

Latrine coverage and associated factors among urban communities found in Ambo town, West Shoa Zone, Ethiopia

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Abstract

Background: Latrine is one of many emergency responses essential for people's dignity, safety, health and well-beings. It is a major priority, and the coverage needs to be addressed with as much speed and effort as possible. This study is intended to find out the latrine coverage and associated risk factors which hinders the coverage in Ambo town, Ethiopia.

Methods: A survey was conducted from December 2015 to April 2016 among the community found in Ambo town. About 321 households were recruited in the study. Data on latrine coverage and associated risk factors like socio-demographic characteristics, behavioral and environmental factors were collected using pretested questionnaire. Risk factors related to latrine coverage were tested to determine the potential of these factors to limit latrine availability in Ambo town.

Results: This study results showed that 265(82.3%) of subjects had a latrine. Among these majority of latrines 194(60.2%) were traditional pit latrines. About 123 (38.2%) of latrines found in this study, had a hand washing facility whereas, 142 (44.1%) had not these facilities. Factors like: religion, family size, and educational level of respondents were significantly associated with availability of latrines ($P < 0.05$).

Conclusions: Based on this study finding, the latrine coverage in ambo town is very good though the coverage of improved latrines still needs attention at all level of stakeholders. Most of latrines were traditional pit latrines. Enhancing the awareness level of the community about sanitation and its benefit would facilitate the coverage and the quality of latrines.

Background

Latrine is a tool for safe disposal of human excreta to be protected from excreta related diseases, reduces transmission through direct and indirect routes [1]. Therefore, it is a major priority, and the coverage should be addressed with as much speed and effort as the provision of safe water supply. It is one of many emergency responses essential for people's dignity, safety, health and well-beings [2]

An estimated 2.4 billion people still lack access to improved sanitation and 946 million still practice open defecation [3]. Regarding to the access to latrine in Ethiopia, it is low and varies among rural and urban communities. And most of available latrines are traditional latrines made from locally available materials [4]. Especially, the access to decent and safe latrine is very low. As a result, most of the population defecate in open fields or in any available spaces without any regard to the health risk that result from open field defecation practice [5]. Evidently, it is reported that up to 60 percent of the current disease burden in Ethiopia is attributable to poor Sanitation [6]

The low access to improved latrines in Ethiopia has numerous possible reasons: poor status of the latrines (lack of stability, privacy and safety), the lack of accessible building as well as maintaining materials, the bad attitude of men to construct a latrine, presence of drought conditions in the country, reduction of funds available for latrines construction. Besides, with so many other urgent and important

needs at household, village, kebele, woreda, zonal, regional and federal levels, it is hardly surprising that sanitation is a priority target to achieve. It is often, unfortunately viewed as a luxury component of service delivery rather than as a preventive health intervention [4]. On the other hand, latrines themselves may be viewed as dirty and evil places

Furthermore, the coverage varies from place to places throughout the country. And understanding the status of coverage and factors influence on availability of latrine is a worth taking work. Hence this study intended to address the latrine coverage and associated risk factors in Ambo town, Ethiopia.

Methods

Study Area and Population

This investigation was directed in Ambo town, Western Ethiopia, from October 2015 to May, 2016. Ambo is found 115 kilometers from Addis Ababa in West Shewa Zone, Oromia Region. It arranged at scope and longitude of 8°59'N 37°51'E and a rise ranges from 1900–2275 meters above sea level. The city has 6 kebeles and the population measure was 76774, of whom 39155 are guys and 37619 are females and are ethnically blended. It has a yearly precipitation and temperature extending from 800–1000 mm and 20-29°C, respectively [7]. Agriculture is the fundamental occupation of the number of inhabitants in the territory. The agricultural exercises are basically blended type with dairy cattle raising and crop production under taken next to each other. [8].

Study Design And Sample Size Determination

A cross sectional study was led from December 2015 to April 2016 among the community found in Ambo town. The sample size estimate for this investigation was computed by utilizing single proportion formula at 95% confidence interval (CI) level ($Z_{(1-\alpha/2)} = 1.96$), with coverage of 58.4% from past comparable investigation led in Bahirdar Zuria areas in 2013 [9] and 5% negligible error. At that point the sample size was computed as $n = [Z_{1-\alpha/2}]^2 P(1-p)/d^2$, Where: n = sample size, P = scope of latrines from past investigations, $Z_{1-\alpha/2}$ = CI of 95%, d = Marginal error. The quantity of sample size would be 373, however just 321 investigation subjects were taken an interest in this examination.

