

Original Research

Study Of Correlation Between Hand Washing Practice And Gastroenteritis In Rural Students- An Original Research

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ABSTRACT:

Aim: The purpose of the present research was to assess the relationship between hand washing practices and prevalence of gastroenteritis in students of rural areas. **Methodology:** In this survey, rural adolescents (n = 2000) aged 12–15 years [mean (SD) age 13.8 (1.0) years; 50.9% boys] were included. Overall, the prevalence of hand-washing practices was assessed with the help of questionnaire and observation. Statistically variables were assessed with multivariate analysis. **Results:** The prevalence of never/rarely washing hands after using the toilet (10.8%) or with soap (14.3%) was particularly high in low-income rural students. Severe food insecurity was associated with 1.34 (95% CI = 1.25–1.43), 1.61 (95% CI = 1.50–1.73), and 1.44 (95% CI = 1.35–1.53) times higher odds for never/rarely washing hands before eating, after using the toilet, and with soap, respectively. **Conclusion:** A high prevalence of inadequate hand washing practices was reported, particularly in low income rural students and those with severe food insecurity. Such interventions may also have cross-over benefits in relation to other poor sanitation-related diseases like gastroenteritis

Keywords: hand-washing; hygiene; epidemiology; adolescents; poverty.

Received: 18-06-2022

Revised: 12-07-2022

Accepted: 23-07-2022

Published: 31-10-2022

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This article may be cited as: Krishnappa M, Tiwari RVC, Tiwari HD, Syed AK, Mahajan A, Sharma K. Study Of Correlation Between Hand Washing Practice And Gastroenteritis In Rural Students- An Original Research. J Adv Med Dent Scie Res 2022;10(11):10-13.

INTRODUCTION

Diarrhoea is a serious global public health problem, accounting for 1.8 million deaths annually especially among children under five years of age. The yearly global diarrhoeal disease burden is estimated at 72.8 million disability adjusted life years (DALYs) lost through incapacitation and premature deaths, mainly in low- and middle-income countries (LMICs). Diarrhoea contributes significantly to malnutrition in children through a combination of forced low-nutrient intake, reduced absorption, and increased nutrient excretion.¹ The malnutrition-infection complex is clearly reinforced during diarrhoea episodes, as poor nutritional status predisposes children to more severe

and persistent diarrhoea, impaired growth and development, and higher case fatality rates. Diarrhoeal disease pathogens are usually transmitted through the faecal-oral route. The pathways include ingestion of food and water contaminated by faecal matter, person-to person contact, or direct contact with infected faeces.² Some trials estimate that over 75% of all diarrhoea cases can be attributed to contaminated food and water.³ Poor hygiene behaviours and improper handling practices of caregivers are associated with high levels of bacterial contamination of food and water. In particular, hand contact with ready-to-eat food (that is, food consumed without further washing, cooking, or processing/

preparation by the consumer) represents a potentially important mechanism by which diarrhoea-causing pathogens contaminate food and water. Hygiene promotion interventions constitute one of a number of strategies identified by World Health Organization (WHO) for control of diarrhoea.⁴ These constitute a range of activities aimed at encouraging individuals and communities to adopt safer practices within domestic and community settings to prevent hygiene-related diseases that lead to diarrhoea; hand washing is one such intervention.⁵ The practice of hand washing and the factors that influence hand washing behaviour among individuals in communities are complex; for example, washing hands with water only or with soap may be influenced by both knowledge of best practice and availability of water and soap. Consideration of the wide applicability and sustainability of hygiene interventions have recently come under critical review. For example, maintenance of the new hand washing behaviours that result from hand washing promotional interventions is vital in maximizing the associated potential health benefits. Apart from the challenges of sustaining new behaviour (hand washing) among the target communities, cost has been identified as a major factor that limits the sustainability of hand hygiene behaviour.⁶ Thus, lack of access to hand washing resources may limit the potential impact of hand washing on health particularly for low-income households and communities

AIM OF THE PRESENT STUDY

The purpose of the present research was to assess the relationship between hand washing practices and prevalence of gastroenteritis in students of rural areas.

METHODOLOGY

The survey used a standardized two-stage probability sampling design for the selection process within each participating country. For the first stage, schools were selected with probability proportional to size

sampling. The second stage involved the random selection of classrooms which included students aged 13–15 years within each selected school. All students in the selected classrooms were eligible to participate in the survey regardless of age. The questionnaire was translated into the local language in each country and consisted of multiple choice response options; students recorded their response on computer scannable sheets. Student privacy was protected through anonymous and voluntary participation, and informed consent was obtained as appropriate from the students, parents and/or school officials. Three questions about hand-washing practices in the past 30 days were asked: (a) how often did you wash your hand before eating? (b) how often did you wash your hands after using the toilet or latrine?; and (c) how often did you use soap when washing your hands? Each of these questions had as answer options: ‘Never’, ‘Rarely’, ‘Sometimes’, ‘Most of the time’, and ‘Always’. Food insecurity was assessed by the question “During the past 30 days, how often did you go hungry because there was not enough food in your home?” with answer options ‘Never’, ‘Rarely’, ‘Sometimes’, ‘Most of the time’, and ‘Always’. Statistical analysis was carried out with the help of SPSS 25.0. The associations between severe food insecurity and each type of hand-washing practice were assessed. Sampling weights and the clustered sampling design of the surveys were taken into account in all analyses. Results from the logistic regression analyses are presented as odds ratios (ORs) with 95% confidence intervals (CIs).

