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Original Research Article

Assessment of Knowledge and Practices Regarding Drinking Water and Sanitation

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Abstract

Aim: The aim of the present study was to study knowledge and practice of water and sanitation.

Methods: Cross sectional study conducted in the field practice area of the Department of Community Medicine. Sample size was calculated as per last quarterly; total 7500 households were situated in rural and urban areas.

Results: The result shows sociodemographic characteristics of 400 households. It showed that 116 (29%) of participants belonged to age group 31-40 years followed by 96 (24%) belonged to 31- 40 years. Maximum number of participants i.e. 368 (92%) were females. Equal number of households was taken from rural and urban areas i.e. 200 from each. 92% of participants belonged to Hindu religion. In education wise distribution, 120 (30%) had studied up to high school, 80 (20%) had studied up to middle school. Majority of participants i.e. 232 (58%) belonged to general category. 256 (64%) of participants belonged to high socioeconomic status as per SLI (Standard of Living Index). Table 2 shows background characteristics of households. Among 400 households, 324 (81%) of participants had pucca house. 392 (98%) of households had family members <10. The distance of water source from the shelter was less than 100 ft. in all the 400 households. The water was available in all the seasons in all the 400 households. In 392 (998%) of households latrine was present.

Conclusion: Most of the participants had right knowledge and practice about drinking water and sanitation. Knowledge and practice of drinking water and sanitation is increasing with educational status of the respondents.

Keywords: Water, Sanitation, Hygiene, Knowledge, Practice.

Introduction

Access to safe water, sanitation, and hygiene (WASH) facilities is considered a basic human necessity for survival and well-being [1], without these basic needs, the health conditions of millions of people especially children are at risk. [2] However, 2.3 billion and 844 million people across the globe lack access to basic drinking water and sanitation facilities, respectively [3], causing 842,000 deaths every year [4], which is undoubtedly a major public health concern. WASH services are considered means of contacting and at the same time preventing diseases. [5] It has been estimated that overall 9% of the global burden of disease could be prevented through improvement in adequate WASH facilities. [6,7]

Adequate sanitation, together with good hygiene and safe water, are fundamental to good health and to social and economic development. That is why, in 2008, the Prime Minister of India quoted Mahatma Gandhi who said in 1923, "sanitation is more important than independence". [8] Safe drinking water, sanitation and good hygiene are fundamental to health, survival, growth and development. Sanitation is practically related to safe water and is a way of life. It is the quality of living that is expressed in the clean home, the clean farm, the clean business, the clean neighborhood and the clean community. [9] Being a way of life it must come from within the people; it is nourished by knowledge and grows as an obligation and an ideal in human relations.

Health risks are often exacerbated by poor sanitation. Some 20% of the urban population still lacked access to improved sanitation in 2012 and 100 million city dwellers still practiced open defecation, although gains in access to improved sanitation have generally been much more rapid in cities than in rural areas over the past two decades. [10]

27% of the global population (1.9 billion people) used private sanitation facilities connected to sewers from which wastewater was treated.13% of the global population (0.9 billion people) used toilets or latrines where excreta were disposed of in situ. 68% of the world's population (5.0 billion people) used at least a basic sanitation service. 2.3 billion People still do not have basic sanitation facilities such as toilets or latrines. Of these, 892 million still defecate in the open, for example in street gutters, behind bushes or into open bodies of water. [11]

Absent, inadequate, or inappropriately managed water and sanitation services expose individuals to preventable health risks. Some 842,000 people are estimated to die each year from diarrhoea as a result of unsafe drinking water, sanitation and hand hygiene. Where water is not readily available, people may decide hand washing is not a priority, thereby adding to the likelihood of diarrhoea and other diseases. Improved water supply and sanitation, and better management of water resources, can boost countries economic growth and can contribute greatly to poverty reduction.12

The aim of the present study was to study knowledge and practice of water and sanitation.

Materials and Methods

Cross sectional study conducted in the field practice area of the Department of Community Medicine. Sample size was calculated as per last quarterly; total 7500 households were situated in rural and urban areas. As per CAWST (Center for Affordable Water and Sanitation Technology) training manual for large projects (>100 households) 5% of total sample should be taken. [13] It came out to be 375 which were rounded of to 400. Simple random sampling was done to select the number of households. Participants who were above 18 year, available and willing to participate were included in the study. Simple random sampling was done to select number of households. Socio-economic status was estimated according to their Standard of living (SLI) as per NFHS-2. [14] Time period of study was 1and half year. The information was collected by holding the interview of households using the structured and pretested questionnaire. Informed consent was taken from the people who were willing to participate in the study and they were informed about the purpose of study and were also ensured about the confidentiality of their interview.

