

Health service access, utilization and prevailing health problems in the urban vulnerable sections of Ethiopia

Sefonias Getachew^{1*}, Mirgissa Kaba¹, Muluken Gizaw¹, Girma Taye¹

Abstract

Background: Currently, one third of urban residents in Africa and Asia reside in slum settings with a compromised state of health, and this proportion is increasing at an alarming rate. In Ethiopia, it is estimated that 70-80% of the urban population lives in settings that are believed to be slums and most of the urban population has no access to improved sanitation. Though there is still a limitation on proper urban health profile data, there is evidence of vulnerability to a wide range of health-related problems in the country, including HIV. Hence, this study aimed to generate evidence on access to and utilization of health services, particularly by mothers and children, and the prevailing health problems of vulnerable sections of the urban population.

Methods: A total of 115 urban vulnerable sections were identified in 46 towns in five regions (Amhara; Oromia; Tigray; Southern Nations, Nationalities, and Peoples' (SNNP); and Harari) and two city administrations (Addis Ababa and Dire Dawa) where John Snow Inc. (JSI) urban centers are located. A cross-sectional household survey design was conducted among identified urban vulnerable sections of the population on 10–20 May 2017. A total of 1,220 households were included, based on a two-stage stratified sampling method. The analysis used mainly descriptive statistics and SPSS version 21 software was used for the analysis.

Results: The mean age of the respondents was 43.2 (SD=14.8) years, and females accounted for 75% of all participants. The average time (SD) from the households to the health facility is 18 (±11) minutes. One month prior to the study, 32.6% of the household members reported to have had some form of illness and 44% of them visited a health center and 36% a hospital. More than two thirds (68.6%) of women gave birth at a health facility and most (70.1%) births were assisted by a skilled provider. Nearly two thirds (63.4%) of women received a postnatal check-up. In 7.6% of the households, diarrhea occurred among children under 5 in the past two weeks, and 88% sought advice or further treatment. Non-communicable diseases (NCDs) account for the largest share of causes of morbidity among adults (29%) and death was observed in 8.4% of the households in the last three-year period prior to the survey. The most perceived causes of death in households were kidney disease, hypertension, heart disease and other NCDs (65%).

Conclusions: Health facilities are located near households. However, a significant proportion of mothers are still giving birth at home and more than a third of the births are attended by non-skilled attendants. Postnatal care utilization remained a challenge. NCDs were found to be the most prevailing problem among adults in the households and most of the deaths were also related to NCDs. Social changing interventions are recommended so that women have trust to deliver at facilities and postnatal visits are increased. Targeted preventive interventions are also essential to avert the growing burden of NCDs and others in the urban vulnerable sections. [*Ethiop. J. Health Dev.* 2020; 34(Special issue 2):12-23]

Key words: Health service, access, health problem, vulnerable sections, Ethiopia

Introduction

The world is witnessing unprecedented urbanization, especially in developing countries, which has far-reaching implications (1). For the first time in history, more people are now living in urban settings than in rural areas. By the year 2030, an estimated six out of every 10 people will be living in towns and cities, with the most explosive growth expected in Asia and Africa (2). In Africa, the urban population is estimated to grow from 300 million in 2000 to 740 million in 2030 (3) and slum settlements in urban settings are the norm, particularly in Africa, Asia and South America. The United Nations cities report indicates that the number of slum dwellers in developing countries increased from 689 million in 1990 to 880 million in 2014 (4).

Fast-expanding urbanization has brought improvements to local economies with improved prosperity of urban areas compared to rural set-ups. Improved living conditions with improved income, housing, transportation facilities, education, health services, and social support mechanisms play an important role in improved urban health indicators (2). Throughout the last few decades marked improvements have been recorded in health indicators in urban settings (5). Nevertheless, there are urban settings that

are disadvantaged on several fronts and their residents have become increasingly destitute with compromised health. In most African, Asian and South American urban settings, inequities are far greater compared to some rural settings (3).

The commitments to universal health coverage and the Strategic Development Goals are about improving the living conditions of urban residents (6). However, such global commitments were not rolled out to benefit all urban residents equitably. In particular, residents in slum settings are facing a multitude of social and economic problems and are subjected to sub-standard living conditions (6). It is clear that the health challenges of urbanization are alarmingly complex, but they are worse for residents in urban slums and their neighbors, which are characterized by limited social services and facilities (7).

Ethiopia is one of the most populous countries in sub-Saharan Africa. Currently, 19% of the population reside in urban areas, which makes the country one of the least urbanized countries in the world. However, at its current pace, by 2050, an estimated 42% of Ethiopians will be living in urban settings (8). Despite a low level of urbanization in Ethiopia compared to the

¹ School of Public Health, College of Health Sciences, Addis Ababa University,

*Corresponding author

rest of Africa, the pace of urbanization is highly exceptional (8). The housing quality in Ethiopia is considered poor compared to neighboring countries. It is estimated that 70-80% of the urban population in Ethiopia live in settings that are believed to be slums (9).

Inequalities of access to health services are marked vulnerabilities for residents, and result in a wide range of health problems (6). Similar to developing nations, Ethiopian urban areas are not immune from major public health challenges, leading to numerous health risks. For example, the Ethiopian Demographic and Health Survey (EDHS) of 2016 estimated that 84% of the urban population had no access to improved and private sanitation, and 7% were found to practice open defecation (8). Previous studies have also shown that there are people and specific places that are more vulnerable to a wide range of health-related problems in the country, including HIV (10).

