals only. This could be explained by in the study area local people, including religious leaders were the most accepted source of information in all matters including health. The Religious leaders were the enlightened members of the Somali community and highly respected within the Somali community because of their knowledge and expertise in Islamic law and thus entrusted with leadership on issues affecting the community. On the other hand, the male dominated health extension workers not proven successful in promoting sanitation behaviors as most of the sanitation activities are closely linked to women. In contrast to this finding, a study done in the Tigray region reported that households who received latrine Information, Education and communication (IEC)C by Health Extension Workers (HEWs) were more likely to adopt latrines [25].

This study also found that latrine utilization was higher in households with lower monthly incomes than those with higher incomes. This finding is in contrast with previous research evidence [31], [33], [65] in which higher household income is associated with consistent utilization of the latrine. This discrepancy may need further study. The odds of consistent latrine utilization among household heads who received

information from local people only were 14.69 times higher as compared to those household heads who received information from professionals only. This could be related to the male-dominated health extension workers, limited capacity at the woreda level to regularly monitor and support HEWs, and lack of strong linkage between the kebele level leadership and woreda health professions in promoting the health extension packages. Similarly, a study report from the Tigray region revealed that receiving latrine information from Women Development Armies leads to better latrine utilization at the household level [28]. In most parts of rural Ethiopia, people are socially interconnected that can be explored in enhancing an individual's ability to own a latrine or to utilize it consistently. Policies, strategies, and leadership regarding latrine ownership need to consider this rich social capital while developing and implementing such programs. However, this may require further investigation in affluent society. Latrine utilization was 3.73 times higher among household heads who were aware of the consequences of open defecation than their counterparts. Similarly, Ojjira [31] reported that respondents who had heard information about latrines were more likely to utilize them compared to their counterparts. This is because the information about latrine might increase the knowledge and awareness levels of households regarding human waste management and human health necessitating the need for health education and promotion among non-adherent households and communities.

6. CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The results of the study showed that 59.5% of households in the Babilie district owned any kind of latrine. However, only one-third of households consistently utilized the latrine for defecation, which requires critical attention. Latrine ownership was positively associated with sex of the household particularly the female headed households, sources of information including religious leaders, health workers and community health workers and hearing about latrine construction, use, and maintenance. Whereas occupation (working daily labor and being unemployed), and household income were negatively associated with latrine ownership. Latrine utilization, on the other hand, was positively associated with awareness of the consequences of open defecation and information sources, but negatively associated with household income status. Health professionals working in the area are required to consider the difference in latrine ownership disparities among sex of household head, occupation, and household income. Communities should also be encouraged to initiate the construction of their own latrines using locally available materials. Strengthening health messaging and raising awareness should be prioritized and closely coordinated with primarily local people, including religious leaders and community health workers.

6.2 Recommendations

6.2.1 Local Administrations and Health Office

- Prior to conducting sanitation interventions, public health experts/health professionals working in the study areas should acknowledge behaviors, norms, and disparities in latrine ownership and utilization among communities in different kebeles.
- In the study areas, there are multiple levels of impediments to the ownership and utilization of latrines. The district administration and relevant sector offices should consider drafting an ordinance based on the Public Health Promotion Guideline, which will subsequently be escalated in the form of bylaws at the kebele level administrations. Besides, communities should also be encouraged to build their latrines using locally available materials and by providing training on some engineering skills of latrine construction at the community level based on the contextual soil circumstances as opposed to waiting for external assistance in the form of subsidies.
- Strengthening health messaging and awareness creation activities mainly by local people including religious leaders, kebele administrators and the women's development army would have impact in increasing latrine ownership and utilization. Furthermore, targeted health promotion campaigns should promote various technological solutions to reduce household fatigue in the construction and

reconstruction of latrines, as well as use context-specific approaches and applicable methodology to encourage latrine ownership, utilization and maintenance. The linkage among the kebele level administration, health extension workers, and woreda level health professionals needs to be systematically laid out and strengthened accordingly. Continuous supervision and awareness creation should be planned and reviewed on a regular basis to keep the communities engaged in influencing their sanitation behavior toward positive outcomes.

6.2.2 Zonal Health Department, Regional health Bureau, and Minister of Health

- A multisectoral approach to sanitation needs to be adopted to ensure improvement in sanitation practices in Babille woreda, Fafan zone. There is a need to develop strategies and innovations in latrine construction for pastoral community family members who remain at home as well as those who move elsewhere. Furthermore, sanitation initiatives should be designed alongside those that increase community responsiveness to sanitation practices, such as increasing household income, as complementary programs.
- Strengthen local leadership as well as existing community and government structures to ensure a sustained improvement in sanitation initiatives. Concurrent efforts should be made to ensure that relevant government agencies, civil society organizations, and private organizations work together in a district-wide manner to ensure a common approach to promote desired sanitation behaviors.

6.2.3 Researcher

- Further research is needed to explore environmentally feasible and affordable latrines and factors affecting active engagement and impact of health extension workers at the kebele level in influencing communities to adopt improved sanitation behaviors.

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8. ANNEXES

8.1 Annex 1- HH survey Questionnaire

Consent form:

Good morning/Afternoon/Evening (as appropriate). My name is _____ and I am from Addis Ababa University, Ethiopian institute of water resources, and representing the lead researcher. Currently, we are researching to assess factors influencing the ownership and utilization of latrines in selected kebeles, Babille Woreda, Fafan Zone, Somali Region.

As part of the research, we are interviewing a wide cross-section of communities and you are selected to participate in the study. If you are willing, I would like to ask you some questions. You should know that participation in this interview is completely voluntary, and you have the right to decline to participate. At any time, you may also terminate the interview for any reason without needing to explain your decision. I am not asking for your name, and your name will not be disclosed or used. I would also like to assure you that the information you are going to provide me will be kept confidential, and at no time will we record or use individual names. The information you provide will not be shared with anyone. It will be analyzed collectively with other sources of information and will be presented anonymously.

The Interview that we conduct with you will take about 40 minutes. Please remember that you are the expert, and I am here to learn from you. Please don't tell us what you think I might want to hear. Tell us what you think. Tell us your views whatever they are. Hence, please note that we are not looking for right or wrong answers.

Are you willing for the interview? Yes_____ No_____ [If no, thank him/her and leave]

If yes, proceed with the interview.

A. Interview Identification

Name of Interviewer:	
Date	
Start time and end time	

B. Study Area

Region/Woreda	
Kebele	
Sub Kebele	

C. Socio-demographic and background characteristics

1	Household code	
2	The target group of the household/head	<ol style="list-style-type: none"> 1. Adopters 2. Non-adopters
3	Sex of respondent	<ol style="list-style-type: none"> 1. Male 2. Female
4	How old are you?	_____ Years
5	How many family members live in the household?	<ol style="list-style-type: none"> 1. One 2. Two 3. Three 4. Four 5. Five 6. Six 7. More than six
6	What level of schooling did the head of the household achieve?	<ol style="list-style-type: none"> 1) Cannot read and write(Illiterate) 2) Informal or religious education 3) Primary (1-6) 4) Junior (7-8) 5) Secondary (9-12) 6) College 7) University
7	Are there children attending school?	<ol style="list-style-type: none"> 1. Yes 2. No
8	If yes, what level of schooling?	<ol style="list-style-type: none"> 1. Informal or religious education 2. Primary (1-6) 3. Junior (7-8) 4. Secondary (9-12) 5. College

		6. University
9	What is the occupation of the head of the household?	<ol style="list-style-type: none"> 1. Professional/technical 2. Pastoralist 3. Agriculture 4. Daily laborer 5. Civil service/Government employee 6. Service/sales/commercial/Trade 7. Student 8. Unemployed 9. Other, specify_____
10	What is the average monthly income of your household (in Birr)?	<ol style="list-style-type: none"> 1. < 500 2. 501-1000 3. 1001-2000 4. 2001-3000 5. 3001-4000 6. 4001-5000 7. > 5000
D	Information and media	
11	Have you ever received information/advice on water and sanitation?	<ol style="list-style-type: none"> 1. Yes 2. No
12	<p>What type of information/advice have you heard before?</p> <p>[Multiple responses allowed]</p>	<ol style="list-style-type: none"> 1. Drink safe water 2. Latrine use and maintenance 3. Latrine construction 4. Wash hands/face/body 5. Ceasing open defecation 6. Other, specify_____
13	<p>What was the source of the information/advice?</p> <p>[Multiple responses allowed]</p>	<ol style="list-style-type: none"> 1. Family members 2. Neighbors 3. Community health workers 4. Health extension workers 5. NGO workers 6. Health workers 7. Teachers 8. Religious leaders 9. Electronic media (TV and Radio)

		<ul style="list-style-type: none"> 10. Newspaper/magazine 11. Other (specify) _____
14	<p>In your opinion, which of the following would be able to give trustworthy/useful information about latrine ownership and use?</p> <p>[Multiple responses allowed]</p>	<ul style="list-style-type: none"> 1. Family members 2. Neighbors 3. Community health workers 4. Health extension workers 5. NGO workers 6. Health workers 7. Teachers 8. Religious leaders 9. Electronic media (TV and Radio) 10. Newspaper/magazine 11. Don't know 12. Other (specify) _____
15	<p>Are you aware of the consequences of open defecation?</p>	<ul style="list-style-type: none"> 1. Aware 2. Unaware
16	<p>What type of information/advice do you want to get on sanitation?</p> <p>[Multiple responses allowed]</p>	<ul style="list-style-type: none"> 1. Latrine construction knowledge and skill 2. latrine use 3. Latrine maintenance 4. Various latrine options and technologies 5. Access to latrine construction materials 6. Nothing 7. Don't know 8. Other, specify _____
E	Households own and use any type of latrine facilities (Adopters)	
17	<p>What type of latrine do you know?</p> <p>[Multiple responses allowed]</p>	<ul style="list-style-type: none"> 1. Flush/Pour latrine 2. Pit latrine with slab 3. Pit latrine without slab/open pit 4. Ventilated Improved Pit(VIP) latrine 5. Composting latrine 6. Other (specify): _____
18	<p>Which of these types of latrines have you learned about for the first time in the past year?</p>	<ul style="list-style-type: none"> 1. Flush/Pour latrine 2. Pit latrine with slab 3. Pit latrine without slab/open pit 4. Ventilated Improved Pit(VIP) latrine

		<ul style="list-style-type: none"> 5. Composting latrine 6. Other (specify): _____
19	Where/how do you learn about latrines? [Multiple responses allowed]	<ul style="list-style-type: none"> 1. Community meeting 2. Village chief 3. Neighbor 4. Health Extension Workers 5. Mason 6. Radio/TV 7. Paster/Picture 8. Billboard advertisement 9. NGO/Agency Workers 10. Government representatives 11. Other, specify _____
20	Do you have your latrine?	<ul style="list-style-type: none"> 1. Yes 2. No
21	If yes, what type of latrine do you have? (OBSERVE)	<ul style="list-style-type: none"> 1. Flush/Pour latrine 2. Pit latrine with slab 3. Pit latrine without slab/open pit 4. Ventilated Improved Pit(VIP) latrine 5. Composting latrine Other (specify): _____
22	If yes, is the latrine functioning now? (OBSERVE)	<ul style="list-style-type: none"> 1. Yes 2. No
23	Do adults in your household use the latrine for defecation in the dry season?	<ul style="list-style-type: none"> 1. Always 2. Sometimes 3. Never 4. Don't know
24	Do adults in your household use the latrine for defecation in the rainy season?	<ul style="list-style-type: none"> 1. Always 2. Sometimes 3. Never 4. Don't know
25	Do children in your household use the latrine for defecation in the dry season?	<ul style="list-style-type: none"> 1. Always 2. Sometimes 3. Never 4. Don't know

26	Do children in your household use the latrine for defecation in the rainy season?	<ol style="list-style-type: none"> 1. Always 2. Sometimes 3. Never 4. Don't know
27	If you don't own a latrine, where would you and your family go to defecate? (Don't read options, check all that apply)	<ol style="list-style-type: none"> 1. Shared latrine 2. Public latrine 3. Neighbor's latrine 4. Relative's latrine 5. Others, specify _____
28	How satisfied are you with your current latrine?	<ol style="list-style-type: none"> 1. Very satisfied 2. Satisfied 3. Unsatisfied 4. Very unsatisfied 5. Don't know
29	If option 1 or 2 is selected, what is the most significant thing you are satisfied about the place you are defecating now?	<ol style="list-style-type: none"> 1. Supports privacy 2. Provides shelter 3. It is clean/ easy to clean 4. No/Minimal bad smell 5. No flies/Minimal fly nuisance 6. Not shared 7. Good condition/No damage 8. Safe for children 9. Long-lasting/durable 10. Short distance 11. Modern 12. Convenient to use during the night 13. Availability of materials for anal cleansing 14. Other, specify _____
30	If option 3 or 4 is selected, what is the most significant thing you are dissatisfied about the place you are defecating now?	<ol style="list-style-type: none"> 1. No roof 2. No door 3. Full 4. Bad smell 5. Fly Nuisance 6. Dirty/Unclean 7. Unsafe 8. Temporary 9. Others, Specify

