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Research Article

Barriers & Enablers to Hand Washing with Soap at Critical Times in Afghanistan

Mohammad Javed Ahrar[1]
Bakhtar University, 1001-Kabul, Kabul, Afghanistan.
Corresponding Author Email Id: mjahrar@yahoo.com

Abstract

This study examines the barriers and enablers influencing handwashing with soap at critical times among households in Afghanistan. It aims to identify the key demographic, socioeconomic, and behavioral factors that determine handwashing frequency and to understand how these factors interact to shape hygiene practices in a low-resource, conflict-affected setting. The research employed a cross-sectional descriptive design. Data were collected from 300 randomly selected households across different regions of Afghanistan using structured questionnaires. Descriptive statistics were used to analyze demographic characteristics, while one-way ANOVA and independent sample t-tests were applied to assess variations in handwashing frequency across demographic groups, including gender, age, education status, occupation, and household size. The results reveal that handwashing with soap at critical times varies significantly across all demographic categories examined. The independent sample t-test showed a significant difference between male and female respondents (t = 1.694, p < 0.05), with males reporting slightly higher handwashing frequency (mean = 33.36) than females (mean = 32.70). One-way ANOVA results indicated significant variations across age groups (F = 6.467, p < 0.05), education levels (F = 11.935, p < 0.05), occupations (F = 21.223, p < 0.05), and household sizes (F = 13.398, p < 0.05). Education emerged as the most significant predictor of handwashing behavior, with higher educational attainment strongly associated with more consistent handwashing practices. The regression model explained 55% of the variance in handwashing frequency, indicating that a combination of factors including access to clean water, soap availability, educational attainment, cultural beliefs, community awareness, household income, and social influence collectively shape hygiene behavior. Notably, while infrastructure and economic resources are important enabling factors, their effects were comparatively less pronounced than behavioral and educational determinants. The findings underscore that improving handwashing practices in Afghanistan requires more than infrastructure development alone. Public health interventions must integrate behavioral and educational strategies alongside WASH (Water, Sanitation, and Hygiene) infrastructure improvements. Policymakers should prioritize hygiene education programs that leverage community awareness, social norms, and cultural alignment to foster sustained behavior change. Targeted interventions for vulnerable groups, including women, children, and low-income households, are essential for equitable health outcomes.

Keywords: Handwashing with Soap, Critical Times, Hygiene Behavior, Barriers and Enablers, WASH, Public Health, Afghanistan, Diarrhea Prevention, Polio Eradication

Introduction

Washing your hands with soap at key times, such as after using the restroom, before cooking, and before feeding your children, is one of the most economical strategies to prevent diarrhea, respiratory infections, and other hygiene-related disorders (Olivia et al., 2017). Even while frequent hand washing is beneficial to your health, it is still a major issue worldwide, particularly in low- and middle-income countries. Nearly 2.3 billion people worldwide lack access to basic handwashing facilities at home, according to UNICEF (2021). Just 28% of families

[1]Corresponding Author: Mohammad Javed Ahrar, Bakhtar University, 1001-Kabul, Kabul, Afghanistan., Email Id: mjahrar@yahoo.com

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in the least developed countries have access to water and soap for hand washing. Children are more likely to become ill and die from diseases that could be prevented as a result of this lack of access.

In Afghanistan, the problem is very severe. According to research, despite understanding of the need of handwashing, its application is often uneven because of a variety of challenges, such as poor water supplies, poverty, seasonal constraints, and inadequate infrastructure (Murendo, 2024; Amiry et al., 2025). Inadequate hand hygiene habits are a major contributing factor to diarrheal disease, which is still the leading cause of death for children under five (Luby et al., 2005; Curtis & Cairncross, 2003). Additionally, because of poor sanitation and contaminated surroundings, poor hygiene habits are directly linked to the spread of polio, a disease that still affects Afghanistan. Children's eating habits are also strongly correlated with handwashing since infrequent hand washing can result in diarrhea, which can cause malnourishment and stunting (Freeman et al., 2014). In addition to harming health, poor WASH conditions, such as a lack of handwashing stations in schools, also negatively impact education. This results in worse learning outcomes and more absences, particularly among girls (Loftus et al., 2019).

