

Knowledge Attitude and practice towards solid and liquid waste Management among Addis ketema and Kometa kebele community Mizan-Aman town, Bench – Maji zone, South Nations Nationalities and Peoples Regional State, South West Ethiopia, 2017

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BACKGROUND: Waste is defined as unwanted remains, residues discarded, and material or by products which are no longer required by the initial user. These materials are by-products of human activities such as process of preparation, manufacture, packing, repacking, unpacking, construction, renovation of structures and mining operations. Almost any substance that is discarded is designated as waste, but it may also be considered as a potential resource.

OBJECTIVES: The aim of this study was to assess the knowledge, attitude and practice of the community residing in Addis Ketema and Kometa kebele towards waste disposal management Mizan-Aman Town, Bench-Maji Zone, SNNPRS, South West Ethiopia, 2017.

METHODOLOGY: A community based descriptive cross-sectional study design was employed and systematic sampling technique was used to select the study participants. Data was collected from 392 selected samples in every

Kth interval which was 13th, and Data quality was assured by performing pre-test to evaluate the appropriateness of data collection instrument and after collection of the data it was tallied manually, processed and analyzed in a line of its objective and frequency and percentage of the result were presented by using tables, graphs and charts.

RESULT: The finding of this study showed that majority 84% of the respondents were females, regarding their ethnicity 35.5% were Bench, also the majority of the participants (87.1%) were married with regard to their religion (47%) were Orthodox, on the other hand 48.6% of the respondents were the age between 21-30. Furthermore, the study showed that 81.8% of the respondents have good knowledge, 77.5% of the participants showed positive attitudes toward waste management as well as 76.9% of participants have a good practice toward waste management.

CONCLUSION AND RECOMMENDATION: The finding of the study revealed that majority of Mizan-Aman town community has a good level of knowledge, have a positive attitude and showed good practice toward waste management.

Key Words: Solid waste, Liquid waste, Community

Waste is defined as unwanted remains, residues discarded and material or by products which are no longer required by the initial user. These materials are by-products of human activities such as process of preparation, manufacture, packing, repacking, unpacking, construction, renovation of structures and mining operations. Almost any substance that is discarded is designated as waste, but it may be considered as a potential resource. Virtually everything else in the “waste stream” has residual value for someone or some business in the community. Waste can serve as valuable resources as ground cover to reduce erosion, fertilizer to nourish the crops and the source of energy etc. (1).

The management of waste should focus on how to find the value and redirect it back to the community. But unfortunately, our collecting and dumping the process mix and crush everything together; and make separation an expensive and sometimes impossible task to properly manage wastes (2).

The proper management of solid wastes generated from individual house, institutions such as hospitals, health centers; from public eating and drinking establishments (hotels, restaurants, etc.); from business and working places is a very important part of environmental health service in a community. If these wastes are not disposed in a proper way, they create breeding places for insects such as flies, mosquitoes etc.; they provide food and harborage for rats. These insects and rats are health risk in that they are potential disease transmitters. In addition to health problems rats also imposes an economic problem (3).

The seriousness of environmental depletion in Ethiopia reveals the relationship between natural environment and peoples are unfriendly. Thus it seems it will require high time to take urgent actions by modifying peoples life style, making people an experienced of sustainable development by acquiring appropriate environmental knowledge, knowhow, skills and capacities (35) millions more (4-9).

Improved sanitation attributes to 36% reduction in risk of diarrhea while hand washing with soap reduces the risk of diarrhea by 48% (10). In addition, good hygiene practices improve overall health through reduced rates of pneumonia, scabies, skin and eye infections, and influenza (11). Hand washing is also associated with lower respiratory infection (12). The seriousness of environmental depletion in Ethiopia witness as that the relationship between natural environmental and people are unfriendly. Thus it seems high time to take urgent actions by readdressing people's life style and experience sustainable development by acquiring appropriate environment knowledge, knowhow, skills and capacities (13).

MATERIALS AND METHODS

Study area and period

This study was conducted in Addis and Kometa kebele, Mizan-Aman town, Bench-Maji Zone, SNNPR, South West Ethiopia which is found about 568 km from the capital city Addis Ababa and 833 km from Awasa. According to the central statistical agency of Ethiopia 2008, the population size of Mizan-Aman Town is 48,706 and the total number of household in Mizan-Aman town is 12,824. The town is known for its diver's ethnicity. Among those Bench, Kefa and Amhara respectively accounts majority numbers. The town is a place for many governmental and private organizations/service providers to the community such as bank, telephone, post office, one University teaching hospital, one health center, one health science college, one university and there are some different levels of private clinic and pharmacy, also the town has KG, elementary, high school, senior secondary and preparatory schools as well as one college of agriculture. So this study was conducted from April 26-May 07/2017 on two randomly selected Kebeles which were Addis Ketema and Kometa Kebele.

