

# Urban Health Extension Program and Health Services Utilization in Northwest Ethiopia: A Community-Based Study

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**Purpose:** Ethiopia is one of the developing countries striving to achieve universal health coverage using the health extension program (HEP). However, there is limited evidence on the utilization of the urban health extension program (UHEP), particularly in the northwest part of the country. Therefore, this study aimed to assess the level of urban health extension program utilization and its associated factors in Gondar administrative city, northwest Ethiopia.

**Patients and Methods:** A community-based cross-sectional study was employed from March 15 to May 30, 2019. A total of 626 systematically selected mothers were interviewed using an interviewer-administered structured questionnaire. Binary logistic regression analysis was computed. In the final multivariable logistic regression analysis, a *P*-value of less than 0.05 and adjusted odds ratio (AOR) with 95% confidence interval (CI) were used to declare the factors associated with the utilization of urban health extension services.

**Results:** The utilization level of urban health extension services was found to be 59.5% (95% CI=55.8–63.6). The result indicated that two-fifths of the participants were not utilizing the services. Private employees (AOR=0.37, 95% CI=0.21–0.63), housewives (AOR=0.36, 95% CI=0.20–0.64), merchants (AOR=0.08, 95% CI=0.03–0.17), satisfactory knowledge (AOR=4.37, 95% CI=2.73–6.96), perceived accessibility of services (AOR=1.68, 95% CI=1.02–2.74), and perceived competence of HEWs (AOR=1.97, 95% CI=1.22–3.18) were factors significantly associated with the utilization of urban health extension services.

**Conclusion:** The overall utilization of the urban health extension program was low compared to the national recommendation. Occupation, knowledge of participants towards UHEP, accessibility of health extension services, and participants' perception about the competency of HEWs were factors associated with utilization of UHEP. Therefore, awareness creation, in-service training, improving the accessibility of services and frequency of contact with mothers at the household level will increase the services utilization.

**Keywords:** urban health extension program, health service utilization, Gondar, Ethiopia

## Introduction

The health extension program (HEP) is a new community-based healthcare delivery approach which is intended to improve the health of the community in Ethiopia, focusing on promotive, preventive, and few selected curative health services.<sup>1,2</sup> There are four main themes in the program: disease prevention and control, family health, environmental hygiene, and health education and communication.<sup>3,4</sup>

The urban health service extension program in Ethiopia was initiated in 2009 by employing female health extension professionals.<sup>1</sup> The approach is based on the

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assumption that access and quality of primary healthcare (PHC) in urban communities through the transfer of knowledge and skills to households.<sup>5,6</sup> The main objectives of HEP are to improve equity and access to essential health interventions. Initiating community-based health insurance is supposed to be one of the priority strategies to address both equity and access related gaps by mobilizing, encouraging community participation, increasing health awareness, and skills within the community, improving utilization of PHC services, and promoting healthy lifestyles.<sup>7,8</sup>

Even though there is an encouraging trend of achievements, Ethiopia still has several poor vital health outcome indicators relative to other low-income countries. These poor outcomes are mainly due to low utilization of the HEP, which are attributed to the prevalence of preventable infectious and non-infectious diseases, complaints, nutritional deficiencies, and poor access to health services.<sup>3,4,6</sup> The Ethiopian Demographic and Health Survey (EDHS) 2016 report showed that 88% of urban residents use untreated water and more than half (54%) of family planning users were not informed about the potential side-effects of the contraceptive method they used.<sup>9</sup> Even though there is no UHEP utilization findings based cumulative value of packages in the northern part of Ethiopia, some indicators of the program at regional level in Tigray region showed that at least one antenatal care visit and skilled birth attendance were 65% and 11.6%, respectively.<sup>10</sup> A study finding at Mekelle, Tigray regional state, northern Ethiopia, showed that postnatal care utilization was found to be 32.2%.<sup>11</sup> Whereas, in the South nations, nationalities and peoples region (SNNPR), Ethiopia, the regional level antenatal care visit and skilled birth attendance achievements were 41 and 6.2%, respectively.<sup>10</sup> According to the study finding in Dale district, southern Ethiopia, 89.9% of mothers were not visited by the health extension workers (HEWs) for more than 6 months and more than three-quarters gave birth at home.<sup>12</sup>