31	If Q# 20 is no, why?	<ol style="list-style-type: none"> 1) Dirty 2) Full 3) No water to flush 4) Slab broken 5) Superstructure broken/Missing 6) Not finished building 7) Used as a storage 8) Bad smell 9) Fly Nuisance 10) Prefer the field/forest 11) Others, Specify
32	If Q# 20 is no, why did you build this latrine in the first place?	<ol style="list-style-type: none"> 1) The program was offering a subsidy 2) Someone told me I had to 3) Had enough money to construct 4) Sick/old family members 5) Social norms 6) Local sanction/enforcement 7) Construction of a new house 8) Neighbor got one 9) Event(wedding/funeral/new year) 10) Had visitors outside the village coming 11) Don't know 12) Other, specify _____
33	If you have your latrine, what kind of ground structure does your latrine has?	<ol style="list-style-type: none"> 1. Unlined pit-onset 2. Lined pit-onset 3. Lined pit-offset 4. Piped sewage 5. Don't know 6. Other, specify _____
34	What kind of slab does your latrine have?	<ol style="list-style-type: none"> 1. Open hole-wooden slab 2. Open hole-Concreate slab 3. Pour flush 4. Plastic San plate 5. No slab

35	What kind of shelter wall does your latrine have?	<ol style="list-style-type: none"> 1. Galvanized steel 2. Wood 3. Thatch/straw 4. Plastic sheet 5. Mud plasters 6. No walls 7. Other, specify _____
36	What kind of shelter roof does your latrine have?	<ol style="list-style-type: none"> 1. Galvanized steel 2. Wood 3. Thatch/straw 4. Plastic sheet 5. Salvaged materials 6. No roof 7. Other, specify _____
37	Is the latrine you are using now your first one?	<ol style="list-style-type: none"> 1. Yes 2. No 3. Don't know
38	How many other latrines did you build before this one?	<ol style="list-style-type: none"> 1. One 2. Two 3. Three 4. Four 5. Five 6. Six 7. Seven 8. More than seven
39	<p>In what ways is your current latrine different from your old one?</p> <p>[Multiple responses allowed]</p>	<ol style="list-style-type: none"> 1. The pit is now lined 2. Walls are improved 3. Roof is improved 4. Slab is improved 5. Door is improved 6. Has ventilation 7. Has bathing area 8. Has handwashing area 9. Pan is now poured flush 10. Other, specify _____

40	When was your first latrine built? [Year] [Best estimate]	_____ year
41	Who made the final decision to build your first latrine?	<ol style="list-style-type: none"> 1. Head of household 2. Head of household and spouse jointly 3. Spouse 4. Children 5. Family together 6. Other, specify_____
42	What made you decide to build your first latrine at the time you did? [Multiple responses allowed]	<ol style="list-style-type: none"> 1. The program was offering a subsidy 2. Someone told me I had to 3. Had enough money to construct 4. Sick/old family members 5. Children become physically mature 6. Social pressure 7. Local sanction/enforcement 8. Construction of a new house 9. Neighbor got one 10. Event(wedding/funeral/new year) 11. Had visitors outside the village coming 12. Just needed one for my family 13. Other, specify _____
43	Did you receive assistance from any organization to build your latrine?	<ol style="list-style-type: none"> 1. Yes 2. No 3. Don't know
44	If yes, what assistance did you receive from the organization?	<ol style="list-style-type: none"> 1. Free/Subsidized materials 2. Free/Subsidized labor 3. Loan 4. Technical advice 5. Design provided 6. Encouragement 7. Others, specify _____
45	If no, how much did you pay for your latrine (in birr)?	<ol style="list-style-type: none"> 1. Material 2. Labor 3. Value unknown

46	Did you build your latrine all at one time or in stages	<ol style="list-style-type: none"> 1. All at once 2. In stages 3. Don't know
47	How long did it take to complete your latrine?	<ol style="list-style-type: none"> 1. Less than two weeks 2. 3-4 weeks 3. 1-6 months 4. 7-12 months 5. More than 13 months 6. Not yet completed
48	How important is spending money for a good latrine to your family?	<ol style="list-style-type: none"> 1. Very important 2. Quite important 3. Not so important 4. Not important at all 5. Don't know
49	<p>What are the advantages of owning a latrine?</p> <p>Multiple responses allowed</p>	<ol style="list-style-type: none"> 1. Improved hygiene and health/avoid disease 2. More privacy 3. More comfort 4. Convenience/save time 5. Easy to clean 6. Improved safety 7. Avoid contaminating the environment 8. Improved status/Prestige 9. Guests can use it 10. Reduce medical expense 11. No advantage 12. Don't know 13. Others, specify
50	<p>What are the disadvantages of owning a latrine?</p> <p>Multiple responses allowed</p>	<ol style="list-style-type: none"> 1. Bad smell 2. Attracts flies 3. Cost to maintain it 4. Work to maintain it 5. Other people come to use it 6. Affects groundwater quality 7. Overflows 8. Soft soil/Pit collapse

		<ul style="list-style-type: none"> 9. Children fall into the pit 10. No disadvantages 11. Don't know 12. Other, specify _____
51	What kind of latrine would you prefer for your household?	<ul style="list-style-type: none"> 1. Flush/Pour flush 2. Pit latrine with slab and complete superstructure 3. Ventilated Improved Pit (VIP) latrine 4. Composting latrine 5. Other, specify _____
52	<p>What particular features do you like the most about your preferred latrine?</p> <p>[Do not read options, Multiple responses allowed]</p>	<ul style="list-style-type: none"> 1. Comfortable 2. No smell 3. No flies 4. Don't see feces 5. Easy to clean 6. Don't need water to flush 7. Privacy 8. Convenience 9. Safety/protection 10. Less expensive 11. Other, specify _____
53	In the future, do you plan to make changes/improvements to your latrine?	<ul style="list-style-type: none"> 1. Yes 2. No 3. Don't know
54	How are you going to pay for improving your latrines?	<ul style="list-style-type: none"> 1. From my income 2. Borrow money from family 3. Borrow from friends 4. Borrow from employer 5. Borrow from a Credit organization 6. Don't know 7. Others, specify _____
55	<p>If yes, what changes/improvements do you want to make?</p> <p>[Do not read options, Multiple responses allowed]</p>	<ul style="list-style-type: none"> 1. Line the pit 2. Improve the wall 3. Improve the roof 4. Improve the slab 5. Get sanitary pan

		<ol style="list-style-type: none"> 6. Add ventilation pipe 7. Build a water storage tank 8. Build bathing area 9. Build a door 10. Others, specify _____
56	If not, why?	<ol style="list-style-type: none"> 1. Least priority 2. Financial problem 3. Unavailability of construction materials 4. Lack of land for construction 5. The area/land is difficult to construct 6. Don't know how to improve/construct 7. No skilled person/builder in the area 8. Other, specify _____
57	<p>Who influenced you to construct the latrine?</p> <p>[Multiple responses allowed]</p>	<ol style="list-style-type: none"> 1. Family members 2. Neighbors 3. Community health workers 4. Health extension workers 5. NGO workers 6. Health workers 7. Teachers 8. Religious leaders 9. Electronic media (TV and Radio) 10. Newspaper/magazine 11. No one 12. Other (specify) _____
58	Did you hire anybody to build or help build your latrine?	<ol style="list-style-type: none"> 1. Yes 2. No
59	If yes, where are they from?	<ol style="list-style-type: none"> 1. From our village 2. From outside village 3. Don't know
60	<p>Why did you pick this person?</p> <p>[Don't read options, check all that apply]</p>	<ol style="list-style-type: none"> 1. Relative/friend 2. Had hired before 3. Has good skills and a reputation 4. Saw and liked the latrines they had built

		<ul style="list-style-type: none"> 5. Least expensive 6. Others, specify_____
61	If yes, how did you learn about this person?	<ul style="list-style-type: none"> 1. Community Meeting 2. Recommended by family 3. Relative/friend 4. Recommended by the latrine owner 5. Recommended by a village chief 6. Recommended by someone in the village 7. Recommended by a material supplier 8. Recommended by NGO/agency 9. Poster/Advertisement 10. Radio 11. Others, specify
62	If yes, who arranged the purchase?	<ul style="list-style-type: none"> 1. Hired person 2. Household 3. Both
63	Where did you buy the materials for building your latrine? [Select one where most of the materials are purchased]	<ul style="list-style-type: none"> 1. In my village/ kebele 2. Neighboring kebele 3. In nearby town 4. Don't know 5. Other, specify
64	What are the name and locations of the market where you purchased the materials?	<ul style="list-style-type: none"> 1. Name_____ 2. Location_____ 3. Don't know
F	Households who have no latrine (non-adopters)	
65	What type of latrine do you know? Multiple responses allowed	<ul style="list-style-type: none"> 1. Poor flush latrine 2. Pit latrine with slab 3. Pit latrine without slab/open pit 4. Ventilated improved pit (VIP) latrine 5. Compost toilet 6. Other (specify): _____
66	Where do people from this household currently defecate? [select the one most practiced]	<ul style="list-style-type: none"> 1. Open defecation 2. Neighbor's latrine 3. Public latrine 4. Latrine shared with other households 5. Other, specify _____

67	How satisfied are you with your current place of defecation?	<ol style="list-style-type: none"> 1. Very satisfied 2. Satisfied 3. Unsatisfied 4. Very unsatisfied 5. Don't know
68	<p>If option number 1 or 2 is selected, what is the most significant thing you are satisfied with the place you are defecating now?</p> <p>[Do not read options, Multiple responses allowed]</p>	<ol style="list-style-type: none"> 1. Supports Privacy 2. Convenient to use 3. Safety and comfort 4. Provided shelter 5. It is clean and easy to clean 6. No smell/ Minimal bad smell 7. No flies/Minimal fly nuisance 8. Good condition(no damage) 9. Safe for children 10. Short distance 11. Availability of materials for anal cleansing 12. Other, specify_____
69	<p>If option 3 or 4 is selected, what are you dissatisfied with the place you defecate now?</p> <p>[Do not read options, Multiple responses allowed]</p>	<ol style="list-style-type: none"> 1. Fear of dangerous animals 2. Fear of falling into the pit 3. Fly nuisance 4. Unclean/dirty 5. Unsafe 6. Others, specify_____
70	<p>Why did your household not construct a latrine?</p> <p>[Do not read options, Multiple responses allowed]</p>	<ol style="list-style-type: none"> 1. It is not common to use a latrine in our area 2. It is our culture to defecate in the open(our ancestors did it) 3. Most of the people I know defecate in the open/common practice 4. Financial problem 5. Unavailability of construction materials 6. Lack of land for construction 7. The area/land is difficult to excavate 8. Don't know how to improve/construct 9. No skilled person/builder in the area 10. Other, specific_____

71	Have you ever thought about or discussed building a latrine for your family?	<ol style="list-style-type: none"> 1. Yes 2. No
72	If yes, when was the last time you discussed this?	<ol style="list-style-type: none"> 1. Less than 1 month 2. 1-6 months 3. 7-12 months 4. More than 1 year
73	<p>If yes, why do you intend to construct a latrine?</p> <p>[Do not read options, Multiple responses allowed]</p>	<ol style="list-style-type: none"> 1. Need a latrine 2. Pressure from family 3. Pressure from community 4. Local sanctions 5. For improved health 6. Privacy and safety 7. Convenience 8. Other, specify _____
74	What kind of latrine do you intend to construct?	<ol style="list-style-type: none"> 1. Pour flush latrine 2. Pit latrine with slab and superstructure 3. Pit latrine without slab/open pit 4. Ventilated improved pit (VIP) latrine 5. Composting latrine 6. Other, specify _____
75	<p>What are the main reasons for selecting that type?</p> <p>Multiple responses allowed</p>	<ol style="list-style-type: none"> 1. Modern/ good style 2. Easy to clean 3. Affordable 4. Easy to construct 5. No smell 6. No flies 7. Safe for children/Children can use 8. No need to empty for a long time 9. Durable 10. Easy to improve 11. Don't See feces 12. Don't know 13. Other, specify _____
76	What is the main benefit/advantage of	<ol style="list-style-type: none"> 1. Privacy