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Populations

Source population

The source population of the study included all house hold in Addis and Kometa kebele.

Study population

The study populations were selected house hold of Addis and Kometa kebele.

Inclusion criteria

All house hold members whose age was above 18 years and available during the study period.

Exclusion criteria

Populations who were excluded from this study were those who could not available in the study period, and those who are not households of Addis and Kometa kebele as well as those who has psychiatric problem.

Sample size determination

Sample size was determined by using single population Proportion formula and its basic assumptions. Since there was limited study done in the area, the estimated prevalence rate was assumed to be 50%, confidence interval of 95%, margin of error 5% the initial sample size becomes. $n = Z^2 Pq / d^2$, $n = (1.96)^2 (0.5) (0.5) / (0.05)^2 = 384$. Since the study population number is less than 10,000 and sample size/study population is greater than 0.05 the final sample size(Nf) was calculate using the correction formula $(n/1+n/N)$ and adding 10% Non-response rate the Final Sample size becomes 392 and K the interval to select the study participant was calculated using the formula $N/Nf = 5259/392 = 13$. Pretest 10% = 20.

Where:

n_i = Initial sample size =384.

N_f = Final Sample size=392.

N =Source Populations=5295.

z =Reliability coefficient for the desired confidence interval (CI) of 95%.

P =the proportion of population possessing the character of interest.

$q=1-p$ and d =degree of precision=0.05 (allowed probability of error).

Sampling technique

Out of five kebeles found in the town two kebeles were selected using simple random sampling(lottery) method and Systematic sampling technique was used to select households included in the study population. Then the first house was located by lottery method and the next house hold was selected every K^{th} interval which is every 13th interval.

Data collection methods and instruments

Data was collected by interviewing Mizan-Aman Town community house hold leaders by using structured questionnaire and check list. The questionnaire was prepared in English and translated to Amharic language to ensure clarity. Then data collection task was accomplished by assigned and trained health professionals.

Data quality assurance and management

Before the actual data collection, pre- test was conducted on 5% of population

else from study area (Hibret Keble) to evaluate the appropriateness of the data collection instruments. The returned questioners were checked for completeness, consistency, sensitivity and for provision of adequate information on daily bases by the supervisors and principal investigators. After collecting, the data was tallied manually, processed and analyzed in a line of its objective using suitable statistical tools by using manual tally and table of frequency.

Ethical consideration

Official letter of cooperation was written from Mizan-Tepi University, department of nursing to Mizan- Aman Town Municipality. Permission was obtained from municipality and the respondents were informed by the data collectors about the objective of study as well as confidentiality of their information. The right of the respondents to refuse answering for few or all of the questions was also respected.

Dissemination of the result

The final result was submitted to Mizan-Tepi University College of Health Science, department of Nursing and Mizan-Aman Municipality and the study kebeles to be used as a reference material.

RESULTS

Out of 392 participants expected to be included 388 give their response and included in the study which gives response rate of 99%.

Socio- demographic characteristics

In this study, nearly half of the respondents 183(48.6%) were between 21-30 years. According to the finding majority of respondents 326(84%) were females and out of 388 respondents 185(47.9%) were orthodox, concerning the ethnicity of respondents only 138(35.5%) were Bench.

Regarding the marital status of the respondent’s majority 338(87.1%) were married, 161(41.9%) were merchants in their occupation, the finding of the study also revealed 102(26.3%) could only write and read as well as, out of 388 respondents majority 310(79.9%) did not know their monthly income (Figures 1 and 2 and Table 1).

Knowledge of participants regarding solid and liquid west management

The finding of this study showed that all respondents 388(100%) know what waste mean, but they describe waste in different ways; of these 303(78%) out of 388 respondents define waste as useless materials or dirt. On the other hand, all respondent 388(100%) already know, solid and liquid wastes unless managed well cause for the generation of different infectious disease but out of 388 respondents majority 196(50.5%) did not knew solid wastes can be recycled for further use. Over all the study revealed majority (81.8%) of the respondents have good knowledge while the rest 18.2% have poor knowledge (Table 2).