However, there is still a scarcity of data on the urban health profile in Ethiopia and limited understanding of key problems and how to apply appropriate interventions to address them. This study aimed to generate evidence on the access to and utilization of health services, and the prevailing health problems of urban vulnerable section households, in John Snow Inc./Strengthening Ethiopia's Urban Health Program (JSI/SEUHP) operational towns in five regions and the two city administrations of Ethiopia. The study may be of use to programmers and policy-makers to understand urban vulnerable settings, including access to and utilization of health services, prevalent health problems and dwellers' profiles, for evidence-based planning and decision-making.

Methods

Study setting, study design and population: JSI/SEUHP works in 49 urban centers in five regions (Amhara; Oromia; Tigray; Southern Nations, Nationalities, and Peoples' (SNNP); and Harari) and two city administrations (Addis Ababa and Dire Dawa). About 115 vulnerable sections of urban centers were identified in 46 towns. A cross-sectional household survey was conducted among identified urban vulnerable sections in the five regions and two administrative cities. All people living in the urban vulnerable sections were the study population and households were used as the study unit for the survey to identify the participants. The head of the household, mother, or anyone in the household above the age of 18 years at the time of data collection, could respond to the survey. Excluded from the survey were heads of households below the age of 15 years, those who had lived in the study setting for less than six months, and those known to have a mental illness.

Sample size and sampling procedure: Initial assessment was conducted in the 49 towns to obtain information on the number of vulnerable sections of the towns and cities, and the approximate size of these sections. In our survey, vulnerability was defined as insecurity in the well-being of individuals, households and communities due to a lack of adequate means to

defend against health risks, including absence or lack of resources, risky living environment, and conditions as per the initial assessment prior to this survey.

However, it was not possible to include all these vulnerable sections of the towns and cities in the survey for logistic reasons, and due to the fact that the precision increase by using all sections in the study compared to the cost that would be incurred was not warranted. Samples of vulnerable sections proportional to the total number of sections identified in urban centers were taken. The selected vulnerable sections in towns and cities were as far apart as possible to ensure difference in terms of their vulnerability. It is assumed that, as the size of an urban area gets larger, the vulnerable sections of also get larger. This was used as a basis to determine the number of households from each section in respective urban centers. A sketch map was drawn by data collectors to delineate the vulnerable sections. In general, a single vulnerable section in regional towns was split into one or more enumeration areas (EAs) containing about 200 households. Therefore, a sample of 20 or more households per vulnerable section was considered, as per the Central Statistical Agency's guidelines on population surveys, which considers 20 households in one EA. Thus, it is estimated that a minimum of 60 households per urban areas was required. Finally, a total of 1,220 households were included in the survey among the vulnerable sections in the five regions and two administrative cities.

Following the identification of specific urban vulnerable sections among all urban vulnerable sections in the urban areas representative sample households were selected from each of the selected vulnerable sections in these urban areas using a two-stage stratified random sampling technique. In the first stage, representative urban areas (first-level strata) of the 46 JSI-implementing urban areas were selected. The urban areas were selected in such a way that they are fairly distributed over the regions and be representative of the context (such that different culture and ecology, which is believed to influence settlement pattern and way of life in urban centers, were well represented). The selected urban areas were stratified into vulnerable sections. In the second stage, households were selected from vulnerable sections among those identified in the urban areas. Households were assumed to be homogenous within strata (vulnerable section of urban areas) and simple random sampling was used to select them.

Data collection process: Data were collected using a structured interview-based questionnaire. The questionnaire was prepared in English and translated into local languages, then back-translated to English to maintain the consistency of the information. A total of five on-site supervisors and 18 data collectors were recruited for data collection. They were trained and deployed to the study sites. A total of nine routes were identified to facilitate travel and data collection activities in the five regions and two administrative cities. Data were collected on a range of subjects, including socio demographic characteristics, health

service availability, access to health services, maternal delivery and postnatal experience, perceived reasons for not delivering at a health facility, child health check-up, the common childhood illnesses, diarrhea and its management, and the prevailing health problems among adults in the household related to morbidity and mortality.

Data processing and analysis: The data were entered and cleaned using Epi Info version 7.1 and exported to SPSS version 21 for further analysis. The analysis mainly focused on descriptive statistics to determine the characteristics of vulnerable sections' household members in terms of service accessibility, utilization and perceived reasons for non-utilization, prevailing health problems and mortality. Frequency, proportion, mean and standard deviations were applied and respective values were described using tables and graphs.

Data quality control: In order to ensure the tool would generate desired evidence, it was pre-tested at 5 per cent level of the expected sample in one *woreda* in Addis Ababa not included in the study and another in Sebeta town, as part of training of data collectors. In addition to training research assistants/data collectors, close supervision was provided during data collection to ensure completeness of data and proper recording. During data analysis, data were screened for completeness and cleaned for outliers, unexpected values, and errors, ensuring quality and consistency.

Ethical considerations

Ethical clearance was obtained from the Research Ethics Committee of the Department of Preventive Medicine, School of Public Health, Addis Ababa University. The official letter was taken from the University to the respective towns to obtain permission. The respondents were informed of the objectives of the study, benefits, and informed consent was obtained. To ensure the confidentiality of the respondents, individual identifiers were not collected.

Results

Sociodemographic profile of the respondents in the households: The overall mean age of the respondents was 43.2 (SD=14.8) years. The majority of household respondents (75%) were female. Sixty per cent of the respondents were married, 17% were widowed, 11% were divorced, 7% were single, 4% were separated, and the remaining 1% included those living together and never married but engaged. In terms of educational status, 37.5% of the respondents in the households had no formal education, 32.9% attended primary school, 20.9% had completed secondary education, 3.9% had technical/vocational training, and the rest (4.8%) had attended higher education.

