

## Research Article

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# Knowledge of personal hygiene and waterborne diseases and practice of personal hygiene among students of Central Agricultural University, Manipur, India

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## ABSTRACT

**Background:** Adverse health outcomes are associated with ingestion of unsafe water and poor personal hygiene. Approximately 3.1% of deaths (1.7 million) and 3.7% of DALYs (54.2 million) worldwide are attributable to unsafe water, poor sanitation and poor personal hygiene.

**Methods:** This was a cross sectional study conducted among students of Central Agricultural University, Imphal during the period of 18/3/2014 to 4/4/2014. Data was collected by a self-administered questionnaire. Data entry and analysis was done using IBM SPSS version-21.

**Results:** About 85.5% of the respondents knew correctly the meaning of personal hygiene. Nearly half of the respondents said that diarrhea can be prevented by maintaining good personal hygiene but only 5.8% of the respondents said that skin diseases can be prevented. Out of the 7 steps of proper hand washing, only 2 steps were known to the respondents. About 56.5% of the respondents knew the meaning of water borne diseases. Diarrhea was the most common water borne disease known to majority (63.5%) of the respondents. Only 34.4% of the respondents had the habit of washing hands after work and only 9.4% of the respondents washed their hands after playing.

**Conclusions:** It is recommended to conduct further studies to assess their personal hygiene practices in detail and demonstrate them proper hand washing and hygiene practices.

**Keywords:** Knowledge, Practice, Personal hygiene, Waterborne diseases

## INTRODUCTION

Personal hygiene is the science of healthy-living of an individual. Personal hygiene includes all those personal factors, which influence the health and wellbeing of an individual. It comprises of bathing, clothing, washing hands, care of nails, feet and teeth, personal appearance and inculcation of clean habits.<sup>1</sup> Water borne diseases are diseases that are acquired by drinking contaminated water

either by pathogens or toxic substances. It includes diseases like cholera, typhoid, diarrhea, dysentery, hepatitis A, polio, arsenicosis etc.<sup>2</sup> Approximately 3.1% of deaths (1.7 million) and 3.7% of DALYs (54.2 million) worldwide are attributable to unsafe water, poor sanitation and poor personal hygiene (WASH related diseases like diarrhea, dysentery and typhoid). In developing countries in South East Asia 4-8% of all disease burden is attributable to these factors.<sup>3</sup>

Hand washing with soap has been reported to reduce diarrheal morbidity by 44% and respiratory infections by 23%.<sup>4</sup> Simply practice of hand washing and provision of potable drinking water in adequate quantity can eliminate most water borne diseases.<sup>5</sup> Since about 90% of infections are carried to the body through the mouth with water, food, dirt etc., the importance of personal cleanliness and clean habits is obvious.<sup>6</sup> Therefore, it is clearly evident that the aim of personal hygiene is not only to promote the standards of personal cleanliness within the setting of the condition where people live, but also to reduce the prevalence and incidence of communicable diseases. This study was conducted among students of Central Agricultural University, Manipur to assess the knowledge of personal hygiene and waterborne diseases among the students of Central Agricultural University and to assess the practise of personal hygiene among them.

## METHODS

This was a cross sectional study conducted among students of Central Agricultural University, Imphal, the capital city of Manipur during the period of 18/3/2014 to 4/4/2014. Those who refused to participate and those who could not be contacted at the time of data collection were excluded from the study. Data was collected by a self-administered questionnaire containing questions eliciting knowledge on personal hygiene and waterborne diseases and practice of personal hygiene. Questionnaires were distributed in class room and collected back. Data entry and analysis was done using IBM SPSS version-21.

## RESULTS

Out of the 180 students to whom questionnaires were distributed 138 students answered the questionnaires giving a response rate of 76.7%. Table 1 shows that, about two third (60.9%) of the respondents were males and majority (53.6%) of them were Christians.