Statistical analysis

Statistical analysis was done using SPSS 25 and valid conclusions were drawn.

Results

Table 1: Sociodemographic characteristics

Socio-demographic Characteristics	No.(n=400)	%
Age		
<20	6	1.5
21-30	70	17.5
31-40	116	29
41-50	96	24
51-60	80	20
61-70	32	8
Gender		
Male	32	8
Female	368	92
Area		
Rural	200	50
Urban	200	50
Religion		
Sikhs	30	7.5
Christians	0	0
Hindus	368	92
Muslims	2	0.5
Education		
Illiterate	72	18
Can read only	12	3
Can read and write	48	12
Primary	36	9
Middle school	80	20
High school	120	30
Graduate	28	7
Postgraduate	4	1
Caste		
ST	0	0
SC	100	25
OBC	68	17
General	232	58
Others	0	0
Socioecnomic status (SLI) Standard of Living Index		
Low	28	7
Medium	116	29
High	256	64

The result shows sociodemographic characteristics of 400 households. It showed that 116 (29%) of participants belonged to age group 31-40 years followed by 96 (24%) belonged to 31- 40 years. Maximum number of participants i.e. 368 (92%) were females. Equal number of households was taken from rural and urban areas i.e. 200 from each. 92% of participants belonged to Hindu religion. In education wise distribution, 120 (30%) had studied up to high school, 80 (20%) had studied up to middle school. Majority of participants i.e. 232 (58%)

belonged to general category. 256 (64%) of participants belonged to high socioeconomic status as per SLI (Standard of Living Index).

Table 2: Background characteristics of households

Background characteristics	No.(n=400)	%
Type of House		
Kutcha	24	6
Pucca	324	81
Semi pucca	52	13
Households' member		
<10	392	98
>10	8	2
Distance from shelter		
<100 feet	400	100
>100 feet	0	0
Availability of drinking water		
Yes	400	100
No	0	0
Presence of latrine		
Yes	392	98
No	8	2

Table 2 shows background characteristics of households. Among 400 households, 324 (81%) of participants had pucca house. 392 (98%) of households had family members <10. The distance of water source from the shelter was less than 100 ft. in all the 400 households. The water was available in all the seasons in all the 400 households. In 392 (998%) of households latrine was present.

Table 3: Knowledge among residents regarding drinking water and sanitation

Type of vessels used for storage water	No.(n=400)	%
Covered	398	99.5
Not Covered	0	0
Don't know	2	0.5
Ever heard of water pollution N=400		
Yes	300	75
No	100	25
Source of information about water pollution N=300		
People	75	25
Newspaper	90	30
Television	90	30
Radio	12	4
Others	33	11
Polluted water causes disease N=400		
Yes	400	100
No	0	0
Heard of hardness of water N=400		
Yes	280	70
No	120	30
Type of drinking water consumed N=120		
Soft Water	40	33.34

Moderately Hard Water	20	16.66
Don't know	60	50
Handwashing before eating N=400		
Yes	398	99.5
No	2	0.5
Handwashing after eating N=400		
Yes	398	99.5
No	2	0.5
Cleaning of hands		
By washing with sand	4	1
By washing with water	76	19
By washing with soap and water	320	80
Heard about Swachh Bharat Abhiyan		
Yes	248	62
No	162	38

Among 400 households, 398 (99.50%) acknowledged that closed vessel should be used for storing drinking water. 300 (75%) of participants knew about the water pollution and among them source of information about water pollution was newspaper and television in most of the participants. All the participants acknowledge that polluted water causes diseases. 280 (70%) of participants knew about hardness of water and among them, 60 (50%) of the participants did not know about type of drinking water should be consumed. 398 (99.5%) participants had knowledge that hands should be washed before eating and 398 (99.5%) acknowledged that hand should be washed after eating as well. 320 (80%) of participants knew that hand should be washed with soap and water. 248 (62%) of participants knew about Swachh Bharat Abhiyan (SBA).