	<p>having this new latrine?</p> <p>Multiple responses allowed</p>	<ol style="list-style-type: none"> 2. Avoid sharing with others 3. Avoid disturbing neighbors 4. Avoid embarrassment 5. Prestige/status 6. Convenience 7. Easy to keep clean 8. Every household must have a latrine 9. Avoid contaminating the environment 10. For good health/avoid disease 11. Reduce medical expense 12. Other, specify _____
77	<p>If not, why haven't you thought about constructing a latrine?</p> <p>[Multiple responses allowed]</p>	<ol style="list-style-type: none"> 1. Financial constraint 2. No land to construct a latrine 3. The area/land is difficult to excavate 4. Not knowing how to improve/construct 5. Happy with the defecation place for now 6. Difficult to get others to agree 7. No skilled person/can't find a builder 8. Can't find construction materials 9. Less priority 10. Other, specify _____
78	<p>Who in your household would make the final decision to build a latrine?</p>	<ol style="list-style-type: none"> 1. Household head 2. Spouse 3. Husband and wife jointly 4. Children 5. All (joint decision) 6. Other, specify _____
79	<p>If you are interested in having a person/mason build your latrine, do you know someone(a builder) who can help with the construction of the latrine?</p>	<ol style="list-style-type: none"> 1. Yes 2. No/Not yet identified 3. I will build my latrine 4. Don't know
80	<p>If yes, where are they from?</p>	<ol style="list-style-type: none"> 1. From my village 2. From outside village 3. Don't know
81	<p>Why did you pick this person?</p>	<ol style="list-style-type: none"> 1. Family member/Relative/Friend

	[Do not read options, Multiple responses allowed]	<ol style="list-style-type: none"> 2. Has good skill and reputation 3. Saw and liked a latrine they had built 4. Least expensive 5. Other, specify_____
82	How did you learn about this person? [Do not read options, Multiple responses allowed]	<ol style="list-style-type: none"> 1. Community Meeting 2. Recommended by family 3. Relative/friend 4. Recommended by the latrine owner 5. Recommended by a village chief 6. Recommended by someone in the village 7. Recommended by a material supplier 8. Recommended by NGO/agency 9. Poster/Advertisement 10. Radio 11. Others, specify_____
83	If you hired someone from outside the family to build the latrine, how much do you think it would cost (in Birr)?	_____ birr
84	Are you able to afford the cost to construct the latrine?	<ol style="list-style-type: none"> 1. Yes 2. No
85	If not, are you willing to cover the cost to construct the latrine on your own?	<ol style="list-style-type: none"> 1. Yes 2. No
86	If you built a latrine, what latrine construction materials will you use?	<ol style="list-style-type: none"> 1. Locally available materials 2. Locally unavailable materials(iron sheet, cement...etc.) 3. Mixed materials
87	What are the reasons for you selecting material types for latrine construction? [Do not read options, Multiple responses allowed]	<ol style="list-style-type: none"> 1. Cost of material 2. Materials that match the house 3. Materials that will last the longest/durability 4. Materials that give the most privacy 5. Accessibility of materials 6. Other, Specify_____
88	What are the problems related to the supply of latrine construction materials?	<ol style="list-style-type: none"> 1. Inconsistent availability/seasonal variability 2. Increase in price 3. Transportation problem

		<ul style="list-style-type: none"> 4. Long distances travel 5. Other, specify_____
89	If you built a latrine, where would you buy the materials from?	<ul style="list-style-type: none"> 1. In my village 2. In my commune 3. Neighboring kebele 4. Nearby town 5. Don't Know 6. Other, Specify_____
90	How are you going to pay for constructing the latrine? Multiple responses allowed	<ul style="list-style-type: none"> 1. Borrow money from family 2. Borrow from Friends 3. Borrow from employer 4. Borrow from a credit organization 5. Don't know 6. Other, specify _____
91	What is the name and location of the market where you would purchase the materials?	<ul style="list-style-type: none"> 1. Name_____ 2. Location_____
92	Have you chosen a site for latrine construction?	<ul style="list-style-type: none"> 1. Yes 2. No
93	What do you think makes a good latrine? [Do not read options, Multiple responses allowed]	<ul style="list-style-type: none"> 1. Concrete floor/Slab 2. Full superstructure(complete wall, roof, and door) 3. Clean 4. Easy to clean 5. Unbreakable floor 6. Permanent/ durable 7. Not full 8. No smell 9. Not shred 10. Other, specify_____
94	What do you think makes a bad latrine? [Do not read options, Multiple responses allowed]	<ul style="list-style-type: none"> 1. Bad smell 2. Attracts flies/fly nuisance 3. Cost to maintain it 4. Work to maintain it 5. Other people come to use it 6. Affects groundwater quality 7. Overflows

		8. Soft soil/Pit collapse 9. Children fall into the pit 10. No disadvantages 11. Don't know 1) Other, specify _____
95	For example, if I return to your house one year from today, how likely is it that you will have built a latrine at your house?	1. Very high 2. High 3. Neither high nor low 4. Low 5. Very low 6. No chance

8.2 Annex 2- Focus Group Discussion Questions

FGD guide for adaptors

1. Technology Awareness and Choice

- What types of latrines are you aware of? Are these all available in this area? Why?
- Of the types of latrines, you know, which is your favorite? What makes you like this latrine best?
- Which is your least favorite latrine? What do you dislike about this latrine?
- What type of latrine do you have?
- What are the most important qualities in defining a good place to defecate?
- What things do you like the best about your latrine? Why are these things important to you?
- Are there things about your latrine that you dislike? Why?
- If you could make some improvements to your latrine, what improvements would you make? Why?

2. Motivations

- Did you decide to build the latrine alone or were others involved in the decision? How?
- Who influenced your decision? In what way?
- In the end, what was the main reason you built a latrine? Why is this important to you?
- In your opinion, what are the real advantages you and your family members experience having a household latrine? Why/How?
- What about negative experiences, have you and your family members found any disadvantages or problems associated with having a home latrine?

- If you didn't have a latrine, where would members of your household defecate? Why?
- Are there any bylaws relating to sanitation in this area? Do these influence people's decisions to build a latrine? In what way?

3. Construction Process and Constraints

- Once you decided to construct a latrine was it easy or difficult?
 - What factors made it easy?
 - What factors made it difficult? [*ground, financing, finding someone to build*]
 - Thinking of the specific difficulties you experienced, what ways did you find to overcome them? Did you receive any help when building your latrine? [*family, friends, NGOs, local government*]
 - If yes, what kind of help? [*eg. advice, financing*]
- How long did the process take, from deciding to build to completing the construction?
 - What were the things determining this length of time? [*saving money, finding mason, materials, deciding style*]
- Did you construct the latrine on your own or hired a mason?
 - If you construct by yourself:
 - What are the advantages of doing it yourself?
 - What are the disadvantages of doing it yourself?
- If you hire a mason:
 - What are the advantages of employing someone?
 - What are the disadvantages of employing someone?
- What about the construction materials, what type of materials did you use? where did you get these from, and how easy was it to get them?
- Did you have any access to credit to help you pay for the latrine construction?
- If not, if someone needed credit to help install a latrine could they get it? Where?

4. Latrine Use and Maintenance

- Are there any household members who do not use this latrine?
 - If yes:
 - Where do they defecate? Why?
 - How does this make them feel? How does this make you feel?
- Are there times when some people don't use the latrine? [*Night-time, when working in the fields, elderly*]

- Who is responsible for keeping the latrine clean?
- Is keeping the latrine clean easy or difficult? What makes cleaning easy? What makes cleaning hard?
- Have there ever been times when your latrine was out of use? Why?
 - If yes:
 - What did/will you do when your latrine was/is out of use?
- Has the latrine ever been filled? What happens when it is full? Who/how is it emptied, or do you dig a new pit?

5. Communication

- How do people in your community find out about new ideas and/or products?
- Considering sanitation, which are the best communication channels to use to reach people and promote household latrines in this place? Why?
- In this area, do you know of any local bylaws relating to sanitation? What are these and how effective are they?

FGD guide for non-adaptors

1. Awareness of Home Sanitation and Latrine Technologies

- What types of latrines are you aware of?
- Of these which types have you tried?
- Where did you try them? Of those latrines, you have tried, which is your favorite? Why? [*Probe for as many reasons as possible*]
- Of those latrines, you have tried, which is your least favorite? Why? [*Probe for multiple reasons*]

2. Intention to Install Home Sanitation

- Have you ever constructed a household latrine? Why? [*For those who said no, probe beyond financial constraints, illustrating how these might be mitigated (e.g., saving)*]
 - If yes:
 - When did you first consider/attempt installing a latrine? What made you consider installing a latrine? [*Probe for multiple reasons*]
 - What prevented you from taking your plan forward up until now? [*Probe for multiple reasons*]

- What type of latrine did you construct?
- Do you want to install a household latrine now? If not, why? *[Probe for multiple reasons]*
- If you were to build a latrine now, what type would you build? Why?
 - What particular features would it have?
 - Why are these features important to you?
 - Are there any problems with any of these that would inhibit you from installing them? *[probe for cost? Time? Skill? etc....]*
 - Can you think of ways to overcome any of these to enable your plan to come to life?
 - How long do you think this type of latrine would take to build? Why? Cost in materials? Cash? In-kind?
 - Would you consider a latrine without these features? Why?

3. Hiring someone to construct a latrine

- Do you know someone who can construct latrines?
- Would you consider using them to construct a latrine? Why?
- How much would the person charge you to construct the latrine?

4. Current Defecation Practice (Now thinking about this household in particular)

- Where do members of your household defecate? Why? *[Probe for reasons beyond cash constraints]*
- Do all household members use the same defecation place? Why? *[elderly, children, in-laws]*
- What are the main benefits you experience from this defecation place? *[Probe for multiple reasons]*
- What do you dislike about your current place of defecation? *[Probe for multiple reasons]*

5. Communication

- How do people in your community find out about new ideas and/or products?
- Considering sanitation, which are the best communication channels to use to reach people and promote household latrines in this place? Why?
- In this area, do you know of any local bylaws relating to sanitation? What are these and how effective are they?

8.3 Annex 3- Key Informants Interview questions

In-depth Interview guide for Woreda officials, program staff, NGO staff

1. Can you tell me about your experience with different latrine programs in your woreda?
2. In this woreda, can you tell me about the different designs of latrines that are used in rural villages?
3. In this woreda, what are the key motivators for households to construct a latrine?
4. In this woreda, what are the key barriers for households to construct a latrine?
5. In your opinion, who are the most influential people in this community to encourage people to construct a latrine?
6. Can you tell me about people that offer services to construct latrines in your woreda?
7. What are the main constraints regarding private service providers for latrine construction?
8. Where do households access the materials, they use to construct latrines? What are the constraints in this regard?
9. What do you think is the most effective way to mobilize and influence people to construct their latrines?
10. What do you see as the government's main role in the sanitation sector?
11. How do you think this role is best achieved?

In-depth Interview guide for sanitation provider

1. Latrine Provider Profile Information

- 1.1. Name of latrine service provider: _____
- 1.2. Residence _____ location: _____
- 1.3. Contact details: _____
- 1.4. Sex: _____
- 1.5. Age: _____
- 1.6. Level of formal education: _____
- 1.7. Does provider's own home have a latrine (y/n): _____ If yes, type: _____
- 1.8. Years of latrine construction experience: _____
- 1.9. Latrine building business: (formal or informal sector) _____
- 1.10. Local service areas that provider works in: _____
- 1.11. Latrine building skills and services provided: _____
- 1.12. How latrine building skills/trade were learned/acquired: _____

1.13. Non-latrine skills and services provided (e.g., mason (general), latrine (only) or digger):

1.14. Number of hired employees/assistants: _____

1.15. What types and styles of latrine designs do you build? (List all types and styles)

1.16. The most common ones built:

2. Business Description:

- Are you a part-time or full-time mason/artisan/digger?
- If not full-time, do you have other occupation(s) and source(s) of income?

3. Brief biographical sketch of the service provider and his business history, including:

- What is your monthly and annual income?
- If you have employees, what is the number and type of employees?
- What assets (tools) and other capital do you have?
- Do you use credit or loans? Where?
- What is your interaction or engagement with local government?

4. Qualifications and experience:

- Do you attend formal training (e.g., at a vocational training institute)?
 - When?
 - Where?
 - By whom?
- For how many years have you worked?
- How many latrines did you build in total (approximately)?
- How many latrines have you built in the last 12 months?
- On average how many latrines have you built per month?
- Where have you built latrines?