**Table 1: Socio demographic characteristics.**

Socio demographic characteristic	Number	Percentage
<b>Gender</b>		
Male	84	60.9
Female	54	39.1
<b>Religion</b>		
Hindu	49	35.5
Christian	74	53.6
Others	15	10.8
<b>Year of study</b>		
1 <sup>st</sup> year	47	34.5
2 <sup>nd</sup> year	30	21.7
3 <sup>rd</sup> year	34	24.6
4 <sup>th</sup> year	27	19.6

Table 2 shows the knowledge of the respondents about personal hygiene and waterborne diseases. About 85.5% of the respondents knew correctly the meaning of personal hygiene. When they were asked about the activities for maintaining good personal hygiene, about three fourth (75.4%) of the respondents said bathing, but only 10.1% of the respondents mentioned brushing teeth. Nearly half of the respondents said that diarrhea can be prevented by maintaining good personal hygiene but only 5.8% of the respondents said that skin diseases can be prevented. Out of the 7 steps of proper handwashing,<sup>7</sup> only 2 steps were known to the respondents. About 56.5% of the respondents knew the meaning of water borne diseases. Diarrhea was the most common water borne disease known to majority (63.5%) of the respondents. When they were asked how to prevent waterborne diseases, majority (91.2%) of the respondents answered provision of clean water.

**Table 2: Knowledge about personal hygiene and waterborne diseases.**

Knowledge question	Number	Percentage
<b>Response to meaning of personal hygiene</b>		
Correct	118	85.5
Incorrect	20	14.5
<b>Response to activities of personal hygiene</b>		
Bathing	104	75.4
Washing hands	52	37.7
Nail trimming	39	28.3
Brushing	14	10.1
<b>Diseases prevented by good personal hygiene</b>		
Diarrhea	66	47.8
Dysentery	45	32.6
Skin diseases	8	5.8
Common cold	5	3.6
<b>Steps of proper hand washing</b>		
Washing with soap and water	76	55.1
Rinse thoroughly with water	80	58.0
<b>Meaning of waterborne diseases</b>		
Correct	78	56.5
Incorrect	60	43.5
<b>Name some waterborne diseases</b>		
Diarrhea	88	63.8
Cholera	74	53.6
Typhoid	71	51.4
Dysentery	66	47.8
Hepatitis	10	7.2
Polio	2	1.4
Lead poisoning	1	0.7
<b>Knowledge on prevention off waterborne diseases</b>		
Clean water	126	91.3
Proper sanitation	35	25.4

Regarding the practice of washing hands, most of the respondents washed their hands before and after eating and after toilet, while only 34.4% of the respondents had

the habit of washing hands after work and only 9.4% of the respondents washed their hands after playing. About 34.3% of the respondents had the habit of biting nails. About 96.4% of the respondents treated the water before drinking water by boiling and/or filtering (Table 3).

**Table 3: Practice of personal hygiene and water treatment practice.**

Practise of washing hands	n (%)	Materials used for washing	
		Only water n (%)	Soap and water n (%)
Before eating	133 (96.4)	95 (68.9)	38 (27.5)
Before working	19 (13.8)	19 (13.8)	0 (0.0)
Before sleeping	6 (4.3)	6 (4.3)	0 (0.0)
After eating	133 (96.4)	90 (65.0)	43 (31.1)
After toilet	134 (97.1)	86 (62.3)	48 (34.7)
After work	47 (34.4)	25 (18.1)	22 (15.9)
After playing	13 (9.4)	10 (72.4)	3 (2.2)
Habit of biting nails		Number	Percentage
Never	90	65.2	
Sometimes	31	22.5	
Often	8	5.8	
Always	9	6.5	
How they treat the water before drinking		Number	Percentage
Filtering	87	63.0	
Boiling	25	18.1	
Both filtering and boiling	21	15.1	
None	5	3.6	

## DISCUSSION

Bathing was considered as an activity of personal hygiene by majority of the respondents, a finding similar to studies in Bangladesh<sup>1</sup> and Uttar Pradesh.<sup>8</sup> None of the respondents could tell all the steps of proper hand washing. This poor knowledge regarding the steps of hand washing was also reported by Singh A et al.<sup>8</sup> in a study conducted in UP among adolescents. Regarding the practice of hand washing, almost all of the respondents washed hands before eating, after eating and after toilet. This finding was similar to a study in Bangladesh,<sup>1</sup> but better than that found in other studies.<sup>9-11</sup> About 56.5% of the respondents knew about the meaning of waterborne diseases which was a better finding than a study conducted in South Africa<sup>11</sup> and Cameroon.<sup>12</sup> Cholera was the commonly known waterborne disease in many studies.<sup>11,12</sup> About 3% of the respondents drink water without treatment, while others drink water after boiling or filtering or both, which is a better finding than seen in other studies<sup>1,9,12,13</sup> conducted in the community. It is also important to consider other factors like how they store the water after drinking and how they retrieve the treated water because these factors can also facilitate contamination of water even after treating it. About 90%

