



EFFECTS OF WATER QUALITY PERCEPTION AND SOCIO-DEMOGRAPHICS ON PRACTICE OF WATER PURIFICATION AT HOUSEHOLD LEVEL IN GASHU'A TOWN, YOBE STATE, NIGERIA.

MOHAMMED ABBA ALKALI

Ph.D. Student, Department of Community Medicine and Public Health, Nims University Rajasthan, Jaipur.

ABSTRACT

Household water treatment is believed to be an effective intervention of public health importance that can prevent people from diarrheal and water-borne diseases especially in a community that depends on unimproved source of water or improved source that is contaminated with feces [1]. Encyclopedia Britanica defines water purification as the process of removing undesirable chemicals, biological contaminants, suspended solids, and gases from water [6]. In Nigeria water treatment is not commonly practice at household level, report from national health demographic survey revealed that 92% of households in Nigeria drink their water prior to treatment despite the fact that 34.2% are sourcing water from unimproved source and 20% uses unimproved sanitation facilities while 24.5% engage in open defecation[8]. The aim of this study is to find out the effect of water quality perception on the treatment of water practice and influence of socio-demographics on the practice of water treatment. The study was carried out in Gashu'a town of Bade local Yobe state Nigeria. Descriptive cross sectional research design and multi stage sampling were used in the study. Data was collected through administration of questionnaire to three hundred and ninety seven (397) households across six (6) wards (clusters) of Gashu'a town. Most of the respondents 292(77%) perceived that drinking water in the community was clean and therefore safe for consumption and 240(63.3%) were reported to have not been using any form of water purification. Gender of the respondents was found to be significantly associated with household water treatment ($X^2=29.885$, $P> 0.000$). The study recommends need for rigorous awareness creation among the residents on the important of water treatment at household level.

Key words: Water, treatment, household, perception, socio-demographics.

I. INTRODUCTION

Household water treatment is believed to be an effective intervention of public health importance that can prevent people from diarrheal and water-borne diseases especially in a community that depends on unimproved sources of water or improved source that is contaminated with feces [1].

International Conference on Science, Technology and Management (ICSTM-2020)



Guru Gobind Singh Polytechnic, Nashik, Maharashtra (India)



15th - 16th February 2020

www.conferenceworld.in

ISBN : 978-81-944855-1-3

A report from survey conducted by world health organization revealed that almost two billion people worldwide got their water from unimproved sources or from improved but contaminated sources. However, 2.9 million people are affected by cholera and other waterborne diseases while diarrheal disease lead to the death of 829000 annually [2].

Microbiological contamination is widespread in lower and middle income countries and affect all water source while faecal contamination was most prevalent in Africa [3], yet majority of the people were reported to have been drinking water from all sources both improved and unimproved without subjecting it to any form of treatment[4] [5].

Encyclopedia Britanica defines water purification as the process of removing undesirable chemicals, biological contaminants, suspended solids, and gases from water [6]. World health organization confirms that practicing proper Household water treatment and safe storage can reduce diarrheal diseases by almost 61% [2].

However People's views and perceptions towards the quality of their water were reported to have a greater influence on water treatment decisions, perception of water quality is a significant predictor of the household likelihood of water treatment practice [7]. Household consider their water source as qualitative, clean, tasteless and odourless hence consuming it directly without treatment [4].

In Nigeria water treatment is not commonly practice at household level, report from national health demographic survey revealed that 92% of households in Nigeria drink their water prior to treatment despite the fact that 34.2% are sourcing water from unimproved source and 20%uses unimproved sanitation facilities while 24.5% engage in open defecation[8].

The aim of this study is to find out the effect of water quality perception on the treatment of water practice and influence of socio-demographics on the practice of water treatment.

II. MATERIALS AND METHODS.

The study was carried out in Gashu'a town of Bade local Yobe state Nigeria. Descriptive cross sectional research design and multi stage sampling were used in the study. Cluster sampling was first used to select six clusters in the community and simple random sampling was used to select households across the six selected clusters of Gashu'a town. While one adult member was randomly selected from each household as respondent. Sample size of 379 households was determined using Cochran sampling technique for cross sectional studies.

