Research Article

Safe Drinking Water Practices among the Households in Rural Field Practice Area of a Medical College: A Cross Sectional Study

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Abstract

Introduction: Drinking water and sanitation are the door way to health which is the pre-requisite for progress, social equity and human dignity to improve the quality of life of people. Limited access to safe drinking water and poor sanitation can lead to under nutrition, water borne diseases, vector borne diseases and neglected tropical diseases.

Methods: A cross sectional study was conducted among 261 households of Singanodi Village which is the rural field practice area of Navodaya Medical College, Hospital & research centre, Raichur.The investigator had visited and interviewed each household and conducted face-to-face interview using a structured questionnaire which includes Socio- Demographic features and information on hygienic practices of water.

Results: In this study majority of the households(69%) did not practice any water purification methods. 77.4% of the participants practiced hand-washing with soap and water after defecation. 90.4% of the households clean the water storage vessels daily. Significant association was found between diarrheal diseases with distance to get water, water purification methods and hand washing with soap and water after defecation.

Conclusions: This study reinforces the importance of health education which plays an importance role in the prevention of water borne diseases.

Keywords: Drinking water, Rural area, Raichur

Introduction

Drinking water and sanitation are the door way to health which are the pre-requisite for progress, social equity and human dignity to improve the quality of life of people. These are the most important felt needs in public health in developing countries in this 21st century.[1] Water, sanitation and hygiene(WASH) strategy has been introduced as a part of sustainable development goal-6 to achieve the universal, affordable and sustainable access to safe drinking water, sanitation and hygiene by 2030.[2]

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Majority of population of India resides in rural area (68.85%).[3] Meeting the drinking water needs of such a large population can be a daunting task. The non-uniformity in level of awareness, socio-economic development education, poverty, practices and rituals and water availability add to the complexity of the task.[4]Limited access to safe drinking water and poor sanitation can lead to under nutrition, water borne diseases including diarrhoea and dysentery, vector borne diseases and neglected tropical diseases such as soil transmitted helminthiasis, schistosomiasis etc. Lack of access to suitable sanitation facilities is also a major cause of risks and anxiety, especially for women and girls. For all these reasons, sanitation that prevents disease and ensures privacy and dignity has been recognized as a basic human right.[5] This study was conducted with an objective to assess safety drinking water practices among the residents of rural filed practice area of Navodaya Medical College, Hospital & research centre, Raichur.

Materials and Methods

This cross sectional study was conducted among 261 households of Singanodi village which is the rural field practice area of Navodaya Medical College, Hospital & research centre, Raichur, during 1st December 20109 to February 29th 2020. People who resides for more than 6 months in that village and people aged > 18 were included in the study. Refugees, nomads, brick kiln workers, other temporary residents and those whose house remain closed on three repeated visits were excluded from the study. Ethical clearance was obtained from Institutional Ethical Review Board of Navodaya Medical College, Hospital and Research centre, Raichur. Informed consent was obtained from each respondent prior to the interview.A total of 261 houses were visited. The investigator had visited and interviewed each household and conducted face-to-face interview (preferably with the head of the family) using a structured questionnaire. The questionnaire containing demographic characteristics such as age, sex, religion, education, occupation, socio-economic status, type of family., Socioeconomic status was classified according to modified B. G. Prasad classification.[6] Information on hygienic practices of water was collected which includes source and supply of water, distance to get water, sanitary practices.

Data were entered in MS EXCEL and analysis was done using SPSS vs 20 in the form of frequencies and percentages. Chi square test was applied to assess the association between sanitary practices and acute gastrointestinal diseases.

In this study the source of water supply to the village was underground water and bore well was linked to overhead tank to draw the water from source. The availability of the drinking water supply to the village is explained in the table 1.

In this study 261 households were studied. Majority of the study participants were <30 years of age groups, (64%) of the participants were females and predominantly Hindus by religion (75.5%). Majority of the study participants were illiterate (71.6%) and belonged to class 3 socioeconomic status. Most of the study participants were residing in join families (48.3% %) but no significant association was found between the socio-demographic features and acute diarrheal diseases. The association between socio-demographic features and acute diarrheal diseases of study participants are explained in the table 2.

In this study majority of the households had source of water supply within their premises(79.3%), majority of them did not use any methods for water purification(69%) and majority of the households practiced hand washing with soap and water after defecation (77.4%) which was significantly associated with acute diarrheal diseases. Majority of the households had covered the drinking water(92%), practiced hand washing with soap and water before drinking (81.2%) and clean the water storage vessels daily(90.4%), practiced dipping of glass into water before drinking(68.2%), Clean the glass or jug before drinking water (86.2%) which was not significantly associated with acute diarrheal diseases. The association of safe drinking water practices with acute diarrheal diseases are explained in Table 3.

Table 1: Availability of the drinking water supply to the village

Variable		Frequency	Percentage
Source of water	Underground water	261	100
Water drawing from source	Bore wells linked to Overhead tank	261	100.
Total		261	100

Table 2. Association of Acute Diarrheal diseases with socio-demographic features.

