Knowledge Attitude and Practices of Primary School Teachers Regarding Prevention from Water Borne Diseases: A Cross Sectional Study

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ABSTRACT

Background: Water-borne diseases are a menace in developing countries and a large number of cases are reported each year. These diseases can overburden health delivery systems in resource-poor countries like Pakistan. Environmental management approaches along with personnel preventive techniques can effectively reduce the burden of these diseases. World Health Organization has suggested the use of lay persons as health educators in order to fight common diseases at local level. Schools provide a good prospect to children to learn about common health problems and endemic diseases and methods to prevent them. Teachers can act as admirable educators by playing a key role of delivering important health education messages to children and targeting the health behavior.

Objective: To assess the knowledge, attitude and practices of primary school teachers regarding prevention from water borne diseases in school settings in Peshawar.

Material and Method: This study was conducted in different primary schools of Peshawar district (both public & private). Sample size taken was 200 school teachers from different schools of Peshawar district selection criteria being only those teachers who were not busy in classes at the time of data collection were approached.

Results: the **s**tudy conducted showed that more than 77% of teachers had knowledge about water borne diseases, and its cause. More than 46.5% confirmed that water is free of germs and 47% were satisfied with the quality of water. 33% of the subjects use clean water storage containers and 78.5% cover their water container. 65% educate their school children about water borne diseases. Among 200 subjects, only 12.5 % had awareness about campaigns educating people on water borne diseases.

Conclusion: Primary school teachers were found to have adequate knowledge about water borne diseases and their prevention, there was a wide gap between this knowledge and actual practices. This huge knowledge practice gap was because of a lack of attitude towards WBDs. It was found that knowledge about WBDs was not in proportion to formal education, however, attitudes and practices were. The main obstacles in the way of adopting practices were found to be shortage of time.

Key Words: *Knowledge, Attitude, Practice, Water Borne Diseases, Primary school, teachers*

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INTRODUCTION

School has a central role in the community and after family it is the most important place of learning where teachers specially primary school teachers has great role in the personality development and health safety of a child. Health education in schools is becoming important due to number of factors such as increasing population, greater burden of water borne diseases, spread of communicable diseases and to uplift the health; part of WHO's aim of "***health for all".***

In developing countries like Pakistan the situation is even worst with an estimated 70% people having no access to safe drinking water.[1] Water-borne diseases (WBDs) are those caused by drinking contaminated water or using it in the preparation of food. The most common causes of water contamination are the result of human activities such as discharges from factories , leaking underground pipes, improper sewage disposal and agricultural fertilizers and pesticides seeping into underground water. Contaminated water contain number of contaminants which includes:

Protozoa(Entamoeba, Giardia)
Bacteria(E.coli, V. cholera)
Viruses(HAV, HEV, Polio virus)
Chemicals (lead, uranium, Arsenic)

Water-borne diseases (WBDs) are diarrhea, dysentery, typhoid, hepatitis A, hepatitis E. cryptosporidiosis, worms' infestation and polio. Water-borne diseases contribute a major share in morbidity and mortality across the globe. According to WHO, more than 17 million deaths per year worldwide are caused by infectious or parasitic diseases of which 80% deaths are thought to be linked to contaminated water, equaling over 13.6 million a year or 37,000 deaths a day. This is far bigger killer than malaria (2 million deaths per year) or air pollution (3 million deaths per year). The victims of WBDs are mostly the children.[2]

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A study conducted to assess KAP regarding water handling as possible determinants of diseases in the rural population of Haryana India in year 2013, according to the results about 62.5% of households uses well water for drinking and cooking purposes while uses tap water for washing clothes and bathing. The study confirms that 2/3rd of the informants does not know the association of unsafe water and diarrhea causation.[3]

The quality of water supply in many cities of Pakistan is deteriorating fast. Alamgir et al from Karachi University Institute of Environmental studies conducted the study in three different areas of Korangi town in February, 2016; the results obtained from this study showed that 11% of the sample were fit for human consumption where as 89% samples were unfit as they were heavily loaded with microbial growth and with low chlorinated level.[4] According to UNICEF 20% to 40% beds are occupied in hospitals of the country by patients suffering from water borne diseases. Another study conducted by Yasir Hayat Khan et al, in district Bagh on earthquake affected area of Azad Jammu and Kashmir in the year 2013 to assess the safety index of drinking water at three chosen levels i.e. source, system, household, it showed that 65% of the overall sample were contaminated.[5]