Access and utilization of health services in urban vulnerable sections: Almost all households members in the urban vulnerable sections located in five regions and two administrative cities reported that a health facility is available in their localities. They mentioned that the facilities are close to their homes. The average travel time from the households to the facility is 18 minutes (SD = 11). It varies from one urban vulnerable section to another across regions. In the one month prior to the survey, 32.6% of the household members reported that they had have encountered some form of illness. The highest proportion of illness was reported in SNNPR (47.5%), and the lowest in Tigray Region (17.3%). Among those reporting illness, 44.5% visited a health center, followed by hospitals (36.8%), whereas 2.1% visited a traditional healer. The use of the facilities varied by regions in the vulnerable sections: 65.2% visited health centers in Harari and 26.5% in Tigray, whereas the use of the hospitals ranged from 59.2% in Tigray to 18.5% in Dire Dawa. However, among vulnerable household members in Amhara region, 9.8% visited a traditional healer due to their illness. According to the respondents, the waiting time to get service varied: 54% waited for less than 30 minutes, whereas 12% waited for more than two hours, with considerable variation among the regions (see Table 1).

Table 1. Health facility (HF) availability and access in urban vulnerable sections in Ethiopia, 2017

Variables		Regions/City administrations							Total
		Addis Ababa	Amhara	SNNP	Dire Dawa	Harari	Oromia	Tigray	
Is HF available in the locality?	Yes	239 (99.6%)	219 (99.5%)	199 (99.5%)	60 (100.0%)	60 (100.0%)	298 (99.3%)	140 (100.0%)	1,215 (99.6%)
	No	1 (0.4%)	1 (0.5%)	1 (0.5%)	0 (0.0%)	0 (0.00%)	2 (0.7%)	0 (0.0%)	5 (0.4%)
	Total	240	220	200	60	60	300	140	1,220
Family member ill in the last month?	Yes	83 (34.7%)	80 (36.5%)	95 (47.5%)	12 (20.7%)	16 (26.7%)	86 (28.7%)	24 (17.3%)	396 (32.6%)
	No	156 (65.3%)	139 (63.5%)	105 (52.5%)	46 (79.3%)	44 (73.3%)	214 (71.3%)	115 (82.7%)	819 (67.4%)
	Total	239	219	200	58	60	300	139	1,215
Type of facility the household members visited	Hospital	40 (30.8%)	39 (32.0%)	56 (44.4%)	5 (18.5%)	5 (21.7%)	57 (38.0%)	29 (59.2%)	231 (36.8%)
	Health center	71 (54.6%)	63 (51.6%)	54 (42.9%)	17 (63.0%)	15 (65.2%)	46 (30.7%)	13 (26.5%)	279 (44.5%)
	Clinic (private)	19 (14.6%)	8 (6.6%)	16 (12.7%)	5 (18.5%)	3 (13.0%)	46 (30.7%)	7 (14.3%)	104 (16.6%)
	Traditional healer	0 (0.0%)	12 (9.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.7%)	0 (0.0%)	13 (2.1%)
	Total	130	122	126	27	23	150	49	627
Waiting time to service (minutes)	≤30	83 (68.6%)	77 (67.0%)	49 (39.2%)	19 (73.1%)	9 (40.9%)	65 (43.6%)	26 (53.1%)	328 (54.0%)
	30-60	18 (14.9%)	19 (16.5%)	36 (28.8%)	5 (19.2%)	8 (36.4%)	46 (30.9%)	10 (20.4%)	142 (23.4%)
	60-120	12 (9.9%)	4 (3.5%)	21 (16.8%)	1 (3.8%)	0 (0.0%)	21 (14.1%)	5 (10.2%)	64 (10.5%)
	>121	8 (6.6%)	15 (13.0%)	19 (15.2%)	1 (3.8%)	5 (22.7%)	17 (11.4%)	8 (16.3%)	73 (12.0%)
	Total	121	115	125	26	22	149	49	607
Average travel time to HF from home (minutes)	Mean (SD)	16.31 (12)	22.41 (12)	20.70 (11)	25.75 (7)	14.35 (35)	14.19 (10)	15.64 (9)	17.90 (10)

NB. HF; Health facility, SNNP: Southern Nations, Nationalities, and Peoples' (Region)

Maternal health service in urban vulnerable sections: The survey assessed the delivery experiences of women in the vulnerable sections. The majority (79.9%) of the women reported to have at least one child and 82.5% of them mentioned that their pregnancies were desired. The survey showed that 676 (70.1%) births were assisted by a skilled provider: 42.1% by a midwife or nurse and 28% by a physician, while 16.8% of births were assisted by a traditional

birth attendant. We found that 18.6% of births were delivered by cesarean section. Among women who received postpartum care, 44% were examined within an hour following delivery, 8% within 1-2 days, and 20% within 3 or more days after delivery. The majority of women (63.4%) received a postnatal check-up. A considerable proportion (36.6%) of those who reported to have delivered in a facility did not receive any check-up after leaving the facility (see Table 2).