5. Latrine types and features built and breakdown of costs for each

- How many birr do you charge for the construction of:
 - Traditional pit latrine
 - Ventilated improved pit (VIP) latrine

- Other (specify): _____
 - How many birr do you charge for the construction of:
 - Rectangular pit, per foot/meter, excavated
 - Circular pit, per foot/meter, excavated
 - Pit lining, per foot/meter, lined
 - Septic tanks for water closet
 - Slab floor, seat/hole feature
 - Superstructure by type, style
- 6. What features/styles do clients prefer? Why? Who in the household asks for these? By component:**
- Pit shape and depth preference, why?
 - Slab floor, materials, and size, why?
 - Seat/drop-hole size, features, why?
 - Superstructure dimensions, number of cabins, materials, features, aspects
- 7. Who purchases materials:**
- Where, when, and are any problems associated with this?
 - What are the approximate costs?
- 8. Materials for construction**
- What type of materials are used for latrine construction?
 - How do you pay for these purchases?
 - How do the materials get from the provider to the construction site?
- 9. How much time it takes (duration) to construct(most common latrine):**
- Traditional pit latrine
 - Ventilated improved pit (VIP) latrine
 - Other (specify): _____
- 10. Problems encountered with latrine construction**
- What are the main problems you face in the construction of latrines such as:
 - Soil problems, homeowners with limited space, water table problems?
 - Other problems with authorities of any kind?
 - What constraints or difficulties do service providers face in their work building latrines?

11. Customers

- What is the typical profile of latrine customers and where are most of the customers located?
- How do you identify new customers?
- What barriers, problems, or difficulties do people face in building latrines?

12. Sales

- Is business seasonal in some way, and if so, why? How do you manage this?
- Do you have more business than you can handle, or would you like to expand your business? If so, what ideas/plans for expansion?
- Would you like to have more latrine construction clients?
- Which types of latrines would you prefer to build and why?

13. Payment terms

- Do you receive your payment at once or partially at different stages of work?
- Do you work on a credit basis?
- Do you face problems in collecting payments?

14. Marketing strategies

- How do you find work?
- How do clients learn about your services?
- How do customers contact you?
- Do you advertise in any way?
- Do you ever go house-to-house to solicit new customers?

15. What ideas do you have about how to improve or expand your latrine building services?

- How can you lower the cost to customers so more of them can afford to build a latrine?
- How would building more latrines than you now affect you and change the way you organize your work now?
- How could you continue to build latrines during those times when people do not have the money to pay for them?

8.4 Annex 4- The Somali translated questionnaire

9.4.1. Lifaaqa 1- Su'aalaha sahanka qoyska

Foomka oggolaanshaha:

Subax Wanaagsan/Galb/Fiid (sida ku haboon). Magacaygu waa_____ waxaan ka socdaa Jaamacadda Addis Ababa, machadka kheyraadka biyaha ee Itoobiya, waxaan matalayaa cilmi-baadhaha hormuudka ah.

Hadda, waxaan wadnaa baaritaan si aan u qiimeyno arrimaha go'aaminaya ee saameeya korsashada iyo ka faa'iidaysiga musqulaha ee xaafado la doortay, Degmada Babil, Zoonka Faafan, Gobolka Soomaalida.

Iyada oo qayb ka ah cilmi-baarista, waxaan wareysi la yeelaneynaa qaybo badan oo bulshooyin ah waxaana lagu doortay inaad ka qayb qaadata daraasadda. Haddii aad rabto, waxaan jeclaan lahaa inaan ku weydiiyo su'aalo. Waa inaad ogaataa in ka-qaybgalka waraysigani uu yahay mid ikhtiyaari ah oo aad xaq u leedahay inaad diido ka qaybqaadashada. Waqti kasta, waxaad sidoo kale joojin kartaa waraysiga sabab kasta adoon u baahnayn inaad sharaxdo go'aankaaga. Ma weydiinayo magacaaga, magacaagana lama shaacin doono ama lama isticmaali doono. Waxa kale oo aan jeclaan lahaa in aan kuu xaqiijiyo in xogta aad ii soo gudbin doonto ay ahaan doonto mid sir ah, oo aan wakhtina duubi doonin ama isticmaali doonin magacyo gaar ah. Macluumaadka aad bixiso cidna lalama wadaagi doono. Waxaa si wadajir ah loo lafa gurayaa iyadoo lala kaashanayo ilo kale oo macluumaad ah waxaana loo soo bandhigi doonaa si qarsoodi ah.

Wareysiga aan kula yeelaneyno wuxuu qaadan doonaa ilaa 40 daqiiqo. Fadlan xusuusnow inaad tahay khabiirka, aniguna waxaan u imid inaan wax kaa barto. Fadlan ha noo sheegin waxaad u malaynayso inaan rabo inaan maqlo. Noo sheeg siday kula tahay. Noo sheeg aragtidaada wax kasta oo ay yihiin. Iyo, fadlan ogow in aynaan raadin jawaabo sax ah ama khalad ah.

Diyaar ma u tahay waraysiga? Haa____ Maya_____ [Haddii ay maya tahay, u mahadceli isaga/iyada oo ka tag]

Hadday haa tahay, sii wad waraysiga.

A. Aqoonsiga Wareysiga

Magaca waraystaha:	
Taariikhda	
Waqtiga bilawga iyo wakhtiga dhamaadka	

B. Goob Waxbarasho

Gobolka/degmada	
Kebele	
Xaafad hoosaadka	

C. Dhaqan-bulsheed iyo astaamo asal

1	Koodhka guriga	
2	Kooxda la beegsanayo ee qoyska/madaxda	<ol style="list-style-type: none"> 1. Korsada 1. Kuwa aan korsada ahayn
3	Jinsiga jawaab-celiye	<ol style="list-style-type: none"> 1. Lab 2. Dheddig
4	Meeqa sano ayaad jirtaa?	_____ Sano
5	Immisa qof ayaa qoyska ku nool?	<ol style="list-style-type: none"> 1. Mid 2. Laba 3. Saddex 4. Afar 5. Shan 6. Lix 7. In ka badan lix
6	Heerkee heerka dugsiga-waxbarasho ayuu gaadhay madaxa qoysku?	<ol style="list-style-type: none"> 1) Ma akhriyi karo waxna ma qori karo 2) Waxbarasho dadban ama mid diineed 3) Dugsiga hoose (1-6) 4) Dugsiga dexe (7-8) 5) Dugsiga sare (9-12) 6) Kulliyadda

		7) Jaamacad
7	Ma jiraan carruur dugsi dhigta?	<ol style="list-style-type: none"> 1. Haa 2. Maya
8	Hadday jawabtadu haa tahay, waa maxay heerka dugsi?	<ol style="list-style-type: none"> 1. Waxbarasho dadban ama diineed 2. Dugsiga hoose (1-6) <ol style="list-style-type: none"> 1. Dugsiga dexe (7-8) 2. Dugsiga sare (9-12) 3. Kulliyadda 4. Jaamacadda
9	Waa maxay shaqada madaxa qoysku?	<ol style="list-style-type: none"> 1. Xirfadle/farsamo 2. Xoolo dhaqato 3. Beeraley 4. Shaqaale maalmeed 5. Shaqaale madani /shaqaale dawladeed 6. Adeegga/iibka/ganacsiga 7. Arday 8. Shaqo laawe 9. Mid kale, sheeg_____
10	Waa maxay celceliska dakhliga qoyskaaga bishii (Bir)?	<ol style="list-style-type: none"> 1. < 500 2. 501-1000 3. 1001-2000 4. 2001-3000 5. 3001-4000 6. 4001-5000 7. > 5000
D. Warfaafinta iyo warbaahinta		
11	Weligaa ma heshay macluumaad/talobixin ku saabsan biyaha iyo fayadhowrka?	<ol style="list-style-type: none"> 1. Haa 1. Maya
12	Waa maxay nooca macluumaadka/talo-bixinta aad hore u maqashay? Jawaabo badan ayaa la oggol yahay	<ol style="list-style-type: none"> 1. Cab biyo ammaan ah 2. Isticmaalka iyo dayactirka musqulaha 3. Dhismaha musqulaha 4. Dhaq gacmaha/wejiga/jirka

		<ul style="list-style-type: none"> 5. Joojinta saxarada furan 6. Mid kale, sheeg_____
13	<p>Maxay ahayd isha macluumaadka/talada?</p> <p>Jawaabo badan ayaa la ogolyahay</p>	<ul style="list-style-type: none"> 1. Xubnaha qoyska 2. Deriska 3. Shaqaalaha caafimaadka bulshada 4. Shaqaalaha fidinta caafimaadka 7. 5.Shaqaalaha NGO-yada 5. Shaqaalaha caafimaadka 6. Macalimiinta 8. 8.Culimada 9. Warbaahinta elegtarooniga ah (TV iyo Radio) 10. Wargeys/majalad 11. Mid kale (sheeg) _____
14	<p>Fikradaada, kuwan soo socda kee baa awoodi kara inuu bixiyo macluumaad lagu kalsoonaan karo/waxtar leh oo ku saabsan korsashada iyo isticmaalka musqulaha?</p> <p>Jawaabo badan ayaa la ogolyahay</p>	<ul style="list-style-type: none"> 1. Xubnaha qoyska 2. Deriska 3. Shaqaalaha caafimaadka bulshada 4. Shaqaalaha fidinta caafimaadka 5. Shaqaalaha NGO-yada 6. Shaqaalaha caafimaadka 7. Macalimiinta 8. Culimada 9. Warbaahinta elegtarooniga ah (TV iyo Radio) 10. Wargeys/majalad 11. Ma ogi 12. Mid kale (sheeg) _____
15	<p>Ma ka warqabtaa cawaaqibka ka dhalan kara saxarada furan?</p>	<ul style="list-style-type: none"> 1. Ogaal 2. Aan ogayn
16	<p>Waa maxay nooca macluumaadka/talobixinta aad rabto inaad ka hesho nadaafadda?</p> <p>Jawaabo badan ayaa la oggolaaday</p>	<ul style="list-style-type: none"> 1. Aqoonta iyo xirfadda dhismaha musqulaha 2. isticmaalka musqulaha 3. Dayactirka musqulaha

		<p>4. Kala doorasho musqulaha iyo farsamada</p> <p>5. Helitaanka qalabka dhismaha musqulaha</p> <p>6. Waxba</p> <p>7. Ma garanayo</p> <p>8. Mid kale, sheeg_____</p>
E. Qoysasku waxay leeyihiin oo isticmaalaan nooc kasta oo ah tas-hiilaadka musqulaha (Qabsadayaasha)		
17	<p>Waa maxay nooca musqulaha ee aad taqaan?</p> <p>Jawaabo badan ayaa la oggol yahay</p>	<p>1. Biyo raaci/ shub musqulaha</p> <p>2. Ku qub musqul leh salax</p> <p>3. Ku rid musqul bannaan oo/ god furan</p> <p>4. Qolka musqulaha ee hawo-mareenka.</p> <p>5. Musqulaha oo la kariyo</p> <p>6. Mid kale (sheeg): _____</p>
18	<p>Maxaa ka mid ah noocyada musqulaha ee aad baratay markii ugu horeysay sanadkii la soo dhaafay?</p>	<p>1. Ku shub musqulaha</p> <p>2. Ku qub musqul leh salax</p> <p>3. Ku rid musqul bannaan oo / god furan</p> <p>4. Qolka musqulaha ee hawo-mareenka.</p> <p>5. Musqulaha oo la kariyo</p> <p>6. Mid kale (sheeg): _____</p>
19	<p>Halkee/sideed wax uga bartaa arimaha ku saabsan musqulaha?</p> <p>Jawaabo badan ayaa la ogolyahay</p>	<p>1. Shir bulsheed</p> <p>2. Caaqilka tuulada</p> <p>3. Deriska</p> <p>4. Shaqaalaha Fidinta Caafimaadka</p> <p>5. Xirfadlayasha gacanta</p> <p>6. Radio/TV</p> <p>7. Sawirada hayeysiiska/ Booster</p> <p>8. Xayeysiiska Boodhka</p> <p>9. Shaqaalaha NGO/Hay'adda</p> <p>10. Wakiilada dawladda</p> <p>11. Mid kale, sheeg_____</p>
20	<p>Ma leedahay musqul kuu gaar ah?</p>	<p>1. Haa</p>

