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Original Article**Level of Knowledge Regarding Water and Sanitation
among Women of Biratnagar*****Durga Devi Chaulagain(Parajuli)* and Kamal Prasad Parajuli****Department of Nursing, Nobel Medical College Teaching Hospital, Biratnagar**Received: 14th October, 2018; Revised after peer-review: 22th November, 2018; Accepted: 19th December, 2018**DOI: <https://doi.org/10.3126/jonmc.v7i2.22309>***Abstract****Background**

Clean and safe water is one of the basic needs of human beings. Inaccessibility to this and poor sanitation leads to various water borne diseases, gastro enteropathy and under nutrition. In Nepal, only 39% of total population have access to improved sanitation and 38.4% of people defecate in open airs. So the objective of this study was to assess the level of knowledge and practices regarding safe drinking water and sanitation among women.

Materials and Methods

A descriptive cross-sectional research design was adopted for the study. A convenient sampling technique was used for sample collection. A self-designed structured questionnaire along with face to face interview was used to evaluate the knowledge. Data were analysed by using descriptive as well as inferential statistics to find out association between levels of knowledge of safe drinking water.

Result

The findings showed that among 75 participants, 44% had adequate knowledge, 45.3% had moderate knowledge and 10.7% had inadequate knowledge regarding safe water and sanitation. In this study most of the respondents, i.e. 45.3% had moderate knowledge.

Conclusion

The research findings concluded that most of the participants had moderate knowledge about safe drinking water and sanitation. Thus, the author feels community mass health education is required in this community to prevent water borne diseases.

Keywords : *Sanitation, water borne, safe water, feco-oral route*

Introduction

Water is transparent, tasteless, odorless, and nearly colorless liquid which is the basis of the fluids of living things [1]. It is one of the most precious natural resources and essential element of life. According to National Sanitation Foundation, USA, "Sanitation is a way of life. It is the quality of living that is expressed in clean home, clean firm, clean business and clean

community." Sanitation covers the whole field of controlling the environment with a view to prevent disease and promote health [2]. Preventing human contact with feces is a part of sanitation as is hand washing with soap. It aims to protect human health by providing a clean environment that will stop the feco-oral route. Sanitation is a global development priority. The estimate in 2017 by Joint

Monitoring Program (JMP) states that 4.5 billion people currently have a safely managed sanitation. Lack of access to sanitation has an impact not only in public health but also in human dignity and personal safety. Inadequate sanitation facilities lead to outbreak of various diseases world-wide and improving sanitation has a significant beneficial impact on health, both in households and across communities. Sanitation not only refers to the provision of facilities and services for the safe disposal of human urine and feces but also refers to the maintenance of hygienic conditions through services such as, garbage collection and waste water disposal.

Hygienic sanitation facilities are crucial for public health. Since 1990, the number of people gaining access to improved sanitation has risen from 54% to 68%. In 2010, the UN General Assembly recognized provision of safe and clean drinking water and sanitation as a human right and called for international efforts to help countries to provide safe, clean, accessible and affordable drinking water and sanitation. Despite the progress, 700 million people missed the 2015 Millennium Development Goal target to halve the proportion of the population without access to improved sanitation facilities.

Around 842,000 people from developing countries die as a result of inadequate water, sanitation and hygiene each year representing 58% of total diarrheal deaths. Diarrhea remains a major killer of children but is largely preventable. Better water, sanitation and hygiene could prevent the deaths of 361,000 children under 5 years each year. Open air defecation perpetuates a vicious cycle of diseases and poverty. Countries where open air defecation is most widespread have the highest number of deaths of children, under 5 years of age. In order to decrease the number of

deaths of children fewer than 5 years of age, the new Sustainable Development Goals (SDGs) call for ending open air defecation and achieving universal access to basic services by 2030.

"Safe water, effective sanitation and hygiene are critical to the health of every child and every community and they are essential to building stronger, healthier and more equitable societies." said UNICEF Executive director, Anthony Lake. He further said, "As we improve these services in the most disadvantaged communities and for the most disadvantaged children today, we give them a fairer chance at a better tomorrow."

Out of 2.1 billion people who do not have safely managed water, 844 million do not have even a basic drinking water services. This includes 263 million people who have to spend over 30 minutes per trip collecting water from sources outside the home.

Sanitation is seen principally as the removal of human excreta or the availability of appropriate facilities for its disposal. Improved sanitation is used, and it refers to connection of households to a private or sewer septic system, a pour flush latrine or to a ventilated improved pit latrine [3]. Poor sanitation, water and hygiene have many other serious consequences; children and particularly girls are denied their rights to education because their schools lack private and decent sanitation facilities. Poor water quality is deadly and some 5 million deaths a year is caused by polluted drinking water [4].