The extent of study subjects to take an interest in the investigation was assigned to the quantity of chose kebeles (four among six kebeles) found in Ambo town. At that point, the households in each chose kebeles were picked by systematic random sampling method utilizing list of all families gave by health extension workers as a sampling frame. The intervals for choosing family units were controlled by dividing the quantity of families with the sample size distributed for each chosen kebeles. After deciding the interval, the primary family was chosen arbitrarily. The following family units were distinguished efficiently by adding in total intervals to the primary chose family.

Study subjects living in the chose kebeles within the investigation time frame for over five years, who were intentional to partake in the examination and ready to give suitable data during information

gathering within the examination time frame were incorporated into this examination. (Kebele 01 (n = 87); Kebele 03 (n = 59); Kebele 05 (n = 140); Kebele 06 (n = 35)) as indicated in the Fig. 1.

Data Collection And Analysis

Data on latrine coverage and related risk factors like socio-demographic qualities, behavior and natural components were gathered utilizing pretested questioner arranged with the end goal of this investigation. The survey was set up in English and then to Oromiffa and checked for wellness. Prepared Health extension workers who were familiar with local dialects (Amharic and Oromifa) interviewed study participants. Toilet Associated risk variables were surveyed to decide the capability of these elements to restrict restroom accessibility in Ambo town. For consistency and inclusiveness, the gathered information was checked day by day by the supervisors and investigators.

Data was entered and analyzed utilizing SPSS version computer software after checking its comprehensiveness. The dependent variable was latrine accessibility in the town. Potential risk factors investigated were demographic factors (ethnicity, gender, religion, family size, occupation and Education) and restroom scope related conditions. It was abridged in rates and introduced in tables. Pearson's Chi-square test was performed where proper to distinguish any relationship between toilet scope and independent variables. Relationship between risk factors and restroom accessibility results were surveyed. P-value under 0.05 were considered as statistically significant.

Results

Socio-demography characteristics

A total of 321 households were included in the study. Among these study participants 134 (41.6 %) of them were males and 187(58.1%) were females. Majority 292 (90.7%) of the respondents were Oromo by ethnicity and 24 (7.5%) of were Amhara by ethnicity the remaining number represents others. According to this study result, about 248(77%) of them had a family size of five or more. Besides, about 193 (59.9%), 114 (35.4%), 8 (2.5%) and 5(1.6) of participants were Orthodox, Protestant, Muslim and other religion followers, respectively. Regarding to education, majority 244 (76.1%) of study subjects were literate whereas, 77(23.9%) of them were illiterates.

Concerning to occupation, study subjects had a diverse profession i.e., 30.4% merchants; 20.2% government employees; 20.5% house wives and others, as shown in Table 1.

Table 1
Socio-demographic characteristics of study participants in Ambo town, Ethiopia.

		Frequency (n)	Percent (%)
Ethnicity	Oromo	292	90.7
	Amhara	24	7.5
	Tigre	1	.3
	Others	3	.9
Gender	Female	187	58.1
	Male	134	41.6
Religion	Orthodox	193	59.9
	Protestant	114	35.4
	Muslim	8	2.5
	Others	5	1.6
Education	Unable to Read	77	23.9
	Only Read	26	8.1
	Read And Write	25	7.8
	1–6 Grade	44	13.7
	7–8 Grade	36	11.2
	9–10 Grade	22	6.8
	11–12 Grade	26	8.1
	Certificate Holder	2	.6
	Diploma Holder	34	10.6
	Degree And Above	29	9.0
	Occupation	House Wife	66
Merchant		98	30.4
Government Employee		65	20.2
Daily Laborer		37	11.5
Farmer		46	14.3
Other		8	2.5

		Frequency (n)	Percent (%)
Family size	One Parent and Child	6	1.9
	One Parent And 2 Children	19	5.9
	Two Parents And 2 Children	48	14.9
	Two Parents And More Than 2 Children	248	77.0

Latrine Coverage

Our study results showed that 265(82.3%) of subjects had a latrine. Among these majority of latrines 194(60.2%) were traditional pit latrines. Then, about 198(61.5%) of them were private latrines. The remaining i.e., 65(20.2%) and 2(0.6%) were communal and public toilets, respectively. Besides, 123 (38.2%) of latrines had a hand washing facility whereas, 142 (44.1%) had not these facilities. About the latrine cover, 231 (71.7%) of latrines found in this study had a cover, it helps to keep the privacy of individuals. The detail is described in Table 2.

Table 2
Latrine coverage and related conditions in Ambo town, Ethiopia.

