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Knowledge, Attitude, Practice of Nursing Students Regarding Personal Hygiene Compliance at Kabul University of Medical Sciences, Afghanistan: A Cross-Sectional Study

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ABSTRACT

Background: Personal hygiene is essential for disease prevention and overall well-being. This is particularly important among nursing students, who will become healthcare professionals and health-promotion role models. Adequate knowledge, favorable attitudes, and appropriate hygiene-related behaviors are important components of nursing education.

Objective: This study aimed to assess knowledge, attitudes, and self-reported hygiene-related practices among nursing students at Kabul University of Medical Sciences (KUMS).

Methods: This descriptive cross-sectional questionnaire-based study was conducted in 2024 among first- to fourth-year male nursing students at KUMS. A census sampling approach was used to invite all 120 eligible students. Of these, 115 completed questionnaires were included in the final analysis. Data were analyzed using Microsoft Excel 2016 and SPSS version 23. Descriptive statistics, including frequencies and percentages, were used to summarize participant characteristics and individual knowledge, attitude, and practice responses.

Results: All 115 participants were male (100%). A high proportion of students reported knowledge of the role of tooth brushing in preventing dental problems (97.4%), appropriate timing of handwashing (96.5%), and prevention of disease transmission through handwashing with soap (96.5%). Lower proportions reported knowledge regarding available vaccines for contagious diseases (59.1%) and the use of hand sanitizers (78.3%). Favorable responses were commonly reported regarding the role of personal hygiene in reducing the burden on the healthcare system (97.4%), the role of media in promoting hygiene awareness (96.5%), and the importance of personal hygiene in disease prevention (95.7%). Regarding self-reported practices, 92.2% reported reminding others when observing unhygienic behavior, 87.0% reported prioritizing hygiene in daily life, and 82.6% reported educating others about personal hygiene.

Conclusion: Students reported favorable responses across several knowledge and attitude items and generally positive self-reported hygiene-related practices. However, lower responses in specific areas, particularly knowledge regarding vaccines for contagious diseases, highlight opportunities to strengthen preventive-health and hygiene education within the nursing curriculum.

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1. Introduction

Hygiene is an essential component of disease prevention and health promotion, particularly in healthcare settings where appropriate infection prevention and control practices help reduce the transmission of infectious agents (World Health Organization [WHO], 2009, 2016). Hand hygiene is considered one of the most important measures for preventing the spread of infections in healthcare environments (Labrague et al., 2018; WHO, 2009). Personal hygiene-related behaviors, including appropriate handwashing and oral hygiene, also contribute to individual health and the prevention of communicable diseases.

Maintaining appropriate hygiene is particularly important among healthcare professionals, who have frequent contact with patients and are expected to demonstrate and promote appropriate health behaviors. Nursing students begin developing these competencies during their education and clinical training. Evidence from studies among nursing students indicates that knowledge, attitudes, and compliance with infection-prevention measures can vary, highlighting the importance of effective education and clinical preparation (Labrague et al., 2018; Rahiman et al., 2018; Mohammedi & Landelle, 2023).

Nursing students are future healthcare professionals who will have direct contact with patients and communities. Therefore, their knowledge and attitudes toward hygiene and infection prevention may influence their own practices as well as their ability to educate and encourage patients and community members to adopt appropriate health behaviors. Studies among medical and nursing students have reported generally favorable knowledge and attitudes toward infection-prevention measures while also identifying gaps in specific practices and perceived barriers (Sharma & Bachani, 2023; Park et al., 2023). Educational interventions and structured training have also been shown to be important approaches for strengthening infection-prevention knowledge and practices among nursing students (Sierra et al., 2023; Singh et al., 2023).

The importance of these competencies may be particularly relevant in resource-limited settings, where limited access to hygiene facilities, educational resources, and other environmental factors may create additional challenges for infection prevention and health promotion (WHO, 2016, 2022). Recent evidence from Afghanistan has also examined hand-hygiene knowledge, attitudes, and practices among health sciences students, demonstrating the relevance of this issue within the Afghan healthcare education context (Ejaz et al., 2025).

Despite the importance of personal hygiene in nursing education, evidence regarding knowledge, attitudes, and self-reported hygiene-related practices among nursing students in Afghanistan remains limited. Therefore, the present study aimed to assess knowledge, attitudes, and self-reported hygiene-related practices among nursing students at Kabul University of Medical Sciences. The study also sought to identify specific areas that may require greater attention within nursing education.

