Original Article

A Descriptive Study to Assess the Knowledge and Practice Regarding Water, Sanitation and Hygiene among Women in Selected Villages of Udupi District

Reshma¹, Mamatha S. Pai² & Manjula³

¹Lecturer, ³Assistant Professor, Department of Community Health Nursing,

²Professor and HOD, Department of Child Health Nursing, Manipal College of Nursing, Manipal University, Manipal.

Correspondence

Manjula

Assistant Professor, Department of Community Health Nursing, Manipal College of Nursing Manipal, Manipal University, Manipal

E-mail : manjuuppi@yahoo.in

Abstract

Background : Safe drinking water and basic sanitation is of crucial importance to the prevention of human health¹. Water can become a vehicle for transmission of feco oral group of infections, because the fecal contamination of water is common and its avoidance and subsequent purification is vigilant². One of the goal of MDG states - Halve, by 2015, the proportion of people without sustainable access to an improved water source and sanitation³.

Materials and methodology : A descriptive study was undertaken among 300 samples, in adopted villages of MCON Manipal, Udupi District using structured questionnaire. SPSS 16.0 software was used for data analysis.

Results : Findings of the study showed that 42% had average knowledge and majority (75 %) of the subjects followed unsafe practices on water, sanitation and hygiene. Majority (88 %) of the subjects performed unskilled hand washing.

Conclusion: Water pollution is a growing hazard in many developing countries due to human activity. Water is an essential factor in the economic, social and cultural development of community. It can eliminate diseases, and improve quality of life

Keywords : Water, sanitation, hygiene, knowledge, practice.

Introduction

WHO/UNICEF Joint Monitoring Programme for water supply and sanitation released in 2013, estimates that 36% of the world's population – 2.5 billion people lack improved sanitation facilities and 768 million people still use unsafe drinking water sources. Poor farmers and wage earners are less productive due to illness, health systems are overwhelmed and national economies suffer⁴.

Survey by water, sanitation and hygiene (WASH) in India (2008) estimated that with regards to sanitation that most

of the India's population (69%) did not use improved sanitation. In rural parts of India, 79 % of the population used unimproved sanitation facilities. Over 50% of the India's population

defecated in the open field. . The majority (88%) of the population in India had access to improved source of drinking water. One fourth of the population has water availability in their household premises. The majority (87%) of women used to collect water. Most (67%) of the Indian household do not treat drinking water in any form. Hand washing with soap and water was practiced by 53% after defecation, 38% before eating and 30% before preparing food. Report showed that most (80%) of the child's stool was not disposed safely. Study stressed the importance of maintaining good sanitation facility and develops hygienic practices⁵.

The Hindu newspaper reports findings of survey conducted under the Nirmal Bharath Abiyan, out of 2.26 lakh rural households , almost seven and half lakh (7,758) households in Udupi Taluk , 13,395 households in Kundapura Taluk, 4,084 households in Karkala Taluk does not have toilets. Survey stressed on importance of toilet

Access this article online

Quick Response Code

construction in these areas⁶.

Deshpande K, Kakkar R and Diwan V conducted a survey to assess quantity and quality of water and problems perceived by residents of Palwa village in Ujjain district. A total of 38 adult households were selected by systematic random sampling. Data was collected by interview method using a questionnaire. The findings of the study showed that majority (84%) of households did not have water sources within their household area. Most (55%) of the household had water available at a distance of more than 50 m from their house. Most of the female in the households (58%) spent 1 hour 25 minutes to collect water. The majority (61%) did not wash hands before taking water from a stored vessel. Almost all (100%) practiced filtering water by cloth or plastic sieve. The study concluded that people were not aware about water purification⁷.

