

Original Research Article

Urban health extension service utilization and associated factors in the community of Gullele sub-city administration, Addis Ababa, Ethiopia

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Received: 08 December 2018

Revised: 13 January 2019

Accepted: 15 January 2019

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ABSTRACT

Background: In Addis Ababa, the capital of Ethiopia, the urban health extension program was started in 2009. Its approach is based on the assumption that access to and quality of primary health care in urban communities can be improved through transfer of health knowledge and skills to households. The study was conducted to assess the status of urban health extension service utilization and associated factors.

Methods: A community based cross-sectional study was conducted to collect data from 628 participants. Sample size was determined by using a single population proportion formula. Binary logistic regression was used for data analysis.

Results: The proportion of community utilization of the urban health extension program was found to be 86%. Respondents' odds of utilizing urban health extension services among those who participated in the planning of urban health extension program activities were 2.8 (AOR=2.8; 95% CI: 1.43-3.70) times the odds of those who did not participate. The household respondents who utilized toilet with hand washing facilities had odds of utilizing urban health extension services that are higher by 2.62 (AOR=2.62 with 95% CI: 1.70-9.77) compared to those not utilizing toilet with hand washing facilities.

Conclusions: The study provided important information regarding to the status of community utilization of urban health extension services. Respondents who utilized toilet with hand washing facilities were higher among the respondents who utilized and implemented the urban health extension packages. Respondents who participated in the planning of urban health extension program activities were those who significantly utilized and implemented the urban health extension program.

Keywords: Urban health extension program, Gullele sub-city, Knowledge, Logistic regression, Addis Ababa

INTRODUCTION

Across the globe many countries, especially developing countries, are striving to achieve universal health coverage starting from the 'Health for All' movement of

1977 by the World Health Organisation (WHO) or the Alma Declaration. That is why Ethiopia initiated both rural and urban health extension programs at different times.^{1,2} Establishing an effective and responsive health delivery system is an integral part of the over-all

development that aims to reduce poverty and achieve economic growth and development.³ Moreover, primary health care services are fundamental to improving health and health equity, particularly in the context of low and middle-income households.⁴

To improve accessibility and coverage of primary health care, Ethiopia is implementing health sector transformation plan.⁵ As a result, in the past decade Ethiopia has delivered ambitious health programs.⁶ Of these, the 2003 and 2009 Health Extension Programs (HEP), made a significant improvement to the health and well-being of the population and are among those mentioned.⁷⁻⁹ The country started the health extension program in its rural areas in 2003 as part of the transformation plan to bring radical change to health service delivery, mainly diseases prevention, health promotion and selected curative health interventions. Moreover, to achieve and scale-up service provision of important health interventions, the program targeted the household and community level.^{5,10-14} Besides this, the federal government launched an urban health extension program at the capital city, Addis Ababa in 2009 through deploying diploma and degree holder extension workers and health professional supervisors respectively. The urban health extension program (UHEP) is a new government plan designed to ensure and enhance health equity by creating interest for essential health services through the provision of appropriate and sufficient health information at a household level in Addis Ababa, Ethiopia.^{15,16} Although many of the interventions are similar to the rural program, prevention and control of non-communicable diseases, mental health, and prevention of injury and provision of first AID are included in the urban health extension packages because of their significant impact on the urban population.^{15,17} This program provides 15 different packages mainly focusing on four major parts of care: disease prevention and control, family health, hygiene and environmental sanitation, and health education and communication.¹⁸

The urban health extension program provides an important health promotion and disease prevention health service targeting mainly households, to improve the public health status through the active involvement of the residents. In the Addis Ababa city administration, the program creates intensive sensitization with the slogans of “our health is producing by ourselves” and “all roads lead to urban health extension program”.^{18,19} Although it is difficult to attribute improvements in health care directly to the rollout of the health extension program, between 2005 and 2011, under-five mortality decreased from 123 per 1,000 live births to 88 per 1,000 live births; the contraceptive prevalence rate increased from 15 percent to 29 percent; stunting in under-five children declined from 52 percent to 44 percent; the prevalence of anemia among women decreased from 27 percent to 17 percent; the total fertility rate decreased from 5.4 to 4.8; and use of insecticide-treated nets increased from 1.3 percent to 42 percent.^{5,8,20}