Adequate sanitation, proper hand-washing with soap and water after stool contact is an important barrier to the feco-oral transmission of diseases. Hand-washing with soap and water before contact with food and water also reduces the secondary

transmission of pathogens from the environment to a new host [5].

Improving the access to safe drinking water and adequate sanitation, as well as promoting good hygiene are key components in the prevention of diarrhea. It also indicates that access to adequate sanitation reduces the incidences of diseases and brings relative comfort and ease to the daily routine of toilet use, thereby enhancing the quality of life [6].

Safe water is one of the most important needs in the public health in developing countries in the 21st century. The year, 2005 marked the beginning of the "International Decade for Action: Water for Life" and renewed effort to achieve the Millennium Development Goal (MDG) to reduce by half, the population without sustainable access to safe drinking water and sanitation by 2015[7].

Improving drinking water condition and sanitation facilities remains a major concern globally. Though 89% of the world's population has access to drinking water facilities, about 768 million people rely on unimproved drinking water sources; 83% of them residing in rural areas [8].

Lack of adequate sanitation, poor hygiene and lack of safe portable water are serious global health problems that contribute to deaths of 1.5 million children under the age of 5 years annually due to diarrhea. Mothers are the immediate and reliable care-givers of the children and their knowledge and practices on Water, Sanitation and Hygiene (WASH) have a strong influence on the occurrences of diarrheal diseases. Mothers of under-five children should maintain a higher standard of cleanliness at all time to prevent diarrhea occurrence. This assertion was supported by WHO, WHO attributed 90% of all diarrheal diseases under-five children are due to mothers' unhygienic practices and poor sanitation [9].

Methodology:

A descriptive cross-sectional research design was adopted to find out the knowledge and of water and sanitation in women of Biratnagar-5. The study was carried out from August 17th August, 2018 to September 1st, 2018 after the approval of Institutional Review Committee (IRC) of Nobel Medical College Teaching Hospital. Total of 75 samples were included in the study and data were collected by using structured questionnaire and interview based on the objective of the study. Knowledge regarding water and sanitation was categorized based on the qualities of knowledge present.

- Inadequate knowledge: <50% of total knowledge score
- Moderate level of knowledge: 51-75% of total knowledge score
- Adequate level of knowledge: >75% of total knowledge score

The collected data were checked for completeness and consistency. Data were entered into Microsoft Excel and were exported to statistic package for social science version 23 for analysis. Both descriptive and inferential statistics were used for analysis.

The table no. 1 shows that majority of participants (82.7%) were married. More than half (50.7%) of them were illiterate followed by more than one fourth (25.3%) were able to read and write. Majority of them were Hindu (77.3%) followed by Madhesi (60%).

The table no. 2 shows that 54.7% of the respondents live in a nuclear family. Majority of the respondents' (44%) were dependent upon agriculture. Finding shows that most of them (82.7%) fall under poverty line.

Table 1: Socio Demographic Characteristics of Respondent's

n = 75

Characteristics	Frequency	Percentage (%)
Mean age in years ± SD (Min-Max)	34.51 ± 10.0 52(16-57)	
Marital status		
Married	62	82.7
Unmarried	4	5.3
Widow	9	12.0
Education status		
Illiterate	38	50.7
Literate	37	49.3
Can read and write	19	25.3
Lower secondary school	13	17.3
Higher secondary school	5	6.7
Religion		
Hindu	58	77.3
Christian	15	20.0
Buddhist	2	2.7
Ethnicity		
Janajati	30	40.0
Madhesi	45	60.0

Table 2: Socio Demographic Characteristics of Respondent's

n = 75

Characteristics	Frequency	Percentage (%)
Family type		
Nuclear	42	56
Joint	33	44.0
Occupation		
Housewife	30	40.0
Student	3	4.0
Agriculture	33	44.0
Service	6	8.0
Labor	2	2.7
Others	1	1.3
Under poverty line		
Yes	62	82.7
No	13	17.3

Table 3: Respondent's knowledge regarding general information of water

n = 75

Characteristics	Correct response	Incorrect response	Percentage	
			Correct response	Incorrect response
Daily requirement of water per person for drinking 2 liters per day	21	54	28	72
Importance of drinking clean water Prevent water borne disease	45	30	60	40
Water storing process Bucket with closed lid	48	27	64	36
Covering water container* Prevents dust	47	28	62.7	37.3
Keeps water clean	59	16	78.7	21.3
Prevents water borne disease	75	0	100	0

* (multiple responses)

The table no. 3 shows only 28% of the participants had knowledge regarding daily requirement of water, 60% of them had knowledge regarding importance of drinking clean water. 64% of the participants had knowledge about water storing processes and cent percent of them were conscious about covering water container to prevent water borne diseases. Only 66.7% of the participants were aware that boiling and filtration were water purification methods. Only 92% of the respondents knew that purification of water reduces the water borne diseases and 20% of the respondents had knowledge about time required to boil water before drinking and 98.7% of the respondents had knowledge about water borne diseases.