The objectives of the study was to assess the knowledge and practice on water , sanitation and hygiene, to find the association between knowledge, practice on water, sanitation and hygiene and selected demographic variables such as age, education, occupation, type of family, family income per month, information on water, sanitation and hygiene, membership in organization. The Purpose of the study was to assess the knowledge and practice regarding water, sanitation and hygiene and based on the findings to make those women sensitize on the areas where they are lacking in knowledge and the right practice to have a healthy community which is free from water borne diseases hence contributing towards the achievement of Millennium Developmental Goal - 7

Materials and methods

A survey approach was adopted with a descriptive design.

Research setting

The study was conducted in Athrady, Hirebettu and Marne villages of Udupi district.

Sample, Sample size and Sampling technique

Sample of the study included women who are involved in household work. The sample size was three hundred. Areas were selected using convenient sampling. Houses were

selected by disproportionate stratified random sampling and sample was selected using purposive sampling.

Data Collection tool

Data was collected using structured questionnaire and observation checklist which was prepared by researcher.

Tool 1: Demographic proforma

Tool 2: Structured questionnaire on knowledge regarding water, sanitation and hygiene

Tool 3: Section 1 - Structured questionnaire on self-reported practice on water, sanitation and hygiene.

Tool 3: Section 2 - Checklist on practices of water, sanitation and hygiene

Tool 2 - The tool was developed by the researcher to determine the knowledge of women on water, sanitation and hygiene. The tool comprised of 30 items of multiple choice questions. Each correct option was scored one and each wrong option was scored zero. Knowledge score was arbitrarily classified as good knowledge: 21-30, average knowledge: 11- 20 and poor knowledge: 0 – 10. Content validity of the tool was obtained by 7 experts from the field of Community Health Nursing, Community Medicine, Public Health, Social Welfare Worker and Medical Officer of PHC. All items had 100% agreements except one item which was modified as per the suggestion from the experts. Tool was administered in local language. Reliability of knowledge questionnaire was obtained by split half method ($r = 0.93$)

Tool 3 Section 1 - Each item was categorized as safe practice or unsafe practice and was scored one or zero respectively. The total score of this tool was combined with the total score of tool 3 section 2 for the purpose of analysis.

Tool 3 Section 2 - The tool was developed by the researcher to observe the practices of women with regard to water, sanitation and hygiene. The tool consisted of 28 items on practices of water, sanitation and hygiene out of which one question (28th) included sub questions on steps of hand washing. Each item of the first 27 questions was categorized as safe or unsafe practice and was scored one or zero respectively. For the purpose of analysis, Tool 3

section 1 and section 2 was combined. Practice category was arbitrarily classified as safe practice: 30 – 36 and unsafe practice: 0 – 29

Question 28 on steps of hand washing was scored based on the critically important steps. The simple step was scored as one and the critically important step scored as two. The maximum possible score was twelve and the minimum score was two. Hand washing practice was arbitrarily classified as unskilled hand washing (2-11 score) and skilled hand washing (=12 score).

Content validity of the tool was obtained by 7 experts from the field of Community Health Nursing, Community Medicine, Public Health, Social Welfare Worker & Medical Officer of PHC. All items had 100% agreements with modification of some statements. Reliability of structured practice questionnaire by test retest method ($r=1$) and checklist on practice by inter rater reliability ($r = 1$).

Data collection process

Administrative Permission and informed consent was obtained from each subject and anonymity was maintained. Tool was administered and practices were observed and rated. Information was given on safe practices after collecting data.

Data obtained were coded and analyzed. Statistical package for social sciences software (SPSS 16.0) was used for statistical analysis of raw data. Frequency, Percentage and association were obtained.