During an outbreak of diarrhea in Yazd Province Iran in 2013, Zahra Cheraghi et al conducted a study regarding knowledge, Attitude, and Practice (KAP) from August to September 2013. The study shows that 505 subjects were referred to health centers during this epidemic. The aim was to compare knowledge, attitude, practice, and other risk factors of the affected communities regarding diarrhea outbreak (cities of Zarch, Meybod, and Ardakan) to non-affected communities (the cities of Yazd and Taft). Waterborne outbreaks were significantly higher in females and in non-affected communities. It was concluded that non-affected communities had considerably better practice score.[4]

In February, 2016Amir Alamgir et al conducted the study in three different areas of Korangi town. Institute of Environmental studies Karachi University. Total of 35 different samples were collected from district Korangi. The results showed that 11% of the samples were fit for human consumption where as 89% samples were unfit as they were heavily loaded with microbial growth and low chlorinated level causing different diseases in the population.[5]

A study conducted in Rwanda a land lock country in central east Africa in 2010 aimed at determining the microbiological quality of Nyabarongo river water used for domestic purpose and its link to diarrhea outbreak in two rural communities Rusheshe and Ayabaraya of Masakan Rwanda. Total 35 water samples were collected which used slow sand filtration and chlorination as treatment method. These were analyzed for total coliform and fecal coliform. Results showed that mean values of total and fecal coliform of river and household water samples were above the WHO and Rwandan guidelines values were lower in both filtered and chlorine treated water. Turbidity values were significantly lower in filter water using SSF than chlorine treated water. The study findings confirmed the fact that water sourced from Nyabarongo river was unsafe for human consumption even after prescribed treatment such as use of SSF and chlorination and could increase the prevalence of water borne disease.[6]

The study performed by Fredrick et al with the aim to identify the agent and source of outbreak and to recommend its control measures. In this study rectal swabs and water specimen were collected. Out of 16 samples, vibrio cholera was seen in 9 cases. The water was contaminated by drainage following the rains during cyclone. The outbreak was controlled after protective measure were taken like repairing of pipelines, chlorination of water at home and health education of village people.[7]

Bunya and Gash from Department of Health and Sanitary in West Bengal India in August 2009 conducted a case control study on cholera outbreak. In this study there were 1076 cases out of which 14 died and apparent attack rate was 44/1000.The aim of this study was to identify the causative agent, source of outbreak and to correct the control measures. Rectal swabs and water samples were collected for laboratory and microbiological tests. It was determined that the cause was due to use of non-chlorinated water and water from used from the breached pipelines.[8]

Water borne diseases is a big public health problem in the developing countries including Pakistan. Keeping in view the multispectral approach of primary health care, education department can play a very vital role in the prevention of this menace. School teachers are the backbone of education department and they impart knowledge and skill to the future of the nation at the early stage of life. When they are adequately equipped with health education skills along with their own specialties, they can play a significant role in transferring their knowledge and skills to their students and community at large. Extensive research has been done on this topic globally and regionally but little literature was found locally. So in order to assess the knowledge, attitude and practices of primary school teachers regarding prevention from water borne diseases this study was carried out.

MATERIAL AND METHODS

This was a cross sectional study. The sample size was 200 teachers from different schools of Peshawar district both public and private were randomly taken by cluster sampling method. This study was conducted in different primary schools of Peshawar district (both public & private). Sample size taken was 200 school teachers from different schools of Peshawar district selection criteria being only those teachers who were not busy in classes at the time of data collection were approached. Only the Primary school teachers of Peshawar district were included while those teachers other than primary schools and those from outside Peshawar were excluded.

