DOI: 10.58665/NJISS

Original Article

Hand Washing – its Awareness and Practices Among School Children and Facilities Available in Rural Government Schools of District Rohtak, Haryana

B M Vashisht[1], Anvesha[2], Arup Saha[3], Jyotsana[3], Pratibha[4]

[1] Professor and Head, Department of Community Medicine, Pt. B. D. Sharma Post Graduate Institute Medical Sciences, Rohtak – 124001, Haryana, India.
[2] District Immunization Officer and Program Officer Child and Adolescent Health, Himachal Pradesh State Medical Services,Kinnaur - 172107Himachal Pradesh, India.
[3] Junior Resident, Department of Community Medicine, Pt. B. D. Sharma Post Graduate Institute Medical Sciences, Rohtak - 124001Haryana, India.
[4] Medical Officer, Civil Hospital Rohtak Haryana Civil Medical Services Rohtak - 124001 Haryana, India

Article History

Received On – 2022 Sept 18

Accepted On – 2023 Jul 04

Funding sources: None

Conflict of Interest: None

Keywords:

Hand washing; Infection; mid-day meal; school

Online Access

DOI: 10.60086/jnps487

Corresponding Author
Anvesha,
District Immunization Officer and Program Officer Child and Adolescent, Health Himachal Pradesh State Medical, Services Kinnaur - 172107, Himachal Pradesh, India ,
Ph No: 7838769263
Email: anveshanegi17@gmail.com

Abstract

Introduction: Hand washing with soap (HWWS) is one of the single most cost-effective public health interventions. HWWS is effective in reducing diarrhea and can reduce its risk up to 48% and acute respiratory infections by more than 20%. Government of India launched Swachh Bharat Swachh Vidyalaya program, which also provided guidelines for hand washing i.e., availability of soap at hand washing stations, hand washing to be done before mid-day meal and also after use of toilet or urinal. The objective of the study was to assess knowledge and practices of hand washing among school children along with adequacy of available hand washing facilities and contributors responsible for it.

Methods: A descriptive cross-sectional study was carried out in all Government schools of Lakhan Majra block, Rohtak, Haryana, India. Thirty-Eight schools for provision of facilities and 613 students for assessing knowledge, practice and behavior change were included in the study employing stratified random sampling technique. Semi-structured interview schedule was used for data collection.

Results: All schools had hand washing facilities. Soap was available in 63.2% and 97.2% students knew benefits of hand washing while 88.9% of them were promoting it also. Less than one fifth of the students could demonstrate the correct steps of hand washing.

Conclusions: Majority of students were aware of washing hands before and after critical times. Soap availability in schools was inadequate.

Introduction

Hand washing with soap (HWWS) is one of the single most cost-effective public health interventions. HWWS is effective in reducing diarrhea and can reduce its risk up to 48%.[1] Annual net cost of diarrhea and acute respiratory infections (ARI) is $23 billion per year, while estimated cost of a national hand-washing program is $62 million which would bring a huge saving.[2] Children are vulnerable to soil-transmitted helminth (STH) infections which are recognized as one of the most important causes of stunting in children. Hand washing can reduce the risk of STH as well as ARI.[1] In 2016, globally 53% of schools had hand washing facilities with both soap and water, while 11% of the schools had these facilities without soap.[3] Various studies in lower and middle socioeconomic countries have demonstrated variable results regarding hand washing space, soap for handwashing and knowledge regarding hand washing practice.[2-4]

Government of India launched Swachh Bharat Swachh Vidyalaya program, which also provided guidelines for hand washing i.e., availability of soap at hand washing station, hand washing to be done before mid-day meal and also after use of toilet or urinal. All children including those facing disability must be able to access and use the facilities. Short mid-day meal (MDM) break of up to 40 minutes must be allowed to a large number of children (50 - 200) to wash their hands with soap and water twice (At least with five steps) before and after MDM time. The facility should accommodate at least 10 - 12 students at a time. Hand washing sessions must be supervised by teachers, MDM cooks and also by child cabinet members, 10 - 15 minutes before MDM.

Some of the Indian states like Assam and West Bengal are already following the guidelines of Swachh Bharat Swachh Vidyalaya Mission.[5] Children are quick learners and are in the phase of formation of lifestyle habits, so they adopt good behavior more easily than adults.[6] Considering this, the present study was planned with the aim of studying knowledge and practices of hand washing among school children along with adequacy of available hand washing facilities and contributors responsible for it.

Methods

A descriptive cross-sectional study was carried out in all 38 Government schools of Lakhan Majra block - a rural field practice area attached to the Department of Community Medicine, PGIMS, Rohtak, India, during a period of one year starting from February 2018. This block had a population of 1,06,770. The block is served by Community Health Centre located at village Chiri and three Primary Health Centers one each located at village Chiri, Lakhan Majra and Samargopalpur. In the block, there were total 38 Government schools which consisted of 20 primary, two middle, four high and 12 senior secondary schools. Total students in all schools studying in class 1st to 12th were 5079 who formed the study population.

