

Assessment of Health and Health Related Problems in the Community of Mettu Town, South Western, Ethiopia, 2021: A Community Based Descriptive Cross Sectional Study

Gudisa Bereda^{1,*}, Gemechis Bereda²

¹Department of Pharmacy, Negelle Health Sciences College, Guji, Ethiopia

²Awash Bank, Addis Ababa, Ethiopia

Email address:

gudisabareda95@gmail.com (G. Bereda)

*Corresponding author

To cite this article:

Gudisa Bereda, Gemechis Bereda. Assessment of Health and Health Related Problems in the Community of Mettu Town, South Western, Ethiopia, 2021: A Community Based Descriptive Cross Sectional Study. *International Journal of Pharmacy and Chemistry*.

Vol. 7, No. 3, 2021, pp. 37-44. doi: 10.11648/j.ijpc.20210703.11

Received: May 15, 2021; Accepted: July 5, 2021; Published: July 13, 2021

Abstract: Background: Community Based Education is an educational philosophy aims at developing professionals with problem identification and solving skills and positive attitudes to serve the society. The communities' health need is mostly rounded on either communicable or non-communicable diseases in which communicable diseases remain the most vital health problems in the developing countries. Objective: The intent of this survey was to ascertain the apprehensive of health and health related problems in the community of Mettu town, south western, Ethiopia. Methods and materials: A community based descriptive cross sectional survey was employed in Mettu town, from January 17/2021-May 25/2021. A stratified random sampling technique was applied, and data was gathered by using an interviewer-administered semi structured questionnaire. Data was analyzed by statistical packages of social sciences 23.0 version statistical software. Findings: The overall prevalence of health related problems was 66.23%. The survey revealed that hypertension 36.94% and diabetes mellitus 27.8% were the most common cause of morbidity and mortality. 55.9% participants had a roof that was made of tin and floor made of cement and 54.79% of population use pipe water. 68.47% user of family planning were majorly used 47.13% injection and 27.39% of them used implant. 51.59% women gave birth in health institution and 59.87% attained ANC services at least one times regularly. 27.27% of infants under 6 months are exclusively breastfed and 55.84% of children start complementary feeding at 6 months. Conclusion and Recommendation: The present survey indicated that the prevalence of health related problems in individuals was escalated dramatically. Majority of Mettu town population was use open field for their waste disposal. Rodent, household flea and bed bug are common insects & rodents that threaten population health. Health professionals should have to give the population health education about substance, waste disposal, family planning, sanitation condition, and immunization.

Keywords: Health, Health Related Problems, Community, Mettu Health Center, Ethiopia

1. Introduction

1.1. Background

Community based education is a means of achieving educational relevance to community needs and consequently of implementing a community-oriented education program. CBE purposes is; to apply theoretical knowledge in to practice, develop a sense of societal responsibility and accountability,

equip students with skill of problem identification, intervention, project preparation and supplementation to solve societal problem, designed in a way that allows students to systematically assess, identify gaps, and analyze community health needs [1]. It is one way of grasping this journey of sustaining the health of a community [2].

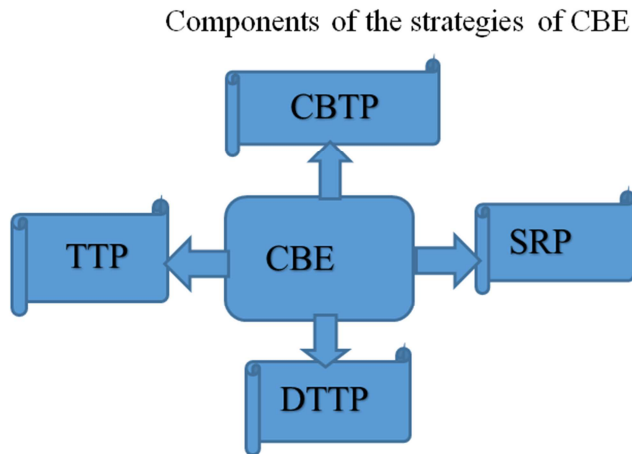


Figure 1. Schematic presentation of the components of CBE strategies.