		1. Maya
21	Hadday haa tahay, musqul nooc ee ah ayaad haysaata? (Eeg)	<ol style="list-style-type: none"> 1. Ku shub musqulaha 2. Ku qub musqul leh salax 3. Ku rid musqulaha oo aan bannaan/gog furan 4. Qolka musqulaha ee hawo-mareenka. 5. Musqulaha oo la kariyo 6. Mid kale (sheeg): _____
22	Hadday haa tahay, musqushadu hadda ma shaqaynaysaa? (fiiri)	<ol style="list-style-type: none"> 1. Haa 1. Maya
23	Dadka qaangaadhay ee reerkaagu ma ku saxaroodan musqulaha xilliga jiilaalka?	<ol style="list-style-type: none"> 1. Had iyo jeer 2. Mararka qaarkood 3. Marna 4. Ma garanayo
24	Dadka qaangaadhay ee reerkaagu ma ku saxaroodaan musqulaha xilliga roobaadka?	<ol style="list-style-type: none"> 1. Had iyo jeer 2. Mararka qaarkood 3. Marna 4. Ma garanayo
25	Carruurta reerkaagu ma ku saxaroodaan musqulaha xilliga jiilaalka?	<ol style="list-style-type: none"> 1. Had iyo jeer 2. Mararka qaarkood 3. Marna 4. Ma garanayo
26	Carruurta reerkaagu ma ku saxaroodaan musqulaha xilliga roobaadka?	<ol style="list-style-type: none"> 1. Had iyo jeer 2. Mararka qaarkood 3. Marna 1. Ma garanayo
27	Haddaadan musqul lahayn, xageed aadaan adiga iyo qoyskaaga si aad u saxarooto? (Ha akhrin ikhtiyaarrada, calaamadee dhammaan kuwa khuseeya)	<ol style="list-style-type: none"> 1. Musqulaha la wadaago 2. Musqulaha dadweynaha 3. Musqulaha deriska 4. Musqulaha qaraabada 5. Kuwo kale, sheeg _____
28	Sidee ayaad ugu qanacsan tahay musqulkaaga hadda?	<ol style="list-style-type: none"> 1. Aad baan ugu qanacsan 2. Ku qancay

		<ol style="list-style-type: none"> 3. Ku ma qanacsani 4. Aad ugu ma qanacsani 5. Ma garanayo
29	Haddii jawabta 1aad ama 2aad la doorto, waa maxay waxa ugu muhiimsan ee aad ku qanacsan tahay meesha aad hadda ku saxarooto?	<ol style="list-style-type: none"> 1. Waxay taageertaa sirta 2. Waxay bixisaa hoy 3. Waa nadiif/ fududahay in la nadiifiyo 4. Maya/Urta xun ee ugu yar 5. Duqsi la'aan/dhibaatooyinka ugu yar ee duqsigu 6. Lama wadaagin 7. Xaalad wanaagsan / Wax dhaawac ah ma laha 8. Badbaadada carruurta 9. Waara/ waara 10. Fogaan gaaban 11. Casri ah 12. Ku haboon isticmaalka habeenkii 13. Helitaanka alaabta dabada lagu nadiifiyo 14. Mid kale, sheeg_____
30	Haddii jawabtra 3aad ama 4aad la doorto, waa maxay waxa ugu muhiimsan ee aadan ku qanacsanayn meesha aad hadda ku saxarooto?	<ol style="list-style-type: none"> 1. Saqaf la'aan 2. Albaab malaha 3. Buuxa 4. Ur xun 5. Duqsiga Dhibta 6. Wasakh/aan nadiif ahayn 7. Aan ammaan ahayn 8. Ku meel gaadh ah 9. Kuwo kale, Sheeg
31	Haddii jawaabta suaasha 20aad ay tahay maya, waayo?	<ol style="list-style-type: none"> 1. Wasakh 2. Buuxa 3. Biyo lagu shubo ma jiro 4. Suuf jabay

		<ol style="list-style-type: none"> 5. Dhisme sare oo jabay/Maqan 6. Dhismihiisii oo aan dhamayn 7. Loo isticmaalo kayd ahaan 8. Ur xun 9. Duulsi Dhib 10. Doorbida berrinka/kaynta 11. Kuwo kale, Sheeg
32	Haddii jawaabda suaasha 20aad ay tahay maya, maxaad markii hore u dhistay musqulahan?	<ol style="list-style-type: none"> 1. Barnaamijku wuxuu bixinayay kaalmo 2. Qof ayaa ii sheegay inaan ku qasbanahay 3. Hayso lacag ku filan oo lagu dhiso 4. Xubnaha qoyska ee jirran/ duqoobay 5. Xeerarka bulshada 6. Cunaqabatayn/xoojinta deegaanka 7. Dhisida guri cusub 8. Deriska mid baa helay 9. Dhacdada (arooma/aaska/sanadka cusub) 10. Waxaa yimid dad soo booqda meel ka baxsan tuulada 11. Ma garanayo 12. Mid kale, sheeg _____
33	Haddii aad leedahay musqul adiga kuu gaar ah, waa maxay qaab-dhismeedka dhulka ee musqulahaagu leeyahay?	<ol style="list-style-type: none"> 1. Bilawga godad aan khad lahayn 2. Bilawga godka safan 3. godad safan 4. bulaacada tuubooyinka 5. Ma garanayo 6. Mid kale, sheeg _____
34	Waa maxay suunka musqulahaagu leeyahay?	<ol style="list-style-type: none"> 1. Dabool alwaax ah oo furan 2. Fur dalool-Salax isku xidhan 3. Ku shub biyo nadiif ah 4. Dabool caag ka samaysan (SanPlat) 5. Laab malaha

		6. Mid kale, sheeg_____
35	Waa maxay darbiga gabbaad ee musqulahaagu leeyahay?	<ol style="list-style-type: none"> 1. Birta galvanized 2. Qoryo 3. Qasab/caws 4. Warqad caag ah 5. Malaasyo dhoobo ah 6. Gidaar la'aan 7. Mid kale, sheeg_____
36	Waa maxay nooca gaboodka saqafka musqulahaagu leeyahay?	<ol style="list-style-type: none"> 1. Birta galvanized 2. Qoryo 3. Qasab/caws 4. Warqad caag ah 5. Agabka la badbaadiyay 6. Saqaf la'aan 7. Mid kale, sheeg_____
37	Musqulaha aad isticmaalayso hadda ma kii kuugu horreeyay?	<ol style="list-style-type: none"> 1. Haa 2. Maya 3. Ma garanayo
38	Immisa musqulood oo kale ayaad dhistay kan ka hor?	<ol style="list-style-type: none"> 1. Mid 2. Laba 3. Saddex 4. Afar 5. Shan 6. Lix 7. Toddoba 8. In ka badan todoba
39	Sidee bay musqulahaagu hadda kaga duwan yahay kuwii hore? [Jawaab badan ayaa la oggol yahay]	<ol style="list-style-type: none"> 1. Godku hadda wuu safan yahay 2. Darbiyada oo la hagaajiyo 3. Saqafka waa la hagaajiyay 4. Slab waa la wanaajiyey 5. Albaabka waa la hagaajiyay 6. Leh hawo

		<p>7. Leh meel lagu maydho</p> <p>8. Leh meel gacmaha lagu dhaqo</p> <p>9. dightsiga hadda waa la shubay - biyo raaci</p> <p>10. Mid kale, sheeg_____</p>
40	Goorma ayaa la dhisay musqulahaagii kowaad? [Sanadka] [Qiyaasta ugu fiican]	_____ sanadka
41	Yaa qaatay go'aanka ugu dambeeya ee lagu dhisayo musqulahaagii ugu horreeyay?	<p>1. Madaxa qoyska</p> <p>2. Madaxa qoyska iyo xaaska si wadajir ah</p> <p>3. Xaaskiisa</p> <p>4. Caruurta</p> <p>5. Qoyska wada jira</p> <p>6. Mid kale, sheeg_____</p>
42	Maxaa kaa dhigay inaad go'aansato inaad dhisto musqulahaagii ugu horreeyay wakhtiga aad samaysay? [Jawaab badan ayaa oggolaaday]	<p>1. Barnaamijku wuxuu bixinayay kaalmo</p> <p>2. Qof ayaa ii sheegay inaan ku qasbanahay</p> <p>3. Waan haystay lacag ku filan oo lagu dhiso</p> <p>4. Xubnaha qoyska ee jirran/ duqoobay</p> <p>5. Carruurta waxay noqdaan kuwo jidh ahaan u bislaaday</p> <p>6. Cadaadis bulsho</p> <p>7. Cunaqabatayn/xoojinta deegaanka</p> <p>8. Dhisidda guri cusub</p> <p>9. Deriska mid baa helay</p> <p>10. Dhacdo(arooska/aaska/sanadka cusub)</p> <p>11. Waxaan lahaa dad soo booqda meel ka baxsan tuulada</p> <p>12. Kaliya waxaan u baahanahay mid qoyskayga</p> <p>13. Mid kale, sheeg _____</p>
43	Ma ka heshay kaalmo urur si loo dhiso musqulahaaga?	<p>1. Haa</p> <p>2. Maya</p> <p>3. Ma garanayo</p>

44	Hadday haa tahay, maxaa caawimo ah oo aad ka heshay ururka?	<ol style="list-style-type: none"> 1. Walxaha bilaashka ah/kabka ah 2. Shaqaale bilaash ah/la kabayo 3. Amaah 4. Talo farsamo 5. Naqshad la bixiyay 6. Dhiirigelin 1. 7. Kuwo kale, sheeg _____
45	Hadday maya tahay, imisa ayaad ku bixisay musqulahaaga (Bir)?	<ol style="list-style-type: none"> 1. Qalabka 2. Foosha 3. Qiimaha aan la garanayn
46	Ma dhistay musqulahaaga hal mar ama marxalado	<ol style="list-style-type: none"> 1. Dhammaanba hal mar 2. Marxalado 3. Ma garanayo
47	Intee in le'eg ayay qaadatay in lagu dhammaystiro musqulahaaga?	<ol style="list-style-type: none"> 1. In ka yar laba toddobaad 2. 3-4 toddobaad 3. 1-6 bilood 4. 7-12 bilood 5. In ka badan 13 bilood 6. Weli lama dhammaystirin
48	Intee in le'eg ayay muhiim u tahay kharashka ku baxa musqul wanaagsan qoyskaaga?	<ol style="list-style-type: none"> 1. Aad muhiim u ah 2. Muhiim u ah 3. Muhiim maaha 4. Aad muhiim u maaha 5. Ma garanayo
49	<p>Waa maxay faa'iidooyinka lahaanshaha musqulaha?</p> <p>Jawaabo badan ayaa la oggol yahay</p>	<ol style="list-style-type: none"> 1. Nadaafadda iyo caafimaadka oo la hagaajiyay/iska ilaali cudur 2. Sir badan 3. Raaxo badan 4. Ku habboonaanta/wakhtiga badbaadi 5. Fudud in la nadiifiyo 6. Nabadgelyada oo hagaagtay 7. Ka fogow wasakhaynta deegaanka 8. Maqaam/Maqaam sare loo qaaday

		<ul style="list-style-type: none"> 9. Martidu way isticmaali karaan 10. Dhimista kharashka caafimaadka 11. Faa'iido ma leh 12. Ma garanayo 13. Kuwo kale, sheeg
50	<p>Waa maxay khasaaraha ay leedahay lahaanshaha musqulaha?</p> <p>Jawaabo badan ayaa la oggol yahay</p>	<ul style="list-style-type: none"> 1. ur xun 2. Duqsigu wuu soo jiitaa 3. Kharash lagu ilaalinayo 4. Ka shaqee sidii aad u ilaalin lahayd 5. Dad kale ayaa u yimaada inay isticmaalaan 6. Waxay saamaysaa tayada biyaha dhulka hoostiisa 7. Qulqulaya 8. Ciid jilicsan/Pit oo dumay 9. Carruurto god bay ku dhacaan 10. Wax khasaare ah ma leh 11. Ma garanayo 12. Mid kale, sheeg _____
51	<p>Musqul noocee ah ayaad qoyskaaga u door bidaysaa?</p>	<ul style="list-style-type: none"> 1. Ku shub biyo nadiif ah 2. God musqul leh oo leh dhismo sare oo dhamaystiran 3. Hawo-mareenka Hawo-mareenka Hagaagsanaaday (VIP). 4. Musqulaha oo la kariyo 5. Mid kale, sheeg
52	<p>Maxay yihiin sifooyinka gaarka ah ee aad aadka uga jeceshahay musqulaha aad doorbidayso?</p> <p>[Ha akhriyin xulashooyinka, jawaabo badan ayaa la oggol yahay]</p>	<ul style="list-style-type: none"> 1. Raaxo leh 2. Ur la'aan 3. Duqsi la'aan 4. Ha arkin saxaro 5. fududahay in la nadiifiyo 6. Uma baahnid biyo aad ku daadiso 7. Qarsoodi

