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Latrine utilization and associated factors among kebeles implementing and non implementing Urban Community Led Total Sanitation and Hygiene in Hawassa town, Ethiopia

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A major public health problem in developing countries including Ethiopia is related with poor sanitation and hygiene. Globally, over 2.5 billion people are still without access to improved sanitation. In 2010, 15% of the population still practice open defecation. The main objective of this study was to compare the latrine utilization rate and identify determinant factors among kebeles implementing and not implementing Urban Community Led Total Sanitation and Hygiene (UCLTSH) in Hawassa town. Comparative cross sectional study design was carried out in Hawassa town in 704 households in 3 kebeles undertaken UCLTSH and in randomly selected comparison 3 kebeles where UCLTSH was not implemented. Data entry and cleaning was undertaken by using EPI-info version 3.5.3 and analyzed using SPSS version 20. Multivariate logistic regression was used for independent variables with statistical significant association in bi-variate analysis. In this study, majority of the households 318 (90.3%) of UCLTSH implementers and 299 (85.4%) of non-implementers utilized latrines. The odds of latrine utilization were 1.59 times among households implementing UCLTSH compared with that among non UCLTSH [OR 1.59, 95% CI (1.00, 2.53)]. In relation to functional latrine, it was one of the factors affecting latrine utilization [AOR 28.26, 95% CI (13.03, 61.27)]. This study shows communities implementing urban community led total sanitation and hygiene was better in latrine utilization and having latrine facility than non-implementers. It is recommended that the town health office and municipality should expand the UCLTSH to other kebeles of the town.

Key words: Latrine utilization, urban community led total sanitation and hygiene, Hawassa town, Ethiopia.

INTRODUCTION

Globally, lack of sanitation is a serious health problem, affecting billions of people around the world, predominantly the third world country [1, 2]. Sanitation is essential for life health and human dignity. When human

beings do not have access to sanitation facilities, they suffer a lot in the overall socio-economic and environmental existence. The main health problems, especially in developing countries like Ethiopia, are results of poor access of potable water, poor hygiene and sanitation practices. In these cases, sanitation is a basic necessity that affects everyone's life. Proper disposal of household waste is of critical important to prevent feco-oral and vector borne diseases (Cairncross, 2003).

Globally, over 2.5 billion people are still without access to improved sanitation. In 2010, 15% of the population still practice open defecation (Ammar, 2010). Bangladesh is one of the poorest countries in the world with a large number of people still living without improved sanitation (Kar and Pasteur, 2005).

The Ethiopian Hygiene and Sanitation Strategy aggressively calls for all households to have access to and use a sanitary latrine; as the country yet swing at lowest status where 84.5% of the population still uses substandard sanitation and hygiene facilities; even where toilets exist, many are not used and open defecation is common. Most of toilets of urban households are fixed point open defecation places (Plan international Ethiopia, 2014).

Community-Led Total Sanitation (CLTS) is an integrated approach to achieving and sustaining open defecation free (ODF) status. CLTS processes can precede and lead on to, or occur simultaneously with, improvement of latrine design, the adoption and improvement of hygienic practices, solid waste management, waste water disposal, care, protection and maintenance of drinking water sources, and other environmental measures. In many cases, CLTS initiates a series of new collective local development actions by the ODF communities (Kar and Chambers, 2008).

For plan international undertaking CLTS activities in Africa (Singeling, 2012; Ammar, 2010), the approach was first introduced in Ethiopia in October 2004 when DrkamalKar visited Arba Minch, in Ethiopia, to conduct training activities for the staff of an Irish NGO, engaged in integrated rural development (Kar and Milward, 2011). Community led total sanitation and hygiene is effective in many countries, the plan project in Ethiopia is really getting successful. In 2010, only 10 kebeles (smallest administrative unit) were triggered. By the end of 2011, 46 kebeles with 47,846 households have gained access to safe sanitation and hygiene services by reaching ODF (Singeling, 2012).

Currently, CLTSH implementation is one of the approaches used to improve hygiene and sanitation status of the people, and its implementation in rural set up in many parts of Ethiopia. The focus of rural CLTSH is to trigger the community and announcing of free open defecation. Its main objective is to focus on open defecation, open urination, open waste disposal and poor waste handling and sanitation practice. However, in urban set up, its effectiveness is not well studied so far, CLTSH practice in urban context is not familiar. Hawassa town is the pioneer town that started to implement urban community led total sanitation and hygiene. So, this study was to help compare the latrine utilization among communities implementing and non-implementing Urban Community led Sanitation and Hygiene (UCLTSH) in Hawassa town.