Ten percent of the total enrolled students in all the schools were interviewed using purposive sampling for assessing the knowledge and practices regarding hand washing. Sample came out to be 508 students but a total of 613 were included in the study. Stratified random sampling technique was used for selecting these 10% students from each class using their class roll numbers. Equal number of boys and girls were selected from each class. Inclusion criteria was defined as students submitting the consent for being a part of the study and exclusion criteria as students who were absent from the school on the days of visits till the investigator worked in the school. Prior permission was sought from the principals of the schools for conducting the study. Written valid assent and consent was taken from the study participants and their parents / guardians respectively. A predesigned, pretested, semi structured interview schedule was used for data collection after obtaining informed written consent. The permission of Institutional Ethical Committee (IEC) was obtained before the commencement of the study.

The investigator met the principals of the schools and explained them the purpose of the study. Their permission was sought along with their co-operation. Selection of students was such that 10% of the students from each class (1st to 12th) were included. Questions related to mid-day meal were asked only from students of class 1st to 8th. Stratified random sampling technique was used for selecting the students from each class using their class roll numbers. Almost equal number of boys and girls were selected from each class. The selected students were asked to assemble in a separate class room / area and the purpose of the study was explained after making rapport with these students and assured them the confidentiality of the study. After explaining, a written consent was sought from the parents of the students who were willing to participate in the study. Next day after collecting the written consent, the students were called one by one and their responses were recorded as per interview schedule by the investigator, in the absence of school personnel in order to avoid reporting bias. In addition, the investigator asked the students to demonstrate the steps of hand washing and these observations were also recorded. For any non-response regarding consent, additional children were identified and included. The data were entered in the MS EXCEL spread sheet, coded appropriately and was cleansed for any possible typographical error and then were subjected to analysis and presented in form of proportions.

Results

Total 613 students were included in the study out of which 48% (294) were males and 52% (319) were females. Maximum students were from senior secondary schools contributing 53% of the total strength followed by students from primary (36.4%), high (8.4%) and middle schools (1.9%). Students studying in classes 1st to 8th (399 - 65.1%) were considered for mid-day meal related information.

Table 1: Hand washing: Facilities available in school, awareness and practice among students (N = 613)

Facilities available	Yes Frequency (%)	No Frequency (%)
Hand washing facility available	613 (100)	-
Water availability at hand washing station	613 (100)	-
Soap availability	363 (59.1)	250 (40.9)
Hand washing station accessible	603 (98.4)	10 (1.6)
Cloth availability for wiping hands	221 (36)	392 (64)
Awareness and practice	Yes Frequency (%)	No Frequency (%)
Knew benefits of hand washing	596 (97.2)	17 (2.8)
Hand washing technique taught by teachers	603 (98.4)	10 (1.6)
Washing hands in school	613 (100)	-
Using soap for hand washing	348 (56.8)	265 (43.2)
Promoting hand washing	545 (88.9)	68 (11.1)
Group hand washing (HW) practiced	189 (47.4)	210 (52.6)
Teacher supervising HW before MDM	213 (53.4)	186 (46.6)
Teacher available all the time for supervision	10 (2.5)	389 (97.5)

Table 1 demonstrates the results regarding the availability of soap, water and cloth at hand washing stations and its accessibility and Table 2 shows the results related to the hand washing occasions, benefits perceived and sources of information among students. Similarly, Table 3 illustrates the knowledge regarding hand washing steps, Table 4 shows the knowledge about the duration of hand washing and Table 5 depicts the results regarding hand washing in relation to MDM, Table 1 demonstrates the results regarding the availability of soap, water and cloth at hand washing stations and its accessibility and Table 2 shows the results related to the hand washing occasions, benefits perceived and sources of information among students. Similarly, Table 3 illustrates the knowledge regarding hand washing steps, Table 4 shows the knowledge about the duration of hand washing and Table 5 depicts the results regarding hand washing in relation to MDM,

Table 2: Hand washing occasions, benefits perceived and sources of information among students. (N = 613)

Hand washing occasions conveyed by students*	No. of students	Percentage
Before meal	594	96.9
After meal	523	85.3
After toilet	396	64.6
Before drinking water	38	6.2
When hands get dirty	179	29.2
Benefits of hand washing perceived by students*		
Kills germs	463	75.5
Prevents illness	579	94.5
Cleanse hands	128	20.9
Others	38	6.2
Source of information about benefits of hand washing*		
Teacher	582	94.9
Parents	196	32
Siblings	107	17.5
Friends	96	15.7
TV	78	12.7
Others	14	2.3