A study finding in Kefa zone, south Ethiopia, showed that the utilization of clean and safe delivery service was 19%.<sup>13</sup> A study done in Abuna Gindeberet District, Oromia Regional State, Ethiopia, showed that the utilization of health extension service was 39%.<sup>4</sup>

Different factors like socio-demographic characteristics, cultural beliefs and perception, traditional malpractices, the need for care, poor service accessibility, lack of in-service training, poor interpersonal relationships, knowledge, and attitude were variables that affect the

utilization of HEP.<sup>6-8,14-18</sup> However, the utilization of the UHEP and its associated factors remain unstudied in northwest Ethiopia. Hence, looking for utilization of the urban health extension program and its associated factors are the critical component of service provision and health-care quality improvement in the study area, and the finding may give valuable information for policymakers, program coordinators, and researchers.

## Patients and Methods

### Study Design and Setting

A community-based cross-sectional study design was employed from March 15 to May 30, 2019, in Gondar administrative city, which is one of the three metropolitan cities in Amhara national regional state. The city is located 176 and 755 kilometers from Bahir-Dar, the capital city of the region, and Addis Ababa, the capital city of Ethiopia, respectively. According to the city administration report, Gondar administrative city has 390,644 residents, of which 194,541 are females. According to the Gondar Administrative city health office report, 90,847 households are residing in the city. The city is divided into 12 sub-cities and 22 kebeles (the lowest administrative unit), and two urban health extension professionals are employed for each kebele.

### Population and Sampling Procedures

All mothers in Gondar city administration were the source population, whereas mothers in randomly selected sub-cities were the study population. Mothers who were greater than or equal to 18 years old and living in the selected households for more than 6 months were included in the study.

The sample size was determined by using the single population proportion formula ( $n = \frac{P(1-P)(Z_{\alpha/2})^2}{d^2}$ ) by using a 52.7% proportion (P) of urban health services extension program utilization taken from a study conducted in south Ethiopia,<sup>15</sup> 95% confidence limit (CI), 5% marginal error (d), 1.5 design effect, and 10% non-response rate. Then the final sample size was found to be 632.

A multi-stage sampling technique was used. First, four sub-cities (30% of the total sub-cities) were selected randomly by using lottery method. Then, the sample was allocated proportionally to each selected sub-city based on the estimated households. Eventually, study participants were selected using systematic sampling technique.

## Variables and Measurements

The dependent variable of the study was the utilization of urban health service extension program. The independent variables were socio-demographic characteristics (age, marital status, educational status, monthly income, religion, and occupation), knowledge and attitude of respondents about HEP, and perception of participants about HEWs (competency, interpersonal relationship, and ways of communication, time spent, and access to health extension workers).

Utilization of UHEP was measured by women's service-related contact with urban health extension professionals for the 15 health extension packages at health facilitates or home at least once in the previous 6 months prior to the study period.<sup>1</sup> Accordingly, women who have gotten services more than or equal to 75% of the packages were considered as "utilized"; otherwise as "not utilized".<sup>5</sup>

Knowledge was measured using seven items of the urban health extension program-related questions. Participants who scored greater than or equal to 75% of the given questions were considered as having satisfactory knowledge and otherwise having unsatisfactory knowledge.<sup>5</sup> The Cronbach alpha value for the seven items of the questions was 0.942.

Attitude was measured using six items of questions with a 5-point Likert scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree). Participants who scored greater than or equal to the mean score (22.2) were considered as having a favorable attitude and below the mean score were considered as having an unfavorable attitude. The Cronbach alpha value for the six items of questions was 0.673.<sup>19</sup>

## Data Collection Tools and Procedures

After reviewing relevant studies, an interviewer-administered structured questionnaire was developed.<sup>20</sup> The questionnaire was prepared in English first and translated to the local language (Amharic) and then back to English to check its consistency. Five aspects of perception questions were used to measure the perception of respondents on UHEP. Four diploma nurses and two bachelor degree holder nurses were employed for data collection and supervision, respectively. One day training was given on the basic techniques of data collection and a pre-test was conducted on 32 women (5% of the sample size) in Bahir Dar administrative city (one of the neighboring city administrations with similar characteristics).

## Data Processing and Analysis

The collected data were entered and cleaned using Epi info version 7 and analyzed using SPSS version 20. Descriptive statistics and binary logistic regression analyses were computed. Variables with a *P*-value of less than 0.2 during the bi-variable logistic regression analysis were taken for multi-variable logistic regression analysis. In the final multi-variable logistic regression analysis, AOR with 95% CI and a *P*-value of less than 0.05 were used to declare statistically significance independent variables within the urban health service extension program utilization.