This study contributes in identifying current status of hygiene and sanitation in UCLTSH and non CLTSH communities of Hawassa town and compare about latrine utilization among UCLTSH implementing and in non UCLTSH implementing and also identify other contributing factors for latrine utilization. The study is important for policy makers, implementing partners and community to resolve the problems related to sanitation, in planning and to take remedial action and modification on implementation of urban community led total sanitation and hygiene. It will also offer base line information for further similar studies.

METHODOLOGY

Study setting

The study was conducted in Hawassa town Southern Nations and Nationality People Region (SNNPR) from December 30, 2014 to January 5, 2015. The town is situated 275 km to south of Addis Ababa. Hawassa town is divided into 7 urban sub cities containing 32 kebeles and one rural sub city having 12 kebeles. The total population of Hawassa town is 356,288 from this 51.7% were male the remaining 48.3 were female and the total households of the town were estimated to be 79,175 (Hawassa Town Health office, 2013). Plan International Ethiopia piloted well designed Urban CLTSH in three kebeles in the urban slum villages/units in Hawassa town as of August, 2013.

Study design

Comparative cross sectional study design was conducted in six kebeles of which three kebeles were from UCLTSH implemented and three kebeles from non UCLTSH.

Study population

The study populations were all randomly selected households from each selected kebeles of Hawassa town (Piyasa, Harari, Nigatkokobe, Wukero, Hoganewacho and Gebeyadarkebeles).

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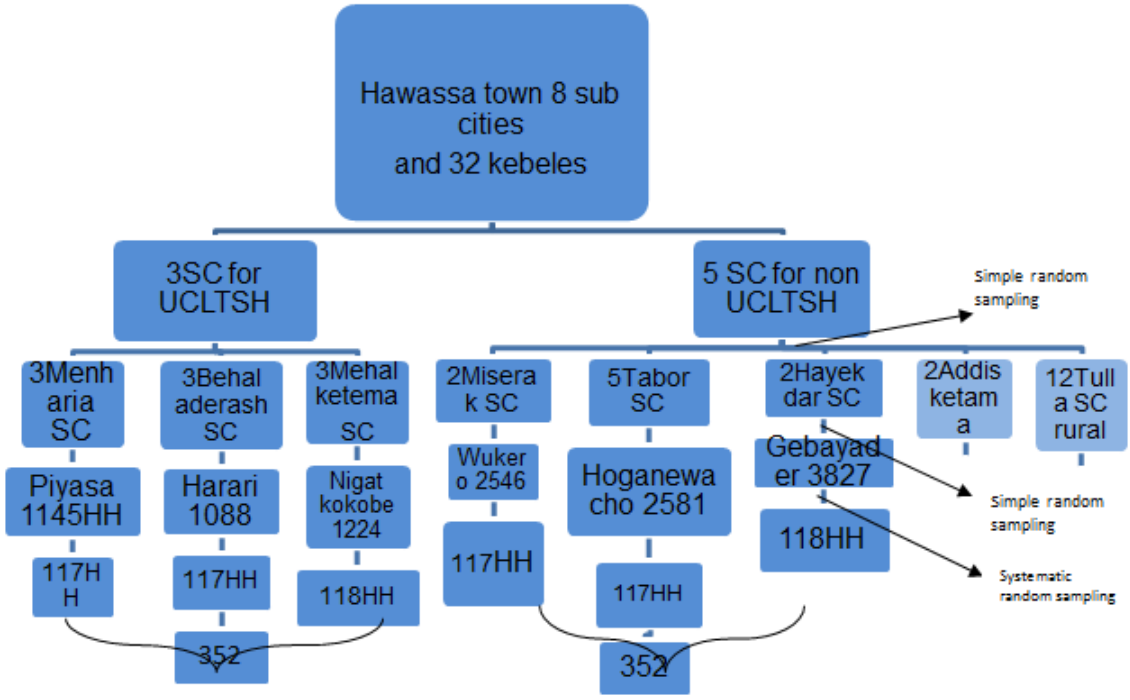

Figure 1. Diagrammatic presentation of sampling procedure.

Inclusion criteria

All selected households head or member of household >18 years and stay in the area for at least 6 months before data collection date.

Exclusion criteria

Households those who were unable to respond due to mental disorder or other health problem were excluded from the study.

