

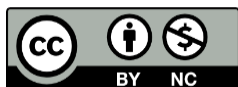
Handwashing Practices among Secondary Level Students: A Case from Community Schools in Bardiya District of Nepal

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Innovation and Development (CERID)<http://cerid.tu.edu.np>**Abstract**

Handwashing practices with soap and water protects from many infectious diseases. The objective of this study was to assess handwashing practices among secondary level students from four community schools in Bardiya district. This study applied a quantitative, cross-sectional research design. A total of 384 students from grade IX to grade XII of Bardiya district took part in the study. The data were collected using a structured questionnaire survey tool and were descriptively analyzed. More than half (50.52%) of the students were not able to follow the handwashing procedure correctly, though they articulated the appropriate conditions for handwashing. Of them, before eating and after using the toilet were most popular with a weightage of 73.7% and 70.3%, respectively. Following this, most of the participants (66.7%) indicated that the appropriate handwashing times were after touching garbage of animals and after coughing and sneezing (51%). A high majority (80.2%) revealed after using toilet as the normal handwashing time, whereas for 77.9%, it was after having food. A majority (73.2%) of them responded water and soap as commonly used handwashing materials. Concerning the handwashing practices, half (50.8%) of the students reported that they always washed their hands before food. A majority (56.8%) of the reported that they always washed their hands after using toilet. It was also found that the students had poor handwashing practices before having food and after using toilet. Thus, handwashing classes are strongly felt needed for the students of the surveyed school.

Keywords: community school, hygiene practice, Nepal, school children

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Introduction

Students are the key agents of change. Those students who are grown up in an adequate environment at school are more likely to integrate hygiene behaviour into their daily lives and can be effective measures for change in their families and the wider community as well (O'Reilly, Freeman, & Hoekstra, 2008). As students spend their considerable time in schools after home, schools are important places in their lives since they provide an environment for development of skills and intelligence, which can help them to achieve their potential goals and develop as a good human being. Further, handwashing with soap often, and throughout the day prevents the spread of many diseases such as diarrhea (Walford et al., 2010) cholera (WHO, 2020) and soil-transmitted helminths (Lu et al., 2020) which are transmitted through the fecal-oral route. Handwashing is also recognized as one of the most cost-effective health interventions to occurrence the burden of disease (Hamad et al., 2020).

Handwashing refers to the act of cleaning one's hands to remove soil, grease, micro-organisms or other unwanted substances (Sharma et al., 2021) of them. These authors further assert that washing hands includes anti-microbial or non-antimicrobial (water and ash or water and soap) or applying an alcohol-based hand sanitizer to the hands. Handwashing is one of the most effective hand cleaning processes which significantly condenses potential pathogens on the hands and thus prevents the spread of infection because hands are the main pathways for the transmission and spread of harmful micro-organism in the human body (Meher & Nimonkar, 2019). Hence, it is also considered as a milestone to control infectious diseases and a significant public health measure (Jemal, 2018).

An access to safe drinking water, improved sanitation, and good hygiene facilities are fundamental human rights. However, a large majority of the school students, especially in the rural areas of Nepal, do not have an access to this facility, which increases the chance of infectious disease (Sharma et al., 2022), mainly by open defecation (Suen & Rana, 2020). Consequently, numerous students die around the nation and thousands in the globe from curable infectious disease every day (UNICEF, 2020). With this evidence, handwashing is a crucial and most effective measure of trimming down the potential transmission of infection through contact with persons and things (Sharma & Adhikari, 2022). Thus, hygiene practices can be understood as a fundamental component of health.

The poor hygiene facilities and its practices in schools are significant causes of infections in students. Due to these inadequacies, students are facing communicable diseases as one of the most common problems. The lack of personal hygiene along with poor sanitation practices usually favours human to human transmission of infection (Singh & Gururajn, 2014). Schools are the dominant source to expose infectious diseases. WHO (2019) observes that many schools serve communities that have a high prevalence of diseases related to

inadequate hygiene facilities. The same report reveals that around 1863 million days of school attendance would be gained through the provision of adequate WASH which was missed due to the diarrheal illness. In Nepal, Schools, especially in the rural areas, can be seen either completely lacking drinking water and sanitation facilities or have inadequate facilities in terms of both qualities and quantities. It more likely increases the risk of infection to the school students.