Attitudes of the study participants regarding solid and liquid waste management

As described with Figure 3 here under, (77.5%) of the study participants had positive attitude concerning liquid and solid waste disposal management. At the study period, all of the respondents (100%) thought that proper waste management has health and economic importance. The finding of the study also showed that more than half of respondents 208(53.6%) did not accept the idea about every person is responsible for collection and proper disposition of wastes. On the other hand, all respondents believe that liquid and solid wastes must be collected separately as well as majority respondents (72.1%) believed that waste should be recycled for further use (Figure 4).

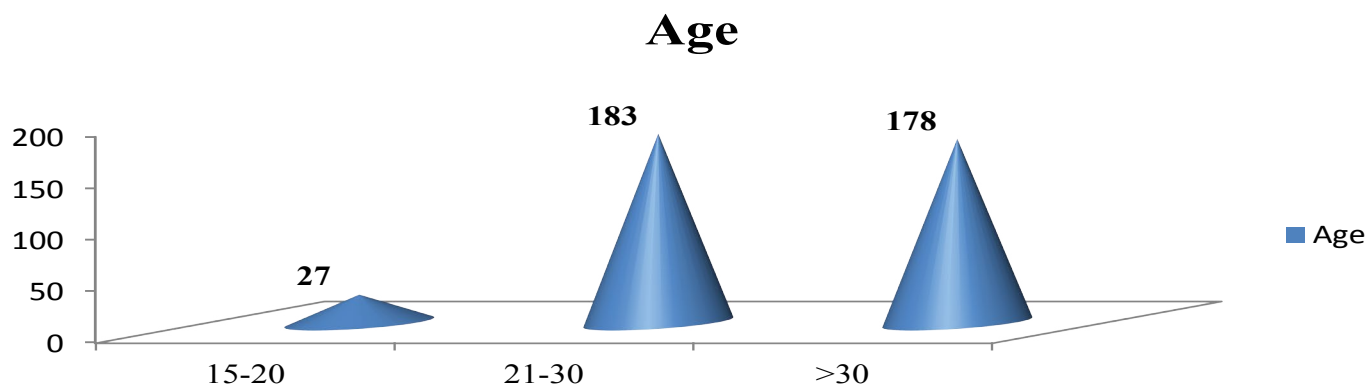


Figure 1) Showing of the study participants in Addis ketema and Kometa kebele, Mizan- Aman Town Bench-Maji Zone, SNNPRS South West Ethiopia 2017

Ethnicity

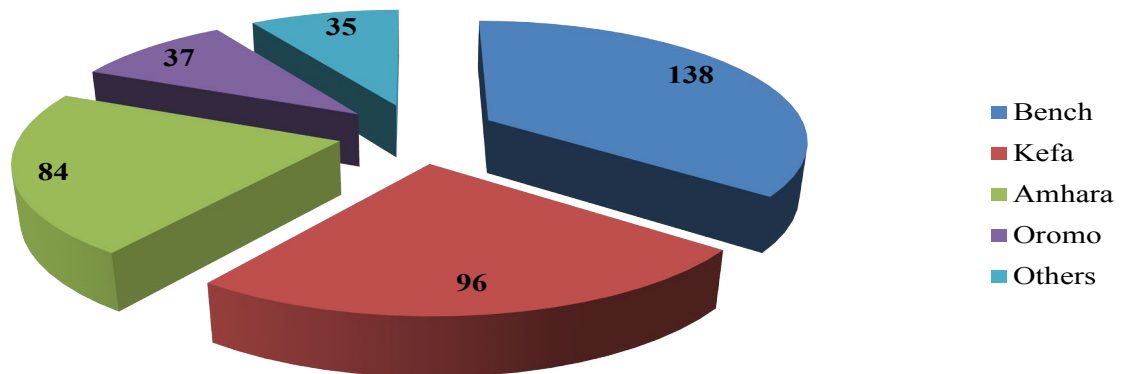


Figure 2) Showing the ethnic distribution of respondents, in Addis ketema and Kometa kebele, Mizan-Aman Town Bench-Maji Zone, SNNPRS South West, Ethiopia 2017