Sample size determination

The sample size was calculated using a two proportion sample size calculation equation in Epi Info Version 3.5.1. With the following assumptions; Zα/2=1.96 at 95%CI, Zβ= power of detection (80%), P1:P2=1:1. Assuming the proportion of latrine utilization among the general urban population is 62% (P1) among those who have accessed latrine (Awoke and Muche, 2013), and assuming to detect a difference of 10% between latrine utilization among the two population (Exposed to CLTSH and not exposed to CLTSH), the sample size was 320 (n1=160+ n2= 160). The total with 2.0 design effect and 10% contingency is 704 (352 each).

Sampling procedures

Multi stage sampling technique was used. Hawassa town was selected purposively. From the 7 urban sub cities, three kebeles in 3 sub city which has already undertaken UCLTSH starting from August 2013 were considered purposively. Concerning non UCLTSH from the remaining four (Ammar, 2010) urban sub cities, 3 sub cities were selected randomly and one kebeles from each selected sub city not implementing UCLTSH was selected in the same way as sub city. Finally, households were selected using systematic random sampling from each 6 kebeles (Figure 1).

Data collection procedures

The questionnaire was adapted from previous literature on sanitation based study. This questionnaire was translated from English language to Amharic for easy understanding of data collectors and respondents. Data was collected through interview by using structured questionnaire and observation of latrine followed after interview. Ten college graduated students that have previous experience on data collection were recruited as data collector and 2 supervisors with environmental health back ground were participated during data collection.

Data quality assurance

Training was provided for data collectors and supervisors before actual data collection took place. The training was focused on how to fill the questionnaire and how to approach the respondents. A pretest was undertaken on 32 households which were not included in the study a week before actual data collection period. The aim was to figure out any difficulty in filling the questionnaire, challenges in interviewing and to check if there is miss understanding of the questions by enumerators. The pre-test also helped to check consistency and the same understanding. The supervisors were collecting completed questionnaires from each enumerator in daily bases and checking the consistency and the completeness at the

spot.

Data analysis procedures

The collected data was coded, cleaned and entered to computer by using EPI-info version 3.5.3 and data were entered double by principal investigator and other experienced personnel to cross check and ensure the consistency of data and transformed to SPSS version 20 for detail analysis.

Descriptive statistics, such as proportion describing the study population in relation to variables and latrine utilization was used to address objective one (latrine utilization). Odds ratio with 95% confidence interval was calculated for objective two. Bi-variate analysis was conducted and these variables significant in a bi-variate analysis were further analyzed in multi-variate analysis in order to control confounders that may affect the association of outcome and exposure variables. Some selected variables that are significantly associated with dependent variable at bi-variate analysis were further analyzed in the multi-variate to identify their related effects among communities implement UCLTSH and non-implementers.

Finally, multivariate logistic regression was used for independent variables with statistical significant association in bi-variate analysis at P-value <0.05 to control confounders. P-value less than 0.05 were taken as significant. The result of the study was also displayed by percentage and tables on findings of the study.

Operational definitions

Community-Led Total Sanitation and Hygiene (CLTSH): Emphasizes changing sanitation and hygiene behavior of communities towards open defecation free environment, hand washing practice and keeping drinking water safe (Kar and Chambers, 2008).

Functional latrine: It is a latrine usable at the time of data collection.

Proper latrine utilization: Is an household having functional latrines, safe disposal of child faeces, no observable faeces in the compound and show at least one sign of use (foot path to the latrine not covered by grass, the latrine is smelly, presence of anal cleansing material, fresh faeces in the squatting hole, and the slab is wet).

Utilization of latrine: When all members of family are using the latrine.

Safe disposal of child faeces: Use toilets and do not dispose children's faeces in the open.

Open defecation: Is defecating in the open and leaving the stuff exposed (FMOH, 2012; HawassaTown Health office, 2013).

Open defecation free: It describes a state in which all community members practice use of latrine at all times and a situation wherein no open defecation is practiced at all (Kar and Chambers, 2008).

Knowledge: Is a result of meaningful learning, information or understanding acquired. Good knowledge if≥75%, the overall knowledge questions (Q301-306) answered.

Attitude: Refers to evaluation of concept and there is a mediating evaluation response to every stimulus, towards all objects, which may be positive or negative or neutral. Good (positive attitude toward over all scores of ≥ 70% to attitude questions) (Q401-406).