Table 2. Maternal delivery experience and postnatal check-up in urban vulnerable sections in Ethiopia, 2017

Variables	Categories	Frequency	Proportion
Do you have a child/children?	Yes	975	79.9
	No	234	19.2
	Total	1,209	100
Number of children?	1-3 children	607	63
	4-6 children	287	29.8
	7 or above	70	7.3
	Total	964	100
Did you want to become pregnant for your last baby?	Wanted	804	82.5
	Wanted later	138	14.2
	Wanted no more children	33	3.4
	Total	975	100
Who assisted the delivery of your last baby?	Doctor	270	28
	Nurse/midwife	406	42.1
	Health extension worker	5	0.5
	TTBA	54	5.6
	UTBA	108	11.2
	Relative/friend	1	0.1
	None	120	12.4
	Total	964	100
Type of delivery of the last baby?	Cesarean section	179	18.6
	Vaginal/normal	785	81.4
	Total	964	100
Mother's first check-up after delivery?	Within 1 hour	332	44
	Within 1-2 days	63	8
	After 3 or more days	154	20
	Don't know	211	28
	Total	760	100
Health check-up after left the facility?	Yes	505	63.4
	No	292	36.6
	Total	797	100

NB. TTBA; trained traditional birth attendant, UTBA; untrained traditional birth attendants

Place of delivery among urban vulnerable section mothers: More than two thirds (68.6%) of births were delivered at a health facility. Of these, 97.2% delivered in a public facility (hospital or health center) and 2.8% in a private facility. However, a significant proportion (31.4%) of women delivered at home. The regional distribution shows that home delivery is as high as

52.8% in Harari, almost 38% in Dire Dawa and SNNPR, and about 30% in Amhara, Tigray and 34.5% in Oromia regions. The overall percentage of births delivered in a health facility ranged from less than 47.2% in Harari to 85.6% in Addis Ababa (see Table 3).

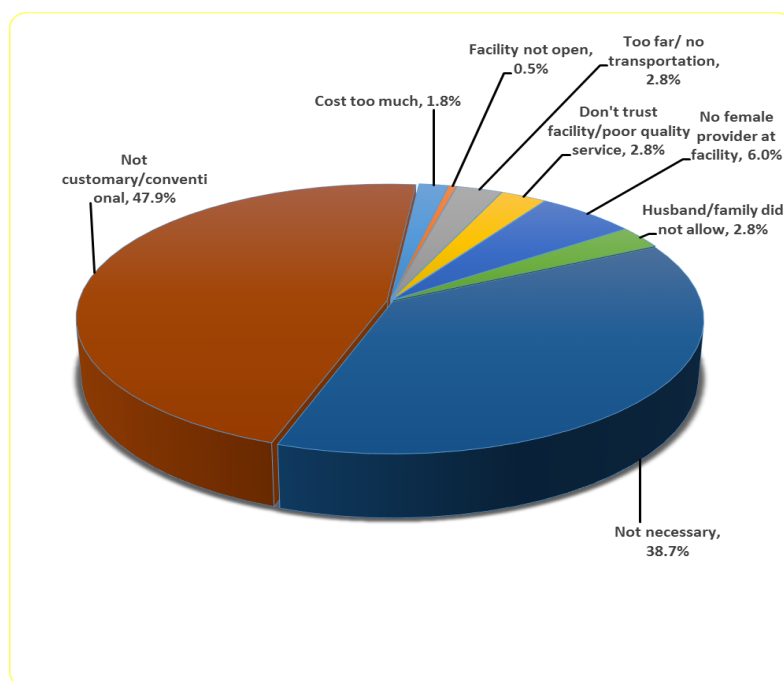
Table 3: **Place of delivery among women in urban vulnerable sections in Ethiopia, 2017**

Variable	Category	Regions/City administrations							
		Addis Ababa	Amhara	SNNP	Dire Dawa	Harari	Oromia	Tigray	Total
Place of delivery of last baby	Home	22	54	65	11	28	86	39	305
		14.40%	28.90%	37.80%	37.90%	52.80%	34.50%	30.20%	31.40%
	Public hospital	72	69	48	9	23	104	57	382
		47.10%	36.90%	27.90%	31.00%	43.40%	41.80%	44.20%	39.30%
	Private hospital	5	4	2	0	0	3	0	14
		3.30%	2.10%	1.20%	0.00%	0.00%	1.20%	0.00%	1.40%
	Public health center	50	60	57	9	2	55	33	266
		32.70%	32.10%	33.10%	31.00%	3.80%	22.10%	25.60%	27.40%
	Private clinic	4	0	0	0	0	1	0	5
		2.60%	0.00%	0.00%	0.00%	0.00%	0.40%	0.00%	0.50%
Total		153	187	172	29	53	249	129	972

Perceived reasons for not delivering at health facility:

The reasons not delivering at a health facility given by mothers who gave birth at home revealed that about half of them (48%) said it was not customary or conventional to deliver at health facility, and 38.7%

stated that it was not necessary. Other reasons included unavailability of female birth attendants at health facilities (6%), perceived quality of services as being poor (2.8%), and some associated with the high cost of related services (1.8%) (see Figure 1).

Figure 1: **Perceived reasons for not delivering at health facility among urban vulnerable sections of Ethiopia, 2017**

Child health check-up after delivery in urban vulnerable sections: Overall, 67% of the women mentioned that health personnel or a traditional birth attendant saw their baby for a check-up at 2 months. However, a significant proportion (25.5 %) were not seen at the 2-month interval. For babies, 32% received

their first check-up within an hour of delivery, 19% within 1-2 days, and 24% in a week interval. Fifty one per cent of the check-ups were carried out by a nurse or midwife, and 29% by doctors. The majority of the first child check-ups took place in health centers (52.6%) and government hospitals (40%) (See Table 4).