## Ethical Considerations

Ethical clearance was obtained from the Ethical Review Board of the Institute of Public Health, University of Gondar (Ref. No. IPH/180/06/210). A supporting letter was obtained from Gondar administrative city health office (Ref. No. GCA/04). Participants of the study were informed about their right to withdraw from the study at any time. Finally, informed written consent was obtained before data collection. Confidentiality and anonymity of study participants were safeguarded throughout the entire study by using a non-personal identifier and the study was conducted in accordance with the Declaration of Helsinki.

## Results

### Socio-Demographic Characteristics of Participants

A total of 626 participants participated in the study. The majorities (41.9%) of the study participants were between 27 and 35 years old and nearly three-fifths (59.7%) of them were married. Regarding educational status, more than half (55.4%) of the respondents had a certificate and above and religiously two-thirds (66.6%) of the participants were Orthodox Christian followers. As to their occupational status, two-fifths (40.4%) of the study participants were government employees (Table 1).

### Participants Knowledge and Attitude Towards the UHEP

Participants' knowledge of UHEP was measured on health service extension program packages. Accordingly, about 65.3% of the participants scored more than or equal to 75% for the knowledge related questions. Thus, almost two-thirds (65.3%) of the participants had satisfactory knowledge about the UHEP. Similarly, the mean score of

**Table 1** Sociodemographic Characteristics, Participants' Perception, and Urban Health Extension Program Utilization of the Participants in Gondar Administrative City, Northwest Ethiopia, 2019 (N=626)

Variables	Percentage (%)
Age in years	
18–26	8.1
27–35	41.9
36–44	34.0
45–53	10.7
+53	5.3
Marital status	
Married	59.7
Single	19.2
Divorced	13.7
Widowed	7.4
Religion	
Orthodox	66.6
Muslim	30.0
Protestant	3.4
Educational status	
Unable to read and write	16.8
Able to read and write	6.5
Primary school (grade 1–8)	6.1
Secondary school (grade 9–12)	15.2
Certificate and above	55.4
Occupation	
Government employee	40.4
Private employee	22.0
House wife	27.2
Merchants	10.4
<b>Perception of mothers on interaction with UHEPs</b>	
Perceived good technical competency	55.3
Perceived good interpersonal relationship	53.5
Perceived good time spent	58.3
Perceived good ways of communication	45.8
Perceived good accessibility of health extension workers	48.4
<b>Health service utilization</b>	
Family health	
Immunization advice	72.4
Maternal and child nutritional advice	21.1
Family planning advice	38.5
Pregnancy and delivery care	32.6
Adolescent reproductive health advice	28.6
Personal hygiene and environmental sanitation	
Housing and environmental sanitation	43.8

(Continued)

**Table 1** (Continued).

Variables	Percentage (%)
Solid and liquid waste disposal	56.2
Latrine construction and usage	58.0
Water and food safety	25.1
Disease prevention and control	
Prevention of malaria	30.7
Prevention of diarrheal diseases	82.4
Prevention of HIV/AIDS/TB	73.8
Prevention of non-communicable diseases	16.0
Mental health education	6.7
First aid services	5.6

study participants' attitudes towards UHEP was 22.2, and the vast majority (88.2%) of participants scored above or equal to the mean value. Thus, a large fraction (88.2%) of participants had a favorable attitude towards the urban health service extension program.

## Perceived Interpersonal Relationship, Time Spent, Competence, and Accessibility

Nearly 54% of the respondents perceived that health extension professionals had a good interpersonal relationship with women. About 55.3% of the study participants perceived and reported that HEPs were competent and the majority (58.3%) of them spent sufficient time with mothers. However, more than half (51.6%) of the participants perceived there was poor accessibility of services (Table 1).

## Utilization of the Urban Health Extension Program

In this study, utilization of UHEP was assessed based on the major program thematic areas and its respective individual packages. Thus, the overall utilization of the urban health service extension program in Gondar administrative city was found to be 59.5% (95% CI=55.8–63.6).