Data was collected through administration of questionnaire to three hundred and ninety seven (397) households across six (6) wards (clusters) of Gashu'a town. However, SPSS version 21 was used to describe the result as they exist in the community, Descriptive analysis was carried out to obtained frequencies and percentages of



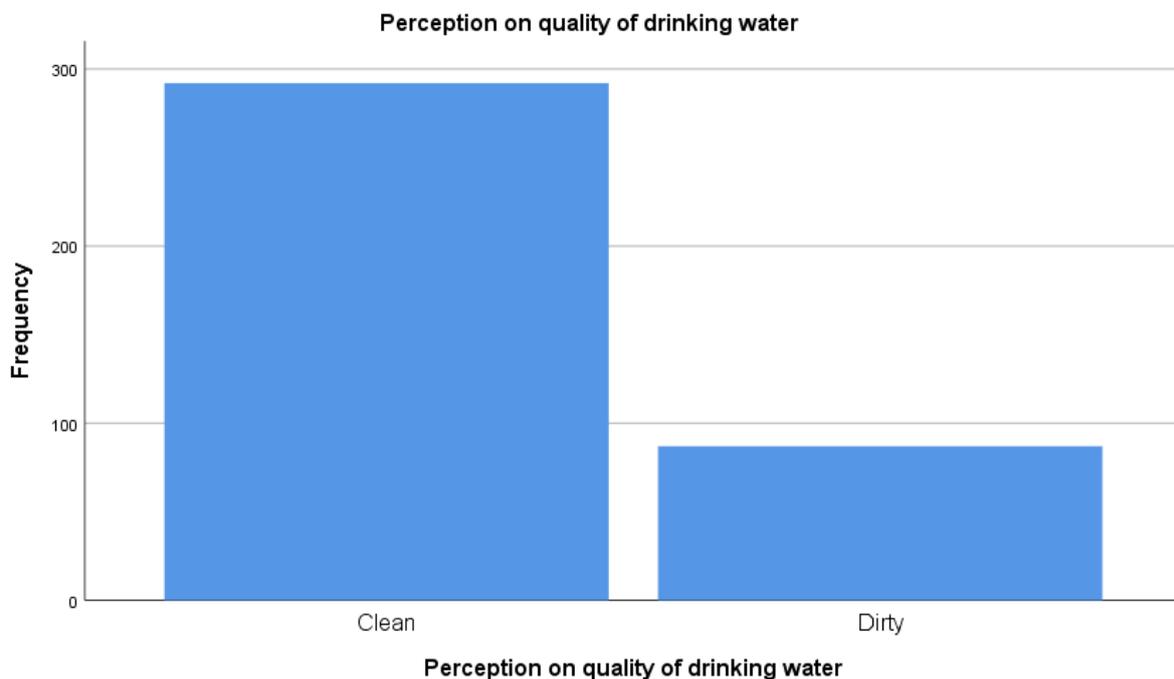
respondent's socio-demographics as well as knowledge and practice of water sanitation and hygiene in the community.

Research ethical clearance was obtained from Yobe state ministry of Health and Human Services ethical research committee for the purpose of research while permission of entry in to the community was collected from the management of Bade local government area of Yobe state.

III. RESULTS

Table: 1 Perception on quality of drinking water

Water Quality	Frequency	Percentage (%)
Clean	292	77
Dirty	87	23
Total	397	100

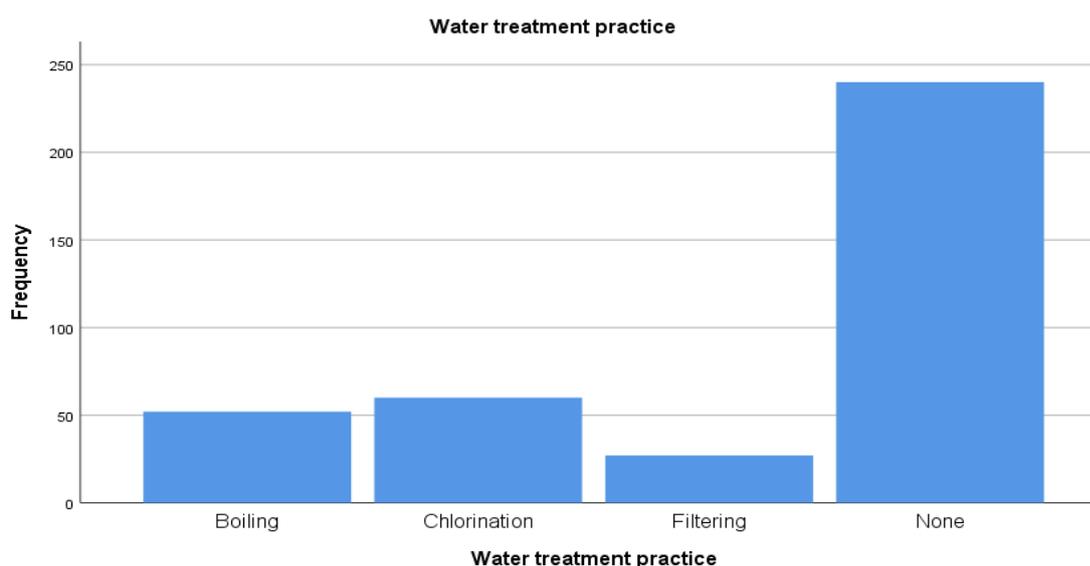
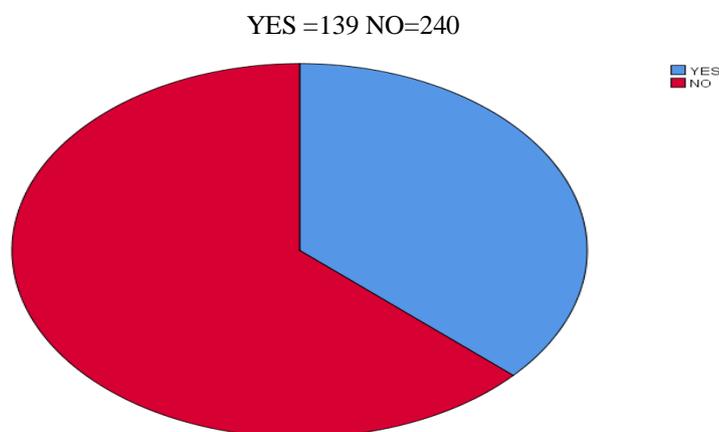