To implement the urban health extension program effectively and efficiently, since 2009 the country has been deploying specially trained, new professional community based health workers and supervisors in urban areas of the country including Addis Ababa to scale up the health of the residents.²⁰ The urban health extension workers spend 75% of their time visiting their outreach activities in the community although they face different challenges in the urban areas. In addition, with the help of urban health extension supervisors, the urban health extension workers provide three month training sessions to selected household members. In addition to providing training, the selected household members are supported regularly by the urban health extension workers and supervisors in order to implement the packages practically. Then household members who implemented at least 75% and above in the practice of the packages of the urban health extension were graduated and certified as a model family or model households.^{12,21,22}

According to the sub-city report of 2016, Gullele is among the 10 sub-cities in the Addis Ababa City Administration with a total population of 327,312. Since 2009, the sub-city has trained 138 health extension professionals and 22 health extension program supervisors. Moreover, according to the sub-city report of 2017, the sub-city trained and graduated a total of 53,604 (67.2%) model households or model family with an implementation rate of 75% and above utilizing the health extension program packages.

Despite the urban health extension program providing significant improvement in health promotion and diseases prevention and control, there are a lot of challenges regarding the implementation of urban health extension programs particularly hygiene and sanitation, non communicable disease prevention and control packages.^{17,22} Still there is no evidence showing the gap between the urban health extension service provision and community health extension service utilization in Addis Ababa, Ethiopia.^{23,24} To improve the health extension program in the urban area of Ethiopia, there should be timely evaluation on the progress of service utilization and factors that can affect the program.^{23,25} However, nothing is known about the current magnitude of health extension service provision and community health extension service utilization in the study area. Moreover, there are no similar studies previously conducted in the city, and there are insufficient studies in the area of urban health extension program implementation. Thus, the significance of the study is to improve public health through studying urban health extension service utilization and factors that affect the program. In addition, the study can provide an important clue and baseline for policy makers as well as initiating and strengthening urban health extension program implementation through better planning, and monitoring and evaluation systems.

METHODS

Study design and period

A community based cross-sectional study was conducted in the community of Gullele sub-city, from February to April 2018.

Study area

Gullele sub-city is organized in ten districts and located in northern part of the Addis Ababa, near the Mount Entoto and Entoto Natural Park. To provide both preventive and curative services, the sub-city has a total of two referral hospitals, ten public health centers, ten district health offices, 31 private clinics and two NGO health centers. Moreover, the sub-city has a total of 138 health extension workers and 22 health extension supervisors. In 2017, the total expected number of households in the sub-city was 79,832. The ratio of health extension workers to the households was 1:578 even though it is expected to be 1:500. Moreover, the ratio of supervisors to the urban health extension workers was at least 1:7. The source populations were all the households in Gullele and the study populations were all head of households i.e. no apostrophe in Gullele who met the inclusion criteria.

Sample size determination

The sample size was calculated using a single population proportion formula with the assumptions of 95% confidence interval ($\alpha=0.05$) and 4% margin of error. The population proportion of health extension service utilization was considered as 39% which was taken from a study conducted in Abuna Gindeberet, West Shoa Zone, on utilization of health extension service among community, [Kelbessa et al 2014]. Hence,

$$n = \frac{(Z)^2 * p(1-p)}{(d)^2}$$

$$n = \frac{(1.96)^2 * (0.39) * (1-0.39)}{(0.04)^2}$$

$$= 571$$

After adding a 10% of non-response rate, the final sample size was 628.

Sampling and data collection procedure

The sub-city was stratified into ten districts. The sampling frame or number of households was obtained from each district administration. Each district sample allocation was done based on the number of households using a proportional sample allocation formula. Finally, study subjects (head of households) were selected by a simple random sampling method. In scenarios where the

randomly selected households were not present on the date of data collection, the next households were substituted. All household heads aged above 18 years old and those who lived in the study area for more than one year constituted the inclusion criteria. Those who had hearing loss and those who were too sick to take part in the study were excluded. Interviews were administered using a structured questionnaire and observation of mainly closed ended questions. The questionnaire was first prepared in English and translated to Amharic and back to English for consistency. Data were collected by 15 trained BSc (Bachelor of Science) holder health professionals and supervised by four experienced masters' degree holders. Two days of training were given to data collectors and supervisors to increase the reliability of the data. The data collectors were informed about the confidentiality and anonymity, written consent was obtained before the data collection. To ensure data quality, pre-testing was done on 5% of the total sample size and questionnaires were checked for clarity, completeness and consistency. Questions that posed difficulty or lacked clarity were rephrased and corrected. The supervisors checked about 5% of the questionnaires for completion, clarity and proper identification of the respondents. Finally, the data was cleaned thoroughly and double entered before analyses were conducted.