Ethical consideration

Ethical clearance was obtained from Addis Continental Institute of Public Health and official letter was written from Adama Science and Technology University to SNNP regional health bureau and to respective offices to get permission to proceed the study. Verbal consent was obtained after explaining the purpose of the study. The confidentiality of the data was also informed before interview was started, any information forwarded was kept private and his/her name was not specified. Each household was asked at least for oral consent and those households that did not volunteer for the consent was not obligated. Only household's willing to take part in the study was interviewed. The question was asked by simple and local language.

RESULTS

Socio demographic characteristics of respondents

In this study, a total of 702 households participated, among these 339 (48.3%) were male and 363 (51.7%) were female respondents. Two hundred eight (64.5%) and 238 (79.6) of the head of the household were husband among UCLTSH implementers and non-implementers, respectively. One hundred thirty one (41.2%) of the respondents among UCLTSH implementer were of age between 30 and 44 and 163 (54.5%) of non CLTSH implementer were above the age of 45. The mean age of the respondents was 44.9 SD, that is, 44.9 (15.2). The educational status of the UCLTSH implementer were 280 (88.1%) and 238 (79.6%) were literate, respectively. In respect to family size, unfortunately the majority range between 4 and 6 family members for both groups, that is, 164 (51.6%) and 140 (46.8%) for UCLTSH implementers and non-implementers, respectively. The mean family size was 5.7 SD, that is, 5.7 (2.9).

Concerning the marital status, majority were married 199 (62.6%) and 203 (67.9%) for UCLTSH implementer and non-implementers, respectively. Two hundred two (63.6%) of UCLTSH implementers were orthodox religion followers, while 135 (45.2%) of non UCLTSH implementers were protestant religion followers. Regarding the ethnic origin of the respondents, majority were Walita in both group 94 (29.6%) and 88 (29.4%) among UCLTSH and non UCLTSH, respectively and followed by Sidama.

Concerning the occupation of the head of house hold, 91 (28.6%) of them engaged in private, government and NGOs as employee among UCLTSH implementers and 101 (33.8) were engaged in merchant among non UCLTSH implementers. Majority of the income of the households were below 1000 Ethiopian birr in both groups. There was no statistical difference in some

variables like number family size P-value (0.25), age of the respondents P-value (0.66), occupation of the head of the house hold P-value (0.74) and average monthly income P-value (0.16). On other hand, there were statistical difference observed between implementers and non-implementers of UCLTSH in educational status of the head of the house hold P-value (0.05) (Table 1).

Latrine facility

Majority of the households 346 (98.3%) and 330 (94.3%) among UCLTSH implementers and non-implementer have latrine facility, respectively, however, 28 latrines from implementers and 31 from non-implementers have no any super structure. Type of latrine facility owned, 99 (31.1%) of UCLTSH implementers have pit latrine with concrete slab, while 128 (42.8%) of non-implementers owned ventilated improved latrine. In relation to pour flush latrine 44 (13.8%) and 18 (6%) among UCLTSH implementers and non-implementers, respectively.

Two hundred and six (64.8%) among UCLTSH implementers and one hundred forty nine (49.8%) among non-implementer's latrine facilities were constructed before three years. Majority of the respondents, 314 (98.7%) among UCLTSH implementers and 293 (98.0%) among non-implementer have functional latrine.

One hundred and thirteen (35.5%) of UCLTSH implementers and ninety-four (31.4%) of non-implementers covered their latrine holes. Reason for not having any type of latrine facility 15 (57.7%) were due to shortage of money and 11 (42.3%) due to lack of space. Concerning the distance of latrine from home, the highest 112 (35.2%) among UCLTSH implementers ranged from 6 to 11 m, while 143 (47.8%) among non-implementers is above 11 m.

There was no statistical difference in relation to distance of latrine from house, functional latrine and latrine with covered hole with a P-value of 0.24, 0.46 and 0.28, respectively between the two comparisons groups. On the other hand, there were statistical difference observed between implementers and non-implementers of UCLTSH in availability of latrine, type of latrine owned and year since latrine constructed (Table 2).

Behavioral factors

Two hundred thirty three (73.3%) among UCLTSH implementers and one hundred fifty six (52.2%) of non CLTSH implementers were self-initiated to construct latrine. Result indicates that in both groups, majority of the decision to construct latrine was made by family member's initiation, which is 275 (86.5%) among UCLTSH implementers and 187 (62.5%) among non-implementers.