Table 4: Respondent's knowledge regarding domestic waste management

n = 75

Knowledge regarding	Correct response	Incorrect response	Percentage	
			Correct response	Incorrect response
Method of solid waste disposal Composting	39	36	52	48
Method of liquid waste disposal Mix in drain	42	33	56	44
Importance of latrine Proper disposal	72	3	96	4
Importance of handwashing Prevents diseases	71	4	94.7	5.3
Importance of washing vegetables prevents food borne diseases	44	31	58.7	41.3

The table no. 4 shows that 52% of the participants had knowledge of solid waste management and 56% of the respondents had knowledge of liquid waste management also 96% of them had knowledge of importance of latrine and 94.7% were aware of the importance of hand washing. Only 58.7% of the participants had adequate knowledge of importance of washing vegetables.

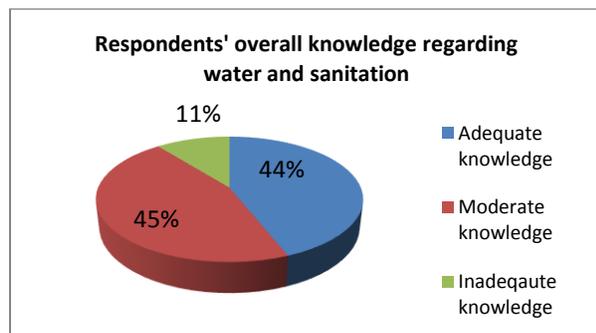


Figure 1: Respondents' overall knowledge regarding water and sanitation n = 75

The figure no. 1 shows that there is narrow difference between adequate and moderate knowledge of the respondents i.e. 44% and 45% respectively.

Discussion

The statistical analysis showed that among 75 respondents, 45.3% had moderate knowledge, 44% had adequate knowledge and 10.7% had inadequate knowledge regarding water and sanitation. This study was supported by a similar type of study conducted in Udip district of India on the knowledge and practice regarding water and sanitation among 300 women. The study revealed that 42% had moderate knowledge, 40% had adequate knowledge and 18% had inadequate knowledge regarding water and sanitation. (10)

During the last decade, rural areas of Nepal have achieved huge success on the provision of safe water supply and sanitation. Various NGOs and INGOs are putting their strength in providing basic and water supply by funding rural people to build water pumps and sanitary toilets but still the knowledge of using safe water and proper methods of disposal of night soil is still lacking in many rural communities. At the household and school level there are concerns about the quality and use of these water and sanitation facilities

The poor sanitation affects every aspect of life including, health, nutrition, development, economy, dignity and empowerment. Globally, water, sanitation, and hygiene are responsible for 90% of diarrhea related mortality which is much higher than combined mortality from malaria and HIV/AIDS [11].

Though there is a ray of improvement in drinking water facilities in rural regions, the trend of the sanitation is still on a slow mark with 60% of the total rural population not having toilet facilities, limited access to safe drinking water and poor sanitation can lead to water borne diseases. Improving

quality of safe drinking is a key to longevity of life. Improvement in sanitation will obviously reduce the water-borne diseases like diarrhea, dysentery, cholera, hepatitis etc.

Many of the water borne infections can be treated with antibiotics but persisting burden of water borne diseases and increasing antibiotic resistance have created dual pressure on policy makers, public health professionals and pharmaceutical industries. Interventions for decreasing the number of people with limited access of clean drinking water can lead to significant economic benefits which can help in achieving sustainable development [12].

Many communicable diseases can be efficiently managed by improving the sanitation, hygiene and water usage practices Infrastructures development and policies are adequate to fill the gap of knowledge and practice of drinking water and sanitation. But, effective reduction of effects of poor water and sanitation practices each and every individual must be aware of the life-threatening diseases hidden in poor drinking water and sanitation [13].

Conclusion

Based on the objectives of the study, majority of the respondents had moderate knowledge regarding safe drinking water and sanitation. The findings also show, there is need of health awareness program on safe drinking water and good sanitation.

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