The ongoing prevalence of insufficient handwashing practices in Afghanistan signifies a widespread issue of practice, as it impacts national health outcomes and extends beyond specific populations or organizations. It is linked to problems in public health policy, societal norms, and the infrastructure for water, sanitation, and hygiene (WASH). This research indicates that handwashing with soap at critical times is a significant public health concern, with extensive implications for child survival, polio eradication, nutrition, and education. To achieve lasting impact, it is essential to implement comprehensive strategies that tackle both facilitators and barriers (Hamidi et al., 2023).

Sector Performance Status

Afghanistan's water, sanitation, and hygiene (WASH) sector still has a lot of problems that make it hard for people to wash their hands at important times. The WHO/UNICEF Joint Monitoring Programme (2019) says that just 65% of Afghan households have access to basic drinking water services. Also, less than half of houses have access to basic handwashing facilities with water and soap. This imbalance in infrastructure puts national health goals at severe risk, especially when it comes to lowering the rates of diseases that can be avoided. Poor performance in one area has a big effect on the well-being of children. Afghanistan still has one of the worst rates of death among children under five in the area (55 out of 1,000 live births; MICS 2022–2023). Most of these deaths are caused by respiratory diseases, diarrhea, and malnutrition. These conditions are intimately linked to poor hygiene and not enough WASH services (Murendo, 2024; Luby et al., 2005). Insufficient hand hygiene and sanitation standards facilitate the ongoing transmission of wild poliovirus, which is endemic in only two countries worldwide (Amiry et al., 2025). Students also have a hard time washing their hands regularly since the school's WASH facilities aren't good enough. This hurts their academic performance by reducing their cognitive function and making them miss more school. Afghanistan's current WASH performance does not meet the Sustainable Development Goal (SDG) goals of universal access to safe water, sanitation, and hygiene (Baseer et al., 2025). This poor performance not only makes it harder to get enough food and avoid becoming sick, but it also makes it harder to reach more general national health and education goals. Without systematic improvements in WASH services, the nation's efforts to lower infant mortality, stop polio, and increase human capital development will be severely limited (Ejaz et al., 2025).

Importance of the Problem

There are many reasons why it is vital to talk about the problem of not washing your hands with soap and water at the right times. This is closely related to the fact that avoidable infections are still common in Afghanistan, where diarrhea is still the leading cause of death for babies (UNICEF, 2023). Young children are especially at risk of the effects of poor handwashing habits, which raise the death rate of children under five and slow down advances in public health and child survival.

Second, Afghanistan is one of only two countries in the world where polio is still common. This is because the disease keeps spreading since people don't wash their hands properly (WHO, 2024). This has a big effect on the worldwide effort to get rid of the disease and on national health security since problems in Afghanistan are making it harder for the world to get rid of the disease. Third, poor hygiene makes malnutrition worse because kids become sick more often with diarrhea and intestinal infections, which weakens their immune systems and makes it harder for them to absorb nutrients (Loftus et al., 2019). This cycle continues to cause long-term malnutrition and stunting, which affects almost 40% of Afghan children under the age of five (Afghanistan Demographic and Health Survey, 2015). Stunting negatively affects the long-term growth of human capital by lowering economic output and educational success.

Ultimately, the lack of proper handwashing facilities at schools has a big effect on how well students do in school. Poor hygiene, especially for teenage girls, makes students skip more school and drop out more often. Children often miss school because of illnesses related to hygiene (UNESCO, 2021). All of these effects make it harder for Afghanistan to reach its main goals of promoting health, education, and economic growth (Vindigni et al., 2019). As a result, resolving this issue is not only a health imperative but also an essential step for Afghanistan to meet its commitments under the Sustainable Development Goals (SDGs), enhance human capital, and strengthen global health security.