The schools visited were selected on the basis of their easy accessibility and due to summer break in most of the schools only those schools were approached where more staff was on duty. Both male and female teachers were included. Other variables being qualification of the teachers, types of classes i. e from 1-5th, knowledge of teachers on water borne diseases, sources & storage of drinking water, causes of waterborne diseases and advice to the students about drinking water.

The study conducted was through a pre-tested and structured questionnaire. Data collected through these questionnaires formed the basis of information on the issue of water borne diseases for both private and Government school teachers.

Before the actual data collection, a Pilot study was conducted to check the accuracy and efficiency of the questionnaire in respect of understanding. The short comings like difficult words or sentences and repetition of sentences or words were pointed out and removed and the clarity and easy understandability of the questions were assured and were restructured accordingly also to address the gap between their understanding of water borne diseases and practice for safe drinking water. The data obtained was tabulated and presented in different graphical forms using SPSS. The constraints of this study were non-availability of teachers due to summer break.

Knowledge Attitude and Practices (KAP) Study conducted through a pre-tested and structured questionnaire. Data collected from these questionnaires formed the basis of information on the issue of water borne diseases for both private and Govt. school teachers.

RESULTS

In this study 62 percent of the respondents were female and 38 percent male as given in figure No. 1 below.

Figure No.1: Pie chart representing distribution of sample according to gender of subjects.

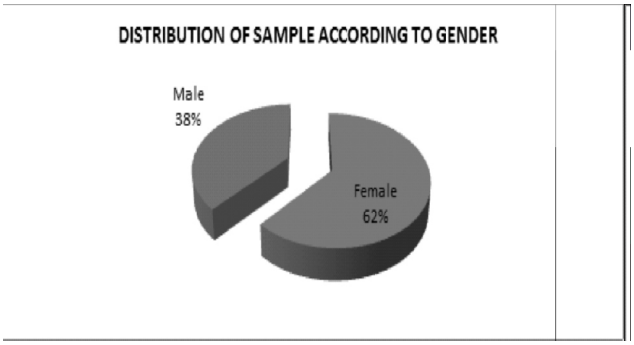
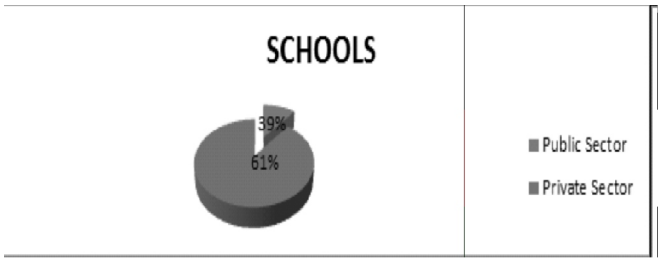


Table 1: Distribution of sample according to their qualification

Qualification	Frequency	Percent	Cumulative Percent
Graduation	56	28.0	28.0
Post-Graduation	144	72.0	100.0
Total	200	100.0	

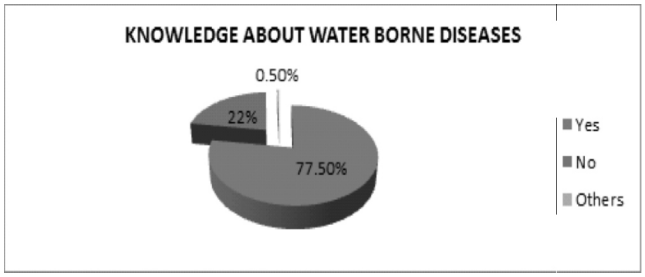
More than half of the subjects have done their post-graduation. 72% were post graduate while 28% were graduates.

Figure No.2: Distribution of subjects according to type of school.



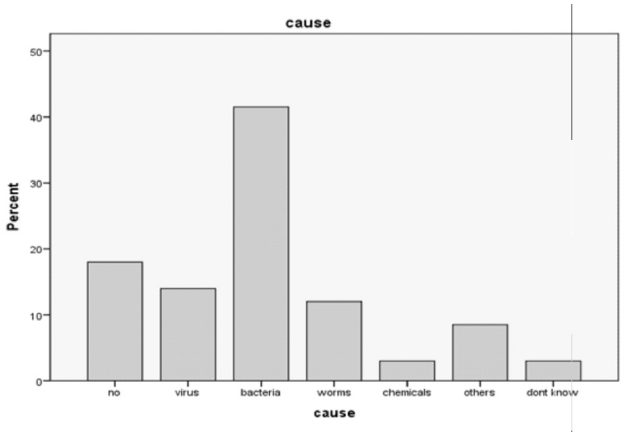
The subjects were randomly selected.39% were public sector school while 61 % were private sector school.