For this study, urban health extension service utilization was measured using respondent's utilization of health extension services. Respondent's implementation scores above or equal to 75% of the packages were considered as having utilized the Urban Health Extension packages and respondent's score below the 75% was classified as not having utilized the services. Moreover, knowledge of UHEP was measured based on the respondent's ability to respond to questions related to health extension packages. Respondent's score of below <75% of the packages were classified as having unsatisfactory knowledge and those who score above or equal to $\geq 75\%$ of the packages were considered as having satisfactory knowledge on the packages/services.

Graduated model families or households were defined as households who attended at least 75% of the three month training sessions on urban health extension packages, had a completion notice from urban health extension professionals or had received a model graduated certificate from district health office.

Data analysis

The data was first checked for completeness and entered into SPSS version 20 computer software for analysis. The Chi-square test was used to test the presence of an association between dependent and independent variables. Moreover, a binary logistic regression model was fitted to assess association between the health extension service utilization and independent variables. P values of 0.05 and 95% confidence interval for adjusted odds ratio (AOR) were used to report statistical significance.

Ethical approval

The study was approved by Ethical Clearance Committee of Gullele Health Office in the date 2/2/2018 with Ref. No Gu/S/Ho/2/2018 which is under the Addis Ababa health bureau. Additionally, a letter of support was obtained from Gullele Sub-city administration. Written consent was obtained from every respondent after explaining the objectives of the study. Study participants were informed that participation was voluntary and they have freedom to withdraw at any time while they were being interviewed. Confidentiality was assured by omitting personal identifiers.

RESULTS

Socio demographic characteristics of the respondents

From the total of 628 head of household respondents, 572 (91.1%) were female. The age of respondents ranges from 18-85 years with mean age of 41.31 years. Of the total respondents, 140 (22.3%), were found to be above age group of 52 years. Concerning educational status of the respondents, nearly one third, 192 (30.6%), were found to have an education level between one to eight grades. Most of the respondents, 523 (83.35%), were followers of the Orthodox Christian religion. Concerning marital status and occupational status, more than half of the respondents, 410 (65.3%), and 383 (61.0%) were married and house wives respectively. Nearly three fourth of respondents, 456 (72%), had four and above family size (Table 1).

Knowledge and status of urban health extension service utilization

The 15 parameters of the urban health extension packages were used to assess the community's knowledge and utilization of urban health extension packages. Based on self-reporting by the respondents, 540 (86%) of the respondents had utilized urban health extension services. Further, 555 (88.4%) of the respondents have knowledge about the urban health extension program (Table 2).

The status of respondents' utilization of the urban health extension packages

Three fourths, or 473 (75.3%) of the study participants had constructed and used a latrine properly. Moreover, above three fourths or 512 (81.5%) of the participants disposed of wastes properly. Also about 488 (77.7%), 478 (76.1%) and 474 (75.5%) of them had utilized immunization, child and maternal health and family planning services or packages, respectively. In addition, more than three fourths or 478 (76.1%) of the participants family had utilized maternal and child nutrition services. Regarding the HIV AIDS package, 479 (76.3%) of the participants who knew HIV/AIDS prevention and control methods had utilized them. Whereas packages like mental health, malaria prevention control methods and first aid skills packages were the least utilized (Table 3).

Table 1: Sociodemographic characteristics of the community of Gullele Sub-city, Addis Ababa Ethiopia, 2018 (n=628).