Table 3: Steps of hand washing demonstrated by the students (N = 613)

Schools	Steps of hand washing demonstrated by students				Total
	≤ 3	4 - 5	All 6	DK	
Pr	119	16	18	70	223
Mi	2	10	-	-	12
Hi	36	3	2	10	51
SS	136	94	1	96	327
Total No. (%)	293 (47.8)	123 (20.1)	21 (3.4)	176 (28.7)	613 (100)

(*multiple responses)

(Pr – Primary, Mi – Middle, Hi – High, SS – Senior Secondary, DK-Don't Know)

Table 4: Optimum duration of hand washing as perceived by students (N = 613)

	Duration				Total	p value
	≤ 1 min	2 - 3 min	≥ 4 min	DK		
Pr	78	59	40	46	223	χ^2 = 28.78, df = 6, p < 0.001
Mi	10	2	-	-	12	
Hi	21	27	3	-	51	
SS	183	105	33	6	327	
Total No. (%)	292 (47.6)	193 (31.5)	76 (12.4)	52 (8.5)	613 (100)	

(Pr – Primary, Mi – Middle, Hi – High, SS – Senior Secondary, DK-Don't Know)

Table 5: Hand washing practices related to mid-day meal (MDM) (N = 399)

	Yes Frequency (%)	No Frequency (%)	Total Frequency (%)	P value
Group hand washing (HW) practiced	189 (47.4)	210 (52.6)	399 (100)	χ^2 = 1.073 df = 1 p = 0.30
Teacher supervising HW before MDM	213 (53.4)	186 (46.6)	399 (100)	χ^2 = 1.832 df = 1 p = 0.175
Teacher available all the time for supervision	10 (2.5)	389 (97.5)	399 (100)	χ^2 = 189.01 df = 1 p < 0.001

Discussion

In the present study, hand washing facility and availability of water for hand washing was reported by all the students. Availability of soap for hand washing was reported by 59.1% students. Though washing facility was adequate, availability of soap was not as per Swachh Bharat Swachh Vidyalaya guidelines which require all schools should provide soap for hand washing. In a study done by Hullalli et al,[7] in schools of Karnataka, all the schools had hand washing facilities which is similar to the present study but availability of soap was less (42.8%) than the present study. In another study by Tamilarasi et al,[8] 64.7% participants had separate hand washing stations and 65.3% participants reported continuous supply of water which is less than present study and reason may be because this study was done when Swachh Vidyalaya program had just started. Soap availability was reported by 58.4% participants which is similar to present study. In a study by Ray et al,[9] 21.3% of students used soap for hand washing which is almost half as reported in present study. Majra et al[10] in their study done in 20 schools of Karnataka found that hand washing facilities were inappropriate in most of the schools. Only two (10%) schools were having adequate hand washing stations along with availability of soap. This difference is again probably because of commencement of study before start of the Swachh Vidyalaya program.

In the present study, 96.9% students reported washing their hands before meals, 85.3% after meals, 64.6% after toilet use and 6.2% before drinking water. Similar results were also reported by Tamilarasi et al[8] who reported 85.6% students washed their hands before and after meals. In a study by Ray et al,[9] 86% reported that they washed hands before having lunch which is less than the present study. In a study by Anand et al[11] in Allahabad, 38.5% students were washing hands before having meals which is far less than present study. This may be because this study was conducted only in one school among students of only 6th to 9th classes, many of whom were not covered under MDM where mostly hand washing is done. Majority 86.25% students were washing hands after defecation, whereas, in present study 64.6% reported washing hands after using toilets. This difference is because in the present study, using toilets also included use of urinals. In a study by Dajaan et al,[12] 43% students were washing hands after toilet use which is also less than present study and it was 32% before and after meals which is far less than the present study. The possible reason may be that this study is from Ghana where such facilities are not much available.

In present study, majority (94.5%) of students mentioned benefits of hand washing as preventing illness, 75.5% told that it kills germs, 20.9% told that it cleanses the hands. In a study by Dajaan et al,[12] 37.67% said HW can prevent illness which is far less than reported in present study and reason could be because study is from Ghana where there is less awareness. Majority (21.3%) reported that hand washing removes dirt from hands which is similar as reported in

present study.