Sustaining a healthy community is the goal of every part of the world [3]. In Africa, communicable diseases remain the most important health problems. The commonest causes of death and illness in the continent are acute respiratory tract infections, TB, HIV/AIDS/STI, diarrhea disease, malaria and vaccine preventable infections. Epidemic prone diseases such as meningococcal meningitis, cholera, yellow fever, and viral hemorrhagic fevers are also prominent health threats in the country [4]. Ethiopia is one of the developing countries in which most of its population (85%) mainly depends on agriculture's. Different factors such as lack of professional committeemen, population awareness about the problem of waste disposal, absence of adequate and necessary medical equipment, inaccessible health facility and low health seeking behavior are leading to poor health status of the community. Communicable disease, nutritional problems, maternal and child health problems are the major challenging health care related problems in Ethiopia [5]. In Ethiopia, 60 to 80% of communicable diseases are attributed to limited access to safe water and inadequate sanitation and hygiene services [6].

1.2. Statement of the Problem

Millions of children globally suffer from under nutrition despite many declarations and action plans aimed at combating the phenomenon. In developing countries total of 165 million, 101 million and 51 million children under the age of five are estimated to be stunted, underweight and wasted, respectively [7]. Vector-mediated diseases continue to be a global health threat accounting for an estimated 17% of all infectious diseases and more than 700,000 deaths. Malaria impact ranks high among all vector borne diseases with a total of 216 million cases and 445,000 deaths [8]. Ethiopian women are at risk of a number of pregnancy complications due to significant socioeconomic disadvantage, poor prior nutrition, being underweight, related conditions such as anemia [9]. The prevalence of NCDs increases throughout the world. It leads to 47% of the disease burden and 63% of all mortalities. Of which, 80% of mortalities occur in developing countries, and the majority of deaths are premature. Further, by the year 2020, global anticipated NCDs

burden will rise to 80% and the majority of deaths (70%) will occur in low and middle-income countries [10]. Substance use is a major public health concern that affects every level of society. Individuals, families, communities, and overall government spending are affected by the use psychoactive substances. From those khat, alcohol, tobacco (i.e., cigarettes), and marijuana has the highest prevalence rates across all age groups [11].

1.3. Significance of the Study

The program will help us to identify health related problems in the community and give solutions for that problem, and will assist stake holders to be aware of health related problems of the town and consequently take critical measure to improve the health condition of the community. It also guides other interested researchers to conduct more studies in this area to figure out the community health related problems, and also providing health education for the community in different health issues.

2. Objectives

2.1. General Objectives

To ascertain the health and health related problems of the community in Mettu town, January 2021.

2.2. Specific Objectives

- 1) To identify the main health related problems in Mettu town.
- 2) To asses' health status of community in Mettu town.
- 3) To ascertain environmental health and sanitation condition of community.

3. Methods and Materials

3.1. Study Area, Setting and Period

The study was employed in Mettu town located at 600 km southwestern of Addis Ababa. The town administratively, consists of 3 kebeles, kebele 1 up to 3. The town had a total population of 102,074 with sex composition of 50,857 males and 51,217 females. There are 42,496 households in this town with the distribution of 12,743, 14,626, and 15,127 households in each kebele 1 to 3 respectively. In this administration there are 12 governmental schools (1 Kindergarten, 8 primary schools and 3 secondary schools), 14 private schools, 1 governmental referral hospital, 1 non-governmental hospital (Hamlin Fistula Center), 1 governmental health center and 6 health post, 28 private health facilities (9 medium clinics, 6 small clinics, 11 Drug stores and 3 pharmacies). There are 30 meditation places, 1 youth center and 1 major market places in this town administration. The study was conducted from January 17/ 2021- May 25/2021.