		Frequency (n)	Percent (%)
Have Latrine	Yes	265	82.3
	No	56	17.4
Type of Latrine	Ventilated Improved	55	17.1
	Traditional Pit Latrine	194	60.2
	Water Flush	13	4.0
	Public	3	0.9
Latrine Owner	Individual	198	61.5
	Communal	65	20.2
	Public	2	0.6
Hand Washing Facility	Yes	123	38.2
	No	142	44.1
Latrine Covered	Yes	231	71.7
	No	33	10.2
Location of Latrine	Inside the House	20	6.2
	Inside the Compound	153	47.5
	Near the House	20	6.2
	Far from the House	72	22.4

Latrine And Associated Risk Factors

In this study association of demographic factors with latrine availability were tested. As a result, factors like: religion, family size, and educational level of respondents were significantly associated with availability of latrines ($P < 0.05$). Whereas, other related factors like: Ethnicity, occupation and ownership of the house were not associated with latrines availability ($P > 0.05$), as clearly indicated in Table 3.

Table 3

Latrine coverage and its association with socio-demographic factors in Ambo Town, Ethiopia

	Latrine Availability		Chi square test (95% CI)	
	Yes (%)	No (%)		
Ethnicity	Oromo	237(81.2%)	55(18.8%)	0.193(0.15–0.236)
	Amhara	24(100.0%)	0(.0%)	
	Tigre	1(100.0%)	0(.0%)	
	Others	2(66.7%)	1(33.3%)	
Religion	Orthodox	153(79.3%)	40(20.7%)	0.037(0.017–0.058)
	Protestant	100(87.7%)	14(12.3%)	
	Muslim	6(75.0%)	2(25.0%)	
	Others	5(100.0%)	0(.0%)	
Education	Unable to read	54(70.1%)	23(29.9%)	0.00(0.00–0.009)
	Only read	19(73.1%)	7(26.9%)	
	Read and write	21(84.0%)	4(16.0%)	
	1–6 grade	33(75.0%)	11(25.0%)	
	7–8 grade	30(83.3%)	6(16.7%)	
	9–10 grade	20(90.9%)	2(9.1%)	
	11–12 grade	24(92.3%)	2(7.7%)	
	Certificate holder	2(100.0%)	0(.0%)	
	Diploma holder	33(97.1%)	1(2.9%)	
	Degree and above	29(100.0%)	0(.0%)	
Occupation	House wife	55(83.3%)	11(16.7%)	0.118(0.083–0.154)
	Merchant	80(81.6%)	18(18.4%)	
	Government employee	62(95.4%)	3(4.6%)	
	Farmer	33(71.7%)	13(28.3%)	
	Other	7(87.5%)	1(12.5%)	
Family Size	One parent and child	6(100.0%)	0(.0%)	0.016(0.002–0.029)
	One parent and 2 children	16(84.2%)	3(15.8%)	
	Two parents and 2 children	46(95.8%)	2(4.2%)	

	Two parents and more than 2 children	197(79.4%)	51(20.6%)	
Ownership of the House	Private	183(83.6%)	36(16.4%)	0.445(0.391-0.5)
	Kebele	40(72.7%)	15(27.3%)	
	Rented from individuals	42(89.4%)	5(10.6%)	

Discussion

The latrine coverage found in this study was 265 (82.3%) which is comparable with the study conducted in Wolayta and Kambata Tambaro zones of Ethiopia [10] and Southwest Ethiopia [11]. Besides to this, the result of this study was higher than the results conducted among rural communities in the district of Bahir Dar Zuria, the study of five districts of Amhara region and the report from Mali [9, 12, 13], respectively. But, the coverage in this study was lower than to the study conducted in Wolaita Sodo town (91%) [14] as well as Jimma town (96.7%) [15]. The discrepancies of findings in these reports from different areas could be due to the difference in culture, educational level, type of occupation and other related factors between respondents. As well, economic reasons, socio-cultural influences, difficulties in operation and maintenance, less of a concern in designing a sanitation promotion program; affordable, durable, desirable latrine design options not readily available, credit or mutual savings not applied for sanitation [16, 4].

Regarding to type of latrine results found in this study, among 82.3% latrine coverage results, about 60.2% of them were pit latrines which is consistent with the report found in Bahirdar Zuria [9] and Jimma town [15]. However, the result was lower than to the study conducted in other areas of Ethiopia [10, 14, 11, 17]. As well, the finding was lower than the Welfare Monitoring Survey report by Central Statistics Agency in 2004 [18]. The most common reasons for difference in results could be the high cost to build latrines, followed by use of public latrines, lack of space to build, and difficult to operate and maintain when latrines are not functional were factors reported from different studies [16].