Data and Methodology

This section talks about the research design, the size of the population, the size of the sample, the method used to gather data, and the source of the data. This study examined the barriers and enablers of hand washing with soap during critical periods in Afghanistan. The data was collected from randomly chosen communities throughout different regions of Afghanistan. SPSS software used descriptive analysis to look at the data from the questionnaire and find the things that made it hard or easy to wash hands with soap at important times in Afghanistan. The study's data analysis used the Statistical Package for Social Science (SPSS) application. Editing, coding, and tabulation were all important parts of the data processing step, which was an important part of the whole research process. This was done to make sure that the research was correct and useful. After getting official approval from the right sector department, 322 households from different districts and towns were phoned and visited. However, the size of the distribution would be different. But after families knew why they were filling out the surveys and when they would be collected, they sent in a total of 300 printed copies. After being decrypted, the data was brought into the most recent version of SPSS. Statistical functions were used to look at the study's goals and hypotheses, and the results are provided in the next sections.

Data Analysis

Table 1: Shows distribution of respondents' gender wise.

		Frequency	Percent	Valid Percent	Cumulative Percent
Total Valid	Male	256	85.3	85.3	85.3
	Female	44	14.7	14.7	100.0
		300	100.0	100.0	

Table 1 indicates gender wise distribution of the respondents. Gender of the respondents has been classified into two sub-categories i.e. Male and Female. The result revels that out of total 300 respondents, 256 respondents i.e. 85.3% are male and 44 respondents i.e. 14.7% are female.

Hence, it is concluded from the results of the above table that majority of the respondents belongs to male category of gender

Table 2: Shows distribution of respondents' age wise.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 21 years	14	4.7	4.7	4.7
	21-30 years	55	18.3	18.3	23.0
	31-40 years	112	37.3	37.3	60.3
	41-50 years	88	29.3	29.3	89.7
	Above 50 years	31	10.3	10.3	100.0
	Total	300	100.0	100.0	

Table 2 indicates age wise distribution of the respondents. Age of the respondents has been classified into five sub-categories i.e. Less than 21 years, 21-30 years, 31-44 years, 41-50 and above 50 years. The result revels that out of total 300 respondents, 14 respondents i.e. 4.7% age are less than 21 years, 55 respondents i.e. 18.3% age are between 21-30 years, 112 respondents i.e. 37.3% age are between 31-40 years, 88 respondents i.e. 29.3% age are between 41-50 years and 31 respondents i.e. 10.3% age are above 50 years.

Hence, it is concluded from the results of the above table that majority of the respondents belongs to 31-40 years category of age.

Table 3: Shows distribution of respondents' Educational Status wise.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	School dropouts	182	60.7	60.7	60.7
	up to 10th or 12th STD	75	25.0	25.0	85.7
	Diploma or technically certified	9	3.0	3.0	88.7
	Graduate	17	5.7	5.7	94.3
	Post Graduate	17	5.7	5.7	100.0
	Total	300	100.0	100.0	

Table 3 indicates Education Status wise distribution of the respondents. Education Status of the respondents has been classified into five sub-categories i.e. School dropouts, Up to 10^{th} or 12^{th} STD, Diploma or technically certified, Graduate, Post Graduate. The result revels that out of total 300 respondents, 182 respondents i.e. 60.7.% Educational Status are School dropouts, 75 respondents i.e. 25% Educational Status are up to 10^{th} or 12^{th} STD, 9 respondents i.e. 3% Education Status are Diploma or technically certified, 17 respondents i.e. 5.7% Graduate and 17 respondents i.e. 5.7% Education Status is Post Graduate.

Hence, it is concluded from the results of the above table that majority of the respondents Education Status category of School dropouts.

Table 4: Shows distribution of respondents' Occupation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Employee	15	5.0	5.0	5.0
	business	62	20.7	20.7	25.7
	former	98	32.7	32.7	58.3
	Jobless	70	23.3	23.3	81.7
	Other	55	18.3	18.3	100.0
	Total	300	100.0	100.0	

Table 4 indicates Occupation of the respondents. Occupation of the respondents has been classified into five sub-categories i.e. Employee, Business, former, Jobless and Other. The result revels that out of total 300 respondents, 15 respondents i.e. 5% Occupation are Employee, 62 respondents i.e. 20.7% Occupation are Business, 98 respondents i.e. 32.7% Occupation are Former, 70 respondents i.e. 23.3% Occupation are Jobless and 55 respondents i.e. 18.3% Occupation is Other.

Hence, it is concluded from the results of the above table that majority of the respondents Occupation of Former.