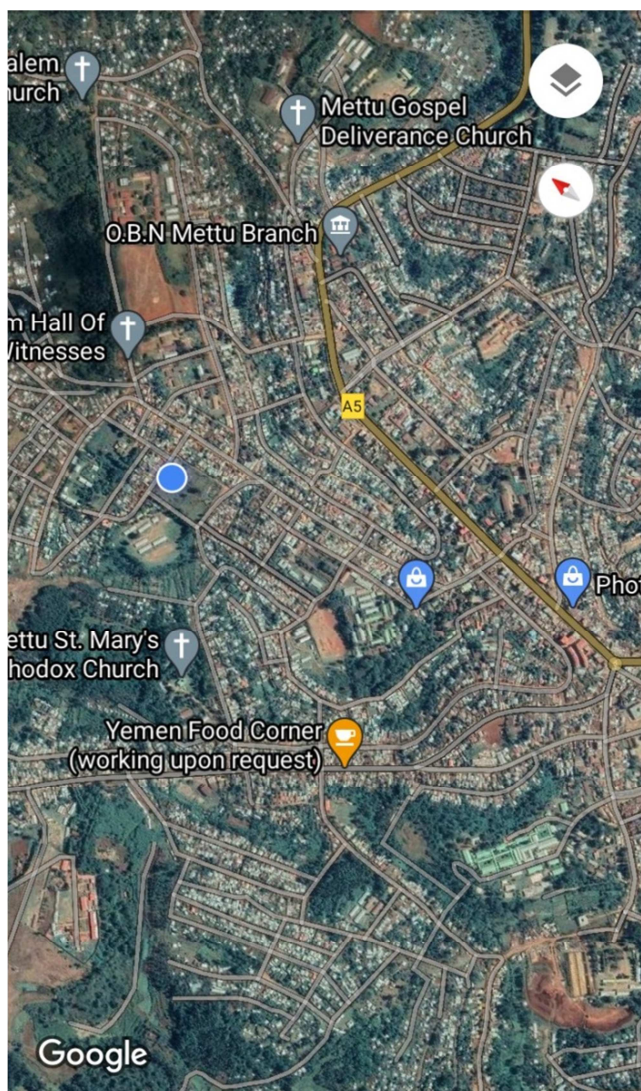


Figure 2. Map of Mettu town, 2021.

3.2. Study Design

Community based descriptive cross sectional design was employed.

3.3. Population

Source Population: All households of mettu town

Target Population: Selected households of mettu town

Study unit: The representative of household

Sampling unit: House holds

3.3.1. Inclusion Criteria

- 1) All open household of study found in Mettu town during data collection
- 2) All permanent residents (house hold of study) in mettu town

3.3.2. Exclusion Criteria

- 1) Households in which temporary residents lives in (<6 months)
- 2) Mental illness who was unable to speak & hear
- 3) Critically ill

3.4. Sample Size Determination, Sampling Technique and Procedure

The sample size was determined by using the Single Population proportion Formula: The sample size was determined based on “P” value which was taken from Bati woreda, oromia zone, Amhara regional state, $P=0.41$, or 41% . $n = \frac{(Za/2)^2 P(1-P)}{d^2}$, $n = (1.96)^2 \cdot 0.41 \cdot (1-0.41) / (0.05)^2 = 372$. Non response rate=5% (to minimize non response rate)= $372 + (372 \times 0.05) = 19$. So, the total sample size was=391.

A stratified random sampling technique was applied to select the study units. The total sample was proportionally allocated for these kebeles based on their total household number using the formula $n_j = n \times N_j / N$, n_j =sample of each kebeles, N_j =House hold of each kebeles, n =Sample size, N =Total house hold of mettu town. There are 42,496 households in this town with the distribution of 12,743, 14,626, and 15,127 households in each kebele 1 to 3 respectively, and then sample unit were taken by using simple random sampling system. Then the required sample size was selected by lottery method.