Concerning utilization of latrine, majority of the respondents, that is, 318 (90.3%) of UCLTSH implementers and 299 (85.4%) of non-implementers utilized their latrine facility. Among those exercising open defecation, majority were children in both groups, 27 (96.2%) among UCLTSH implementers and 25 (80.6%) among non-implementers. Concerning adult, 3.8 and 19.4% among UCLTSH implementers and non-implementer's exercise open defecation, respectively.

One hundred and fifty-two (47.8%) of CLTSH implementers and one hundred and ninety-three (64.5%) of non-implementers can prohibit passerby if they exercise open defecation. Two hundred and thirty-eight (74.9%) of UCLTSH implementers and 229 (76.6%) of non-implementers refuse to defecate open when they are out of their house and when urgent. Almost one third of both groups feel ashamed if they defecate open.

Twenty-six (8.2%) among UCLTSH implementers and 9 (3.0) among non-implementers have beliefs or taboos with location/sharing of latrines. Concerning benefits of latrine, 180 (56.6%) among UCLTSH groups and 215 (71.9%) on non-UCLTSH group, perceived that it prevent or reduce flies. Knowledge about using toilet preventing disease, the majority of respondents (98.8%) among UCLTSH implementers and 98.9% among non-implementers agree or have better knowledge.

Two hundred and sixty-two (82.4%) of UCLTSH implementers and one hundred eighty (60.2%) of non-UCLTSH implementers reason for construction of latrine was health purpose. The perceived de-motivating factors towards the adoption of safe hygienic practices 155 (48.7%) among UCLTSH implementers were due to poor living condition, while 136 (45.5%) among non-UCLTSH implementers were due to low literacy (education) level.

There were no statistical differences in some variables like source of information or who initiate you to construct latrine P-value (0.21), what will you do when passersby practice open defecation P-value (0.65), what would you do when you are out of the house and in urgency P-value (0.6), what you feel if defecating openly P-value (0.24), benefits of latrine P-value (0.65), who open defecate p-value (0.06) and what are the perceived de-motivating factors towards the adoption of safe hygienic practices P-value (0.43). On the other hand, there were statistical difference observed between implementers and non-implementers of UCLTSH in latrine utilization, who decided to construct latrine and belief/taboos with location/sharing use of latrines (Table 3).

Institution/Infrastructure related factors

In this study, among 352 households implementing UCLTSH, only 168 (47.7%) were declared open defecation free. One hundred fifty (47.2%) of the respondents among UCLTSH implementers and 232

Table 1. Socio-demographic characteristics of the respondents in Hawassa town January, 2015 (n=702).

Characteristics	UCLTSH utilized latrine (N=352)		Non UCLTSH utilized latrine (N=350)		P-value
	Number	%	Number	%	
Head of the household					
Husband	208	64.5	238	79.6	
Wife	81	25.0	52	17.4	0.52
Others*	29	10.5	9	3.1	
Educational status of head of HH					
Illiterate	38	11.9	61	20.4	0.05
Literate	280	88.1	238	79.6	
Family size					
≤3	59	18.6	53	17.7	
4-6	164	51.6	140	46.8	0.25
>7	95	29.8	106	35.5	
Marital status					
Married	199	62.6	203	67.9	
Single	30	9.4	12	4.0	0.92
Widowed	68	21.4	63	21.1	
Divorced	21	6.6	21	7.0	
Religion					
Protestant	104	32.7	135	45.2	
Orthodox	202	63.6	107	35.8	0.03
Muslim	10	3.1	25	8.4	
Catholic	2	0.6	32	10.6	
Ethnicity					
Sidama	35	11.0	71	23.7	
Amahra	86	27.0	44	14.7	
Oromo	43	13.6	34	11.4	
Waliyta	94	29.6	88	29.4	0.65
Gurage	30	9.4	38	12.7	
others**	30	9.4	24	8.1	
Age of Respondent					
18-29	65	20.4	30	10.0	
30-44	131	41.2	106	35.5	0.66
>45	122	38.4	163	54.5	
Occupation of the head of HH					
Merchant	70	22.0	101	33.8	
GO/NGO/Private employee	91	28.6	91	30.4	
House wife	78	24.6	53	17.7	0.74
Daily laborer	42	13.2	22	7.4	
Others***	37	11.6	32	10.7	
Average monthly income					
≤500	91	28.6	49	16.4	0.16

Table 1. Cont.