Figure No. 3: Knowledge of teachers about water borne diseases.



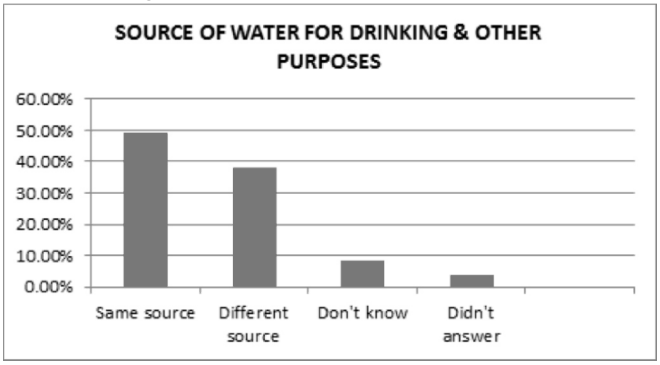
Pie chart showing knowledge of subjects about water borne diseases. More than half of the people 77 % have some knowledge about water borne diseases. 22% people still don't know that using contaminated water can cause serious diseases.

Figure No. 4: Knowledge of teachers about the causes of water borne diseases.



This graph is showing that how much subjects know about causes of water contamination. Most of them about 41% have mentioned bacteria being cause of water borne diseases.

Figure No. 5: Source of water for drinking and other usage.

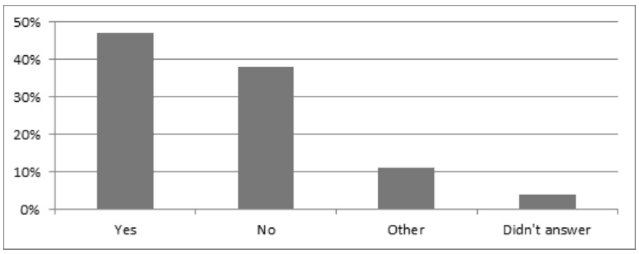


Bar chart showing source of water for drinking and other works like washing etc. Majority of them were using same water source mostly tap water. While 1/3 used different source. More than one third (38.5 %) of the school teachers taught class 5th while for class 4th it is 20.5% and it reduces as the classes become smaller.

Table No. 2: Distribution of teachers according to the class they teach.

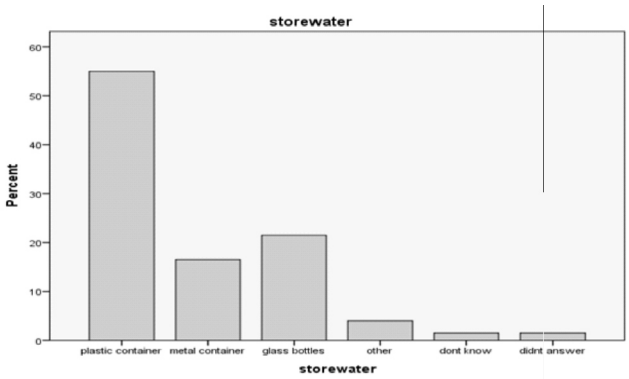
Classes	Frequency	Percent (%)
Play group , Nursery, Prep	8	4.0
Class 1	16	8.0
Class 2	32	16.0
Class 3	26	13.0
Class 4	41	20.5
Class 5	77	38.5
Total	200	100.0

Figure No. 5: Satisfaction related to the quality of water being used



Bar chart showing satisfaction of the subjects regarding quality of water being used for drinking purpose. 47% of teachers were satisfied of water quality and most of them were of private sector. But significant number of teachers were not satisfied.

Figure No. 6: Methods of water storage.