Regarding each thematic area, immunization advice (72.4%) and maternal and child nutritional advice (21.1%) were the highest and lowest performed in the family health packages, respectively. In the area of personal hygiene and environmental sanitation, latrine construction and use were the most highly utilized package (58%) whereas water and food safety were the least implemented

(25.1%) health service extension program package. Prevention of diarrheal disease was the most highly utilized (82.4%) part of disease prevention and the control group of UHEP. However, mental health education (6.7%) and providing first aid services (5.6%) were the least implemented parts of the program in general (Table 1).

## Factors Associated with UHEP Utilization

In the multivariable logistic regression analysis: occupation, mothers' knowledge about UHEP, mothers' perception about the accessibility of health extension workers, and mothers' perception about UHEWs competency were variables significantly associated with the utilization of UHEP urban health service extension program.

Accordingly, mothers employed in the private sector, housewives, and merchants were 63% (AOR=0.37, 95% CI=0.21–0.63), 64% (AOR=0.36, 95% CI=0.20–0.64), and 92% (AOR=0.08, 95% CI=0.03–0.17) less likely to utilize urban health service extension program as compared to governmental employees, respectively. Participants who had satisfactory knowledge towards the urban health service extension program were 4.37-times more likely to utilize the program as compared to those who had unsatisfactory knowledge (AOR=4.37, 95% CI=2.73–6.96). Participants who perceived health extension workers as competent were 1.97-times more likely to utilize the program as compared to their counterparts (AOR=1.97, 95% CI=1.22–3.18). Moreover, those who perceived that access to health extension workers was good were 1.68-times more likely to utilize urban health service extension programs than those who perceived it as poor (AOR=1.68, 95% CI=1.02–2.74) (Table 2).

## Discussion

The amount of women who utilized the urban health service extension program accounts was 59.5%. This finding was higher than studies conducted at Abuna Gindeberet and Dera districts, Oromia regional state, Ethiopia (39% and 41.8%), respectively.<sup>4,21</sup> The possible reason might be the study site difference, the study conducted in Gindeberet district was from both rural and urban areas, whereas the study in Dera district was conducted on rural areas that may reduce the service utilization. The finding of this study was in line with another study conducted in the urban community in Ethiopia (57.1%).<sup>22</sup> But this finding is much lower than those of studies in Gullele sub-city administration, Addis Ababa, Ethiopia (86%), and Bishoftu town, Oromia regional state, central Ethiopia (72.8%).<sup>1,5</sup> The possible justification might

be due to the difference in uptake of the urban health service extension program which implies that the community still focus on curative healthcare services in the study area. The other possible reason could be the difference in the extent of supportive supervision and on-job training which was supported by systematic review in Ethiopia, where limited supportive supervision was one of the challenges to implement the health service extension program.<sup>23</sup>

In this study, mothers employed in the private sector, housewives, and merchants were 63, 64, and 92% less likely to utilize the program as compared to governmental employees, respectively. The finding is supported by that of a study finding in Abuna Gindeberet district, Oromia regional state, Ethiopia, and showed that Governmental employees were 3.79-times more likely to utilize the urban health service extension program as compared to farmers.<sup>4</sup> The possible reason might be due to the result of inter-sectoral collaboration between the health sector and other governmental sectors that lead to high information access for governmental workers. In addition, some health extension packages like HIV/AIDS are considered as a cross-cutting issue in every governmental organization that could enhance the utilization of the program.

In this study, participants who had satisfactory knowledge were 4.37-times more likely to utilize the services as compared to participants who had unsatisfactory knowledge. The result is supported by a study conducted in Gullele sub-city, administration, Addis Ababa, Ethiopia and showed that participants who had satisfactory knowledge were 1.5 times more likely to utilize the services as compared to participants who had unsatisfactory knowledge.<sup>5</sup> On the other hand, it is comparable with the finding in Hadiya zone, south Ethiopia, participants who had adequate knowledge were 2.3-times more satisfied on services than their counterpart,<sup>19</sup> the study was conducted in an urban community of Ethiopia participants who had the information about health service extension program were 2.13-times more likely to visit health centers than those who had no information.<sup>15</sup> It was also supported by a study conducted among model households in Ethiopia which showed participants who had a good understanding about the program were 1.16-times more likely to utilize the services as compared to those who had poor understanding.<sup>22</sup> The possible justification might be the result of frequent home visits and strong attention of the government towards the program.