Most of the respondents 292(77%) perceived that drinking water in the community was clean and therefore safe for consumption while the remaining 87(23%) were reported to have believe that their drinking water was not portable.



Table: 2 Showing Household Water Treatment Practice

Practice of water treatment	Frequency	Percentage (%)
Boiling	52	13.7
Chlorination	60	15.9
Filtration	27	7.1
None	240	63.3
Total	379	100.0



Majority of the respondents 240(63.3%) were reported to have not been using any form of water purification, while out of one hundred and thirty nine(139) respondent that were reported to have been purifying their water, 15.9% were chlorinating their drinking water before consuming, 13.7% were boiling it while 7.1% were using filtration method respectively.



Table: 3 Showing Relationship between Socio-demographic And Practice of water treatment

Variables	No (%)	Boiling	Chlorination	Filtration	None	X ²	P-value 0.005
Gender							
Male	114(30.1)	21	33	8	52	29.885	0.000
Female	265 (69.9)	31	26	20	18		
Marital status							
Single	26(6.9)	5	6	1	14	10.855	0.541
Married	287(75.7)	36	44	20	187		
Widow	38(10.0)	8	5	6	19		
Divorcee	28(7.4)	3	4	1	20		
Educational level							
Primary	44(11.6)	5	5	5	29	20.604	0.194
Secondary	120(31.7)	14	27	5	74		
Tertiary	67(17.7)	10	9	9	39		
Informal education	44(11.6)	5	9	3	27		
Not educated	104(27.4)	18	9	6	71		
Occupation							
Civil servant	53(14.0)	4	11	9	29	16.879	0.154
Business	211(55.7)	35	33	11	132		
Petty trading	52(13.7)	4	7	3	38		
Full time house wife	63(16.6)	9	8	5	41		

Total of three hundred and seventy nine (379) households were selected for the purpose of this study and majority of the respondents were female 256(69.9%) and 114(30.1%) are male, out of which most of them 287(75.7%) are married, and 38(10%) are widows, 28(7.4%) are divorcees, while the rest 26(6.9%) are single. However, majority of the respondents had attended formal schools, as 120(31.7%) have completed secondary schools, 67(17.7%) have post-secondary qualifications and 44(11.6%) were reported to have attended non formal schools, while 104(27.4%) had attended no school. The majority of the respondents 211(55.7%) were reported as Businessmen and women, followed by fulltime housewives which account for 63(16.6%), 53(14%)



were civil servants, while 52(13.7%) were reported to be doing petty trading.

Result from the analysis shows that only gender was found to be significantly associated with household water treatment while marital status, level of education and occupation were all found to have not associated with water treatment practice.

IV. DISCUSSIONS

Our findings shows that 66.3% of the respondents never engage in any form of water treatment at household level, the result is in agreement with the study carried out in the rural savannah community of Ghana [4] which revealed that 66.2% of the households consumed the water they collected directly without subjecting it to any form of treatment, it is also in disagreement with the result found by [9] which found that 94.1% of the households interviewed were treating their water before drinking. Despite the fact that 31% of Yobe state residence have no access to improved sources of water and 54% practice open defecations [8], it is worrisome to see that majority of people don't treat their water before consumption and it might not be unconnected with the fact that most of them 77% believes that the water they are consuming is clean and portable. Their perception has negatively affected their decisions on water treatment practice prior to consumption which in return may affect their health condition.

Gender of the respondents were found to be significantly associated with household water treatment ($X^2=29.885$, $P>0.000$) which is similar to the study conducted by [10] which revealed a strong association between sex and water treatment $P>0.001$, and it is also in contrast with the study done by [11] which revealed no association between gender and practice of water treatment at a household level $P>0.148$.