Results

Sample characteristics

Study found that most of the women (43.7%) were in the age group of 20 – 39 years and majority of them (97%) were married and were Hindus (93.3%). Most of them (42.7%) had primary education and lived in joint family (62.7%). Majority (76.7%) were housewives. Most of them (52.7%) had APL cards and had their family income between 5000-10000 Rupees per month (50.7%). (Table1)

Information related to home and surrounding

Majority of the subjects (92.7 %) have pucca house with

less than 20 members in all the houses. Majority of them (99%) used open drainage method for waste water disposal. All the subjects had their water source within 500 meters of distance from their house. Majority of the subjects (92.3%) had water available in all seasons. Majority of the subjects (97.7%) had latrines in their house with distance between latrine pit and well was less than 30 feet (34%). In majority of the houses females (89.3%) drew water from the well. Most of subjects (51.3%) had no knowledge on water, sanitation and hygiene, amongst the subject who had knowledge, (15 %) subjects had knowledge from their friends and relatives. Majority of them (85.7 %) were not members of any organization. (Table 2 and 3)

Description of knowledge score on water, sanitation and hygiene.

The study findings revealed that out of 300 subjects, 40% had good knowledge, 42% had average knowledge and 18% had poor knowledge on water, sanitation and hygiene. (Figure 1)

Description of practices on water sanitation and hygiene.

Study findings revealed that most of the well (66.3%) has cemented compound. Most of the subjects (66.3%) use handled jug to take water from water storing drum, majority (70%) uses boiled or filtered water for drinking. Most of the toilets (68.3 %) are well ventilated, Majority of the subjects (83.7%) cleans water storing vessel daily. Majority (70%) practiced hand washing with soap and water after defecation (Table 4)

Description of practice score on water, sanitation and hygiene.

Findings of the study revealed that majority (75 %) of the subjects followed unsafe practices on water, sanitation and hygiene. (Figure 2)

Description of hand hygiene practice

The study found that majority (88 %) of the subjects performed unskilled hand washing. (Figure 3)

Association between knowledge and practice on water, sanitation and hygiene.

Study found that there is significant association between knowledge and age ($\chi^2=4.60$; $p < 0.05$), education ($\chi^2=1.34$; $p < 0.05$), occupation ($\chi^2 = 1.09$; $p < 0.05$), family income per month ($\chi^2 = 0.9$; $p < 0.05$), information on water, sanitation and hygiene ($\chi^2 = 1.38$, $p < 0.05$) (Table 6)

Study also found that there is significant association between practice and age ($\chi^2=0.89$; $p < 0.05$), education ($\chi^2=5.144$; $p < 0.05$), occupation ($\chi^2= 2.85$, $p < 0.05$), family income per month ($\chi^2 = 2.86$; $p < 0.05$), information on water, sanitation and hygiene ($\chi^2 = 1.01$, $p < 0.05$) (Table 5 and 6)

Table 1: Demographic characteristics of samples n=300

Demographic variables	f	%
Age (in years)		
20-39	131	43.7
40-59	124	41.3
Above 60	45	15
Marital status		
Married	291	97
Unmarried	9	3
Education		
Illiterate	18	6
Primary Schooling	128	42.7
High school	76	25.3
PUC	26	8.7
More than PUC	52	17.3
Religion		
Hindu	280	93.3
Christian	15	5
Muslim	5	1.7
Type of family		
Nuclear	112	37.3
Joint	188	62.7
Occupation		
Housewife	230	76.7
Skilled profession	21	7.0
Unskilled profession	49	16.3
Type of Ration card		
No ration card	2	0.7
APL	157	52.3
BPL	141	47
Family income per month		
2000 – 5000	69	23
5000 – 10000	152	50.7
10000 – 15000	44	14.7
Above 15000	35	11.7

Table 2: Information related to home and surrounding n=300

Variables	f	%
Housing		
Katcha	1	0.3
Pucca	278	92.7
Semi pucca	21	7.0
Number of people in household		
Less than 10	297	99
10- 20	3	1.0
Method of waste water disposal		
Open	297	99
Closed	3	1
Distance of water source from shelter		
Less than 100 feet	290	96.66
>100 feet – 200 Feet	10	3.33
Availability of water in all seasons		
Yes	277	92.3
No	23	7.7
Presence of latrine		
Yes	293	97.7
No	7	2.3