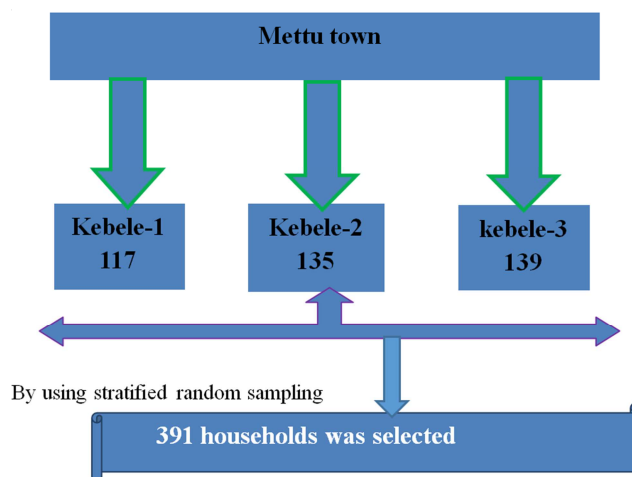


Figure 3. Schematic presentation of sampling technique in Mettu town, 2021.

3.5. Study Variables

Dependent Variables

- 1) Health condition
- 2) Hygiene and sanitation problem
- 3) Maternal and neonatal, child health problem
- 4) Major communicable or NCDs diseases and morbidity and mortality problem

Independent Variables

Socio-demographic status (age, sex, religion, ethnicity, marital status, monthly income, occupational status, educational status)

3.6. Data Collection Tools and Quality Control

The data was gathered by using validated structured questionnaire and an interview. The questionnaire consisted of socio-demographic characteristics, environmental health survey, mother and child health /family planning practice survey, social substance use survey and morbidity and

mortality survey in individuals from the selected house hold. The data was gathered by using a face to face interview and the respondents were any family member, but we were given a priority for the mother. The study participants were given detail information about what was done and the purpose of the study. We were considering the house hold as a non-respondent if they refuse to participate in the study. The questionnaire was gingerly assessed and pre-tested on 5% of the sample size which begin to be 20 individuals who dwell in Urumu town prior to the genuine data gathering. In addition to the principal investigator, two supervisors were responsible for observing the data gathering process. The data was collected by 5 data collectors from different departments such as Nursing, Psychiatry, Midwifery, Pharmacy and Public health. The data collectors undertake 2 days of training to become familiar with questionnaire how they undergo data collection procedures. Before data entry, the gathered data gingerly investigated for completeness by the principal investigator.

At the time of data gathering, filled questionnaires were checked for completeness and consistency of information by the principal investigator. We were also check data completeness and consistency during data entry and cleaning with each other.

3.7. Data Processing and Analysis

Data entry, cleaning and analysis was carried out by using statistical packages of social sciences 23.0 version statistical software. Descriptive analysis was used to describe the magnitude of health and health related problems in the community. Thus, categorical variables was summarized as numbers and percentages and finally presented by using charts, appropriate diagrams, tables & graphs.

3.8. Ethical Consideration

Ethical approval and letter of support was acquired from community based education office of mettu university college of health sciences. Participants was assured that their participation was totally freewill, their name was not being stated, data were kept behind the scenes and anonymous and it was used only for community diagnosis purpose. After assuring the confidentiality of responses and obtaining verbal informed consent from the study subjects, information was collected by interviewer-administered questionnaire with strict privacy.

3.9. Operational Definitions

- 1) Health status: is an individuals relative level of wellness and illness, taking into account the presence of biological and physiological dysfunction, symptoms and functional impairment.
- 2) House hold: All people living together in same house.
- 3) Head of House hold: Is a person with either sex, who is considered to be the head by other member of that house hold.
- 4) Critically ill: is a life threatening process that, in absence

of medical intervention, is expecting to result in mortality or significant morbidity.