Study variables	Frequency	Percentage (%)
Age (in years)		
18-22	25	4
23-27	75	11.9
28-32	100	15.9
33-37	91	14.5
38-42	87	13.9
43-47	44	7
48-52	66	10.5
>52	140	22.3
Sex		
Male	56	8.9
Female	572	91.1
Educational status		
Illiterate	132	21.0
Read and write	60	9.6
1-8 grade	192	30.6
9-12 grade	147	23.4
Above grade 12	97	15.4
Marital status		
Single	78	12.4
Married	410	65.3
Widowed	100	15.9
Divorced	40	6.4
Religion		
Orthodox	523	83.3
Muslim	53	8.4
Protestant	48	7.6
Other	4	0.6
Occupational status		
House wife	383	61.0
Private	153	24.4
Merchant	27	4.3
Government employed	51	8.1
Daily labor	14	2.2
Family size		
Less than 4	172	27.4
Above 4	456	72.6

Knowledge and attitude of respondent on the urban health extension services utilization

Almost all of the participants, 613 (97.6%) had gone to health institutions when they felt sick. Among the eligible respondents, 237 (81.2%) of them attended antenatal care (ANC) follow up at a health institution. In addition, most of the pregnant respondents 212 (88.7%) visited health institution four or more times, 17 (2.7%) visited three times and 9 (1.4%) visited two times within a year. Concerning the place of delivery, 373 (92.6%) of the eligible respondents gave birth at a health institution, 23 (5.7%) at home and 7 (1.7%) delivered by traditional

birth attendants (TBAS) within a year. Most of the respondents, 529 (84.2%) had graduated as model families. Of the total households, 283 (45.1%) were visited by urban health extension workers for four days per week. Within a year prior to the study, 265 (73%) of the eligible respondents obtained prevention of mother to child transmission of HIV (PMTCT) services (Table 4).

Table 2: Knowledge and status of urban health extension program/services utilization.

Study variables	Frequency	Percentage (%)
Knowledge of the UHEP/services		
Satisfactory	555	88.4
Unsatisfactory	73	11.6
Utilization of UHEP/services		
Utilized	540	86
Unutilized	88	14

Table 3: The status of respondents' utilization of the urban health extension packages.

Study variables	Frequency	%	
The 15 parameters (type of UHEP packages they use)			
Personal and environmental hygiene	Yes	519	82.6
	No	109	17.4
Latrine construction and proper use	Yes	473	75.3
	No	155	24.7
Food and water hygiene	Yes	474	75.5
	No	154	24.5
Solid and liquid waste disposal	Yes	512	81.5
	No	116	18.5
Child and maternal health care	Yes	478	76.1
	No	150	23.9
Youth reproductive health care	Yes	473	75.3
	No	155	24.7
Family planning	Yes	474	75.5
	No	154	24.5
Immunization	Yes	488	77.7
	No	140	23.3
Maternal and child nutrition	Yes	478	76.1
	No	150	23.9
HIV/AIDS prevention and control methods	Yes	479	76.3
	No	149	23.7
TB and leprosy prevention and control methods	Yes	478	76.1
	No	150	23.9
Prevention of non communicable diseases	Yes	242	38.5
	No	386	61.5
Mental health	Yes	133	21.2
	No	495	78.8
Malaria prevention control methods	Yes	126	20.1
	No	502	79.9
First aid skills	Yes	122	19.4
	No	506	80.6

Practice of the respondents on utilization of the urban health extension services

More than half of the respondents, 359 (57.2%) used a refrigerator for food preservation. Further, 347 (55.2%), 222 (35.4%) and 59 (9.4%) of respondents used a three, two and one compartment dish washing system to wash food utensils, respectively. With respect to solid waste disposal, 595 (94.7%) used proper solid waste storage (closed pedal dust bin) in their home and transferred to a public solid waste station. Whereas 4 (0.9%), 12 (1.9%), 8 (1.3%) and 9 (1.4%) used open disposal, burning, composting and disposing into a solid waste tank, respectively.

Concerning liquid waste disposal methods, 287 (45.7%) and 242 (38.5%) of the participants used an open ditch and sand filtration pit/septic tank, respectively. Moreover, 30 (4.8%) and 69 (11%) of them, released waste to the river and sewerage system, respectively. Regarding the presence of a toilet with hand washing facility and shower, 471 (75%) and 190 (30.3%) of the respondents had a toilet with hand washing facility and shower in their compound, respectively.