2. Method

2.1. Study Design and Setting

This descriptive cross-sectional study was conducted in 2024 at Kabul University of Medical Sciences (Abu Ali Ibn Sina) to assess the knowledge, attitude, and self-reported practices of male nursing students regarding personal hygiene. The study was conducted among students of the Faculty of Nursing, which was the first faculty to offer a bachelor's degree in nursing in Afghanistan. The faculty was established in 1386 (2007) within Kabul University of Medical Sciences (Abu Ali Ibn Sina) and consists of various departments that have carried out activities in multiple fields.

2.2. Sample Size and Sampling Methods

The Faculty of Nursing at Kabul University of Medical Sciences had 120 enrolled students. A census sampling approach was applied, inviting all eligible students to participate. Following informed consent, questionnaires were distributed to all 120 students. Of these, 115 were validly completed and included in the final analysis, while five were excluded due to incomplete or invalid responses. The final analytical sample comprised 115 students, yielding a usable response rate of 95.8% (115/120 × 100).

2.3.Data Collection Instrument

Data were collected using a structured, pre-tested questionnaire adapted from prior studies. The questionnaire consisted of three main parts. The first part captured demographic information, including age, gender, marital status, educational year, place of residence, and economic status. The second part assessed participants' knowledge of personal hygiene, including handwashing techniques, vaccination, disease prevention, and the impact of nutrition on the immune system. The third part evaluated attitudes and self-reported practices related to personal hygiene, such as beliefs about personal responsibility, the role of media and schools, cultural influences, daily hygiene routines, and educating others. Responses were recorded as "Yes" or "No," with some attitude questions rated on a scale of low, medium, or high. Of the 120 questionnaires distributed, 115 valid questionnaires were included in the final analysis; five were excluded because they were incomplete or invalid.

2.4. Knowledge Measurement

Knowledge was assessed using individual questionnaire items covering personal hygiene, handwashing, oral hygiene, vaccination, disease prevention, and related preventive measures. Responses were summarized using frequencies and percentages.

2.5.Attitude Measurement

Attitudes were assessed using individual questionnaire items addressing personal responsibility, health promotion, disease prevention, and social and cultural influences on hygiene. Responses were summarized using frequencies and percentages.

Practice Measurement: Self-reported practices were assessed using individual questionnaire items related to hygiene behaviors and health promotion. Responses were summarized using frequencies and percentages.

2.6.Study Variables

The independent variables in this study include age, year of study, living situation, educational background or training in hygiene, and sources of hygiene. The dependent variables are the students' level of knowledge, attitudes, self-reported hygiene practices, and awareness of hygiene's impact on health.

2.7.Statistical Analysis

Descriptive statistics were used to analyze data from the 115 valid questionnaires. Frequencies and percentages were calculated to summarize demographic characteristics and responses to knowledge, attitude, and practice items. Results were presented in tables and graphs. Data were analyzed using Microsoft Excel 2016 and SPSS version 23.

2.8.Ethical Consideration

The study was reviewed and approved by the Faculty of Nursing Research Committee at Kabul University of Medical Sciences (KUMS) on November 24, 2024 (approval/reference number: 1019). Participation in the study was voluntary, and participants were informed about the

purpose of the study and their right to withdraw at any time without consequence. Confidentiality and anonymity were maintained throughout the study, and the collected information was used solely for academic and research purposes. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki.

3. Result

A total of 115 participants were included in the final analysis, all of whom were male (115, 100.0%). Regarding age, 30 participants (26.1%) were aged 18–20 years, 73 (63.5%) were aged 21–24 years, and 12 (10.4%) were aged 25–29 years. All participants (115, 100.0%) were bachelor's degree students at Kabul University of Medical Sciences. By year of study, 35 (30.4%) were first-year students, 4 (3.5%) were second-year students, 31 (27.0%) were third-year students, and 45 (39.1%) were fourth-year students. For place of residence, most participants lived in rented rooms (60, 52.2%), followed by dormitories (39, 33.9%), while 14 (12.2%) lived at home and 2 (1.7%) reported other places of residence. Regarding economic status, most participants reported a medium economic status (71, 61.7%), followed by poor (22, 19.1%), good (16, 13.9%), and excellent (6, 5.2%) status. In terms of marital status, 98 participants (85.2%) were single and 17 (14.8%) were married (Table 1).