In present study, 98.4% students reported that hand washing technique was taught to them by school teachers and 2.8% reported that they were unaware of benefits of hand washing. In a study by Hullalli et al[7] steps of hand washing were taught in 71.5% schools which is less than that in the present study. Dajaan et al[12] reported that 65.71% students were taught hand washing which is also less as reported in present study. This shows that schools from present study area are imparting good hand hygiene knowledge to students. In the present study, only 3.4% of the students were able to demonstrate all six steps of hand washing of which maximum (85.7%) were from primary schools. Majority (47.6%) students were aware about the correct duration of hand washing i.e., ≤ 1 minute while 8.5% students were not. In studies by Dajaan et al[12] and Garg et al[13] correct technique of hand washing was reported by 23.3% and 68% students respectively which is more than the findings in the present study. This may be because in present study correct technique included all six steps of hand washing, whereas, these studies didn't mention all six steps.

In the present study, majority of the students were promoting hand washing to their siblings (58.4%) followed by friends (46.8%) and parents (32%). Garg et al[13] in their study mentioned that 42% shared hand washing information with their parents. Overall hand washing facility and awareness was better in present study but not all was up to the mark as per Swachh Vidyalaya guidelines.

Conclusions

Soap availability was reported by 60% students which is inadequate. Every school should make one teacher or student cabinet member in-charge, who will look for the soap availability and in case of unavailability, report the concerned person who manages the school funds so that it can be made available. Less than one fifth of the students could demonstrate the steps of hand washing. So, students should be repeatedly demonstrated, trained and made to do it every time before mid-day meal under supervision and also medical team can visit the school on regular intervals and educate the children and teachers about the process and benefits of hand washing. For making steps of hand washing clearer, students can simulate as teacher for demonstrating the steps of hand washing.

References

1. CDC. Global water, sanitation, & Hygiene (WASH) [Internet]. Centers for Disease Control and Prevention. Centers for Disease Control and Prevention; 2022 [cited 2022Nov22]. Available from: https://www.cdc.gov/healthywater/global

2. Gomathi MS, Theresa MP, Debora SJ. Wash water, sanitation and hygiene: A Review. Int J Trend Sci Res Dev. 2017;2(1):575–9. DOI:10.31142/ijtsrd7012

3. Government of India. Swachh Bharat Swachh Vidyalaya; A National Mission. New Delhi: Ministry of Human Resource and Development. Available from https://www.education.gov.in/.../Eng_Swachch-Bharat-Swachch-Vidhalaya.pdf

4. Watson JA, Ensink JH, Ramos M, Benelli P, Holdsworth E, Dreibelbis R, et al. Does targeting children with hygiene promotion messages work? the effect of handwashing promotion targeted at children, on diarrhoea, soil-transmitted helminth infections and behaviour change, in low- and middle-income countries. Trop Med Int Health. 2017;22(5):526–38. DOI: 10.1111/tmi.12861

5. Pati S, Kadam SS, Chauhan AS. Hand hygiene behavior among urban slum children and their care takers in Odhisa, India. J Prev Med Hyg. 2014;55(2);65-8 PMID: 25916023

6. Badriyah L, Syafi A. The association between Sanitation, Hygiene & stunting in children under two years (An Analysis of Indonesia's Basic Health Research, 2013). Makara J Health Res. 2017;21(2):35-4. DOI: 10.7454/msk.v21i2.6002

7. Hullalli R, Gudadinni MR, Patil SS. Water sanitation and hygiene in the schools of rural field practice area of Shri B. M. Patil Medical College, Vijayapur. Int J Community Med Public Health. 2017;4(11):4307-09. DOI:10.18203/2394-6040.ijcmph20174849

8. Tamilarasi R. A Study to Assess the Knowledge and Practice of Hand Washing among School Going Adolescents in Chennai. Int J Health Sci Res. 2016; 6(8):147-155

9. Ray SK, Amarchand R, Srikanth J, Majumdar KK. A study on prevalence of bacteria in the hands of children and their perception on hand washing in two schools of Bangalore and Kolkata. Indian J Public Health. 2011;55(4):293-7. DOI: 10.4103/0019-557X.92408

10. Majra JP, Gur A. School environment and sanitation in rural India. J Glob Infect Dis. 2010; 2(2):109-11. DOI: 10.4103/0974-777X.62882

11. Anand D, Prakash S. Assessment of the hygiene and sanitation practices of students of class VI to IX in urban government inter college at Allahabad district, India. Int J Community Med Public Health. 2018;5(9):3870–5. DOI: 10.18203/23946040.ijcmph20183428

12. Dajaan DS, Addo HO, Ojo L, Amegah KE, Loveland F, Bechala BD, et al. Hand washing knowledge and practices among public primary schools in the Kintampo Municipality of Ghana. Int J Community Med Public Heal. 2018;5(6):2205. DOI: 10.18203/2394-6040.ijcmph20182146

13. Garg A, Taneja DK, Badhan SK, Ingle GK. Impact of a school-based handwashing promotion program on knowledge and hand washing behavior of girl students in a middle school of Delhi. Indian J Public Health. 2013;57(2):109-12. DOI: 10.4103/0019-557X.115009