Table 4: **Child health check-up practice after delivery in the urban vulnerable sections of Ethiopia, 2017**

Variables	Categories	Frequency	Proportion
Health personnel or traditional birth attendant checked on baby's health at 2 months?	Yes	628	67.1
	No	239	25.5
	Don't know	69	7.4
	Total	936	100
First check-up after delivery of last baby?	Within one hour	269	32
	Within 1-2 days	159	19
	In week interval	204	24
	Don't know	204	24
	Total	836	100
Person who saw baby at first check-up?	Doctor	229	28.8
	Nurse/midwife	406	51.1
	Health extension worker	28	3.5
	TTBA	4	0.5
	UTBA	15	1.9
	Relative/friend	2	0.3
	None	111	14
	Total	795	100
Where did this first check-up of the baby take place?	Home	21	2.8
	Government hospital	301	39.8
	Private hospital	16	2.1
	Government health center	398	52.6
	Private clinic	10	1.3
	Government health post	11	1.5
	Total	757	100

NB. TTBA; trained traditional birth attendant, UTBA; untrained traditional birth attendants

Common childhood illnesses in the households of urban vulnerable sections: Common childhood illnesses were assessed in the households: 30% of children encountered acute respiratory problem and 29% had a diarrhea problem. The rest, as reported by the respondents included: typhoid fever (20%), malaria (8%), pneumonia (3%) and tonsillitis (4%) (Figure 2). The survey enquired further about the diarrhea problem and its management among children in the past two weeks. In 7.6% of cases, the diarrhea occurred among children under 5 in the past two weeks. Of these, 30% reported having blood in the stools. At the time of diarrhea incidence, almost 58% reported that they gave the same or less amount of fluids to their child, while

26.5% gave more drinks, and 4.8% gave nothing to drink. With respect to food, 13.3% ate much less and 70% ate the same or somewhat less than their usual intake. Among the households with diarrheal problems, 88% sought advice or treatment. Among those who sought treatment, the majority (78.6%) visited the health center. More than two thirds (82.5%) of children were given oral rehydration salt (ORS) to treat the dehydration related to diarrhea and almost 35% were given homemade fluids (see Table 5). For the treatment of diarrhea, respondents mentioned that 50.8% of their children were treated with pill or syrup antibiotics, 28.6% with anti-motility, 47.6% with zinc, and 11.1% of the children were given injectable antibiotics (see Figure 3).

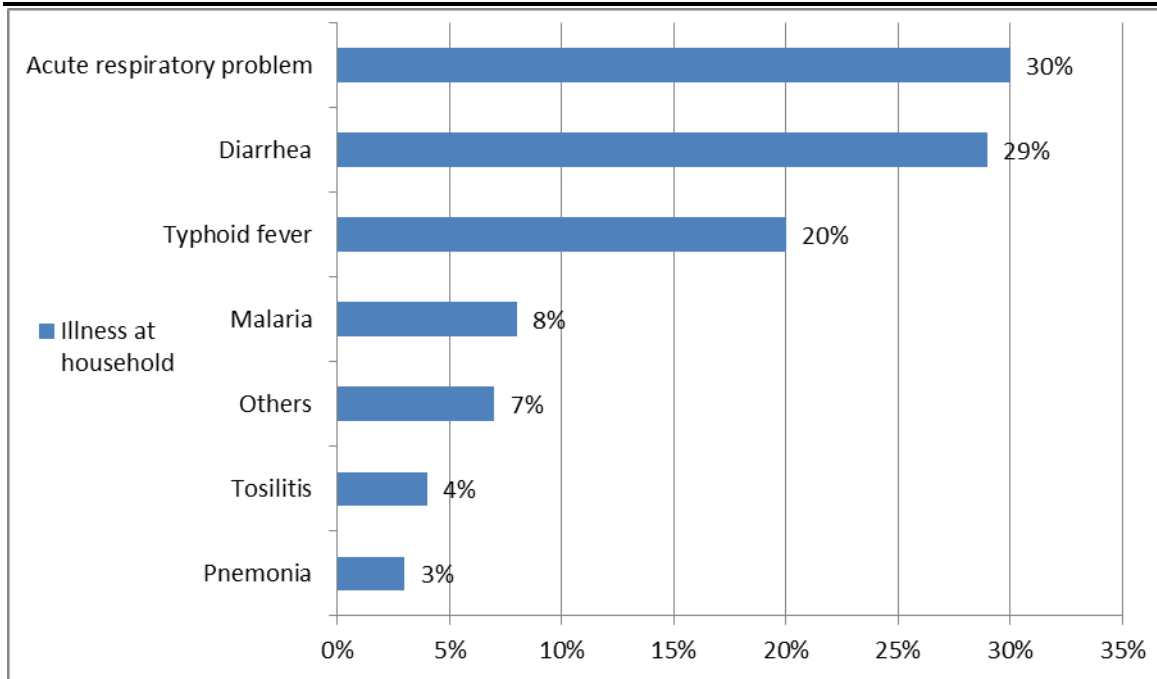


Figure 2: Common childhood illnesses in the households of urban vulnerable sections in Ethiopia, 2017