Table 4: Practice among households regarding drinking water and sanitation

Mouth of vessel used	**No.(n=400)**	**%**
Wide open	112	28
Narrow open	252	63
Both of above	36	9
Cleaning of vessels		
Yes	216	54
No	12	3
Sometimes	172	43
Covering of drinking water		
Covered	396	99
Uncovered	4	1
Wastewater disposal		
Open	380	95
Closed	20	5
Solid waste disposal		
Dugged pits	7	1.8
Burn the waste	17	4.2
Other methods	376	94
Other methods of solid waste disposal N=376		
Open dumping	214	56.9

Community dustbins	86	22.9
Vehicle of municipal corporation	76	20.2
Washing Hands (Yes)		
Before eating(n=400)	263	65.8
After eating(n=400)	193	48.3
After defecating(n=400)	394	98.5
After disposal of waste(n=400)	273	68.2
Material used for hand washing N=400		
Water only	67	16.8
Water and soap	333	83.2
Others	0	0
Defecation practice N=400		
Open field	7	1.8
Near water source	0	0
Sanitary toilet	393	98.2

Among 400 households, 252 (63%) participants use narrow vessels to store drinking water. Majority 216 (54%) of participants cleaned vessels before storing water in it. Most of the participants i.e. 396 (99%) covered the vessels which is used for storing drinking water. 380 (95%) of households dispose waste water in open. Maximum number of households, 376 (94%) were disposing solid waste by other methods. Among 376 households, majority 214 (56.9%) were disposing in open. 263 (65.8%), 193 (48.3%), 394 (98.5%), 273 (68.2%) of participants were washing hands before eating, after eating, after defecating and after waste disposal respectively. 333 (83.2%) of participants were using water and soap for washing hands. Most of the participants, 393 (98.2%) were using sanitary latrine for defecation.

Discussion

The WASH Programme initiated by UNICEF shows that clean water and good hygiene practices are essential for the survival and development of children. Adequate water, sanitation and hygiene services for households, schools and healthcare facilities are essential to prevent the spread of infectious diseases including COVID-19. The low levels of coverage of these basic services in many parts of the world reflect considerable inequalities between and within countries and play a role in the vulnerability of these populations to the pandemic. [15] WASH ensures the provision of safe water, sanitation and hygiene in schools and communities to establish improved health, boost education achievement and also promote gender equity which has a positive impact on society. [16] According to the United Nations' sustainable development goals for water and health, health and well-being are influenced by access and quality to safe drinking water, waste water treatment and hygiene practices and settings. [17] In India, it was found that the water supply coverage was not as good as the figures showed and the national sanitation efforts continue to fall short of the target even after almost six decades of efforts to eradicate open defecation. [18]

Similar study conducted among 480 households in a rural block of Haryana by Bharti et al. showed the similar results i.e. most of participants were adult females (96.4%). [19] As per NFHS-4, a large majority of households in Punjab have household heads who were Sikhs (60%). [14] According to NFHS-4, more than two-fifths (43%) of Punjab's household heads do not belong to scheduled castes, scheduled tribes, or other backward classes, 38% belongs to schedule caste.

This difference in caste wise distribution of households may be due to regional variation. More than two third of population of Punjab lives in pucca house as per NFHS 4. [20]

Similarly a study conducted in Udupi district by Reshma et al. showed that 297 (99%) households also had members less than 10 and Approx 95% of houses were having distance of water source from shelter less than 100 ft. and availability of water in all seasons respectively. [21]

In our study 75% of households knew about water pollution and majority of them came to know from newspaper and television. Similar study conducted in Vhembe district, South Africa by Sibiya JE et al. showed that most of the respondents had knowledge about waterborne diseases which they got it from school, television and radio. [22]

A similar study was conducted by Shah RB showed that majority of people (76.92%) had knowledge of usage of soap and water for hand washing before meal. [23] Our study showed practice of method of waste water disposal, 380 (95%) dispose water in open, 20 (5%) dispose water by kitchen garden. This is because in infield practice area open drains were present and participants had no knowledge regarding reuse of waste water. Similar study conducted in Ghaziabad district by Swain P showed that 64.15% had open drainage. [24] Similar study conducted in Saptari district and Tamil Nadu showed that 98.3% respondents wash their hands after defecation, 53.4% were washing hands before eating. [25,26]

Our study had shown distribution of households regarding practice of hand washing before eating and after eating respectively in relation to their educational status. In our study the results showed that households who could read only had higher practice of hand washing before eating and after eating than who could read and write. This might be due to the small sample size or they might be having higher knowledge. Results were found statistically significant. According to Global Hand washing partnership (international stakeholder) mentioned that hand washing with soap and educational achievement are closely linked. [27,28]

Conclusion

Most of the participants had right knowledge and practice about drinking water and sanitation. Most of the participants had knowledge about hygiene and sanitation but some of them are doing it in actual practice. Awareness should be created about hardness of water so that people can consume moderately hard water. People should be educated about proper disposal of waste water and garbage so that to make it sanitary and useful.

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