Table 1. Demographic Information of Students

Category	Number of Students	Percentages (%)
Male	115	100%
Age Distribution	Number of Students	Percentages (%)
18-20 years	30	26.1%
21-24 years	73	63.5%
25-29 years	17	10.4%
Marital Status	Number of Students	Percentage(%)
Single	98	85,2%
Married	17	14.8%
Educational Year	Number of Students	Percentages (%)
First Year	35	30,4%
Second Year	4	3,5%
Third Year	31	27%
Fourth Year	45	39,1 %
Place of Residence	Number of Students	Percentage (%)
Home	14	12,2%
Dormitory	39	33,9%
Rented Rooms	60	52,2%
Other Places	2	1,7%
Economic Status	Number of Students	Percentage (%)
Excellent	6	5,2%
Good	16	13,9%
Medium	71	61,7%
Poor	22	19,1%

The assessment of knowledge among 115 nursing students showed that 111 students (96.5%) knew how washing hands with soap can prevent the spread of diseases, 107 students (93%) were familiar with proper handwashing methods, and 111 students (96.5%) knew when to wash their hands (e.g., before meals, after using the toilet). Regarding oral hygiene, 112 students (97.4%) reported that brushing teeth with toothpaste prevents dental problems. Knowledge about hand sanitizers was reported by 90 students (78.3%), and 85 students (73.9%) knew how to use shared items in public places to prevent disease transmission. Awareness of vaccines for infectious diseases was indicated by 87 students (75.7%), while 68 students (59.1%) reported knowledge about vaccines for contagious diseases. Knowledge of the effect of wearing masks

in public places was reported by 110 students (95.7%), and 99 students (86.1%) were aware of the impact of healthy nutrition on the immune system(table2).

Table2: Knowledge Questions

Questions	Answers	N	%
Do you know how washing hands with soap can prevent the spread of diseases?	Yes	111	96.5
	No	4	3.5
Are you familiar with the proper methods of washing hands?	Yes	107	93%
	No	8	7%
Do you know when you should wash your hands (e.g., before meals, after using the toilet, etc.)?	Yes	111	96.5%
	No	4	3.5%
Does brushing teeth with toothpaste prevent dental problems?	Yes	112	97.4%
	No	3	2.6%
Do you know how hand sanitizers work?	Yes	90	78.3%
	No	25	21.7%
Do you have sufficient information about the available vaccines for infectious diseases?	Yes	87	75.7%
	No	28	24.3
Are you familiar with the symptoms of infectious diseases?	Yes	108	93.9%
	No	7	6.1%
Do you know how to use shared items in public places to prevent the spread of diseases?	Yes	85	73.9%
	No	30	26.1%
Do you have sufficient information about the impact of healthy nutrition on the immune system?	Yes	99	86.1%
	No	16	13.9%
Do you have enough information about the available vaccines for contagious diseases?	Yes	68	59.1%
	No	47	40.9
Do you know the effect of wearing masks in public places on reducing disease outbreaks?	Yes	110	95.7%
	No	5	4.3%,

The attitude assessment among 115 nursing students showed that 81 students (70.4%) reported that following hygiene principles is everyone's individual responsibility. A total of 51 students (44.3%) reported a strong belief in the importance of personal hygiene. Ninety-six students (83.5%) stated that following hygiene principles can help reduce medical expenses, and 49 students (42.6%) felt that the community is sufficiently aware of personal hygiene. Eighty-nine students (77.4%) considered health education in schools sufficient, and 111 students (96.5%) reported that the media plays an important role in promoting personal hygiene. Ninety-eight students (85.2%) indicated that climate change impacts public health and hygiene, and 110 students (95.7%) reported that personal hygiene is important in disease prevention. One hundred two students (88.7%) indicated that hygiene practices in public places are necessary, and 88 students (85.3%) reported that hygiene should be observed in the workplace. Ninety-five students (82.6%) stated that personal hygiene should be part of school education programs.

One hundred twelve students (97.4%) reported that hygiene can reduce the burden on the healthcare system. One hundred seven students (93%) indicated that society's culture influences individual hygiene behaviors, and 105 students (91.3%) reported that cultural and social influences affect attention to personal hygiene. Ninety-eight students (90.4%) stated that personal hygiene can improve quality of life(table3).