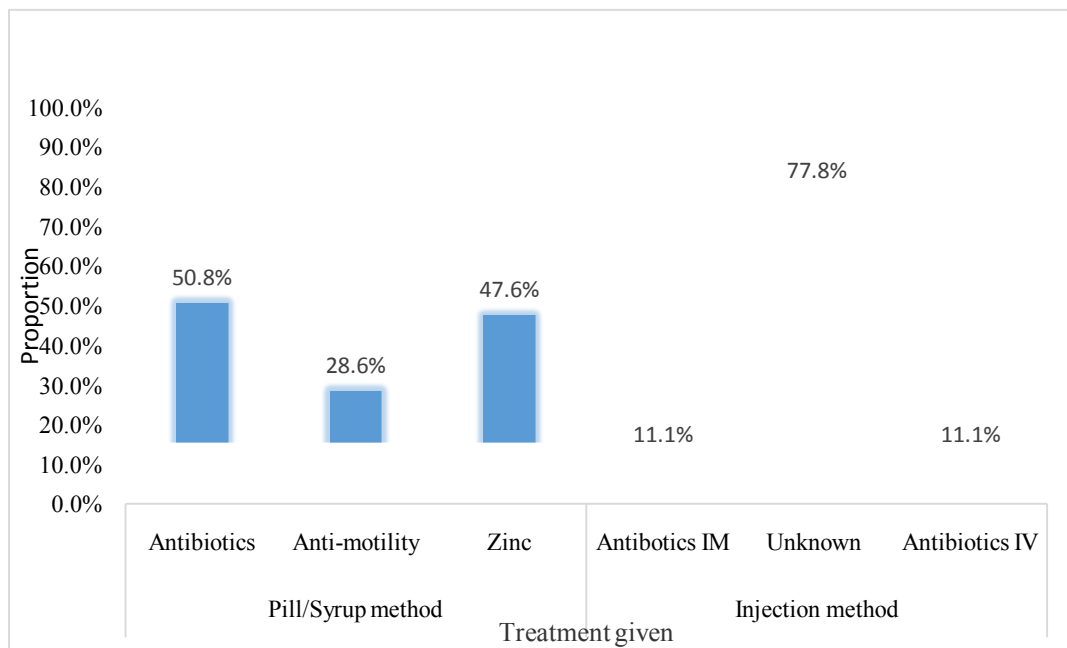


Figure 3: Types of further treatment options used to treat diarrhea in urban vulnerable sections in Ethiopia, 2017

Table 5: Diarrheal problem and its management among children in urban vulnerable sections in Ethiopia, 2017

Variables	Categories	Frequency	Proportion
Child had diarrhea in the past two weeks?	Yes	83	7.6
	No	1,007	92.0
	Don't know	5	0.5
	Total	1,095	100
Was there any blood in the stools?	Yes	25	30.1
	No	58	69.9
	Total	83	100
Drink given during the diarrhea?	Much less	9	10.8
	Somewhat less	24	28.9
	About the same	24	28.9
	More	22	26.5
	Nothing to drink	4	4.8
	Total	83	100
Food given during the diarrhea?	Much less	11	13.3
	Somewhat less	36	43.4
	About the same	22	26.5
	More	13	15.7
	Nothing to eat	1	1.2
	Total	83	100
Seek advice or treatment for diarrhea from any source?	Yes	73	88.0
	No	10	12.0
	Total	83	100
Place treatment sought?	Gov't hospital	8	11.0
	Gov't HC	55	78.6
	Private clinic	8	11.4
First sought advice or treatment for diarrhea from where?	Gov't hospital	7	9.7
	Gov't HC	52	72.2
	Private clinic	11	15.3
	Gov't HP	2	2.8
	Total	72	100
ORS fluid given during diarrhea?	Yes	66	82.5
	No	1	1.3
	Don't know	13	16.2
	Total	80	100
Homemade fluid given during diarrhea?	Yes	25	34.7
	No	2	2.8
	Don't know	45	62.5
	Total	72	100

Morbidity and mortality among adults in urban vulnerable sections: The most common prevailing cause of morbidity among adults in the households of the vulnerable sections were NCDs (29.2%), respiratory-related diseases (27.6%) and other communicable diseases (20.5%). HIV, eye problems, abdominal problems and malaria were also reported, though their prevalence was relatively low (Figure 4). The survey also assessed the mortality of adults in the

households in the three-year period (2014/15-2016/17) prior to the survey, and 8.4% had a death over this period. A high proportion of deaths were reported in Harari (11.7%) and SNNP (11.1%) (see Figure 5). The perceived reasons for death were mostly related to NCDs (kidney disease, blood pressure, heart disease and others), which accounted for 65%; tuberculosis, hepatitis and HIV accounted for 21%, aging 10% and malaria 4%.