Regarding hand washing practices, 593 (94.4%), 599 (95.4%) and 414 (65.5%) had washed their hands after using the toilet, before cooking and eating food and before feeding child, respectively. Concerning the kitchen, 506 (80.6%) of respondents have a separate kitchen from their sleeping room. Regarding water sources, 580 (92.4%) of the respondents obtained water from tap water in their compound and 377 (65.1%) of the respondents use jarcan and other materials to store it. Moreover, regarding using family planning and type of family planning, 290 (51.3%) of the eligible respondents used family planning; of these 113 (20%) used long acting and 177 (31.3%) used short acting family planning methods. Regarding exclusive breast feeding and immunization, 405 (64.5%) and 363 (57.8%) fed exclusively for six months and immunized their children, respectively (Table 5).

Factors associated with utilization of urban health extension program services

In the multivariable logistic regression model, knowledge of at least twelve packages (>75%) of the UHEP, PMTCT service, presence of toilet with hand washing facility, participation in planning activities of the UHEP and knowledge about pregnancy related health problems were significantly associated ($p < 0.05$) with utilization of the urban health extension services.

The odds of utilizing urban health extension services among those who had satisfactory knowledge in urban health extension services was 1.5 times (AOR=1.50; 95% CI: 1.10-4.00) the odds of those who had unsatisfactory knowledge. Moreover, the odds of utilizing urban health extension services was 4.55 times higher among those

using PMTCT services (AOR=5.55; 95% CI: 1.22-25.27) than those who did not use PMTCT services. Besides, the household respondents who utilized toilet with hand washing facilities had odds of utilizing urban health extension services that are higher by 2.62 (AOR=2.62 with 95% CI: 1.70-9.77) compared to those not utilizing toilet with hand washing facilities. The respondents' odds of utilizing urban health extension services among those

who participated in the planning of urban health extension program activities were 2.8 (AOR=2.8; 95% CI: 1.43-3.70) times the odds of those who did not participate. In addition, the odds of those who had knowledge about pregnancy related health problems were 1.16 (AOR=1.16; (95% CI: 1.10-7.10) times higher than those who had not (Table 6).

Table 4: Knowledge and attitude of respondents towards the urban health extension services utilization.

Study variables	Frequency	%
Respondent where they go when their family members are sick	Health institutions	97.6
	Traditional healers	1.8
	To holy water	0.5
	To other	0.2
Respondent whose family member visits health institution during the year	Yes	71.2
	No	28.8
Respondent who visits for family planning	Yes	14
	No	86
Respondent who visits for immunization	Yes	17.8
	No	82.2
Respondent who visits for ANC	Yes	27.5
	No	72.5
Respondent who visits for delivery	Yes	14.6
	No	85.4
Respondent who visits for post natal care	Yes	10.2
	No	89.8
Respondent who visits for treatment of diarrhea	Yes	8.1
	No	91.9
Respondent who visits for treatment of pneumonia	Yes	5.6
	No	94.4
Respondent who visits for others	Yes	45.7
	No	54.3
Respondent who follows ANC at health institution	Yes	37.7
	No	8.8
	Not applicable	53.5
Frequency of visits of respondent who follow up ANC at health institution	≥Four times	33.8
	Three times	2.7
	≤Two times	1.6
	Not applicable	61.9
Knowing pregnancy related danger signs	Yes	65.8
	No	34.2
Sources of information for respondents who know these signs	UHEW	39.8
	Health institutions	20.4
	Media	4.8
	Others	2.2
	No information	32.8
Place of giving birth of the eligible respondents'	Health institutions	92.6
	At home	5.7
	Home of TBAS	1.7
	Not applicable	35.8
Immunization of children	Yes	57.8
	No	4.0
	Not applicable	38.2
Participation in planning UHEP	Yes	57.6
	No	42.4

Continued.

Study variables		Frequency	%
Graduated model family in UHEP	Yes	529	84.2
	No	99	15.8
Certification in UHEP	Yes	208	33.1
	No	420	66.1
Frequently of urban health extension workers visit	Four day/ week	283	45.1
	Two day/week	83	13.2
	One day/week	143	22.8
	No visit	119	18.9
Obtaining PMTCT service In the past 1 year	Yes	265	42.2
	No	97	15.4
	Not applicable	266	42.4

Table 5: Practice of the respondents on utilization of the urban health extension services.