501-1000	95	29.9	97	32.4
1001-2000	75	23.6	80	26.8
2001-5000	57	17.9	73	24.4

*Relatives; **Tigre, selite, kambata, Hadiya; ***student, retired people.

Table 2. Latrine facility distribution of respondents of Hawassa town Jan, 2015 (n=702).

Characteristics	UCLTSH utilized latrine (352)		Non-UCLTSH utilized latrine (350)		X^2 test	P value
	Number	%	Number	%		
Availability of latrine facility						
Yes	346	98.3	330	94.3	7.91	0.005
No	6	1.7	20	5.7		
Type of latrine owned						
Pour flush	44	13.8	18	6.0	59.4	0.0001
VIP	81	25.5	128	42.8		
Pit latrine with slab	99	31.1	101	31.8		
Composting latrine	94	29.6	52	17.4		
Year since Latrine constructed						
Less than 1 year	24	7.5	22	7.4	58.55	0.0001
1-2 years	32	10.1	38	12.7		
2-3 years	56	17.6	90	30.1		
Greater than 3 years	206	64.8	149	49.8		
Functional latrine						
Yes	342	97.2	323	92.3	8.34	0.003
No	10	2.8	27	7.7		
Latrine covered hole						
Yes	113	35.5	94	31.4	1.16	0.28
No	205	64.5	205	68.6		
Distance of latrine from house						
<6 m	97	30.5	60	20.1	2.85	0.24
6-11 m	112	35.2	96	32.1		
>11 m	109	34.3	143	47.8		
Design of latrine meeting all family interest						
Yes	215	61.0	178	50.9	7.44	0.006
No	137	39.0	172	49.1		

(77.6%) among non-UCLTSH implementers said that the poorest of poor helped to have latrine by NGOs or government. In this study, 82 (11.7%) of the households construct their latrine through financial and material subsidiary support from NGOs.

One hundred and thirty-five (42.5%) of declared ODF among UCLTSH implementer's practice was followed by the team after certification. Concerning the leader of

Table 3. Knowledge and behavioral factors of study population in Hawassa town January, 2015 (n=702).

Characteristics		UCLTSH (352)		Non-UCLTSH (350)		X^2 test	P value
		Number	%	Number	%		
Source of information to construct latrine							
Health workers	554	73	22.9	134	44.8		
Self-initiation	79.7	233	73.3	156	52.2	3.04	0.21
Imposition from others	129	12	3.8	9	3.0		
Who decided to construct latrine							
Family members		275	86.5	187	62.5		
Health professionals		14	4.4	106	35.5	58.94	0.0001
Implementing agency		9	2.8	3	1.0		
Kebele leaders		20	6.3	3	1.0		
Utilization of latrine (by all family members)							
Yes		318	90.3	299	85.4	3.97	0.04
No		34	9.7	51	14.6		
Who open defecate							
Adults		1	3.8	6	19.4	3.50	0.06
Children		27	96.2	25	80.6		
What will you do when passersby practice open defecation							
Nothing		70	22.0	31	10.5		
Prohibit him		152	47.8	193	64.5	1.62	0.65
Inform to committee		96	30.2	75	25.0		
What would you do when you are out of the house and in urgency							
Resist to defecate openly		238	74.9	229	76.6		
Defecate but burry it		37	11.6	47	15.7	1.83	0.6
Others*		43	13.5	23	7.7		
What you feel if defecating openly?							
Nothing		7	2.2	12	4.0		
Fear		75	23.6	69	23.1	2.8	0.24
Shame		236	74.2	218	72.9		
Belief /taboos with location/sharing use of latrines							
Yes		26	8.2	9	3.0		
No		292	91.8	290	97.0	7.6	0.005
What are the taboo in sharing and use							
Throwing the faces as far as away from is good		22	84.6	8	88.9	0.06	0.8
Collecting feces in one place is not good		4	15.4	1	11.1		
Benefits of latrine							
Reduce flies		180	56.6	215	71.9		
Reduction of bad smell		105	33.1	53	17.7	1.6	0.65
Prevention of disease		30	9.4	15	5.1		

Table 3. Cont.