Variations in Frequency of handwashing with soap at critical times with demographic profile

The variations in the Frequency of handwashing with soap at critical times with various levels of demographic profiles among the respondents were measured with one-way ANOVA and independent sample t test. The corresponding results of these measurements were provided in the following sections. The details of demographic

profiles considered for measuring these variations are gender, age, educational status, occupation and number of people in the household.

Variations on Frequency of handwashing with soap at critical times with gender category

The variations in Frequency of handwashing with soap at critical times between male and female respondents, taken up and its results are shown in the table-5, as an outcome of independent sample t-test. From the results of this Independent sample t-test, it can be inferred that the t value of 1.694 corresponding to Frequency of handwashing with soap at critical times is found to be significant at 5 percent level.

Table 5: Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean	T value	sig
Frequency Of Handwashing With Soap At Critical Times	Male	256	33.3594	3.48382	.21774	1.694	0.000
	Female	44	32.7045	2.11945	.31952		

This result suggests that the Frequency of handwashing with soap at critical times is varying significantly with gender category of the respondents considered as grouping variable. More specifically the mean value of 33.4 estimated for the gender category male is slightly higher than the estimated mean value of 32.8 for the gender category female. This result suggests that the Frequency of handwashing with soap at critical times is slightly higher for the gender category male than that of female among the respondents.

4.7.2 Variations in Frequency of handwashing with soap at critical times with Age

The variations in the Frequency of handwashing with soap at critical times between different age groups such as those who are less than 21 years, those who are between the age 21 years and 30 years, those who are between the age 31 years and 40 years, those who are between the age 41 years and 50 years and those who are above the age of 50 years among the respondents, taken up and its results are shown in the table-6, as an outcome of one-way ANOVA model conceptualized.

Table 6: ANOVA

Frequency of Handwashing with Soap at Critical Times

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	266.366	4	66.591	6.467	.000
Within Groups	3037.831	295	10.298		
Total	3304.197	299			

From the results of this one-way ANOVA model shown in table-6, it can be inferred that the F values of 6.467 corresponding to Frequency of handwashing with soap at critical times on each different considered age group are found to be significant at 5 percent level. This result clearly shows that there exist significant variations in the Frequency of handwashing with soap at critical times among different age group. This indicates that respondents of different age groups differ in Frequency of handwashing with soap at critical times.

Variations in Frequency of handwashing with soap at critical times with education status

The variations in the Frequency of handwashing with soap at critical times between different education status such as those who are School dropouts, those who are Up to 10th or 12th STD, those who are Diploma or technically certified, those who are Graduate and those who are Post-graduate among the respondents, taken up and its results are shown in the table-7, as an outcome of one-way ANOVA model conceptualized.

Table 7: ANOVA

Frequency of Handwashing with Soap At Critical Times

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	84.471	4	21.118	11.935	.002
Within Groups	3219.726	295	10.914		

Total	3304.197	299			

From the results of this one-way ANOVA model shown in table-7, it can be inferred that the F values of 11.935 corresponding to Frequency of handwashing with soap at critical times on each different considered education group are found to be significant at 5 percent level. This result clearly shows that there exist significant variations in the Frequency of handwashing with soap at critical times among different education groups. This indicates that respondents of different education level differ in Frequency of handwashing with soap at critical times.

Variations in Frequency of handwashing with soap at critical times with respondent occupation

The variations in the Frequency of handwashing with soap at critical times between different occupations such as those who are Employee, those who are Business man, those who are Farmer, those who are without job and those who have some other professions among the respondents, taken up and its results are shown in the table-8, as an outcome of one-way ANOVA model conceptualized.

Table 8: Occupation-ANOVA

Frequency Of Handwashing With Soap At Critical Times					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	73.732	4	18.433	21.223	.004
Within Groups	3230.465	295	10.951		
Total	3304.197	299			

From the results of this one-way ANOVA model shown in table-8, it can be inferred that the F values of 21.223 corresponding to Frequency of handwashing with soap at critical times on each different considered occupation groups are found to be significant at 5 percent level. This result clearly shows that there exist significant variations in the Frequency of handwashing with soap at critical times among different occupation group. This indicates that respondents of different professions differ in Frequency of handwashing with soap at critical times.