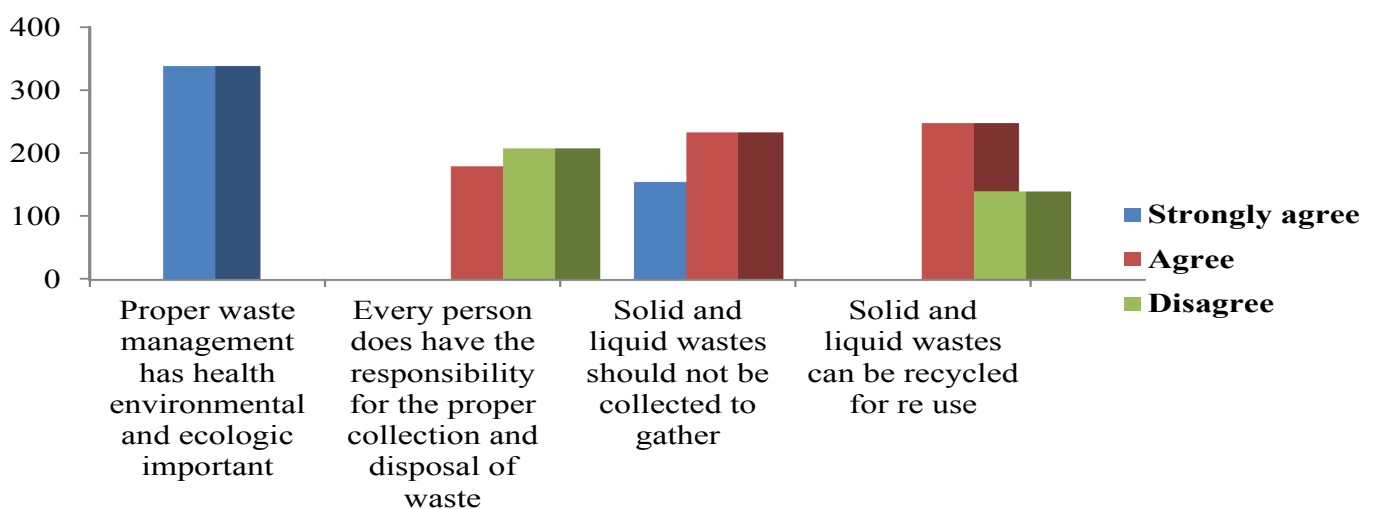


Figure 3) Showing Attitude towards solid and liquid waste management among communities residing in Addis ketema and Kometa kebele, Mizan-Aman Town Bench-Maji Zone, SNNPRS South West Ethiopia 2017

TABLE 1

Showing the socio demographic characteristics of study participants in Addis ketema and Kometa kebele, Mizan-Aman Town Bench-Maji Zone, SNNPRS South West, Ethiopia 2017

	Variables	Frequency	Percentage
Sex	Male	62	16
	Female	226	84
Religion	Muslims	64	21.6
	Orthodox	185	47.9
	Protestant	120	25.5
	Catholic	19	5
Marital status	Married	338	87.1
	Single	40	10.4
	Widowed	10	2.6
	Illiterate	82	21.2
Educational status	Read and write	102	26.3
	Elementary	60	15.5
	High school	74	18.6
Occupational status	Diploma and above	70	18
	Government employee	71	18.3
	Merchant	163	41.9
	House wife	154	39.6
Monthly income of respondents	>3500	78	20.1
	Unknown	310	79.9

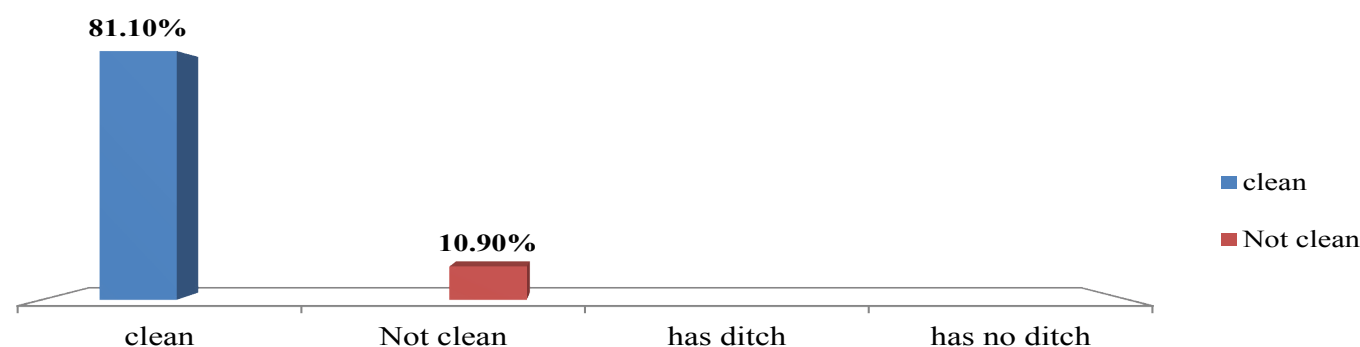


Figure 4) Showing the general conditions (cleanliness) of compounds of study participants