Bar chart showing sources of water storage used by subjects. More than half of the subjects were using plastic containers to store water. Some used metal containers and glass bottles.

Figure No. 7: Advice for the students if the school water is not fit for drinking

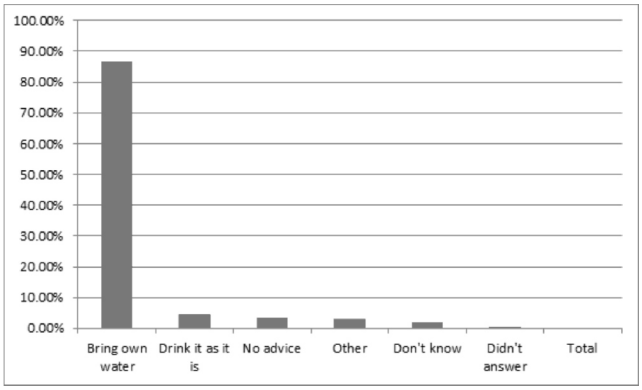
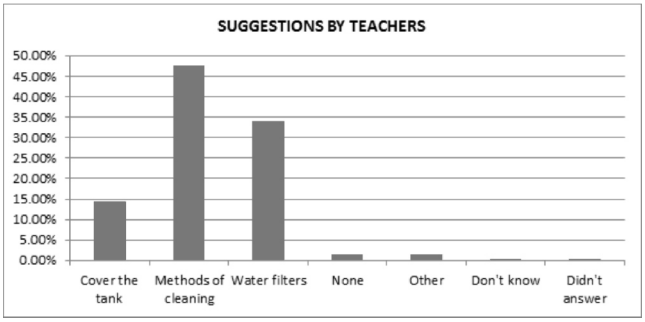


Figure No. 8: Suggestions given by the teachers to the school administeration for theprevention of water contamination.



Bar chart showing suggestions given by the teachers to the principal for the prevention of water contamination. Most of them gave suggestions of using water cleaning methods and installation of water filters.

Table No: 3: Whether the water containers are kept covered or not.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	157	78.5	78.5	78.5
	No	10	5.0	5.0	83.0
	Other	1	.5	.5	83.5
	Dont know	29	14.5	14.5	98.0
	Didnt answer	3	1.5	1.5	99.5
	Total	200	100.0	100.0	

Table No. 4: Educating people on water borne diseases

		Frequency	Percent	Cumulative Percent
Valid	Yes	25	12.5	12.5
	No	139	69.5	81.5
	Other	2	1.0	82.5
	Dont know	25	12.5	95.0
	Did not answer	9	4.5	99.5
	Total	200	100.0	

DISCUSSION

Results of this study can be generalized to Peshawar district because sample was taken randomly from the schools of this district. In this study there were 67% of female participants and 38% male participants. The study showed that there was adequate knowledge about Water Borne Diseases among the school teachers. However, this knowledge didn`t seem to transform in to practices as most of the subjects were utilizing untreated water despite the fact that they knew the quality of their drinking water which was such that it could lead to serious diseases as compared to study conducted in South Africa in which there was provision of safe water and sanitation to rural communities.[9, 10]

A significant proportion of interviewees witnessed that their water supply was contaminated but only a few actually did something to stop contamination. 47% of the respondents were satisfied with quality of water while 38% were not satisfied.

This study was conducted in different areas of Peshawar which were easily accessible while far flung areas not having a better life styles were not included.

CONCLUSION

Primary school teachers were found to have adequate knowledge about WBDs and their prevention although there was a wide gap between this knowledge and actual practices e.g. 98% knew about boiling water but only 54% were practicing it. This huge knowledge and practice gap was because of a lack of attitude towards WBDs. The fact that 40% of respondents were exposed to water contamination, less than half registered a complaint to the concerned authorities and 3/4th adopted preventive measures, despite the fact that all of them knew that drinking such water could be a cause of diseases.

Recommendations:

It is the government's responsibility to ensure that the teachers are aware of issues regarding water borne diseases and practices of safe hygiene and sanitation.

The parents and the school should also take the responsibility of ensuring provision of clean water so as to avoid water borne diseases.

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