Table 3. Attitude Questions

Questions	Answers	N	%
Do you think that following hygiene principles is everyone's individual responsibility?	Yes	81	70.4
	No	34	29.6
How much do you believe in the importance of personal hygiene?	Yes	51	44.3
	No	64	55.7
Do you believe that following hygiene principles can help reduce medical expenses?	Yes	96	83.5
	No	19	16.5
Do you feel that the community is sufficiently aware of the importance of personal hygiene?	Yes	49	42.6
	No	66	57.4
Do you think health education in schools is sufficient?	Yes	89	77.4
	No	26	22.6
Do you believe that the media plays an important role in raising public awareness about personal hygiene?	Yes	111	96.5
	No	4	3.5
Do you feel that climate change impacts public health and personal hygiene?	Yes	98	85.2
	No	17	14.8
How important do you find personal hygiene in preventing diseases?	Yes	110	95.7
	No	5	4.3
Do you think personal hygiene can improve the quality of life?	Yes	98	85.2%
	No	17	14.8%
Do you believe personal hygiene practices in public places is necessary?	Yes	102	88.7
	No	13	11.3
Do you believe personal hygiene can help reduce the burden on the health care system?	Yes	112	97.4
	No	3	2.6
Do you think personal hygiene should be part of school education programs?	Yes	95	82.6
	No	20	17.4
Do you believe personal hygiene should also be observed in the workplace?	Yes	88	76.5%
	No	17	14.8%

Do you feel that society's culture influences individuals' hygiene behaviors?	Yes	107	93
	No	8	7
Do you think cultural and social influences affect people's attention to personal hygiene?	Yes	105	91.3
	No	10	8.7
Do you believe that nursing students should encourage patients and community members to practice good personal hygiene?	Yes	98	85.2%
	No	17	14.4%

Regarding practice, most students reported educating others about personal hygiene (82.6%), reminding others about unhygienic behavior (92.2%), and prioritizing hygiene in daily life (87.0%). These findings indicate generally positive self-reported engagement in hygiene-related behaviors and promotion. Overall, the findings support strengthening practical hygiene education within the nursing curriculum and promoting continuous health education among nursing students (Table 4).

Table 4. Practice Questions

Questions	Answers	N	%
Do you educate others about the importance of personal hygiene?	Yes	95	82.6
	No	20	17.4
When you observe unhygienic behavior in others, do you give them a reminder?	Yes	106	92.2
	No	9	7.8
Do you prioritize hygiene principles in your daily life?	Yes	100	87
	No	15	13

4. Discussion

This study assessed knowledge, attitudes, and self-reported hygiene practices among male nursing students at Kabul University of Medical Sciences. Students reported high proportions of correct responses in several areas, particularly handwashing, oral hygiene, recognition of infectious disease symptoms, and mask use, while lower proportions of correct responses concerned hand sanitizer use, shared items, and vaccination. These findings suggest specific areas where preventive health education could be strengthened.

The generally favorable knowledge observed in this study is consistent with previous research among nursing and health sciences students. Labrague et al. (2018) reported that student nurses generally had knowledge of hand hygiene, although this did not always translate into consistent compliance. Similarly, Rahiman et al. (2018) found variations in nursing students' infection-prevention knowledge and practices. Sharma and Bachani (2023) also reported generally favorable knowledge and attitudes among medical and nursing students while identifying barriers to compliance. Evidence from Afghanistan has likewise identified areas for improvement in hand-hygiene practices among health sciences students (Ejaz et al., 2025).

In the present study, favorable responses were observed toward disease prevention, the role of media in hygiene promotion, and the contribution of hygiene to reducing the healthcare burden. However, lower responses regarding community awareness and some aspects of individual responsibility indicate areas for further educational attention. Previous research has similarly

highlighted educational and clinical barriers affecting nursing students' application of infection-prevention practices (Park et al., 2023).

The reported engagement in hygiene promotion and daily hygiene behaviors suggests that students may be applying their knowledge and contributing to health promotion. Structured education and practical training have been identified as useful approaches for strengthening infection-prevention knowledge and behaviors among nursing students (Mohammedi & Landelle, 2023; Sierra et al., 2023; Singh et al., 2023). However, because practices in this study were self-reported, social desirability and recall bias may have influenced responses. Overall, the findings support continued integration of practical hygiene and infection-prevention education into nursing curricula, with opportunities for application in clinical and community settings.

5. Conclusion

Although nursing students demonstrated generally favorable responses across knowledge, attitude, and self-reported hygiene practice items, gaps were identified in specific areas, particularly knowledge regarding vaccines for contagious diseases and perceptions of community awareness of personal hygiene. These findings highlight the importance of targeted preventive-health and hygiene education within nursing education to address identified gaps and further support students' role in promoting personal and community health.

6. Limitations

This study had several limitations. First, all participants were male nursing students from a single institution, which limits the generalizability of the findings to female nursing students and students from other institutions. Second, the study included 115 respondents, representing a relatively limited sample from one institution. Third, the study was conducted within a specific period in 2024 and therefore may not reflect changes in hygiene-related knowledge, attitudes, and practices over time. Finally, hygiene practices were self-reported rather than objectively observed, which may have introduced recall or social desirability bias.

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