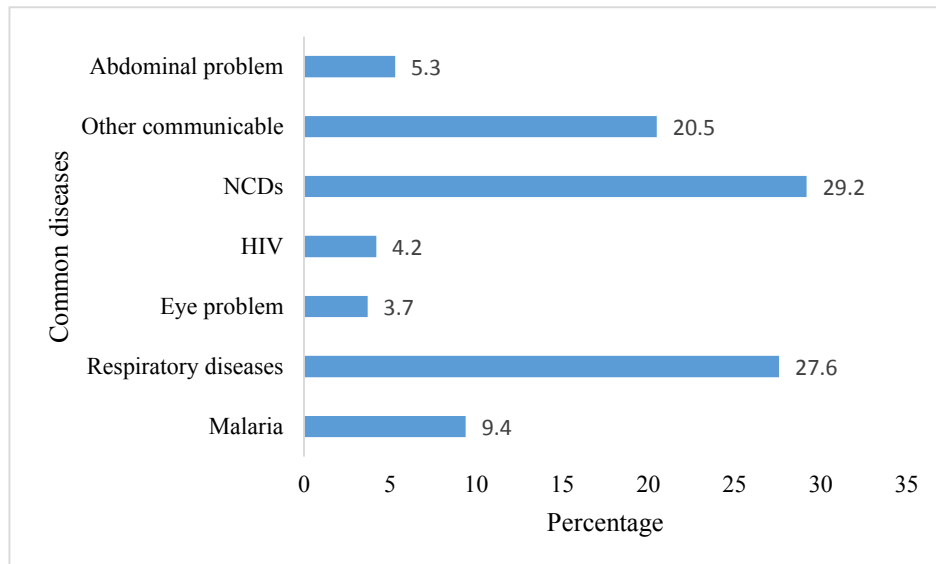


Figure 4: Morbidity among adults in the urban vulnerable section households

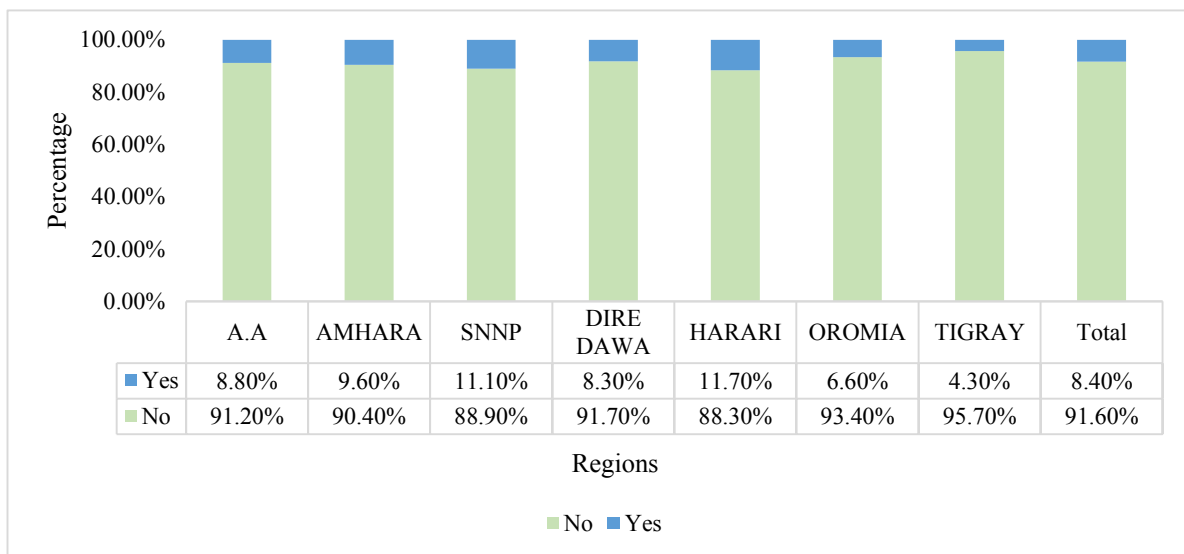


Figure 5: Mortality among household members in urban vulnerable sections over a three-year period (2014/2015 to 2016/2017)

Discussion

The health system in Ethiopia has undergone constant change for a long time. However, a few decades since the modern health system started in Ethiopia (11), continuous improvements have been seen in coverage and access to health facilities. In the past two decades, remarkable progress has been made in improving access to primary health care units and hospitals (12). This survey also revealed that almost all urban vulnerable sections have a health facility close to their household, with an average travel time of 18 minutes. However, waiting times to receive services remain problematic. In some cases the waiting time to get services exceeds two hours.

Maternal delivery experience and child diarrhea problems were the main topics assessed in the survey. Accordingly, more than two thirds of the latest pregnancies were intentional and 70.6% of the deliveries were attended by skilled providers. This is in agreement with the national Ministry of Health report

of 2016, which showed 72.7% of births were attended by skilled providers (13). Eighty per cent of births to urban mothers were also assisted by a skilled provider, as reported by Ethiopian Demographic Health Survey (14). However, still more has to be done to reach the remaining one third of mothers to deliver with skilled providers. According to a national report by the Ministry of Health, delivery with caesarian section accounted for just 3.8% of births (13). However, in this survey the delivery with caesarian section among the vulnerable section women was much higher (18.6%).

A large proportion of maternal and neonatal deaths occur during the first 48 hours after delivery. Thus, quick postnatal care (PNC) for both the mother and the child is important to treat any complications arising from the delivery, as well as to provide the mother with important information on how to care for herself and her child. The postnatal check-up of mothers after two days of delivery was found to be 63.4% among mothers in the vulnerable section. This finding is

relatively low compared to a national report produced by the Ministry of Health in 2008, which showed 89.3% had a postnatal check-up (13). In this survey, a significant number of mothers had no postnatal check-up, in spite of the high rate of caesarian section delivery. In order to achieve the national target and reach more of women with a postnatal check-up, it is essential to educate women and increase advocacy to scale-up the utilization of postnatal check-up for the health of the woman and her child.

The facility delivery experiences of women are poorer compared to the EDHS 2016 report for the urban set-up. The proportion of women who delivered at a health facility in the vulnerable sections were 68.6%; the urban DHS 2016 report showed 79% (14). The survey revealed a significant proportion of women delivered at home. The most reported reasons for not delivering at a health facility were that it is not customary or conventional, and not necessary. Other reasons which were frequently mentioned by mothers were lack of female birth attendants and the perceived poor quality of services. Hence, to increase the institutional delivery in the urban set-up and to the specific target group in this vulnerable section, a lot of advocacy and quality improvement has to be done to reduce the maternal and child mortality related to delivery.

Acute respiratory illness (ARI), diarrhea, typhoid fever, malaria and pneumonia were the common childhood illnesses in households in the vulnerable sections. This is similar to findings from the EDHS 2016 report: overall, 7% of children below 5 years had ARI symptoms, 14% had a fever, and 12% experienced diarrhea in the two weeks preceding the survey (15). In this survey, the prevalence of diarrhea in the two weeks preceding the survey was 7.6% and one third had bloody diarrhea. This shows that a smaller proportion of children had diarrhea compared to the national EDHS report in 2016. The majority of caregivers seek advice or treatment for their children (88%) from a health facility, and almost all had visited the health facility for treatment. The use of ORS for the treatment of dehydration due to diarrhea was 82.5% in vulnerable sections. According to the EDHS 2016 (15), 40% of the urban children received ORS during episodes of diarrhea. The utilization of a health facility and ORS during diarrhea was high compared to the EDHS 2016 report in urban set-ups. This suggests that the urban vulnerable section child receives relatively good attention for diarrheal problems, although further assistance is needed to reduce morbidity and mortality related to common childhood illnesses, including diarrhea.