- 5) Maternal and Child Health: Include those who are aged 15-49 year women and those under five years' old children.
- 6) Live birth: Number of infants born alive during the last 12 months including anyone who were born alive.

4. Results

4.1. Socio-demographic Characteristics

Our survey showed that there were 1075 total respondents from 391 households. From those 577 (55.67%) were male and 215 (20%) were under 18 years of old and most age group line with age of 36-64 were 344 (32%) from both male and female. Individuals who married were 507 (47.16%) and the most dominant religion and ethnicity were protestant 396 (36.84%) and Oromo 908 (84.46%) respectively. Majority of the respondents were students 369 (34.33%) and learning elementary schools. 665 (61.86%) of the respondents had got 501-5000 monthly income.

Table 1. Socio demographic characteristics of respondents, Mettu town, 2021.

Variables	Category	Frequency (n)	Percent (%)
Age	<18	215	20.0
	19-35	327	30.4
	36-64	344	32.0
	>64	189	17.6
Sex	Male	577	55.67
	Female	498	44.33
	Single	279	25.95
Marital status	Married	507	47.16
	Divorced	192	17.86
	Widowed	97	9.03
	Protestant	396	36.84
Religion	Muslim	310	28.84
	Orthodox	352	32.74
	Others	17	1.58
	Oromo	908	84.46
Ethnicity	Amhara	106	9.86
	Others	61	5.68
	Merchant	231	21.48
Occupational status	Government employment	347	32.28
	Farmer	47	4.37
	Student	369	34.33
	Others	81	7.54
Educational status	Unable to read and write	144	13.39
	Elementary	381	35.46
	High school	325	30.23
	College and above	225	20.92
Monthly income	>500	187	17.4
	501-5000	665	61.86
	>5000	223	20.74

4.2. Community Practice of Substance

From total 1075 participants majority of individuals had khat addiction 311 (28.93%) followed by cigarette smoking 248 (23.06%) from both male and female.

Table 2. Community practice of abused substance in respondents, Mettu town, 2021.

Substance category	Male		Female		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Khat	216	31.68	95	24.17	311	28.93
Cigarette	207	30.35	41	10.44	248	23.06
Alcohol	93	13.63	33	8.39	126	11.72
Other	65	9.53	13	3.32	78	7.26
No	101	14.9	211	53.68	312	29.03

4.3. Environmental Health Survey

Most study respondents 749 (69.67%) live in their own house, 601 (55.9%) of study participants house were brick /cement, and the individuals who had Pipe in their compound

were 589 (54.79%). 507 (47.16%) households had use open field for their waste disposal. The majority of respondents 411 (38.23%) had rats (rodents) problem in their house.

Table 3. Environmental health survey of participants, Mettu town, 2021.

Variables	Category	Frequency (n)	Percent (%)
Owner of the house	Private	749	69.67
	Rental	264	24.56
	Others	62	5.77
Housing condition	Brick/Cement	601	55.9
	Woods/Soil	392	36.47
	Others	82	7.63
Water Supply	Pipe in the compound	589	54.79
	Public pipe	406	37.76
	Spring/Steam	63	5.87
	Others	17	1.58
Waste Disposal	Latrine	421	39.17
	Open Field	507	47.16
	Municipality	102	9.48
	Others	45	4.19
Insects & Rodents	House flee	345	32.1
	bedbugs	223	20.74
	Rat	411	38.23
	Others	96	8.93

4.4. Maternal and Child Health Issues

341 (68.47%) of the study participants were use FP. The commonest FP method used in Mettu town females was injectables which accounted 161 (47.13%). Majority of women 81 (51.59%) were bring forth their child at health

institution.94 (59.87%) women follow their ANC reguraly. Duration exclusive BF in majority of children 51 (66.23%) were 6-24 months and continue complementary feeding < months were 43 (55.84) and also only 42 (54.54%) of children were fully vaccinated.