RESULTS

A total of 2000 adolescents aged 12–15 years [mean (SD) age 13.8 (1.0) years; 50.9% boys] were included in the analysis. Overall, the prevalence of hand-washing practices was as follows: never/rarely washing hands before eating (6.4%), after using toilet (5.6%), and with soap (8.8%). (Table 1)

Table 1- Knowledge about handwashing

Knowledge about handwashing	n (%)	95% CI
What type of water should be used for handwashing?		
Cold water	1489(69.0)	(62.2, 75.1)
Medium hot water	449(28.5)	(22.6, 35.2)
Hot water	62 (2.5)	(1, 5.9)
How many times are needed for proper handwashing?		
Yes	1399 (61.5)	(54.5, 68)
No	601 (38.5)	(32, 45.5)
With what you should wash your hand?		
Only water	478 (24.0)	(18.5, 30.5)
Water with soap	1467 (67.0)	(60.1, 73.2)
Water with ash	16 (8.0)	(4.9, 12.7)
Water with mud	9 (1.0)	(0.2, 4)

The prevalence of never or rarely washing hands before eating was higher in high- and upper middle-income rural students, while that of never/rarely

washing hands after using the toilet and with soap was particularly high in low-income rural students. Severe food insecurity was associated with 1.34 (95% CI =

1.25–1.43) times higher odds for never/rarely washing hands before eating overall. The corresponding figure for never/rarely washing hands after using the toilet was 1.61 (95%CI = 1.50–1.73). As for never/rarely using soap when washing hands, this figure was 1.44

(95%CI = 1.35–1.53) with the highest ORs being observed in upper middle- and high-income rural students which was miniscule. A moderate level of heterogeneity was observed for all overall estimates. (Table 2)

Table 2- Association between severe food insecurity and never/rarely washing hands before eating, after using toilet, and with soap estimated

Outcome	Income group	OR (95% CI)	I ²
Before eating	low	1.36	14.8
	Middle	1.29	50.8
	Upper middle	1.39	59.7
	high	1.38	45.7
After using toilet	Low	1.42	54.8
	Middle	1.49	35.8
	Upper middle	1.82	51.3
	high	2.00	0.0
Soap	Low	1.34	62.8
	Middle	1.26	50.4
	Upper middle	1.63	67.7
	high	1.82	0.0

DISCUSSION

The highest prevalence of never/rarely washing hands after using the toilet and with soap were found in low-income countries. Generally, those from a low socioeconomic status (using severe food insecurity as a proxy) were less likely to engage in good hand washing practices. Findings were similar for each hand-washing scenario (i.e., before eating and after using the toilet, or using soap).⁷ Findings from the present study supports previous literature which has reported a low prevalence of good hand-washing practices particularly in Lower income group students. This may be owing to lack of knowledge relating to benefits and how to appropriately wash hands. For example, in one study carried out on 90 health care professionals in Northeast Ethiopia, 36.1% had no knowledge of good hand-washing practices.⁸ Moreover, poor handwashing practices may be due to a lack of hand washing facilities, access to clean water supplies or soap in low-income countries.⁹ In addition, such a message may also have a cross-over effect, that is, we may observe reductions in other diseases linked to poor sanitation conditions such as pneumonia, gastroenteritis, diarrhea, dysentery, hepatitis A, cholera, typhoid, polio and skin infection. The present study found that severe food insecurity (a proxy for low socio-economic status) was significantly associated with poor hand-washing practices across poor rural students. Of note, severe food insecurity was associated with never/rarely washing hands after using the toilet or with soap more strongly in upper middle-income students with lower income pointing to the fact that, even within wealthier students, individuals with lower levels of socioeconomic status are more likely to engage in inadequate hygiene and are possibly at a higher risk for various types of infections.

CONCLUSION

A low prevalence of good hand-washing practices was reported, particularly in low-income students, and those with a low socio-economic status. Moreover, such a message may also have a cross-over effect, that is, we may observe reductions in other diseases linked to poor sanitation conditions such as pneumonia, gastroenteritis, diarrhea, dysentery, hepatitis A, cholera, typhoid, polio and skin infection.

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