TABLE 2

Showing level of knowledge towards solid and liquid waste management among communities residing in Addis ketema and Kometa kebele, Mizan-Aman Town Bench-Maji Zone ,SNNPRS South West, Ethiopia 2017

Knowledge questions	Response	Frequency	Percentage
1.Do you know what waste mean	Yes	388	100
	No	0	0
2 If yes for question number 1 what is waste state	Useless materials	303	78
	Sweepings from house	85	22
3 Do you know that if solid and liquid wastes are not managed well cause for generation of different infectious disease	Yes	388	100
	No	0	0
4.Do you know that if solid wastes are properly managed they can be used for further other purpose	Yes	192	50.5
	No	196	49.5

TABLE 3

Showing practice towards solid and liquid waste management among communities residing in Addis and Kometa kebele, Mizan-Aman Town Bench-Maji Zone, SNNPRS South West Ethiopia 2017

Practice questions	Variables	Freq.	Percent
Do you collect solid waste in your compound?	Yes	388	100
	No	0	0
Do you manage solid and liquid waste after collection?	Yes	388	18
	No	0	0
	Burning	70	19.8
	By taking to waste accumulation site	77	20.6
If yes for above question how do you manage solid wastes?	By collecting in to the pit	80	13.7
	By cooperating with kebele administration	53	27.8
	By open dumping	108	30.9

The practices of the participants regarding solid and liquid waste management

This study has revealed that 76.9% respondents show positive attitude while the rest 23.1 showed negative attitude. However, all study participants collect solid and liquid wastes in their compound on daily basis majority (67.8%) of study population do not properly managed solid and liquid wastes after collection. Concerning the way of managing solid wastes, open dumping accounts for about (27.8%) (Table 3)

DISCUSSION

Knowledge

Knowledge about a given issue has been recognized as one of the major determinants that shape the attitude, and practice of a community. A positive correlation between resident's level of knowledge about issues related to environment and their attitude has been supported by various literatures. Now a day's environmental problems in general and mishandling of wastes in particular are among the leading causes for ill-health and impediments for national development.

Improper waste management may have health and environmental hazards. Studies showed the relationship of many diseases to improper waste management. The finding of this study concerning the knowledge

level of participants 81.8% of respondents have good, level of knowledge inconsistent with similar study conducted in Malaysia city that showed 64% best knowledge level of respondents. (11)The reason for this discrepancy of the finding might be the difference of sample size or period of study or both and the socio-economic difference among the study participants.

Attitude

The finding also revealed that (77.5%) study participants have positive attitude toward waste management nearly to other study which was conducted in Thailand city (92.2%) (12). While quite different from similar study conducted in Malaysia city that revealed 65.9% of negative attitude of participant (11). The possible reason might be the period of study and place or age and sex of participants.

Practice

The finding of this study showed 76.9% of participants have good practices to ward waste management. Specifically, this study showed that 27.8% of respondents practices still open dumping of waste disposal this is inconsistent from similar study conducted in Gweru Zimbabwe that showed 65% practices of open dumping, the cause might be the presence of health extension workers and period of study (13).

CONCLUSION AND RECOMMENDATION

Conclusion

The finding revealed that Addis Ketema and Kometa community have good level of knowledge as well as have positive attitude and have good practice to ward waste management.

Recommendation

Based on the findings, the following recommendations were forwarded:

- (i) To Mizan-Aman town municipality was recommended to prepare pits/ditches in the town in sufficient quantity for solid waste disposal.
- (ii) To Mizan-Aman town community has best knowledge, positive attitude and good practice so Mizan-Aman Municipality should do more to ensure the sustainability of this trend as well as to aware 100% of community.
- (iii) To Researchers -Further detailed studies were recommended for intervention by using this high light for further interventions.

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CONFLICT OF INTEREST

The authors declare that there is no any conflict of interest.

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