Study variables		Frequency	%
Method of food preservation	Refrigerator	359	57.2
	Dry in sun light	28	4.5
	Adding salt	24	3.8
	Others	217	34.6
Compartments used to wash tools	One sink/bowel	59	9.4
	Two sink/bowel	222	35.4
	Three sink/bowel	347	55.2
Method of solid waste disposal	Public dust bin	595	94.7
	Open disposal	4	0.6
	Burning	12	1.9
	Composting	8	1.3
	solid waste tank	9	1.4
Method of liquid waste disposal	sand filtration/septic tank	242	38.5
	Into river	30	4.8
	sewerage system	69	11
	Open ditch	287	45.7
Presence of toilet with a hand wash facility	yes	471	75
	No	151	25
Presence of shower	yes	190	30.3
	No	438	69.7
Hand washing practice after toilet use	Yes	593	94.4
	No	35	5.6
Hand washing practice before and after child feeding	Yes	414	65.9
	No	214	34.1
Hand washing practice before cooking and eating	Yes	599	95.4
	No	29	4.6
Presence of separate kitchen	Yes	506	80.6
	No	122	19.4
Presence of well ventilated housing condition	Yes	487	77.5
	No	141	22.5
Eligible respondent who using family planning	Yes	290	51.3
	No	275	48.7
	Not applicable	63	100
Type of family planning they use	Long acting	121	19.3
	Short acting	169	26.9
	Not applicable	338	53.8
Respondent who feeds their baby exclusively breast milk	For 6 months	405	64.5
	For 4 months	19	3
	I do not feed	77	12.3
	Not applicable	127	20.2

Continued.

Study variables	Frequency	%	
Sources of water	Tap water in the compound	580	92.4
	Public tap water	34	5.4
	Stream water	13	2.1
	Other source	1	0.2
Storage of water	Water tank	184	29.3
	Water pot	35	5.6
	Jarcan and others	409	65.1

Table 6: Multivariable analysis.

Study variables	Using UHEP		COR with 95% CI	AOR with 95%CI	
	Yes	No			
Knowledge at least 12 of the packages	Yes	535	20	0.003 (0.001-0.008)	1.50 (1.10 -4.00)
	No	5	68	1.00	1.00
Obtaining PMTCT service within the past 1 year	Yes	242	23	1.29 (1.02-1.64)	5.55 (1.22-25.27)
	No	298	65	1.00	1.00
Presence of toilet with hand washing facility	yes	415	56	1.90 (1.18-3.06)	2.62 (1.70-9.77)
	No	125	32	1.00	1.00
Knowledge about pregnancy related health problems	Yes	371	42	2.4 (1.52-3.8)	1.16 (1.10-7.10)
	No	169	46	1.00	1.00
Participation in planning activity of UHEP/activities	Yes	358	4	4.13 (1.49-11.4)	2.8 (1.43-3.7)
	No	182	84	1.00	1.00

DISCUSSION

The results of this study revealed that the proportion of the community utilization of urban health extension packages /services was 86%. This finding was higher than a study conducted three years ago in Gindeberet in which the proportion of utilization of health extension was found to be 39% with 95% CI of (4.0, 12.0%). This might be due to the level of commitment of health extension workers and supervisors or difference in the study area. Moreover, this higher result may be due to the economic status of the urban residents which may assist them in implementing the packages of UHEP at the urban area. Besides, this could be due to the possibility of higher educational status and greater awareness to the advantages of the packages of the program among the urban residents than the rural population.

Respondents who had knowledge about UHEP enhanced their utilization of the packages from the urban health extension program. This could be due to providing effective theoretical and practical training to the participants. Moreover, it may be due to the presence of good relationships between urban health extension professionals and their model households.

Part of health promotion and diseases prevention and control activities were improved among the respondents who were utilizing the urban health extension program. Because using hand washing facilities, PMTCT services and knowledge about pregnancy related health problems were higher among the model household members or participants of the urban health extension program. This

could be due to the effective transfer of health knowledge through the urban health extensions professionals to their model households. Moreover, it might be due to good psychological acceptance of the program packages among the participants rather than those who did not participate and utilize the packages.

Of all the 15 urban health extension program packages/services, personal and environmental hygiene, solid and liquid waste disposal, latrine construction and proper use, knowing HIV AIDS prevention and control methods were among the highly utilized services by the study participants. This might be due to strong awareness of the environmental hygiene and sanitation and HIV AID packages. Moreover, it could be due to the major governmental attention in order to create citizens who are more informed about proper health care.