Table 3: Information related to home and surrounding n=300

Variables	f	%
Distance of latrine from the well		
No latrine	7	2.3
More than 30 meters	191	63.7
Less than 30 meters	102	34
Person who draws water from the well		
Male	32	10.7
Female	268	89.3
Kids defecation practice		
Toilet	249	83
Outside	51	17
Information on Water, sanitation and hygiene		
Present	146	48.7
Absent	154	51.3
Source of information		
No source	154	51.3
Panchayath	13	4.3
Friends/ relatives	45	15
Health worker	32	10.7
Newspaper	32	10.7
TV	24	8
Member of organization		
Not a member	257	85.7
Group member	43	14.3

Table 4 : Description of practices related to water, sanitation and hygiene

Variables	f	%
Compound for well		
Cemented compound	199	66.3
Plants/Mud compound	101	33.7
Uses handled jug for taking water from drum		
Yes	101	33.7
No	199	66.3
Use of boiled/ filtered water for drinking		
Yes	210	70
No	90	30
Ventilation of sanitary toilet		
Well ventilated	205	68.3
Poor ventilation	95	31.7
Cleans water storing vessel daily		
Yes	251	83.7
No	49	16.3
Hand washing with soap and water after defecation		
Yes	210	70
No	90	30

Table 5: Chi square value showing association between knowledge and demographic variables.

Variables	Good knowledge	Average knowledge	Poor knowledge	²	df	p value
1.Age in years						
20-39	86	42	3	4.60	4	0.001
40-59	32	61	31			
Above 60	3	21	21			
2.Education						
Illiterate	0	7	11	1.34	8	0.001
Primary school	21	68	39			
High school	34	37	5			
PUC	18	8	0			
More than PUC	48	4	0			
3.Occupation						
Housewife	82	99	49	1.09	4	0.007
Unskilled profession	19	22	8			
Skilled profession	16	5	0			
3.Type of family						
Nuclear	46	52	14	0.55	2	0.107
Joint	75	72	41			
4..Family income per month						
2000 – 5000	21	33	15	0.9	6	0.048
5000 – 10000	56	67	29			
10000 – 15000	23	13	8			
Above 15000	21	11	3			
5.Information on Water, sanitation and hygiene						
Present	88	51	48	1.38	2	0.001
Absent	33	73	7			
6.Member of association						
No group	100	107	50	2.202	2	0.342
Group	21	17	5			

Table 6: Chi square value showing association between practice and demographic variables.
n=300

Variables	Safe Practice	Unsafe Practice	χ^2	df	p value
1.Age in years					
20-39	51	80	0.89	2	0.001
40-59	18	106			
Above 60	5	40			
2.Education					
Illiterate	2	16	5.144	4	0.001
Primary school	9	119			
High school	16	60			
PUC	12	14			
More than PUC	35	17			
3.Occupation					
Housewife	49	171	2.85	2	0.001
Skilled profession	14	7			
Unskilled profession	9	40			
3.Type of family					
Nuclear	25	87	0.529	1	0.279
Joint	49	139			
4..Family income per month					
2000 – 5000	3	66	2.86	3	0.001
5000 – 10000	33	119			
10000 – 15000	20	24			
Above 15000	18	17			
5.Information on Water, sanitation and hygiene					
Present	61	85	1.01	1	0.001
Absent	13	141			
6.Member of association					
No group	64	193	0.19	1	0.817
Group member	10	32			

Figure 1 : Pie diagram showing percentage distribution of knowledge level of women on water, sanitation and hygiene

Figure 2: Percentage distribution of practices on water, sanitation and hygiene

Figure 3 : Percentage distribution of hand hygiene

Discussion

Findings of the present study showed that Majority (89.3%) of the women used to draw water from well, Most of the subjects (66.3%) used handled jug to take water from water storing drum, majority (70%) uses boiled or filtered water for drinking. Majority had access to water less than in less than 100 feet distance. Majority (97.7%) had toilet. Most of the toilets (68.3 %) are well ventilated, Majority of

the subjects (83.7%) cleans water storing vessel daily. Majority (70%) practice hand washing with soap and water after defecation. The findings of the present study is supported by cross sectional study conducted by Hazarika J on Water handling and sanitation practices among mothers of under-fives in slum population, the findings of which showed that most of the women (61.5%) used to dip hand to take water from water storing container, Majority (85.5%) did not treat water to make it safer for drinking, Majority (70.5%) respondents defecated open field, Most of them (60.5%) washed hands with soap and water after defecation⁸.