		8. Fududeynta 9. Badbaadada/ilaalinta 10. Kharash yar 11. Mid kale, sheeg _____
53	Mustaqbalka, ma qorsheynaysaa inaad wax ka beddesho/horumar ku samayso musqulahaaga?	1. Haa 2. Maya 3. Ma garanayo
54	Hageed ka heleysa lacagta aad ugu bixinaysoo hagaajinta musqulahaaga?	1. Dakhligayga gaarka ah 2. Lacag ka soo amaahdo qoyska 3. Ka soo amaahdo asxaabta 4. Ka soo amaahdo loo shaqeeyaha 5. Ka soo amaahdo hay'ad Amaah 6. Ma garanayo 7. Kuwo kale, sheeg
55	Hadday haa tahay, waa maxay isbeddelada/horumarnada aad rabto inaad samayso? [Ha samayn doorashooyin diyaar ah, jawaabo badan ayaa la oggol yahay]	1. Lanji godka 2. Wanaaji darbiga 3. Hagaajinta saqafka 4. Hagaajinta suunka 5. Qaado digsiiga nadaafadda 6. Ku dar dhuumaha hawo-qaadista 7. Samee haanta biyaha lagu kaydiyo 8. Dhis meesha lagu maydho 9. Dhis albaab 10. 10. Kuwo kale, sheeg_____
56	Haddaysan ahayn, waayo?	1. Mudnaanta ugu yar 2. Dhibaatada dhaqaale 3. Qalab dhismo oo aan la heli karin 4. Dhul la'aan laga dhisayo 5. Dhulka/dhulku way adag tahay in la dhiso 6. Ma garanayo sida loo hagaajiyo / loo dhiso

		<ol style="list-style-type: none"> 7. Ma jiro qof xirfad leh oo ku nool aagga 8. Mid kale, sheeg_____
57	<p>Yaa kugu saameeyay inaad dhisto musqulaha?</p> <p>Jawaabo badan ayaa la ogolyahay</p>	<ol style="list-style-type: none"> 1. Xubnaha qoyska 2. Deriska 3. Shaqaalaha caafimaadka bulshada 4. Shaqaalaha fidinta caafimaadka 5. Shaqaalaha NGO-yada 6. Shaqaalaha caafimaadka 7. Macalimiinta 8. Culimada 9. Warbaahinta elegtarooniga ah (TV iyo Radio) 10. Wargeys/majalad 11. Cidna 12. Mid kale (sheeg) _____
58	Qofna ma shaqaaleysatay inuu ku dhiso ama gacan ka geysto dhismaha musqulahaaga?	<ol style="list-style-type: none"> 1. Haa 2. Maya
59	Hadday haa tahay, xaggee bay ka yimaadeen?	<ol style="list-style-type: none"> 1. Tuuladayada 2. Tuulada ka baxsan 3. Ma garanayo
60	<p>Maxaad u dooratay qofkan?</p> <p>[Ha akhriyin xulashooyinka, sax dhammaan kuwa khuseeya]</p>	<ol style="list-style-type: none"> 1. Qaraabo/saaxiib 2. Horay u shaqaaleysiiyay 3. Leh xirfad iyo sumcad wanaagsan 4. Arkay oo jeclaaday musqulaha ay dhisteen 5. Ugu aan qaalisnayn 6. Kuwo kale, sheeg_____
61	Hadday haa tahay, sidee ku baratay qofkan?	<ol style="list-style-type: none"> 1. Kulanka Bulshada 2. Waxaa igula talinayaa qoyska 3. Qaraabo/saaxiib 4. Waxaa igula taliyay mulkiilaha musqulaha 5. Waxaa soo jeediyay caaqil tuulo

		6. Waxaa igula taliyey qof tuulada jooga 7. Waxaa igula taliya alaab-qeybiye 8. Waxaa soo jeediyay NGO/hay'ad 9. Boostar/Xayeysiin 10. Radio 11. Kuwo kale, sheeg
62	Hadday haa tahay, yaa soo qabanqaabiyay iibsiga?	1. Qof shaqaale ah 2. Qoyska 3. Labadaba
63	Halkeed ka soo iibsatay agabka lagu dhisayo musqulahaaga? [Dooro mid ka mid ah meelaha ugu badan ee alaabta laga soo iibsado]	1. Tuulada May/Kelle 2. Keli deris ah 3. Magaalada u dhow 4. Ma garanayo 5. Mid kale, sheeg
64	Waa maxay magaca iyo goobta suuqa aad alaabta ka soo iibsatay?	1. Magaca _____ 2. Goobta ____ 3. Ma garanayo
F. Qoysaska aan haysan musqul (kuwa aan korsan)		
65	Waa maxay nooca musqulaha ee aad taqaan? Jawaabo dhowr ah ayaa la oggol yahay	1. Musqulo nadiif ah oo liita 2. Ku qub musqul leh salax 3. God musqul ah oo aan lahayn godad bannaan 4. Musqulaha godka la hagaajiyay (VIP). 5. Musqusha kakooban 6. Mid kale (sheeg): _____
66	Xaggee bay dadka reerkan hadda ku saxaroodaan? [dooro midka inta badan lagu dhaqmo]	1. Saxaro furan 2. Musqulaha deriska 3. Musqulaha dadweynaha 4. Musqulaha lala wadaago qoysaska kale 5. Mid kale, sheeg _____
67	Intee in le'eg ayaad ku qanacsan tahay goobtaada hadda ee lagu saxaroodo?	1. Aad baan ugu qanacsan 2. Waan ku qanacsanahay

		<ol style="list-style-type: none"> 3. Kuma qanacsanii 4. Aad ugu qanacsanayn 5. Ma garanayo
68	<p>Haddii jawabta ladoortay tahay 1aad ama 2aad, waa maxay waxa ugu muhiimsan ee aad ku qanacsan tahay meesha aad hadda ka saxarayso?</p> <p>[Ha akhriyin xulashooyinka, jawaabo badan ayaa la oggol yahay]</p>	<ol style="list-style-type: none"> 1. Waxay taageertaa sirta 2. Ku habboon in la isticmaalo 3. Badbaadada iyo raaxada 4. Hoy la siiyey 5. Waa nadiif waana fududahay in la nadiifiyo 6. Ma urin/ur xun oo ugu yar 7. Duqsi la'aan/dhibaatooyinka Duqsiga ugu yar 8. Xaalad wanaagsan (wax dhaawac ah ma laha) 9. Badbaadada carruurta 10. Fogaan gaaban 11. Helitaanka alaabta dabada lagu nadiifiyo 12. Mid kale, sheeg_____
69	<p>Haddii jawabta ladoortay tahay 3aad ama 4aad tahay, maxaanaad ku qanacsanayn meesha aad hadda ku saxarooto?</p> <p>[Ha akhriyin xulashooyinka, jawaabo badan ayaa la oggol yahay]</p>	<ol style="list-style-type: none"> 1. Cabsida xayawaanka khatarta ah 2. Cabsida godka ku dhaca 3. Duqsi dhib 4. Xumaan/ wasakh 5. Aan ammaan ahayn 6. Kuwo kale, sheeg_____
70	<p>Maxay reerkaagu u dhisi waayeen musqul?</p> <p>[Ha akhriyin xulashooyinka, jawaabo badan ayaa la oggol yahay]</p>	<ol style="list-style-type: none"> 1. Caadi maaha in aaggayaga lagu isticmaalo musqulaha. 2. Waa dhaqankeena in bannaanka lagu saxaroodo(awoowayaasheen baa sameeyay) 3. Inta badan dadka aan aqaano waxay ku saxaroodaan dhaqanka furan/caadiga ah

		<ol style="list-style-type: none"> 4. Dhibaatada dhaqaale 5. Qalab dhismo oo aan la heli Karin 6. Dhul la'aan laga dhisayo 7. Dhulka/dhulka oo ay adag tahay in la qodo. 8. Ma garanayo sida loo hagaajiyo / loo dhiso. 9. Ma jiro qof xirfad leh oo ku nool aagga 10. Mid kale, gaar ah _____
71	Weligaa ma ka fikirtay ama ma ka hadashay in qoyskaaga loo dhiso musqul?	<ol style="list-style-type: none"> 1. Haa 2. Maya
72	Hadday haa tahay, goorma ayay ahayd markii ugu dambaysay ee aad tan ka hadasho?	<ol style="list-style-type: none"> 1. In ka yar 1 bil 2. 1-6 bilood 3. 7-12 bilood 4. In ka badan 1 sano
73	<p>Hadday haa tahay, maxaad u doonaysaa inaad u dhisto musqul?</p> <p>[Ha akhriyin xulashooyinka, jawaabo badan ayaa la oggol yahay]</p>	<ol style="list-style-type: none"> 1. U baahan musqul 2. Cadaadiska qoyska 3. Cadaadiska beesha 4. Cunaqabataynta maxaliga ah 5. Caafimaadka soo roonaaday 6. Qarsoonaanta iyo badbaadada 7. Fududeynta 8. Mid kale, sheeg _____
74	Waa maxay nooca musqulaha aad damacsan tahay inaad dhisto?	<ol style="list-style-type: none"> 1. Ku shub musqulaha nadiifka ah 2. Pit musqulaha oo leh gogol iyo dhisme sare 3. God musqul ah oo aan lahayn godad bannaan 4. Musqulaha godka la hagaajiyay (VIP). 5. Musqulaha oo la kariyo 6. Mid kale, sheeg _____
75	Maxay yihiin sababaha ugu waaweyn ee loo dooranayo noocaas?	<ol style="list-style-type: none"> 1. Casri ah/qaab wanaagsan 2. Fududahay in la nadiifiyo

	Jawaabo badan ayaa la ogolyahay	<ol style="list-style-type: none"> 3. La awoodi karo 4. Fududahay in la dhiso 5. Ur la'aan 6. Duqsi la'aan 7. Badbaadada carruurta/Carruurtu way isticmaali karaan 8. Looma baahna in la faaruqiyo wakhti dheer 9. Waarta 10. Si fudud loo hagaajin karo 11. Ha arkin saxarada 12. Ma ogi 13. Mid kale, sheeg _____
76	<p>Waa maxay faa'iidada/faa'iidada ugu weyn ee haysata musqulkan cusub?</p> <p>Jawaabo badan ayaa la oggol yahay</p>	<ol style="list-style-type: none"> 1. Qarsoodi 2. Iska ilaali wax la wadaaga dadka kale 3. Ka fogow deris qaska 4. Ilalinaya cambaraynta 5. Sharaf/maqaam 6. Fududeynta 7. Way fududahay in la nadiifiyo 8. Reer kasta waa in uu leeyahay musqul 9. Ka fogow wasakhaynta deegaanka 10. Caafimaadka wanaagsan/iska ilaali cudur 11. Iska yaree kharashka caafimaadka 12. Mid kale, sheeg _____
77	<p>Haddaysan ahayn, maxaad uga fikiri weyday dhisidda musqul?</p> <p>[Jawaab badan ayaa la oggol yahay]</p>	<ol style="list-style-type: none"> 1. Cidhiidhi dhaqaale 2. Ma jiro dhul laga dhiso musqul 3. Dhulka/dhulka oo ay adag tahay in la qodo 4. Aan garanayn sida loo hagaajiyo/dhisayo 5. Ku faraxsan meesha lagu saxaroodo