Regarding the level of knowledge, respondents who scored twelve (12 or 75%) and above in the urban health extension packages/ services were considered as having knowledge, and respondents who scored below 12 packages (75%) of the packages were classified as having insufficient knowledge. Based on this information, 555 (88.4%) of the study participants had scored above 75% and were considered as having sufficient knowledge of the services. This was consistent with the guideline of the Ministry of Health in the urban health extension program manual.¹⁹ This could be due to effective planning, organization and implementation of the household owners and good relationship with the health extension workers with the community. Further, this might be due to the presence of strong connections between

governmental and nongovernmental organizations though providing of training to the community to create a knowledgeable society.

Of the total respondents, 519 (82.6%) and 512 (81.2%) of the study participants had personal and environmental hygiene practice and used proper solid and liquid management respectively. This result was consistent with a study conducted on Strengthening Ethiopia's Urban Health Program (SEUHP) by John Snow Inc, Addis Ababa, Ethiopia, on the situational analysis of urban sanitation and waste management.²⁴ However, services of the urban health extension like first aid skills, malaria prevention and control, non-communicable diseases prevention and control and mental health care were services less utilized [122 (19.4%), 126 (20.1%), 133 (21.2%) 244 (38.5)], respectively. This may be due to lack of attention or disinterest in the packages.

CONCLUSION

The study provided important information regarding the status of community utilization of urban health extension services and associated factors. These results indicate that utilizing urban health extension services and the presence of knowledge among the respondents had a direct relationship. Being a graduated model household in the urban health extension program has enhanced the utilization of the program packages. The household respondents who utilized toilet with hand washing facilities was higher among the respondents who utilized and implemented the urban health extension packages. Moreover, respondents who participated in the planning of urban health extension program activities were implemented the urban health extension program. Of the packages of urban health extension program, personal and environmental hygiene, solid and liquid management were among those highly utilized by most of the participants.

Although the proportion of community's utilization of the urban health extension service was relatively high, the packages of first aid skills, malaria prevention and control, non communicable diseases prevention and control and mental health were among the services less utilized by the study participants. Thus, the Gullele Health Office, Addis Ababa Health Bureau, Federal Ministry of Health and other concerned bodies should be creating intensive awareness targeted to increase community implementation and utilization of these urban health extension services. In particular, the less implemented and utilized packages like first aid skills, malaria prevention and control, non communicable diseases prevention and control, requires a new strategy in order to narrow the gap. In addition, further research should be undertaken to determine factors affecting utilization of health extension services from the perspective of both urban health extension workers and the community on a wider scale.

Limitations of the study

Even though, this study provided important information regarding the status of community's utilization of urban health extension services and assessed some of the factors that influence health extension service utilization among communities, lack of previous related studies conducted on this particular topic, being a cross sectional study, social desirability and recall bias among study participants were the drawback of this study.

ACKNOWLEDGEMENTS

We the authors wish to thank to Gullele Sub-city Health Office and Gullele sub-city administration for their permission to undertake this research. In addition, we the authors like to express our gratitude to the data collectors, supervisors and study participants.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee of Gullele Health Office

REFERENCES

1. Kok MC, Dieleman M, Taegtmeier M, Broerse JE, Kane SS, Ormel H, et al. Which intervention design factors influence performance of community health workers in low-and middle-income countries? A systematic review. *Health Policy Planning*. 2014;30(9):1207-27.
2. Admasu K, Balcha T, Getahun H. Model villages: a platform for community-based primary health care. *Lancet Global Health*. 2016;4(2):78-9.
3. Donnelly J. Ethiopia gears up for more major health reforms. *The Lancet*. 2011;377(9781):1907-8.
4. Fetene N, Linnander E, Fekadu B, Alemu H, Omer H, Canavan M, et al. The Ethiopian health extension program and variation in health systems performance: what matters? *PloS One*. 2016;11(5):e0156438.
5. Workie NW, Ramana GN. The health extension program in Ethiopia. 2013.
6. Edhs M. Ethiopia Mini Demographic and Health Survey. Ethiopia: Central Statistical Agency Addis Ababa. 2014.
7. Admassie A, Seid N, May JF, Megquier S, Moreland S. The demographic dividend: An opportunity for Ethiopia's transformation. Washington, DC: Population Reference Bureau and Ethiopian Economics Association. 2015.
8. Jackson R, Tesfay FH, Godefay H, Gebrehiwot TG. Health Extension Workers' and Mothers' Attitudes to Maternal Health Service Utilization and Acceptance in Adwa Woreda, Tigray Region, Ethiopia. *PLoS One*. 2016;11(3):e0150747.
9. Gebrehiwot TG, San Sebastian M, Edin K, Goicolea I. The health extension program and its association with change in utilization of selected maternal