In this study, participants who had good accesses to UHEP and who perceived HEWs were competent were 1.68-times and 1.97-times more likely to utilize the



**Table 2** Multivariable Logistic Regression Analysis of Factors for Utilization of Urban Health Extension Program in Gondar Administrative City, Northwest Ethiopia, 2019 (n=626)

Variables	Utilization Status		COR (95%)	AOR (95%CI)
	Utilized (%)	Not Utilized (%)		
Marital status				
Married	38.5	61.5	1	1
Single	35.8	64.2	1.12 (0.73–1.72)	1.28 (0.74–2.21)
Divorced	52.3	47.7	0.57 (0.36–0.92)	0.55 (2.93–1.01)
Widowed	43.5	56.5	0.81 (0.44–1.51)	0.65 (0.30–1.42)
Educational status				
Unable to read and write	59.0	41.0	1	1
Able to read and write	46.3	53.7	1.67 (0.81–3.45)	1.32 (0.53–3.26)
Primary school (Grade 1–8)	36.8	63.2	2.47 (1.15–5.31)	1.28 (0.49–3.35)
Secondary school (Grade 9–12)	48.4	51.6	1.54 (0.88–2.69)	0.80 (0.39–1.65)
Certificate and above	32.0	68.0	3.07 (1.96–4.81)	0.92 (0.49–1.73)
Occupation				
Government employee	18.2	81.2	1	1
Private employee	39.8	60.2	0.34 (0.21–0.54)	0.37 (0.21–0.63)**
Housewife	57.6	42.4	0.16 (0.11–0.25)	0.36 (0.20–0.64)**
Merchants	81.5	18.5	0.05 (0.03–0.10)	0.08 (0.03–0.17)**
Attitude				
Unfavorable	58.1	41.9	1	1
Favorable	37.9	62.1	2.78 (1.39–3.73)	0.87 (0.47–1.59)
Knowledge				
Not satisfactory	90.4	9.6	1	1
Satisfactory	25.0	75.0	2.28 (1.39–3.73)	4.37 (2.73–6.96)**
Interpersonal relationship				
Poor	43.3	56.7	1	1
Good	37.6	62.4	1.27 (0.92–1.75)	0.65 (0.42–1.01)
Ways of communication				
Poor	45.7	54.3	1	1
Good	33.8	66.3	1.65 (1.19–2.28)	0.75 (0.47–1.18)
Levels of time spent				
Less time	56.7	43.3	1	1
Good time	28.5	71.5	3.29 (2.35–4.59)	1.46 (0.92–2.31)
Competency				
Not competent	58.6	41.4	1	1
Competent	25.4	74.6	4.15 (2.95–5.82)	1.97 (1.22–3.18)*
Accessibility				
Not accessible	57.6	42.4	1	1
Accessible	21.8	78.2	4.88 (3.43–6.92)	1.68 (1.02–2.74)*

Notes: \*Statically significant at a  $P$ -value<0.05; \*\*Statically significant at a  $P$ -value<0.001.

Abbreviations: AOR, adjusted odds ratio; COR, crude odds ratio.

services than their counterpart, respectively. This result implies that there was a strong commitment among health-care workers, good availability of drugs, equipment, and

other supplies, strong supportive supervision, good interpersonal communication and in-service training that build trust and enhance utilization in the study area.

## Strengths and Limitations of the Study

Our study used enough sample size to generalize the findings. Even though we interviewed the women separately using a structured interviewer-administered questionnaire, still, there might be uncontrolled socially desirable biases and the women were interviewed in a relaxed way by giving more time and freedom about the last 6 months contact, however still there might also be recall bias.

## Conclusions

Our study clearly showed that three-fifths of the respondents did not utilize the urban health extension program services provided by urban health extension professionals. Private sector employment, housewives, and merchants occupation affected the utilization negatively, whereas satisfactory knowledge about urban health service extension programs, good perception about the accessibility of health extension services, as well as the competency of health extension workers affected the utilization positively. Therefore, awareness creation about the urban health extension program, providing in service training, improving inter-personal relationships, improving the accessibility of services, promotion of services, and improving the frequency of contact with mothers at household level will increase the utilization of the urban health extension program.

## Data Sharing Statements

All the data supporting the findings are within the manuscript. Additional detailed information and raw data are available from the corresponding author on reasonable request.

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## Author Contributions

All authors substantially contributed to the design, acquisition, analysis, and interpretation of data, drafting, revising, and final approval. Besides, all authors agreed to be accountable for all aspects of the work.

## Disclosure

The authors confirmed that they had no conflicts of interest for this work and that no funding for this research was secured.

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