		<p>hadda</p> <ol style="list-style-type: none"> 6. Way adag tahay in kuwa kale ku heshiiyaan 7. Ma jiro qof xirfad leh/ma heli karo wax dhisa 8. Ma heli karo qalabka dhismaha 9. Mudnaan yar 10. Mid kale, sheeg_____
78	Qoyskaaga waa ayo qofka qataa go'aanka ugu dambeeya ee lagu dhisayo musqul?	<ol style="list-style-type: none"> 1. Madaxa qoyska 2. Xaaskiisa 3. Nin iyo naag wada jir ah 4. Caruurta 5. Dhammaan (goynta wadajirka ah) 6. Mid kale, sheeg _____
79	Haddii aad xiisaynayso in qof/masuul dhiso musqulahaaga, ma garanaysaa qof (dhise) kaa caawin kara dhismaha musqulaha?	<ol style="list-style-type: none"> 1. Haa 2. Maya/Weli lama aqoonsan 3. Anigaa dhisan doona musqulahaaga 4. Ma garanayo
78	Hadday haa tahay, xaggee bay ka yimaadeen?	<ol style="list-style-type: none"> 1. Tuuladaydii 2. Tuulada ka baxsan 3. Ma garanayo
81	Maxaad u dooratay qofkan? [Ha akhriyin xulashooyinka, jawaabo badan ayaa la oggol yahay]	<ol style="list-style-type: none"> 1. Xubin qoys / qaraabo / saaxiib ah 2. Leh xirfad wanaagsan iyo sumcad 3. Arkay oo jeclaaday musqul ay dhisteen 4. Ugu qaalisan 5. Mid kale, sheeg_____
82	Sideed uga baratay qofkan? [Ha akhriyin xulashooyinka, jawaabo badan ayaa la oggol yahay]	<ol style="list-style-type: none"> 1. Kulanka bulshada 2. Waxaa lagu talinayaa qoyska 3. Qaraabo/saaxiib 4. Waxaa ku taliyay mulkiilaha musqulaha 5. Waxaa soo jeediyay caaqil tuulo 6. Waxaa ku taliyey qof tuulada jooga 7. Waxaa ku taliya alaab-qeybiye

		8. Waxaa soo jeediyay NGO/hay'ad 9. Boostar/Xayeysiin 10. Radio 11. Kuwo kale, sheeg_____
83	Haddii aad shaqaaleysiiso qof aan qoyska ahayn si uu u dhiso musqul, imisa ayaad u malaynaysaa inay kugu kacayso (Birr)?	_____ Birr
84	Ma awoodid karta inaad bixiso kharashka lagu dhisayo musqulaha?	1. Haa 2. Maya
85	Haddaysan ahayn, diyaar ma u tahay inaad bixiso kharashka lagu dhisayo musqulaha adiga keligaa?	1. Haa 2. Maya
86	Haddii aad dhisatay musqul, maxay tahay qalabka dhismaha ee aad isticmaali doonta?	1. Agabka gudaha laga heli karo 2. Agabka aan deegaanka laga heli karin(xaashida birta, sibidhka...iwm) 3. Qalab isku dhafan
87	Waa maxay sababaha aad u dooratay noocyada agabka dhismaha musqulaha? [Ha akhriyin xulashooyinka, jawaabo badan ayaa la oggol yahay]	1. Qiimaha alaabta 2. Qalabka guriga ku habboon 3. Agabka ku waaraya wakhtiga ugu dheer 4. Agabka siinaya sirta ugu badan 5. Helitaanka alaabta 6. Mid kale, Cadee_____
88	Waa maxay dhibaatooyinka la xiriira sahayda qalabka dhismaha musqulaha?	1. Helitaanka aan joogtada ahayn/kala duwanaanshaha xilliyeed 2. Kor u kaca qiimaha 3. Dhibaataada gaadiidka 4. Safar dheer oo fog 5. Mid kale, sheeg_____
89	Haddii aad dhiso musqul, xageed ka iibsan lahayd alaabta?	1. Tuuladayda 2. Xafadayda 3. Kebeleyaada deriska ah 4. Magaalada u dhow 5. Ma garanayo

		6. Mid kale, Sheeg_____
90	Sideed ku bixinaysaa lacagta dhismaha musqulaha? Jawaabo dhowr ah waa la oggol yahay	1. Lacag aan ka soo amaahdo qoyska 2. Ka soo amaahdo asxaabta 3. Ka soo amaahdo loo shaqeeyaha 4. Ka soo amaahdo hay'adda deymaha 5. Ma garanayo 6. Mid kale, sheeg _____
91	Waa maxay magaca iyo goobta suuqa aad ka iibsantahayd alaabta?	1. Magaca _____ 2. Goobta _____
92	Ma dooratay Meesha aad ka disanayso musqul?	1. Haa 2. Maya
93	Maxaad u malaynaysaa inay ka dhigayso musqul wanaagsan? [Ha akhriyin xulashooyinka, jawaabo badan ayaa la oggol yahay]	1. Dabaqa la taaban karo/Sab 2. Qaab dhismeed buuxa (derbiga, saqafka, iyo albaabka oo dhamaystiran) 3. Nadiifi 4. Fududahay in la nadiifiyo 5. Dabaqa aan jabin 6. Joogto ah/ waara 7. Aan buuxin 8. Ur la'aan 9. Aan la jeexjeexin 10. Mid kale, sheeg_____
94	Maxaad u malaynaysaa inay musqul xun ka dhigayso? [Ha akhriyin xulashooyinka, jawaabo badan ayaa la oggol yahay]	1. Ur xun 2. Duqsiga/duqsigu dhibka soo jiita 3. Kharash lagu ilaalinayo 4. Ka shaqee sidii aad u ilaalin tahayd 5. Dad kale ayaa u yimaada inay isticmaalaan 6. Waxay saamaysaa tayada biyaha dhulka hoostiisa 7. Qulqulaya 8. Carro jilicsan/Pit oo dumay 9. Carruurto god bay ku dhacaan

		10. Wax khasaare ah ma leh 11. Ma garanayo 12. Mid kale, sheeg _____
95	Tusaale ahaan, haddaan ku noqdo gurigaaga hal sano laga bilaabo maanta, intee bay u badan tahay inaad gurigaaga musqul ka dhisto?	1. Aad u sarreeya 2. Sare 3. Mid sare iyo mid hoose midna 4. Hooseeyo 5. Aad u hooseeya 6. Fursad ma jirto

9.4.2. Lifaqa 2- Su'aalaha Wada Hadalka Kooxda

Hagaha Wada Hadalka Kooxda ee adaabiyeyaasha

1. Wacyigelinta Tignoolajiyada iyo Doorashada

- Waa maxay noocyada musqulaha ee aad ka warqabto? Kuwaas oo dhan ma laga heli karaa aaggan? Waa maxay sababtu?
- Noocyada musqulaha aad garanaysid, keebaad ugu jeceshahay? Maxaa ugu jeclaatay?
- Waa kuwee musqulaha aad ugu necebtahay? Maxaad ka necebtahay musqulahaan?
- Waa maxay nooca musqulaha ee aad haysatid?
- Waa maxay sifooyinka ugu muhiimsan ee lagu qeexayo meel wanaagsan oo lagu saxaroodo?
- Maxay yihiin waxyaalaha aad sida ugu fiican ugu jeceshahay musqulahaaga? Maxay waxyaalahan muhiimka kuugu yihiin?
- Ma jiraan waxyaalo aadan jeclayn musqulahaaga? Waa maxay sababtu?
- Haddii aad wax ka hagaajin karto musqulahaaga, maxaa horumar ah oo aad samayn lahayd? Waa maxay sababtu?

2. Dhiirigelin

- Ma go'aansatay in aad dhisto musqul kaligaa mise kuwa kale ayaa ku lug lahaa go'aanka? Sidee?
- Yaa saameeyay go'aankaaga? Qaabkee?
- Ugu dambayntii, maxay ahayd sababta ugu weyn ee aad u dhistay musqul? Maxay tani muhiim kuugu tahay?

- Aragtidaada, waa maxay faa'iidooyinka dhabta ah ee adiga iyo xubnaha qoyskaaga aad ku haysataan musqul guri? Sababtu/Sidee?
- Ka waran waayo-aragnimada xun, adiga iyo xubnaha qoyskaaga ma heleen wax faa'iido darro ah ama dhibaatooyin la xiriira musqulaha guriga?
- Haddii aadan haysan musqul, xagee xubnaha qoyskaaga ku saxaroodaan? Waa maxay sababtu?
- Ma jiraan xeer-hoosaadyo la xiriira nadaafadda aaggan? Kuwani ma saameeyaan go'aamada dadka ee lagu dhisayo musqulaha? Qaabkee?

3. Habka Dhismaha iyo Caqabadaha

- Mar haddii aad go'aansatey inaad dhisto musqul, ma fududa mise way adagtahay?
 - Maxay yihiin qodobbada fududeeyey?
 - Maxay yihiin arrimaha ka dhigay mid adag? [dhulka, maalgelinta, helida qof wax dhisa]
 - Markaad ka fikirto dhibaatooyinka gaarka ah ee ku soo maray, maxay yihiin siyaabo aad uga gudubtay? Ma heshay wax caawimo ah markaad dhisayso musqulahaaga? [qoyska, asxaabta, NGO-yada, dawladda hoose]
 - Hadday haa tahay, caawimo nooc ee ah? [tusaale ahaan. talo, maalgelin]
- Mudo intee le'eg ayay qaadatay hawshu, laga bilaabo go'aaminta in la dhiso si loo dhamaystiro dhismaha?
 - Maxay ahaayeen waxyaalihii go'aaminayay muddadan? [lacag-ururinta, helidda mason, agab, qaabka go'aaminta]
- Ma iskaa baad u dhistay musqulaha ama ma shaqaaleysatay xirfadlee?
 - Haddii aad keligaa wax dhisto;
 - Waa maxay faa'iidooyinka aad adigu sameysid?
 - Waa maxay faa'iido darrooyinka ay leedahay inaad adigu sameyso?
- Haddii aad shaqaaleysiiso xirfadlee:
 - Maxay yihiin faa'iidooyinka shaqaaleysiinta qof?
 - Waa maxay faa'iido darrooyinka ay leedahay shaqaaleysiinta qof?
- Ka waran qalabka dhismaha, agab nooc ee ah ayaad isticmaashay? halkee ka keentay kuwaas iyo side ayay u fududahay in la helo?
- Miyaad heshay wax deyn ah oo kaa caawinaya inaad iska bixiso kharashka dhismaha musqulaha?

- Haddii kale, haddii qof u baahan yahay credit si uu uga caawiyo rakibidda musqul ma heli karaa? Halkee?

4. Isticmaalka iyo Dayactirka Musqulaha

- Ma jiraan xubno qoyska ka tirsan oo aan isticmaalin musqulahaan?
 - Hadday haa tahay:
 - Xaggee bay ku saxaroodaan? Waa maxay sababtu?
 - Maxaay ka dareemayaan? Adiguna sidee tani ku dareensiinaysaa?
- Ma jiraan waqtiyo aanay dadka qaar isticmaalin musqulaha? [Waqtiga habeenkii, markaad ka shaqaynayso beeraha, waayeelka]
- Yaa ka mas'uul ah ilaalinta nadaafadda musqulaha?
- Nadaafadda musqulaha ma fududa mise way adag tahay? Maxaa nadiifinta fudud ka dhigaya? Maxaa ka dhigaya nadiifinta adag?
- Weligaa ma jiraan wakhti musqulahaagu ka baxay isticmaalka? Waa maxay sababtu?
 - Hadday haa tahay:
 - Maxaad samayn lahayd/ samayn doontaa marka musqushaadu ay ka maqnayd?
- Musqusha waligeed ma buuxisay? Maxaa dhacaya marka uu buuxsamo? Yaa/sidee loo faaruqiyay, mise god cusub baad qodaysaa?

5. Isgaarsiinta

- Sidee bay dadka beeshaada ku ogaadaan fikrado cusub iyo/ama alaabooyin?
- Iyadoo si gaar ah loo tixgalinayo nadaafadda, waa kuwee marinnada isgaarsiineed ee ugu wanaagsan ee loo isticmaalo in lagu gaaro dadka laguna hormariyo musqulaha guriga ee meeshan? Waa maxay sababtu?
- Aaggan, miyaad taqaanaa xeer-hoosaadyada deegaanka ee la xiriira nadaafadda? Maxay yihiin kuwan iyo sida ay waxtar u leeyihiin?

Hagaha Wada Hadalka Kooxda ee kuwa aan la qabsiga ahayn

1. Wacyigelinta Fayadhowrka Guriga iyo Farsamooyinka Musqulaha

- Waa maxay noocyada musqulaha ee aad ka warqabto?