- health services in Tigray Region, Ethiopia: a segmented linear regression analysis. *PloS one*. 2015;10(7):e0131195.
10. Kelbessa Z, Baraki N, Egata G. Level of health extension service utilization and associated factors among community in Abuna Gindeberet District, West Shoa Zone, Oromia Regional State, Ethiopia. *BMC Health Services Res*. 2014;14(1):324.
 11. Teklehaimanot HD, Teklehaimanot A, Tedella AA, Abdella M. Use of balanced scorecard methodology for performance measurement of the Health Extension Program in Ethiopia. *Am J Tropical Med Hygiene*. 2016;94(5):1157-69.
 12. Yitayal M, Berhane Y, Worku A, Kebede Y. The community-based Health extension Program significantly improved contraceptive utilization in West gojjam Zone, ethiopia. *J Multidisciplinary Healthcare*. 2014;7:201.
 13. Koblinsky M, Tain F, Gaym A, Karim A, Carnell M, Tesfaye S. Responding to the maternal health care challenge: The Ethiopian Health Extension Program. *Ethiopian J Health Develop*. 2010;24(1).
 14. Jackson R, Hailemariam A. The role of health extension workers in linking pregnant women with health facilities for delivery in rural and pastoralist areas of Ethiopia. *Ethiopian J Health Sci*. 2016;26(5):471-8.
 15. Lemma S, Nahusenay MH, Egata G, Yitayal M, Tewahido MD, Berhane Y, et al. Strengthening Ethiopia's Urb. 2015.
 16. Sibamo EL, Berheto TM. Community satisfaction with the urban health extension service in South Ethiopia and associated factors. *BMC Health Services Res*. 2015;15(1):160.
 17. Banteyerga H. Ethiopia's health extension program: improving health through community involvement. *MEDICC Rev*. 2011;13(3):46-9.
 18. Amare SA. The impact of Ethiopian Health Services Extension Program on maternal and child health outcomes: the case of Tigray Region. 2013.
 19. Tesfa B, Jibat N. Health Extension Program as innovative health care service: the socio-cultural factors affecting its implementation in Jimma Zone, South Western Oromia. *Int J Sociol Anthropol*. 2014;6(8):235-45.
 20. Gebreegziabher EA, Astawesegn FH, Anjulo AA, Kerie MW. Urban Health Extension Services Utilization in Bishoftu Town, Oromia Regional State, Central Ethiopia. *BMC Health Services Res*. 2017;17(1):195.
 21. Kok MC, Kea AZ, Datiko DG, Broerse JE, Dieleman M, Taegtmeier M, et al. A qualitative assessment of health extension workers' relationships with the community and health sector in Ethiopia: opportunities for enhancing maternal health performance. *Human Resources Health*. 2015;13(1):80.
 22. Medhanyie A, Spigt M, Kifle Y, Schaay N, Sanders D, Blanco R, et al. The role of health extension workers in improving utilization of maternal health services in rural areas in Ethiopia: a cross sectional study. *BMC Health Services Res*. 2012;12(1):352.
 23. San Sebastian M, Lemma H. Efficiency of the health extension programme in Tigray, Ethiopia: a data envelopment analysis. *BMC International Health Human Rights*. 2010;10(1):16.
 24. Teklehaimanot HD, Teklehaimanot A. Human resource development for a community-based health extension program: a case study from Ethiopia. *Human Resources Health*. 2013;11(1):39.
 25. Bekele A, Kefale M, Tadesse M. Preliminary assessment of the implementation of the health services extension program: the case of southern Ethiopia. *Ethiopian J Health Develop (EJHD)*. 2016;22(3):302-5.

Cite this article as: Girmay AM, Evans MR, Gari SR, Gebremariam AG, Reta MT. Urban health extension service utilization and associated factors in the community of Gullele sub-city administration, Addis Ababa, Ethiopia. *Int J Community Med Public Health* 2019;6:976-85.