The morbidity assessment showed that NCDs take the largest share as the cause of morbidity among adults in the households. According to the Ministry of Health, the burden of NCDs is growing fast in the country (13). One population-based cross-sectional survey (STEPS) conducted in Gilgel Gibe, Jimma found the prevalence of NCDs to be 8.9% (15). The prevalence of hypertension among adults in the national STEPS survey of 2015 was 15.6% (16). Hence, we note that the prevalence among vulnerable populations is higher

compared to the overall population. So, giving attention to vulnerable sections of the community might make a significant contribution to combating NCDs and major communicable diseases.

The prevalence of death in the households was found to be 8.4% and all vulnerable sections of the surveyed regions had death below 10% in the three years preceding the survey. More interestingly, more than half of the causes of death in the household were due to kidney disease, hypertension, heart disease and other NCDs. This might be related with the frequent morbidity of NCDs in the household, contributing to the high mortality from the NCDs. Due to the fact that NCDs have a significant burden on morbidity and mortality, it is crucial to make available targeted preventive interventions and treatment for vulnerable sections of the community.

Conclusions

Health facilities are found close to households. However, there are still challenges in service utilization and significant proportion of mothers are still giving birth at home. The use of post-natal care is still limited and children's facing child hood illness.

NCDs were also found to be the most prevailing problem among adults contributing the significant portion of mortality in the house hold. Hence, social changing interventions are recommended so that women have trust to deliver at health facilities and improve the postnatal visits for them and their children. It is also time to think on targeted preventive interventions to avert the growing burden of NCDs and other problems among adults and children in urban vulnerable sections.

Conflicts of interest

The authors declare that they have no conflicts of interest.

Authors' contributions

SG, MG, GT and MK were involved in write up of the proposal, data collection, data entry, data analysis. SG drafted the manuscript. SG, MG, GT and MK were involved in the preparation of the final manuscript. All authors read and approved the final version of the manuscript.

Acknowledgements

We are grateful to JSI Ethiopia for the financial support for this study. We would also like to acknowledge the cooperation of each of the data collectors, supervisors and regional offices for their co-operation during data collection.

References

1. United Nations, Department for Economic and Social Affairs. World urbanization prospects: The 2014 revision, highlights. (ST/ESA/SER.A/352). New York: United Nations; 2014. <https://population.un.org/wup/Publications/Files/WUP2014-Highlights.pdf>
2. Friel S, Akerman M, Hancock T, Kumaresan J, Marmot M, Melin T, *et al.* addressing the social

- and environmental determinants of urban health equity: Evidence for action and a research agenda. *Journal of Urban Health*. 2011; 88(5):860.
3. Awadall HI. Health effect of slums: A consequence of urbanization. *Scholarly Journal of Medicine*. 2013; 3(1):7-14.
 4. World Health Organization & UN-Habitat. Global report on urban health: Equitable, healthier cities for sustainable development. World Health Organization; 2016. <https://apps.who.int/iris/handle/10665/204715>
 5. Kedir AM. Understanding urban chronic poverty: Crossing the qualitative and quantitative divide. *Environment and Urbanization*. 2005; 17(2):43-54.
 6. Donkin A, Goldblatt P, Allen J, Nathanson V, Marmot M. Global action on the social determinants of health. *BMJ Global Health*. 2018; 3(Suppl 1):e000603.
 7. Marmot M, Friel S, Bell R, Houweling TAJ, Taylor S. Commission on Social Determinants of Health. Closing the gap in a generation: Health equity through action on the social determinants of health. *The Lancet*. 2008; 372(9650):1661-9.
 8. Ethiopia Demographic and Health Survey 2016. Addis Ababa, Ethiopia, and Rockville, Maryland, USA: CSA and ICF; 2016.
 9. Ozlu MO, Alemayehu A, Mukim M, Lall SV, Kerr OT, Kaganova O, *et al*. Ethiopia –Urbanization review: Urban institutions for a middle-income Ethiopia. Washington, D.C.: World Bank Group; 2015.
 10. Kaba M, Taye G, Gizaw M, Mitiku I, Adugna Z, Tesfaye A. A qualitative study of vulnerability to HIV infection: Places and persons in urban settings of Ethiopia. *Ethiopian Journal of Health Development*. 2016; 30(3):105-11.
 11. Berhane Y, Mariam DH, Kloos H. *Epidemiology and ecology of health and disease in Ethiopia*. Addis Ababa: Shama Books; 2006.
 12. Federal Ministry of Health. *Health Sector Transformation Plan: 2015/16-2019/20 (2008-2012 EFY)*. Addis Ababa: FMOH; 2015.
 13. Federal Ministry of Health: *Health Sector Transformation Plan-I. Annual Performance Report EFY 2008 (2015/16)*. Addis Ababa: FMOH; 2016.
 14. Central Statistical Agency (CSA) [Ethiopia] and ICF. *2016 Ethiopia Demographic and Health Survey Key Findings*. Addis Ababa, Ethiopia, and Rockville, Maryland, USA. CSA and ICF; 2017.
 15. Muluneh AT, Haileamlak A, Tessema F, Alemseged F, Woldemichael K, Asefa M, *et al*. Population based survey of chronic non-communicable diseases at Gilgel Gibe field research center, southwest Ethiopia. *Ethiopian Journal of Health Sciences*. 2012; 22(4):7-18.
 16. Ethiopian Public Health Institute. *STEPS survey on risk factors for non-communicable disease and prevalence of selected NCDs*. Addis Ababa: EPHI; 2016. www.ephi.gov.et/images/pictures/download2009/NCD%20Report%20Ethiopia/NCDsteps%20Key%20Findings%20-%20Ethiopia.pdf