Built latrine for privacy and conveniences	3	0.9	16	5.3		
Reason for construction of latrine						
Health	262	82.4	180	60.2		
Privac**y**	27	8.4	97	32.4	3.04	0.21
Accessibility	29	9.2	22	7.4		
What are the perceived de-motivating factors towards the adoption of safe hygienic practices						
Unemployment	21	6.6	35	11.7		
Low income	35	11.0	34	11.4		
Poor living condition	155	48.7	89	29.8	3.79	0.43
Low literacy level	96	30.2	136	45.5		
Lack of recreational facility	11	3.5	5	1.6		
Using toilet preventing disease						
Agree	314	98.8	296	98.9		
Disagree	2	0.6	1	0.3	0.43	0.80
Neutral	2	0.6	2	0.7		
Discussion the idea of latrine						
Yes	193	54.8	155	44.3	7.8	0.005
No	159	45.2	195	55.7		

Others*Defecate in neighbor toilet

ODF, 42.9, 21.4, 19.6, 13.6 and 2.6% were led by communities, government, health expert (health extension professionals), NGOs and others like community based and faith based organizations, respectively (Table 4).

Predictors for latrine utilization

Some selected variables that are significantly associated with dependent variable at bi-variate analysis were further analyzed in the multi-variate analysis to identify their related effects in latrine utilization. The extent of latrine utilization is better among households implementing UCLTSH with [OR 1.59, 95% CI (1.00, 2.53)]. In relation to functional latrine, it was one of a factor affecting latrine utilization with [OR 28.26, 95%CI (13.03, 61.27)]. Other factors affecting latrine utilization were latrine with hole cover [OR 2.02, 95% CI (1.16, 3.53)], presence of human excreta in the compound [OR 0.21, 95% CI (0.13, 0.33)], discussion if the idea of latrine [OR 2.42, 95% CI (1.49, 3.93)] and design of latrine meeting interest of all family members [OR 3.9, 95% CI (2.21, 6.87)].

UCLTSH status in latrine utilization AOR 1.45 95% CI (0.85, 2.46), latrine with hole cover [AOR 1.13, 95% CI (0.61, 2.12)] and discuss the idea of latrine [AOR 0.88, 95% CI (0.49, 1.57)] were not significant in multivariate analysis. Functional latrine AOR 0.06 95% CI (0.03, 0.15), presence of human excreta in the compound [AOR 2.39, 95% CI (1.33, 4.28)], the design of latrine meeting the interest of all family AOR 0.41 95% CI (0.21, 0.8) was significant in multivariate analysis (Table 5).

DISCUSSION

This study showed that majority of the respondents, 90.3% of UCLTSH implementers and 85.4% non-UCLTSH implementers utilize their latrine facility. Similarly, a study done at Denbia district, Northwest Ethiopia, 86.8% of the respondents were using latrines (Yimam et al., 2014), this is almost the same with non-CLTSH communities of this study. However, the UCLTSH implementers are still better in latrine utilization compared to Denbia district.

Concerning latrine availability, 346 (98.3%) and 330 (94.3%) of the households among implementing and non-implementing UCLTSH, respectively have latrine facility. Study in Bahir Dar Zuria shows 355 (58.4%) of the households have latrine facility (Awoke and Muche, 2013)

Table 4. Institutional/infrastructure related factors of study group in Hawassa town January, 2015 (n=702).

Characteristics	UCLTSH (352)		Non-UCLTSH (350)		X^2 test	P value
	Number	%	Number	%		
Who helped the poorest of the poor to have latrine						
Neighbors'	7	2.2	8	2.7		
Kebele dwellers	22	6.9	19	6.4		
GO/NGO	150	47.2	232	77.6	11.23	0.02
They have no latrine	6	1.9	3	1.0		
Others*	133	41.8	37	12.4		
Follow up by the verification team						
Yes	135	42.5	-	-	-	-
No	183	57.5	-	-		
Leaders on ODF						
Communities	66	42.9	-	-		
Health expert	30	19.5	-	-		
NGO	21	13.6	-	-	-	-
GO	33	21.4	-	-		
Others**	4	2.6	-	-		

Others* community members **community based, faith based organization and volunteer youth.

Table 5. Results of logistic regressing on utilization of latrine on explanatory variable in Hawassa town January, 2015 (n=702).