Though the number of adopted traditional pit latrines in this study as well as other findings varies and increasing in number, the numbers of ventilated improved pit latrines were not addressed sufficiently. The coverage of ventilated improved pit latrines (VIP) in this study was also very low (17%). Other finding result was also consistent with this result [15]. But the result was higher than the report from Mecha District, West Gojam Ethiopia (12.5%) [17]. Also, it is higher than the Demographic and Health Survey report of 2005 (3.5%) [19]. The reason for low coverage of improved latrines could be, poverty, low level of priority at all levels, limited resources to promote about latrines, available human resource is underutilized, lack of equipped skilled human resource, advocacy about sanitation is not prioritized, awareness problem about improved latrines and absence of model VIP latrines in the community [4].

According to this finding from the households who had latrines, only about 123 (38.2%) of them had access to hand washing facilities. The remaining latrines were without these facilities. This is higher than the study conducted by the following studies [12, 9]. And lower than the report from India (53.52%) [20]; Wolaita Sodo (57.6%) [14]. Moreover, from this finding only 231 (71.7%) of latrines had a latrine cover to keep the privacy of individuals, it is higher than the report from overall findings of five districts of Amhara region (29.3%) [12]. As well as the world health service report among urban communities in 2003 (15.6%) [21]. It is important to strengthen the health extension package program to promote establishment of sanitation facilities [22].

This study indicated that, religion has an impact on availability of latrines in the study area. The possible reason might be religion has a contribution to keep the norms and values in the society and promotes latrine construction indirectly. In addition, having big family influences on the community to construct latrines and the demand would be higher and higher. The result is similar with the evidence reported by Ross (2011) [23]. Furthermore, educational level of respondents in this finding directly influences for having latrines. This finding is parallel with the following report [14]. This is because being educated gave them awareness about the benefit of latrines. Hence, the more the society is educated the more the coverage as well the quality of latrines would be improved.

Conclusions

Based on this study finding, the latrine coverage in ambo town is very good though the coverage of improved latrines still needs attention at all level of stakeholders. Most of latrines were traditional pit latrines. And, factors like: education, family size as well as religion were contributed for availability latrine in the community. Hence, enhancing the awareness level of the community about sanitation and its benefit would facilitate the coverage and the quality of latrines.

List Of Abbreviations

CI: Confidence interval

SPSS: Statistical Package for Social Science

VIP: Ventilated Improved Pit latrines

WHO: World Health Organization

FMoH: Federal Democratic Republic of Ethiopia Ministry of Health

CSA: Central Statistical Authority

AARDB: Ambo Agricultural and Rural Development Bureau

HEP: Health Extension Program

WM S: Welfare Monitoring Survey

DHS: Demographic and Health Survey report

WHS: World Health Survey

Declarations

Ethics approval and consent to participate

This examination was considered and ethically affirmed by the Ethics Review Committee on Health Research, Faculty of medicine and health sciences, Ambo University. Consent to direct the investigation was likewise gotten from Ambo Town Health Office and kebeles experts. The objective of the investigation was disclosed to subjects at the season of baseline data collection. The information was gathered after getting verbal assent from communities and consent from subjects took an interest in the examination.

Consent for publication

Not applicable

Availability of data and materials

Not applicable

Competing interests

The authors report no conflicts of interest.

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Author Contributions

FS conceived the idea for this study and FS, AD, YA, & YH participated in the design and conduct of the study. FS, AD, YH and YA were responsible for the accuracy of the data. FS drafted the manuscript and guarantee the statistical analysis. FS, AD, YA, & YH interpreted the findings. All authors read and approved the final manuscript.

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Figures

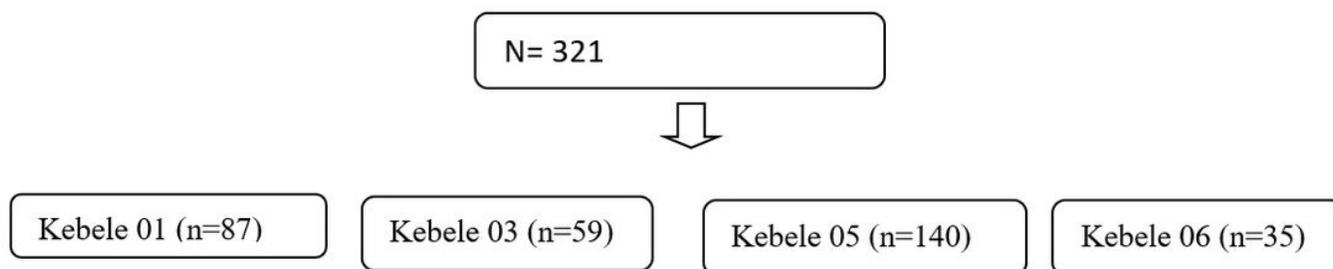


Figure 1

Flow chart, shows sample proportion between selected kebeles