- Noocyadan noocee ah ayaad isku dayday?
- Xagee ku tijaabisay Musqulahaas? kuwa waad isku dayday, keebaa ugu jecelatay? Waa maxay sababtu? [Baari sababaha badan ee suurtoogalka ah]
- Musqulahaas, aad isku dayday, keebaa aadan jeclayn? Waa maxay sababtu? [Baari sababo badan dartood]

2. Rabitaanka Nadaafadda Guriga

- Weligaa ma dhistay musqul qoys? Waa maxay sababtu? [Kuwa yidhi maya, baar wixii ka baxsan caqabadaha dhaqaale, oo muujinaya sida kuwan loo dhimi karo (tusaale, badbaadin)]
 - Hadday haa tahay:
 - Goorma ayaad marka hore ka fikirtay/isku dayday in aad rakibto musqul? Maxaa kaa dhigay inaad ka fikirto rakibidda musqulaha? [Baari sababo badan dartood]
 - Maxaa kuu diiday in aad qorshahaaga horay u sii waddo ilaa hadda? [Baari sababo badan dartood]
 - Waa maxay nooca musqulaha ee aad dhistay?
- Ma rabtaa inaad rakibto musqul guriga ah hadda? Haddii kale, waayo? [Baari sababo badan dartood]
- Haddii aad hadda dhisi lahayd musqul noocee ah ayaad dhisi lahayd? Waa maxay sababtu?
 - Maxay yihiin sifooyinka gaarka ah ee ay yeelan lahayd?
 - Maxay astaamahan muhiimka kuugu yihiin?
 - Ma jiraan wax dhibaato ah oo kuwan ka mid ah oo kaa joojinaya rakibiddooda? [baari kharashka? Waqtiga? Xirfad? iwm...]
 - Miyaad ka fikiri kartaa siyaabo aad uga gudubto mid ka mid ah kuwan si aad awood ugu siiso qorshahaaga inuu nolosha la yimaado?
 - Intee in le'eg ayay kula tahay in musqulaha noocan ahi uu qaadan doono dhismihiisa? Waa maxay sababtu? Qiimaha alaabta? Lacag caddaan ah? Nooc ahaan?
 - Ma tixgelin lahayd musqul la'aanteed sifooyinkan? Waa maxay sababtu?

3. Shaqaalaysiiya qof dhisa musqul

- Ma taqaan qof dhisi kara musqulo?
- Ma ku fikiri lahayd inaad u isticmaasho si aad u dhisto musqul? Waa maxay sababtu?

- Intee in le'eg ayuu qofka kugu soo dalacayaa si aad u dhiso musqulaha?

4. Dhaqanka Saxarada Hadda (Hadda ka fekeraya gurigan gaar ahaan)

- Xaggee xubnaha reerkaagu ku saxaroodaan? Waa maxay sababtu? [Baari sababo ka baxsan caqabadaha lacagta caddaanka ah]
- Dhammaan xubnaha qoysku ma isticmaalaan meel lagu saxaroodo? Waa maxay sababtu? [waayeel, caruur, soddog]
- Waa maxay faa'iidooyinka ugu muhiimsan ee aad kala kulanto meeshan lagu saxaroodo? [Baari sababo badan dartood]
- Maxaad ka necebtahay meesha aad hadda ku saxarooto? [Baari sababo badan dartood]

5. Isgaarsiinta

- Sidee bay dadka beeshaada ku ogaadaan fikrado cusub iyo/ama alaabooyin?
- Iyadoo si gaar ah loo tixgalinayo nadaafadda, waa kuwee marinnada isgaarsiineed ee ugu wanaagsan ee loo isticmaalo in lagu gaaro dadka laguna hormariyo musqulaha guriga ee meeshan? Waa maxay sababtu?
- Aaggan, miyaad taqaanaa xeer-hoosaadyada deegaanka ee la xiriira nadaafadda? Maxay yihiin kuwan iyo sida ay waxtar u leeyihiin?

9.3 Lifaaqa 3- Su'aalaha waraysiga oo qoto dheer

Tilmaame-waraysi qotodheer oo loogu talagalay mas'uuliyiinta degmada, shaqaalaha barnaamijka, shaqaalaha NGO-ga

1. Ma ii sheegi kartaa khibradaada barnaamijyada musqulaha ee kala duwan ee degmadaada?
2. Degmadan, ma ii sheegi kartaa noocyada kala duwan ee musqulaha laga isticmaalo tuulooyinka miyiga?
3. Degmadan, maxay yihiin dhiirigeliyayaasha ugu muhiimsan ee qoysaska si ay u dhistaan musqul?
4. Degmadan, maxay yihiin caqabadaha ugu muhiimsan ee qoysasku u dhisayaan musqul?
5. Fikradaada, waa ayo dadka ugu saamaynta badan bulshadan si ay ugu dhiirigeliyaan dadka inay dhistaan musqul?
6. Ma ii sheegi kartaa dadka bixiya adeegyada lagu dhisayo musqulaha degmadaada?

7. Maxay yihiin caqabadaha ugu waaweyn ee khuseeya adeeg bixiyayaasha gaarka ah ee dhismaha musqulaha?
8. Halkee ayay qoysasku ka helaan agabka ay u isticmaalaan inay ku dhistaan musqulo? Waa maxay caqabadaha ku wajahan arrintan?
9. Maxaad u malaynaysaa inay tahay habka ugu waxtarka badan ee lagu abaabuli karo laguna saamayn karo dadka inay dhistaan musqulahooda?
10. Maxaad u aragtaa doorka ugu muhiimsan ee dowladda ee qaybta nadaafadda?
11. Sidee u malaynaysaa in doorkan si wanaagsan loo gaaray?

Tilmaamaha waraysiga qotodheer ee bixiyaha nadaafadda

1. Macluumaadka bixiyaha adega musqulaha

1.1 Magaca bixiyaha adeegga musqulaha: _____

1.2. Goobta deganaanshaha: _____

1.3. Faahfaahinta xiriirka: _____

1.4. Galmada: _____

1.5. Da'da: _____

1.6. Heerka waxbarashada tooska ah: _____

1.7. Guriga bixiyaha ma leeyahay musqul (y/n): _____ Haddii ay haa tahay, ku qor: _____

1.8. Sannadaha waayo-aragnimada dhismaha musqulaha: _____

1.9. Ganacsiga dhismaha musqulaha: (waaxda rasmiga ah ama aan rasmiga ahayn) _____

1.10. Goobaha adeega maxaliga ah ee bixiyaha ka shaqeeyo: _____

1.11. Xirfadaha dhismaha musqulaha iyo adeegyada la bixiyo: _____

1.12. Sida xirfadaha dhisidda musqulaha/ganacsiga lagu bartay/la helay: _____

1.13. Xirfadaha iyo adeegyada aan musqulaha ahayn ee la bixiyo (tusaale, mason (guud), musqul kaliya) ama qodaal): _____

1.14. Tirada shaqaalaha/kaaliyayaasha la kiraysto: _____

1.15. Waa maxay noocyada iyo qaababka naqshadaynta musqulaha ee aad dhisto? (Qor dhammaan noocyada iyo qaababka) _____

1.16. Kuwa ugu caansan ee la dhisay: _____

2. Sharaxaada Ganacsiga:

- Ma waxaad tahay farsamo yaqaan/qodiye waqti-dhiman ama waqti-buuxawaxaad shaqeeya?
- Haddii aysan ahayn waqti-buuxa, miyaad haysaa shaqo (yo) iyo ilo kale oo dakhli?

3. Sawir-nololeed kooban oo bixiyaha adeegga ah iyo taariikhdiisa ganacsi, oo ay ku jiraan:

- Waa maxay dakhligaaga bishii iyo sannadlaha ah?
- Haddii aad shaqaale leedahay, waa imisa tiradodu iyo nooca shaqaaluhu?
- Waa maxay hantida (qalabka) iyo raasamaal kale oo aad haysatid
- Miyaad isticmaashaa deyn ama amah? Halkee?
- Waa maxay xidhiidhkaaga ama la shaqayntaada dawlada hoose?

4. Aqoonta iyo waayo-aragnimada:

- Ma dhigataa tababar rasmi ah (tusaale, machadka farsamada gacanta)?
 - Goorma?
 - Halkee?
 - yaa iska leh?
- Immisa sano ayaad shaqeysay?
- Immisa musqulood ayaad dhistay guud ahaan (qiyaastii)?
- Immisa musqulood ayaad dhistay 12-kii bilood ee la soo dhaafay?
- Celcelis ahaan imisa musqulood ayaad dhistay bishii?
- Xagee ka dhistay musqulo?

5. Noocyada musqulaha iyo sifooyinka la dhisay iyo kharashyada ku baxay mid kasta

- Immisa Birr ayaad ku dalacaysaa dhismaha:
 - Musqulaha godad dhaqameed
 - Musqulaha hawo-mareenka oo hagaagay (VIP).
 - Mid kale (sheeg): _____

- Immisa birr ayaad ka qaadaysaa dhismaha:
 - God leydi ah, cagtii/mitir, la qoday
 - God wareeg ah, cag/mitir, la qoday
 - Dahaarka godka, cag/mitir, safan
 - Taangiyada septic-ga ee armaajooyinka biyaha
 - Sagxada sagxada, fadhiga/daloolada
 - Qaab-dhismeedka sare ee nooc ahaan, qaab ahaan

6. Waa maxay qaababka/qaababka ay macaamiishu door bidaan? Waa maxay sababtu? Yaa reerka ka mid ah ayaa kuwan weyddiista? Qayb ahaan:

- Qaabka godka iyo doorbidida qoto dheer, waayo?
- Sagxada sagxada, alaabta, iyo cabbirka, waayo?
- Cabbirka fadhiga/daloolka-dhicista, sifooyinka, sababtu?
- Cabbirrada qaab-dhismeedka sare, tirada qolalka, alaabta, sifooyinka, dhinacyada

7. Yaa iibsada alaabta:

- Xaggee, goorma, iyo wax dhibaato ah oo arrintan la xidhiidha?
- Waa maxay kharashyada qiyaas ahaan?

8. Qalabka dhismaha

- Waa maxay nooca agabka loo isticmaalo dhismaha musqulaha?
- Sideed ku bixisaa iibsiyadan?
- Sidee bay agabku uga helaan bixiyaha ilaa goobta dhismaha?

9. Intee in le'eg ayay qaadanaysaa (muddo) in la dhiso (musqulaha ugu badan):

- Musqulaha godad dhaqameed
- Musqulaha hawo-mareenka oo hagaagay (VIP).
- Wax kale (sheeg): _____

10. Dhibaatooyinka ay kala kulmaan dhismaha musqulaha

- Waa maxay dhibaatooyinka ugu waaweyn ee kaa haysta dhismaha musqulaha sida:
 - Dhibaatooyinka ciidda, mulkiilayaasha guryaha oo leh boos kooban, dhibaatooyinka miiska biyaha?
 - Dhibaatooyin kale oo maamulka noocuu doono ha ahaadee?

- Waa maxay caqabadaha ama dhibaatooyinka ay adeeg bixiyayaasha kala kulmaan musqulaha dhismaha ee shaqada?

11. Macaamiisha

- Waa maxay astaanta caadiga ah ee macaamiisha musqulaha iyo halkee ayay macaamiisha badankoodu ku yaaliin?
- Sideed ku garan kartaa macaamiisha cusub?
- Waa maxay caqabadaha, dhibaatooyinka, ama dhibaatooyinka ay dadku kala kulmaan dhismaha musqulaha?

12. Iibka

- Ganacsigu ma yahay mid xilliyeedka si uun ah, haddii ay sidaas tahay, waayo? Sideed u maamushaa tan?
- Ma leedahay ganacsi ka badan inta aad xamili karto, mise ma jeceshahay inaad balaadhiso ganacsigaaga? Hadday sidaas tahay,
- Waa maxay fikradaha/qorshayaasha ballaadinta?
- Ma jeclaan lahayd inaad hesho macaamiil badan oo dhismaha musqulaha ah?
- Waa kuwee noocyada musqulaha ee aad doorbidi lahayd inaad dhiso maxaase sababay?

13. Shuruudaha lacag bixinta

- Lacagtaada ma ku heshaa hal mar ama qayb marxadaha kala duwan ee shaqada?
- Miyaad ku shaqeysaa si ku saleysan deyn?
- Dhibaatooyin ma kula kulmaan lacag-ururinta?

14. Xeeladaha suuqgeynta

- Sideed shaqo ku heshaa?
- Sidee ayay macaamiishu wax uga bartaan adeegyadaada?
- Sidee macaamiishu kula soo xidhiidhaan?
- Si kastaba ma u xayeysiisaa?
- Weligaa ma u tagtaa guri-guri si aad u soo codsato macaamiil cusub?

15. Maxaa fikrado ah oo aad ka qabtaa sida loo horumariyo ama loo balaadhiyo adeegyadaaga dhismaha musqulaha?

- Sideed hoos ugu dhigi kartaa kharashka macaamiisha si ay in badan oo iyaga ka mid ahi u awoodaan inay dhistaan musqul?
- Sidee u dhisi lahayd musqulo ka badan inta aad hadda ku saameynayso oo aad u bedesho habka aad u habaynayso shaqadaada hadda?
- Sideed u sii wadi kartaa dhisidda musqulo waqtiyadaas oo dadku aanay haysan lacag ay ku bixiyaan?