Present study showed that mostly women used to fetch (89.3%) water, majority (96.66%) had water source available within 100 feet distance. All the houses (100%) water was stored in closed container, majority (97.7%) had toilet in their household and it was kept clean (75.7%). The finding is supported by cross sectional study conducted by A I Mohammed et al on Access to safe drinking water and availability of environmental sanitation facilities among Dukem town households in Ethiopia. Samples were selected by stratified random sampling. Data was collected using structured questionnaire and face to face interview and observation on information on sanitary facilities and environmental conditions of households the findings of which showed that, majority (82.6%) of the women used to fetch water, water was available in less than 200 meter

distance, majority (93.2%) covered their water storing container, majority (70.1%) had toilet in their household, majority (85%) maintained cleanliness of toilet⁹.

The study findings are useful for the public health nurses to ensure that the hygienic practices are maintained by the households during their home visits and also to plan awareness programme on water, sanitation and hygiene. The study findings gives an insight to the nurse administrators to develop a framework through which employees assess the environmental health needs.

The study findings cannot be generalized as the results are from the small representative group. Hence it is better to conduct study on larger sample. The study can be conducted among urban and rural people to compare the knowledge and practice on water, sanitation and hygiene.

Conclusion

The findings of the study showed that majority of samples had average knowledge and unsafe practices on water, sanitation and hygiene. The study also showed that majority of subjects followed unskilled hand washing. Study found significant association between knowledge, practice and age, education, occupation, family income per month and information on water, sanitation and hygiene. The study inferred that as knowledge increases practice improves.

References

1. World Water Council. Water Supply and Sanitation. Available from: www.worldwatercouncil.org Retrieved on 2/10/2013
2. Gupta P. Text book of preventive and social medicine. New Delhi : CBS publishers and distributors; 2007.
3. Park K. Preventive and social medicine. Jabalpur: Banarsidas Bhanot publishers; 2012
4. Water, sanitation and hygiene[Internet]2011. Available from : www.unicef.org/wash/ Retrieved on 2/10/2013
5. Water, environment and sanitation. Available from : <http://www.unicef.org/india/wes.html> Retrieved on 2/10/2013
6. Available from www.thehindu.com/news/cities/mangalore/over-25000families-in-udupi-lack-toilets/article4813952.ece
7. Deshpande K, Kakkar R and Diwan V. A study to assess quantity and quality of water and problems perceived by residents of Palwa village in Ujjain district. Indian Journal of community Medicine. 2007; volume 32, number 4. Available from <http://www.ijcm.org.in> Retrieved on 2/10/2013
8. Hazarika J. Water handling and sanitation practices among mothers of under-fives in slum population[Unpublished master thesis] Retrieved on 28/11/2013
9. Environmental sanitation facilities among Dukem town Households in Ethiopia. Journal of Human Ecology. 2013; volume 41(2) Available from : [http://www.krepublishers.com/02-Journals/JHE/JHE-41-0-000-13-Web/JHE-41-2-000-13-Abst-PDF/JHE-41-2-131-13-2330-Hoque-M-E/JHE-41-2-131-13-2330-Hoque-M-E-Tx\[5\].pmd.pdf](http://www.krepublishers.com/02-Journals/JHE/JHE-41-0-000-13-Web/JHE-41-2-000-13-Abst-PDF/JHE-41-2-131-13-2330-Hoque-M-E/JHE-41-2-131-13-2330-Hoque-M-E-Tx[5].pmd.pdf) Retrieved on 12/10/2013