There are limited studies in different aspects of hygiene and those limited studies mostly focus on households' structure in a small scale. Those studies are limited even in the local bodies which cannot represent the picture of the whole school. This study, which was carried out with ample samples, might be authentic evidence because it provides an overview of handwashing practices among school going children. Thus, this study can be a useful consideration for a policy departure.

Methodology

The cross-sectional study was performed among 384 students from 4 community schools of Bardiya district over a period of 2 months -January to February 2020. As per the objective of this study, it mainly focused on currently of the secondary level students. The main purpose for selecting the the secondary level students in this study is to have a quick access to responding to the issues. The school students studying at the secondary level, more specifically of 9th to 12thgrades, were included in this study. Only the interested students participated in the study as the researcher allowed the respondents to leave their participation if they didn't want to take part in the study. The sample size was calculated through the application of the formula $S = \frac{z^2 \times p \times (1-p)}{m^2}$ presented by Sharma (2020) and Teijlingen & Hundley (2005) for the infinite population. We consider 95% confidence level, the z value of 1.96; margin of error of 5% (Sharma et al., 2024). So, the sample size for the infinite population is 384 (Forster et al., 2020).

Prior to the commencement of the study, or an oral consent was obtained from each of the participating students who were above 18 years of age and parental approval was taken for those students who were under 18, and an assent was obtained from the students under 18 (Sharma & Adhikari, 2022b). A structured questionnaire was administrated with the selected students relating to the hand hygiene aspect of school. The data obtained from the field visit were edited, coded and entered, and descriptively analyzed. The analyzed data have been presented by means of charts and tables where appropriate.

Results

This section basically highlights (i) demographic characteristics of the students that includes age, gender, caste/ethnicity, and religion, and (ii) handwashing procedures practiced by them.

Demographic Characteristics of the Students

The demographic characteristics of the students are categorized as age, gender, grade, caste, and religion (Table 1). Of the total students, 230 were males and 154 females, altogether consisting of 59.9% and 40.1% respectively. Similarly, 25% of them fell under 14-year-old age-groups, 30.7% between 15-16 years and 27.9% between the ages of 17-18 years and 16.4% above 19 years.

With regards to the grades of the students, 41.1% of the total students were from grade 9, 22.1% from grade 10, 20.8% of them from grade 11 and the rest of them (15.9%) from grade 12. The greatest number of the respondents were from the Brahmin/Chhetri-Hill (29%) ethnic group followed by the Brahmin/Chhetri-Terai (27%), Dalit (19%), Janajati (16%), and other castes (9%). The greater majority (82%) were the Hindus. Other than the Hindus were the Buddhists, the Christians, and the Muslims.

Table 1

Demographic Characteristics of the Students

Variables	Categories	Total	
		N	%
Age Group	<14	96	25.0
	15-16	118	30.7
	17-18	107	27.9
	>19	63	16.4
Gender	Male	230	59.9
	Female	154	40.1
Grade	9 th	158	41.1
	10 th	85	22.1
	11 th	80	20.8
	12 th	61	15.9
Caste/Ethnicity	Brahmin/Chhetri-Hill	34	29.2
	Brahmin/Chhetri-Terai	152	26.8
	Janajati	52	16.3
	Dalit	95	18.7
	Other caste	51	9.0
Religion	Non-Hindu	65	18.0
	Hindu	319	82.0
Total		384	100.0