Table 4. Maternal and Child Health issues of respondents, Mettu town, 2021.

Variables	Category	Frequency	Percent
Family Planning	Pills	52	15.29
	Implants	93	27.39
	Injectables	161	47.13
	Others	35	10.19
Frequency of Antenatal	Reguraly	94	59.87
	During Vaccination	38	24.2
	When Ill	25	15.93
Site of Newborn	Health Center	81	51.59
	Home	76	48.41
	< 6 months	21	27.27
Duration exclusive BF	6-24 months	51	66.23
	> 6 months	5	6.5
	< 6 months	43	55.84
Complementary feeding	At 6 months	21	27.27
	> 6 months	13	16.89
	Fully Immunized	42	54.54
Immunization of <5 year Children	Partially Immunized	24	31.17
	Not Immunized	11	14.29

4.5. The Disease Status in Mettu Town During Our Survey

According to our study hypertension 263 (36.94%) was most frequently encountered disease followed by diabetes mellitus 198 (27.8%) in Mettu town population.

Table 5. The list of disease in mettu town during our study, Mettu town, 2021.

Variables	Category	frequency	Percent
Prevalence of health related problem	Yes	712	66.23
	No	363	33.77
Type of disease	Diabetes mellitus	198	27.8
	Hypertension	263	36.94
	Malaria	109	15.32
	Others	142	19.94

5. Discussion

This survey was aimed to ascertain the apprehensive of health and health related problems. The age group 327 (30.4%) of our respondents ranged from 19-35 years old. This is less than the studies employed in Bati Woreda, Oromia Zone, Amhara National Regional State which was 46.7% [12]. This difference was due to age category. This age group is supposed to be the most productive and thus is susceptible to human health related problems especially women.

Our study shown that individuals, families, communities, and overall government expending are affected by the use of substances stirring the mind and behaviour. From those khat, alcohol, tobacco (cigarettes), had the rising prevalence calibers through all age groups which was comparable with the survey done in East Gojjam zone showed that, substance abuse such as high alcohol drinking, chat and Shisha were the push factors for early sex initiation to adolescents and youths [13].

Coinciding to our survey the houses of 55.9% respondents had a roof that was made of tin and floor made of cement and 36.47% individuals had a roof that was made of sheet and floor made of soil were good housing condition than the study done in East Gojjam zone showed that, all the studied houses had a roof that was made of sheet. 83.3% of studied houses had floor made of soil, and the rest 17.4% is made from cement [13]. This difference was due to economical and financial reason. As our study showed 54.79% of population use pipe water and 5.87% use spring/steam water. As the study done in Africa there were only 3 countries (congo, Mozambique, paupa new guinea) were less than half of the population have getting near to ameliorated water source. So the result of our survey is almost same with the study done in Africa [14]. 47.16% of Mettu population use open field and 39.17% use pit latrine. When it compares it with the study done in Africa the sanitation practice improved over time and the coverage of improved sanitation is 64% and open defecation decreased to 14% and sub-Saharan African countries has made much slower progress [15]. The result showed that our country had unimproved use of sanitation because of Ethiopia is one of sub-Saharan country and the difference is also result of different study area and sample size and also there was time variation between our study and the

study done in Africa. Rodent, household flee and bed bug are common insects & rodents which whose consistent with the study done in East Gojjam which showed household fly, flea, mosquito, rodent (rat) and bed bug are common insects & rodents [13]. These problems that seek peculiar concentration on the health of the community of the selected households because those insects or rodents perhaps threaten the health of population in oodles way.

Our survey showed that from 341 (68.47%) user of family planning majority of them used 47.13% injection and 27.39% of them used implants and 31.53% respondents were used nothing. According to study done in Ethiopia overall 42% of females use family planning. Urban women are much likely to use their contraceptive than females in rural it is 50% Vs 38% [16]. Our study showed that user of family planning were greater than the study done in Ethiopia because our study area was conducted solely in urban so urban area had stout variation when compared with the rural area and also because of difference in study population sample size.