The result revealed no association between household water treatment practice and marital status of the respondents ($X^2=10.855$, $P>0.541$) which is in consistent with the study of [12] that found no correlation between marital status and water treatment at household level. However, level of education of the respondents were also found to have no association with household water treatment practice ($X^2=20.604$, $P>0.194$), it is also similar to what [5] found in his study ($X^2=161$, $P=0.20$). while it is in disagreement with that of [12] which established significant correlation between respondents level of education and household water treatment practice. Occupation of the respondents were also found to have no association with practice of water treatment ($X^2=16.879$, $P>0.154$) which is in agreement with the study of [13] which also found no association between occupation and household water treatment $P>0.183$.



V. CONCLUSION

The study found that majority of the household interviewed believed that their drinking water is clean and portable therefore have influence their decision not to treat their water before consumption. The study also found that only gender was significantly associated with water treatment practice at household level.

VI. RECOMENDATIONS

There is need for rigorous awareness creation among the residents on the important of water treatment at household level.

REFERENCE

- [1] WHO (2020) Water sanitation and hygiene: Household water treatment and safe storage https://www.who.int/water_sanitation_health/water-quality/household/en/
- [2] Results of round II of the WHO international scheme to evaluate household water treatment technologies. Geneva: World Health Organization; 2019. Licence: CC BY-NC-SA 3.0 IGO.
- [3] Bain R., Cronk R., Wright J., Yang H. & Bartram J. (2014) Fecal contamination of drinking water in developing countries: a systematic review and meta-analysis. *PLoS Medicine* 11, e1001644.
- [4] Bazaanah, Prosper. (2019). Evaluating the effects of Households Socio-demographic Element on the Determination of Drinking Water Quality and Quantity in Rural Savannah Communities of Northern Ghana.
- [5] Hothur R, Arepalli S, Bhadrashwara ADV (2019). A KAP study on water, sanitation and hygienic among residents of Parla village, Kurnool district, Andhra Pradesh. *Int J Community Med Public Health*; 6:2081-5.
- [6] Stephen T. Schroth, Archis Ambulkar, Jordan K. Lanfair (2018). Water purification, *Encyclopedia Britannica*. Retrieved from <https://www.britannica.com/topic/water-purification>.
- [7] Jain M, Lim Y, Arce-Nazario JA, Uriarte M (2014) Perceptual and Socio-Demographic Factors Associated with Household Drinking Water Management Strategies in Rural Puerto Rico. *PLoS ONE* 9(2): e88059. <https://doi.org/10.1371/journal.pone.0088059>.
- [8] National Population Commission (NPC) [Nigeria] and ICF. (2019). *Nigeria Demographic and Health Survey 2018*. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF.
- [9] Kaoje AU, Yahaya M, Raji MO, Hadiza SM, Sylvanus A, Musa TM. (2019) Drinking water quality, sanitation and hygiene practices in a rural community of Sokoto State, Nigeria. *Int J Med Sci Public Health* 8(1):78-85.
- [10] Ali, Mohammad & Faruque, Abu & Malek, Md. (2017). Socio-demographic Determinants of Water Treatment in Cholera Patients and Clinical Presentation of Disease: A Decade of Observation from a

International Conference on Science, Technology and Management (ICSTM-2020)



Guru Gobind Singh Polytechnic, Nashik, Maharashtra (India)



15th - 16th February 2020

www.conferenceworld.in

ISBN : 978-81-944855-1-3

Large Urban Diarrhoeal Disease Hospital in Bangladesh. Bangladesh Medical Research Council Bulletin. 42. 125. 10.3329/bmrcb.v42i3.32213.

- [11] Joshi, A., Prasad, S., Kasav, J. B., Segan, M., & Singh, A. K. (2013). Water and sanitation hygiene knowledge attitude practice in urban slum settings. *Global journal of health science*, 6(2), 23–34. <https://doi.org/10.5539/gjhs.v6n2p23>.
- [12] Bitew, B. D., Gete, Y. K., Biks, G. A., & Adafrie, T. T. (2017). Knowledge, Attitude, and Practice of Mothers/Caregivers on Household Water Treatment Methods in Northwest Ethiopia: A Community-Based Cross-Sectional Study. *The American journal of tropical medicine and hygiene*, 97(3), 914–922. <https://doi.org/10.4269/ajtmh.16-0860>
- [13] Belay, Hailegebriel&Dagnew, Zewdu&Moges, Nurilign. (2016). Small scale water treatment practice and associated factors at BurieZuriaWoreda Rural Households, Northwest Ethiopia, 2015: Cross sectional study. *BMC Public Health*. 16. 10.1186/s12889-016-3571-2.