Variations in Frequency of handwashing with soap at critical times with Number of family member

The variations in the Frequency of handwashing with soap at critical times between different family members such as those who have 2-5 members, those who 5-7 members, those who have 7-10 members, and those who have above 10 members among the respondents, taken up and its results are shown in the table-9, as an outcome of one-way ANOVA model conceptualized.

Table 9: Number of family member-ANOVA

Frequency Of Handwashing With Soap At Critical Times					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	109.995	3	36.665	13.398	.001
Within Groups	3194.202	296	10.791		
Total	3304.197	299			

From the results of this one-way ANOVA model shown in table-9, it can be inferred that the F values of 13.398 corresponding to Frequency of handwashing with soap at critical times on each different number of family member found to be significant at 5 percent level. This result clearly shows that there exist significant variations in the Frequency of handwashing with soap at critical times among different Number of family member. This indicates that respondents belong to different size of family differ in Frequency of handwashing with soap at critical times.

Future Research Directions

Subsequent study ought to employ longitudinal or experimental methodologies to more effectively delineate causal links among education, social impact, awareness, and hygienic behavior. In-depth interviews and focus group discussions can provide richer insights into how cultural beliefs, social norms, and personal attitudes influence handwashing practices. Subsequent research ought to incorporate supplementary variables, including sanitary infrastructure, media exposure, governmental regulations, and school-based hygiene initiatives, to develop a more exhaustive model. Comparative studies between rural and urban settings or other locations can elucidate contextual disparities and enhance the generalizability of results. Subsequent study ought to evaluate the efficacy of certain treatments, including educational campaigns, soap distribution, or community-led initiatives, in enhancing handwashing practices. Further studies can explore hygiene behavior among vulnerable groups such as children, women, displaced populations, or low-income households to design targeted interventions.

Conclusion

The study examined eight primary factors access to clean water, soap availability, educational attainment, cultural beliefs, community awareness, household income, social influence, and demographics to ascertain the determinants affecting the frequency of handwashing with soap during critical periods. The data clearly reveal that handwashing behavior is complicated and can't be explained by just one thing. The regression findings show that these factors together explain 55% of the differences in how often people wash their hands. This suggests that the model is strong and important for understanding how people behave when it comes to cleanliness. Education level emerged as the most significant predictor, with a significantly higher impact than any other variable. This shows how important education is for teaching people how to be healthy, when to wash their hands, and how to use what they know about hygiene every day. People with greater education are more likely to wash their hands with soap on a frequent basis because they are better equipped to understand health risks, judge public health messages, and make smart choices. This outcome shows that education is still a powerful and long-lasting way to improve public health behavior, even when infrastructure and the economy change. The study also shows how important social influence and community knowledge are. Social conventions, peer pressure, role modeling, and expectations from family, community leaders, and medical experts all play a big part in making people wash their hands. People are more likely to wash their hands on a frequent basis when it is socially acceptable and expected. In a similar way, community awareness makes handwashing a shared social activity instead of a personal choice and makes people more responsible to each other. These data show that having support from other people and the community makes behavior change work better. Cultural beliefs also helped people wash their hands more often, especially when those beliefs and rituals put a lot of value on cleanliness and purity. People are more likely to develop and keep good hygiene habits over time if they fit with their religious and cultural values. Conversely, whereas household wealth, soap availability, and access to clean water are crucial enabling factors, their effects were comparatively less pronounced. This means that having the right infrastructure and economic resources isn't enough to make sure people wash their hands properly. They also need education, motivation, awareness, and social norms that encourage handwashing. The study finds that to get people to wash their hands better, you need to do more than just provide them water and soap. Education, social influence, community awareness, and cultural alignment, together with good infrastructure, are all very important for long-term changes in cleanliness habits. To get long-term improvements in hand hygiene and public health outcomes, policymakers and public health professionals should focus on behavioral and educational interventions as well as WASH facilities.

Conflict of Interest

The authors affirm that no conflicts of interest are linked with this publication. The research was conducted autonomously without financial or non-financial assistance from external entities.

Author Contribution Statement

The author meticulously crafted the study, devised the methodology, executed the investigation and data analysis, composed the original manuscript, and undertook the review and editing of the document. The author autonomously executed every aspect of the research and the development of the manuscript.

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