Our survey showed that most of the women 81 (51.59%) gave birth in health institution and 94 (59.87%) attained ANC services at least one times reguraly was less than the study done in Nekemte City, Western Ethiopia which showed 93.04% of participants have attended ANC for their previous or last pregnancy [17]. This variation was due to site of study. In our study we ascertain the health related problem of general population when compared with study done in Nekemte City, Western Ethiopia which was solely conducted in new-born care practices and postnatal mothers. In our finding, fully immunized under 5 years children (54.54%) coverage was lower than the survey employed in East Gojjam 60% [13]. This may be due to health extension workers did not bestow immunization service seemly, and low community apprehensive about immunization significance. In our survey, 27.27% of infants under 6 months are exclusively breastfed. Which was contradictory to recommendation by WHO those children under age 6 months should be exclusively breastfed, 17% [18]. This shows the apprehensive of the community about exclusive breast feeding is meagre. According to our survey complementary feeding which showed, 55.84% of children start complementary feeding at 6 months while 16.89% of started complementary feeding at the age of >6 month was lower than the study carried out in Northern Ethiopia

indicated at approximately 79.7% of mothers introduced complementary feeding at 6 months' age of the children as per recommended while 15.9% launched complementary feeding early before 6 months [7]. This shows the apprehensive of the community about complementary feeding is meagre.

According to our study the prevalence of health related problems was 712 (66.23%), which was higher than the survey done in Amhara National Regional State (41%) [12]. This indicates awareness of the community about health related problem is low. Hypertension 36.94% and diabetes mellitus 27.8% were the most common morbidity and mortality according to our study is consistent with the study conducted in Ethiopia which shows hypertension 18.8% and diabetes mellitus 27.9% are the two most common and easily diagnosed forms of NCDs [19]. Because the burden of NCDs was rising hastily amid lower income counter like Ethiopia.

6. Conclusion and Recommendations

The present study indicated that the prevalence of health related problem in individuals was high. Hypertension and diabetes mellitus are the grand cause of morbidity and mortality respectively. According our study majority of participants had a roof that was made of plate made of metal and floor made of cement. As our study shown majority of Mettu town population was use open field for waste disposal. In regard of using family planning many of females use injection followed by implants and one third of females were uses nothing. The practices of exclusively breastfed and timely initiation of complementary feeding in our survey was low due to awareness of the community about exclusively breastfed and complementary feeding was meagre. Health professionals should have to give the population psycho education about substance, waste disposal, family planning, sanitation condition, immunization and Mettu town administration should have to prepare waste disposal places for proper waste disposal in the town.

Abbreviations

AIDS: acquired immuno deficiency syndrome; ANC: Ante natal Care; BF: Breast feeding; CBE: Community based education; CBTP: Community Based Training Program; DTTP: Development Team Training Program; FP: Family planning; HIV: Human immune deficiency virus; NCD: Non Communicable Disease; SRP: Student Research Program; STI: Sexually Transmitted Infections; TB: Tuberculosis; TTP: Team Training Program.

Acknowledgements

We would like to explicit our profound and unfeigned appreciation to all data collectors and respondents for their through going time they bring forth us.