Handwashing Procedures Practiced by the Students

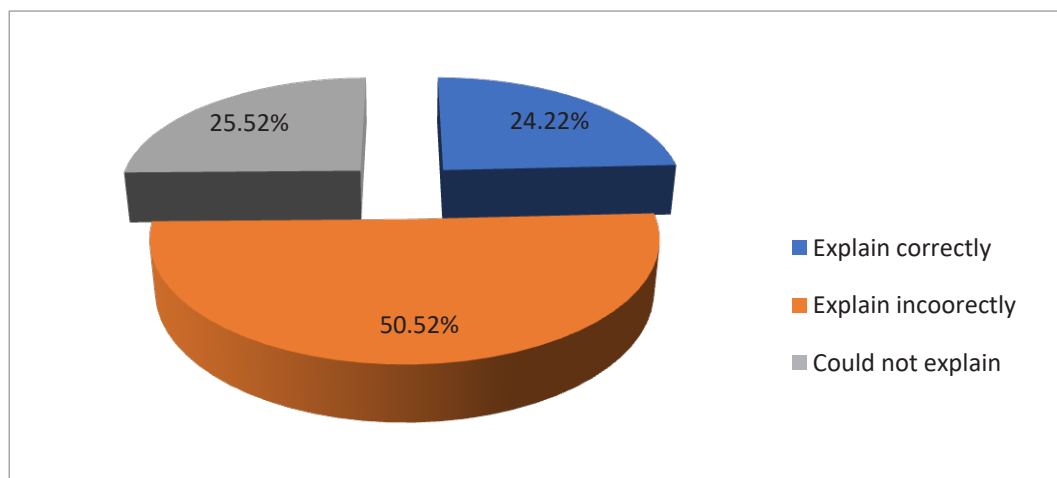
More than half (50.52%) of the students were not able to explain the appropriate handwashing procedure correctly. However, nearly 25% of them were very conscious about the 5-step handwashing process sustaining 20 to 30 seconds as per the UNICEF protocol. In contrast, one fourth (25%) of them could not clearly explain the handwashing process while they were got to wash hands as usual.

To eliminate all traces of the virus off people's hands, a quick scrub and a rinse won't clear the virus. Therefore, following a step-by-step process of handwashing is needed. It is one of the cheapest, easiest, and very effective ways of preventing the spread of virus. Regarding how everyone should wash their hands properly, below are the five steps recommended by UNICEF (2016).

- Step one: Wet hands with running water.
- Step two: Apply enough soap to cover the wet hands.
- Step three: Scrub all surfaces of the hands including the back of the hands between fingers and under nails for at least 20 to 30 seconds.
- Step four: Rinse hands thoroughly with running water.
- Step five: Dry hands with a clean cloth or single-use towel.

Figure 1

Handwashing Procedures Explained by the Students



As can be seen Figure 1, 24.22 % of the students could explain the process correctly; 50.52 % explained it incoorectly and the rest of them (25.52%) could not explain it at all.

Handwashing Practices Among the Students

In this study, appropriate handwashing time, normal handwashing time, commonly used materials for handwashing, washing hands before eating, washing hands after using toilet, use of soap and water while washing hands, handwashing before eating and after using toilet at school were the general indicators of evaluating the overall hygiene practices.

In general, the students indicated seven appropriate times for handwashing. Of them, before eating and after using the toilet were the most correctly responded category with a weightage of 73.7% and 70.3%, respectively. Following this, two third (66.7%) of them indicated after touching garbage of animal and more than half (51%) said after coughing and sneezing was the appropriate handwashing time.

A high majority (80.2%) revealed after using toilet as normal handwashing time and 77.9% said before and after having food. In total, a majority (73.2%) of the respondents responded that water and soap were commonly used handwashing materials. Concerning the handwashing practices, half (50.8%) of the students reported that they always washed their hands before having food. Furthermore, 23.7% of the students stated that they sometimes washed their hands before having a meal.

Table 2*Handwashing Practices Among Students*

Activities	Variables	N	%
Appropriate handwashing time*	After touching garbage & animal	256	66.7
	After coughing & sneezing	196	51.0
	Whenever they look dirty	94	24.5
	Before and after contact of ill person	121	31.5
	After using toilets	270	70.3
	Before preparing food	204	53.1
	Before eating	283	73.7
Normal handwashing time*	After using toilet	308	80.2
	Before and after eating	299	77.9
	After playing games	157	40.9
	Other	2	0.5
Commonly used materials for handwashing*	Water only	107	27.9
	Both water & soap	281	73.2
	Both water & mud	27	7.0
	Both water & ash	13	3.4
Wash hands before eating	Always	195	50.8
	Sometimes	91	23.7
	Rarely	59	15.4
	Never	39	10.2
Wash hands after using toilet	Always	218	56.8
	Sometimes	92	24.0
	Rarely	53	13.8
	Never	21	5.5
Use Soap and water while washing hands	Always	199	52.0
	Sometimes	110	28.7
	Rarely	54	14.1
	Never	20	5.2
Handwashing before eating and after using toilet at school	All members	243	63.3
	Some members	80	20.8
	Do not know	61	15.9
Total		384	100.0

*Multiple responses

Of the total, a majority (56.8%) of the students reported that they always washed their hands after using toilet while fewer (5.5%) of them revealed that they never washed their hands after defecation. In the similar way, 24% of them sometimes washed their hands after using toilet. More than half of them (52%) always used

soap and water while washing hands, whilst 63.3% of them revealed that they washed their hands before eating and after using the toilet at school time, where 15.9% responded that they did not know.