Variables		Diarrhea		Total(261)	χ2 Value	P value
		Present	Absent			
AGE	<30	18(19%)	78(81%)	96(100%)	4.43	0.109
	31-50	17(18.2%)	76(71.8%)	93(100%)		
	.>51	22(31%)	50(69%)	72(100%)		
Sex	Male	21(22.3%)	73(71.7%)	94(100%)	0.02	0.500
	Female	36(22%)	131(78%)	167(100%)		
Religion	Hindu	43(21.8%)	154(78.2%)	197(100%)	1.19	0.550
	Muslim	7(29.1%)	17(71.9%)	24(100%)		
	Christian	7(5.7%)	33(94.3%)	40(100%)		
Education	Illiterate	42(22.4%)	145(77.6%)	187(100%)	0.51	0.992
	Primary	2(25%)	6(75%)	8(100%)		
	Middle	2(20%)	8(80%)	10(100%)		
	High school	6(22.2%)	21(71.8%)	27(100%)		
	PUC/diploma	4(20%)	16(80%)	20(100%)		
	Graduate / Postgraduate	2(4.5%)	7(5.5%)	9(100%)		
Socioeconomic status	Class II	3(21.4%)	11(71.6%)	14(100%)	4.43	0.109
	Class III	14(31.8%)	30(68.2%)	44(100%)		
	Class IV	21(20.1%)	83(79.9%)	104(100%)		
	Class V	19(19.3)	79(80.7%)	98(100%)		
Type of family	Nuclear	21(17.6%)	98(82.4%)	119(100%)	2.6	0.450
	Three generation	4(26.6%)	11(73.4%)	15(100%)		
	Joint family	32(25.1%)	95(74.9%)	127(100%)		
	Total	57(21.8%)	204(78.2%)	261(100%)		

Table 3. Association of safe drinking water practices with acute diarrheal diseases.

Variables		Diarrhea		Total(261)	χ2 Value	P value
		Present	Absent			
Distance to get water	Within the premises	50(24.1%)	157(75.9%)	207(100%)	5.71	0.017
	Outside the premises	7(13%)	47(87%)	54(100%)		
Covering of drinking water	Covered	53(21.9%)	189(78.1%)	242(100%)	0.1	0.597
	Not covered	4(21%)	15(79%)	19(100%)		

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Dipping glass into water before drinking	Practiced	39(27.6%)	141(72.4%)	180(100%)	0.01	0.520
	Not practiced	18(22.2%)	63(77.8%)	81(100%)		
Different methods of filtration	Boiling	13(26.5%)	36(74.5%)	49(100%)	22.1	0.000
	RO system	2(25%)	6(75%)	8(100%)		
	Cloth filtration	3(23%)	10(77%)	13(100%)		
	Do not purify	34(17.8%)	157(82.2%)	191(100%)		
Hand washing practices before drinking	Practiced	47(22.1%)	165(71.9%)	212(100%)	1.8	0. 478
	Not practiced	10(20.4%)	39(79.6%)	49(100%)		
Hand washing with soap and water after defecation	Practiced	37(18.3%)	165(81.7%)	202(100%)	6.4	0.011
	Not practiced	20(33.6%)	39(66.4%)	59(100%)		
Cleans the water storage vessels daily	Clean the vessels	51(21.6%)	185(78.4%)	236(100%)	0.7	0. 476
	Do not clean the vessels	6(24%)	19(76%)	25(100%)		
Clean the glass or jug before drinking water	Clean the jug	52(23%)	173(77%)	225(100%)	1.5	1.52
	Do not clean the jug	5(13.8%)	31(86.2%)	36(100%)		
	Total	57(21.8%)	204(78.2%)	261(100%)		

Discussion

This study was conducted in order to assess the safe drinking water practices among the residents of Singanodi village which is the rural field practice area of Navodaya medical college, Hospital and Research centre Raichur. In this study the source of water supply to the Singanodi village was underground water. This is similar to a study done by Mishra S et al [12] and Venkatesh R [13] et al. In contrast to this a study done by Gaud N etal [7] and Chinamma D et al[10] showed that the main source of water in the villages was pipe water. A study done by Kaniambady S et al[9] showed that main source of water was protected dug wells. In this study majority of the households had source of water supply within their premises. This is similar to a study done by Shashikala SK et al [8] and Kuberan A et al [11]. In this study drinking water was covered by majority of the households. This is similar to study done by Pachori R et al[14]. In this study majority of the households(69%) did not use any method for purification of drinking water. This is similar to study done by Goud N et al [7], Chinnamma D et al et al [10]and Reshma et al [15]. In contrast to this a study done by Kaniambedy S et al [9] showed that majority of the households were practiceing boiling as a method of water purification. In this study majority of the households were practiceing hand-washing with soap and water after defecation. This is similar to a study done by Kaniambedy S et al [9], Pachori R et al [14] and Reshma et al [15]. In contrast to this a study done by Kuberanet al [11] showed that majority of the participants did not practice handwashing with soap and water after defecation. In this study 21.8% of households were reported diarrhoea from past 2 weeks. In this study majority of the households clean the water storage vessels daily. This is similar to a study done by Gaud N et al [7], Chinnamma D et al [10], Kuberan A et al [11] and Reshma et al [15]. In this study majority of the households clean the jug or glass before drinking.

Conclusion

In this study, groundwater was the major source of water to the village, availability of water, sanitation and hygiene was good in households. Majority of the households did not' practiced any water purification methods and some households did not practice hand washing practice with soap and water after defecation. Health education is needed for better use of existing facilities and also to prevent the incidences of water and sanitation related diseases. Appropriate emphasis to be given for behaviour change communication to create awareness among villagers on the importance of water and sanitation practices by using various media to educate to them..

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Declarations:

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