References

- [1] Department of Health and Human Service, North Carolina (2002). Community Assessment Guide book: www.healathcarolinians.org.
- [2] Faris K, Kaba M. Hygienic behaviour and environmental conditions in Jimma Town, South-western Ethiopia. *The Ethiopian Journal of Health Development (EJHD)*. 2017. 13 (2). Retrieved from <https://ejhd.org/index.php/ejhd/article/view/897>.
- [3] WaSH Ethiopia: Sanitation Coverage, WHO Communicable disease prevention, control and eradication, 2010.
- [4] Whiteford HA, Degenhardt L, Rehm J, Baxter AJ, Ferrari AJ, Erskine HE, et al. Global burden of disease attributable to mental and substance use disorders: findings from the Global Burden of Disease Study 2010. *Lancet (London, England)*. 2013; 382 (9904): 1575-86. Epub 2013/09/03. doi: 10.1016/s0140-6736(13)61611-6. PubMed PMID: 23993280.
- [5] UNICEF, Southern African region and the response of education systems to HIV/AIDS: Life skills programs, 1999.
- [6] Abebaw D. Determinants of solid waste disposal practices in urban areas of Ethiopia: a household-level analysis. *Eastern Africa Social Science Research Review*. 2008; 24 (1): 1-14.
- [7] Central Statistical Agency (CSA) [Ethiopia] and ICF. 2016. Ethiopia Demographic and Health Survey 2016. Addis Ababa, Ethiopia, and Rockville, Maryland, USA: CSA and ICF.
- [8] Ayenew AA, Nigussie A, Zewdu B. Prevalence of home delivery and associated factors in Ethiopia: A systematic review and meta-analysis. 2020.
- [9] Van Damme H. Domestic water supply, hygiene, and sanitation. *Overcoming Water Scarcity and Quality Constraints IFPRI 2020 Focus 9, Brief*. 2001; 3.
- [10] Chaka EE, Abdurahman AA, Nedjat S, Majdzadeh R. Utilization and determinants of postnatal Care Services in Ethiopia: a systematic review and meta-analysis. *Ethiopian journal of health sciences*. 2019; 29 (1). DOI: 10.4314/9ejhs.v29i1.16.
- [11] Demissie T, Kogi-Makau W. Food taboos among pregnant women in Hadiya Zone, Ethiopia. *The Ethiopian Journal of Health Development (EJHD)*. 1998; 12 (1) (ISSN1021-6).
- [12] Yonas B, Kumie a. Assessment of health hazards and associated factors among the returned migrants living at Bati Woreda, Oromia Zone, Amhara National Regional State. *Ethiop. J. Health Dev*. 2013; 27 (1): 55-63.
- [13] Gelaw BK, Tegegne GT, Bizuye YA (2014) Assessment of Community Health and Health Related Problems in Debre Markos Town, East Gojjam, Ethiopia, 2013. *J Biosafety Health Educ* 2: 125. doi: 10.4172/2332-0893.1000125.
- [14] Beyene M, Worku AG, Wassie MM. Dietary diversity, meal frequency and associated factors among infant and young children in Northwest Ethiopia: a cross-sectional study. *BMC public health*. 2015; 15 (1): 1007.
- [15] Erasu D, Feye T, Kiros A, Balew A. Municipal solid waste generation and disposal in Robe town, Ethiopia. *Journal of the Air & Waste Management Association*. 2018; 68 (12): 1391-7.

- [16] Central Statistical Agency (CSA) [Ethiopia] and ICF. 2019. Ethiopia mini Demographic and Health Survey 2019. Addis Ababa, Ethiopia, and Rockville, Maryland, USA: CSA and ICF.
- [17] Efa BW, Berhanie E, Desta KW, Hinkosa L, Fetensa G, Etafa W, et al. (2020) Essential newborn care practices and associated factors among postnatal mothers in Nekemte City, Western, Ethiopia. PLoS ONE 15 (4): e0231354. <https://doi.org/10.1371/journal.pone.0231354>.
- [18] Shumey A, Demissie M, Berhane Y. Timely initiation of complementary feeding and associated factors among children aged 6 to 12 months in Northern Ethiopia: an institution-based cross-sectional study. BMC public health. 2013; 13 (1): 1050.
- [19] Abera SF, Gebru AA, Biesalski HK, Ejeta G, Wienke A, Scherbaum V, et al. Social determinants of adult mortality from non -communicable diseases in northern Ethiopia, 2009-2015: Evidence from health and demographic surveillance site. PloS one. 2017; 12 (12): e0188968.