Discussion

This research found that a majority of the secondary level students followed the basic hand hygiene practices of washing hands before having a meal, after defecation, and washing hands with soap and water. More than half of the students used soap and water while washing hands and 56% of them washed their hands after using toilet. Like in this study, Sharma et al., (2022) found that 83.9% of the respondents washed their hands with soap and water after sneezing and coughing during the COVID-19 pandemic. The present findings align with the Ministry of Health, Nepal; New ERA; and ICF (2017), which revealed that more than three fourth (77.3%) of them respondents had a handwashing station in their household with running water where slightly fewer than half (48.2%) used soap or detergent as handwashing materials. In contrast to the present study, one conducted by the Global Public-Private Partnership for Handwashing (PPPHW) had reported that 17% of the participants washed their hands with soap after using the toilet, while 45% of the participants in several sub-Saharan African countries like Kenya, Senegal, Tanzania, and Uganda used only water (Curtis et al., 2009).

This research found that a half of the total students (50.52%) were not able to explain the handwashing procedure correctly while nearly 25% of the total students were very conscious of the five-step handwashing process and a minimum of 20 to 30 seconds time as per the UNICEF handwashing guidelines. In contrast to the present findings, Meher and Nimonkar (2019) presented that a majority of the students could not explain the correct procedure to be employed during handwashing. In another study, Kumie and Ali (2005) stated that simple hygienic measures such as washing hands with soap were poorly practiced, especially in the rural areas. Another study conducted by the research-inspired policy and practice learning in Ethiopia (RIPPLE), a program surveying rural households in the southwest region, found that handwashing practices were also poor (Singh & Gururajn, 2014). This may be due to the limited knowledge towards hygiene while personal perception towards hygiene strongly influences handwashing practices.

It was noted in this study that 50.8% of the students always washed their hands before eating; 56.8% after using toilet, and 52% of them always washed their hands uses soap and water. A study carried out in India by Gawai et al., (2016) reported that 75.5% of the students washed their hands before eating food and 18.1% after using toilet. Further, a study conducted by Mane and Tata (2017) also found that only 40% of the school students practiced handwashing with soap and water, and 41.2% of them never used soap. Likewise, a study conducted in Ethiopia by Gelaye , (2010) revealed that 76.7% of the students washed their hands after defecation. A study conducted in Bhaktapur Nepal, revealed that only 8.5% of the students at school and 48.1% students at home washed hands with soap and water (Manandhar & Chandyo, 2017). In this study, out of a total of 384 students, a quarter (24.22%) could explain the handwashing procedure correctly. In contrast with our findings, Sharma et al., (2021) found that

more than half (56.57%) of the students practiced proper handwashing. The reason for not practicing handwashing properly was the respondents' mindset to keep forgetting, their environment, and poor handwashing sources such as with no soap and running water.

Conclusion

The findings of the present study put forward that the student who took part in this study have been found unsatisfactory in regards to handwashing practices because most of them even could not explain the 5-step handwashing procedure appropriately, that is, following all of the 5 steps and the duration of 20 to 30 seconds. As a result, it is very likely that the students had a high potential of various infectious diseases, which ultimately impact their health status, school attendance and educational outcomes. Based on the findings, this study strongly suggests focusing on the five steps of washing hands for twenty to thirty seconds' time as suggested by UNICEF. Furthermore, to make the students more practically aware, classes within schools and trainings out of classes considering basic hygiene practices should be carried out. While doing so, parental participation in these activities should be made mandatory. This is a way of utilizing school as a platform for change. Schools might be the host institutions, whereas parents or community members might be the key implementers of the handwashing practices.

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