Variable	Latrine utilization		COR (95% CI)	AOR (95% CI)
	Yes	No		
UCLTSH Status				
Implement	318	34	1.59 (1.00,2.53) *	1.45 (0.85,2.46)
Non Implement	299	51	1.0	1.0
Functional latrine				
Yes	607	58	28.26 (13.03,61.27) **	0.06 (0.03, 0.15) **
No	10	27	1.0	1.0
Latrine with hole cover				
Yes	207	17	2.02 (1.16,3.53) *	1.13 (0.61,2.12)
No	410	68	1.0	1.0
Presence of human excreta in the compound				
Yes	104	42	0.21 (0.13,0.33) **	2.39 (1.33,4.28)**
No	513	43	1.0	1.0
Discussion the idea of latrine				
Yes	327	27	2.42 (1.49,3.93) **	0.88 (0.49,1.57)
No	290	58	1.0	1.0
Design of latrine meeting interest of all family				
Yes	293	16	3.9 (2.21,6.87) **	0.41 (0.21,0.8) **
No	324	69	1.0	1.0

*Significant at P<0.05; **Significant at P<0.005. AOR: Adjusted odds ratio; COR: crude odds ratio; CI: confidence interval.

and study in Nekemet town shows 423 (91.8%) have the latrine facility (Regassa et al., 2008). This finding is higher compared to other previous studies in the country like in Bahirdar and Nekemte towns (Awoke and Muche, 2013; Regassa et al., 2008).

With respect to functional latrine, majority of the respondents that is three hundred forty two (97.2%) among UCLTSH implementers and three hundred twenty three (92.3%) among non-implementers have functional latrine. Study in Hulet Ejju Enessie district showed 714 (86.7%) latrines were functional (Andualem, 2010) and the sudy in Bahir Dar Zuria shows 220 (62.0%) of the households latrines were functional (Awoke and Muche, 2013). The finding is higher in relation to functional latrine than both Hulet Ejju Enessie and bahir Dar Zuria woredas, this may be Hawassa town is urban and the two woredas are rural and the study time is also different.

In this study, among 676 households having latrine, majority of the latrine does not have a covered hole that is among UCLTSH implementers and non-CLTSH 64.2 and 69.4, respectively. Study in Nekemet town shows out of 423 households with latrine facility, the majority observed that the pit hole do not have a cover 272 (64.3%) (Regassa et al., 2008), so the two studies are similar in relation to latrine not having a covered hole.

In relation to open defecation among 702 households, 59 (8.4%) of the households member exercise open defecation. Among different studies, households in India shows that with a functioning latrine (n = 71) on average 27% of the members openly defecated at least once a day (Marion et al., 2014). Ethiopian Welfare Monitoring Survey 2011 Summary report shows open defecation or field/forest was 12.5%. So this study group is better than that of the study groups in India and the national welfare monitoring survey.

In the study from 676 having latrine, 25.5% shared latrine. Ethiopian Welfare Monitoring survey 2011 summary report shows shared facility was 10%. Therefore, the national data is better than Hawassa town households in relation to shared latrine.

In relation to different factors affecting the comparison groups, UCLTSH status utilizes latrine, functional latrine, availability of hand washing facility, availability of water in hand washing facility, and discuss the idea of latrine were not significant in multivariate analysis. Design of latrine meeting interest of all family was significant in multivariate analysis.

Urban Community Led Total Sanitation and Hygiene is not familiar in our country, the pilot project implemented in Hawassa town shows how it has impact in improving sanitation status of urban community.

This study indicates latrine utilization of those households implementing UCLTSH with OR 1.59, 95% CI (1.00, 2.53); this indicates that the odd of latrine utilization among UCLTSH implementer's households is1.59 times that among non UCLTSH implementers.

In relation to factors affecting latrine utilization, latrine with hole cover [AOR 1.13, 95%CI (0.61, 2.12)] and discussion of the idea of latrine [AOR 0.88 95% CI (0.49, 1.57)] were not significant in multivariate analysis. For functional latrine [AOR 0.06 95%CI (0.03, 0.15)], the presence of human excreta in the compound [AOR 2.39, 95%CI (1.33, 4.28)] and the design of latrine meeting the interest of all family [AOR 0.41 95% CI (0.21, 0.8)] were significant. The limitation of this study was not considering data from rural communities (kebeles).

Conclusion

Utilizations of latrine were high among UCLTSH implementers compared to non-implementers. The study also identified functional latrine, latrine with hole cover, presence of human excreta in the compound, discussion of the idea of latrine and design of latrine meeting interest of all family as major factors that affect latrine utilization. It is recommended that the town health office and municipality should expand cooperatively the UCLTSH to other kebeles of the town. The Urban Health Extension Programs should initiate technical support to those households that do not have latrine to make the town open defecation free.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

Abbreviations

AOR, Adjusted odds ratio; **COR,** crude odds ratio; **ODF,** open defecation free; **UCLTSH,** urban community led total sanitation and hygiene.

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