of the respondents knew that waterborne diseases can be prevented by provision of clean drinking water which is a better finding than seen in other studies.<sup>12,14</sup> Limitations of the study were response rate was only 77% and the validity of self-reported practice of personal hygiene activities by students is questionable. To conclude, knowledge about personal hygiene and waterborne diseases among the students was good, but the practice of personal hygiene activities has to be improved, especially practice of hand washing. It is therefore recommended to conduct further studies to assess their personal hygiene practices in detail and demonstrate them proper hand washing and hygiene practices.

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## REFERENCES

1. Rahman MM, Rahman A, Sajoni TT, Kabir SB, Nahar J, Mehrin F. Knowledge and health problems related to health behavior among the secondary school children in Rural Community of Dhamrai Upazila, Dhaka. AKMMC J. 2014;5(2):18-22.
2. Water and Health. Classification of water related diseases, 2015. Available at: <http://www.eolss.net/sample-chapters/c03/e2-20a-01-01.pdf>. Accessed June 2015.
3. The World Health Report. Chapter 4, 2015. Available at: <http://www.who.int/whr/2002/chapter4/en/index7.html>. Accessed June 2015.
4. Curtis VA, Danquah LO, Aunger RV. Planned, motivated and habitual hygiene behaviour: an eleven country review. Health Educ Res. 2009;4:655-73.
5. Rashid KM, Khabiruddin MD, Sayeed H. Personal hygiene. In: Rashid KM, Khabiruddin MD, Sayeed H, eds. Text Book of Community Medicine and Public Health. 4th ed. Dhaka, Bangladesh: RKH Publishers; 2004: 309.
6. Ghosh BN. Personal hygiene. In: Ghosh BN, eds. Treatise on Hygiene and Public Health. 11th ed. Calcutta, India: Scientific Publishing Company; 1969: 320.
7. WHO. Hand hygiene: why, how and when? 2014. Available at: [http://www.who.int/gpsc/5may/Hand\\_Hygiene\\_Why\\_How\\_and\\_When\\_Brochure.pdf](http://www.who.int/gpsc/5may/Hand_Hygiene_Why_How_and_When_Brochure.pdf). Accessed September 2014.
8. Singh A, Gupta PP. An Analysis of knowledge & practices on personal hygiene of adolescents. Int J Multidiscipl Approach Stud. 2014;1(4):65-72.

9. Vivas A, Gelaye B, Aboset N, Kumie A, Berhane Y, Williams MA. Knowledge, attitudes, and practices (KAP) of hygiene among school children in Angolela, Ethiopia. *J Prev Med Hyg*. 2010 June;51(2):73-9.
10. Oyibo PG. Basic personal hygiene: knowledge and practices among school children aged 6-14 years in Abraka, Delta state, Nigeria. *Continent J Trop Med*. 2012;6(1):5.
11. Sibya JE, Gumbo JR. Knowledge, attitude and practices (KAP) survey on water, sanitation and hygiene in selected schools in Vhembe district, Limpopo, South Africa. *Int J Environ Res Public Health*. 2013;10:2282-95.
12. Fonyuy BE, Innocent L. Prevention practices from water borne diseases within households in the Bamendankwe Municipality-North West Cameroon. *Glob J Med Res F Dis*. 2014;14(5):24-35.
13. Bhattacharya M, Joon V, Jaiswal V. Water handling and sanitation practices in rural community of Madhya Pradesh: a knowledge, attitude and practice study. *Indian J Prev Soc Med*. 2011;42(1):93-7.
14. Bharti, Malik M, Kumar V, Verma R, Chawla S, Sachdeva S. Knowledge, attitude and practices regarding water handling and assessment in a rural block of Haryana. *Int J Basic Appl Med Sci*. 2013;3(2):243-7.

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