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A Comprehensive Assessment of Knowledge, Self-reported Practices and Barriers Regarding Personal Hygiene among 1st Year Bachelor Students of Baneshwor Multiple Campus (BMC), Kathmandu, Nepal, 2023

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Abstract

Background: *Personal hygiene is strongly influenced by an individual's knowledge and practices towards hygiene, as well as social, cultural, familial, and behavioral barriers related to it. Maintaining good personal hygiene is important to limit the spread of infectious diseases and minimize the absenteeism of students in colleges and universities. The objective of this research is to evaluate the knowledge, self-reported practices, and perceived barriers to personal hygiene among first-year bachelor's students at Baneshwor Multiple Campus, Kathmandu, Nepal. The study employed a descriptive cross-sectional design and used a self-administered, semi-structured questionnaire to collect data from 216 first-year bachelor-level students. The descriptive statistics used in the study for data analysis includes frequency, percentage, mean and standard deviation. The study participants' mean age was 19.43 years with a standard deviation of 2.13. 46.3% of study participants were male and 53.7% were females. The majority of students (87.4%) were found to have good level of knowledge on personal hygiene, with females having higher scores than males. Nearly half of students (49.07%) were found to have a good level of self-reported practices on personal hygiene, with females having*

slightly higher scores than males. Laziness was expressed as the top barrier (64.81%) to personal hygiene, followed by lack of time (63.89%), lack of materials (62.5%), lack of water supply (60.65%), customs/beliefs (60.65%), and lack of information-education (52.78%). Nearly 2/3rd (63.43%) reported that the campus has good facilities for personal hygiene, whereas nearly four-fifths replied of never received a personal hygiene session at campus (73.61%) and the materials provided by campus were inadequate (74.54%) respectively.

Keywords: Youths, university students, hygienic practices, barriers to personal hygiene.

Introduction

The conditions and behaviors that support preserving health and halting the spread of disease are referred to as hygiene (World Health Organization, 2023). Practices intended to preserve cleanliness and safeguard general bodily health are referred to as personal hygiene (Al-Riffai et al., 2018). Regular bathing, hand cleaning when necessary, cutting fingernails and toenails, wearing clean clothes every day, washing and keeping hair free of lice and dandruff, brushing teeth, and maintaining healthy gums are all important personal hygiene practices (World Health Organization, 2016).

An individual's knowledge and practices regarding hygiene as well as social, cultural, family, and behavioral barriers associated with it exert a significant impact on one's personal hygiene knowledge and practices (Andersen, 2019; Tomaszewska et al., 2018). Adequate knowledge and good personal hygiene practices have become even more crucial in the face of developing communicable diseases, such as the recent global COVID-19 epidemic. People and communities can make use of good knowledge and practices to improve self-esteem, stop the spread of infectious diseases, and lessen the financial burden of illnesses (Koirala et al., 2021; Mwesigye et al., 2022; Rahman et al., 2020).

University students stand to gain the most from hygiene interventions because they have to spend lots of time with a large number of peers and other people. This is also the likely period of developing long-lasting personal habits as they transition into independent adulthood (Miko et al., 2012), which have an impact on their general health and wellbeing (Al-Riffai et al., 2018). For students who engage directly with their classmates and spend a lot of time in public, personal hygiene becomes extremely important. Maintaining proper hygiene can help stop the transmission of infectious diseases, which can lower illness-related absenteeism and likely to promote improved academic performance and productivity in colleges and universities (Al-Riffai et al.,

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2018; White et al., 2003).

Despite being the capital city, the weak water-sanitation infrastructure, as well as the increasingly degrading general environmental conditions of Kathmandu, create certain difficulties in adopting hygienic practices at the household and individual levels. This also adds to the challenges for educational institutions in availing favorable conditions for hygienic practices by the students (Rai, 2018).

Moreover, studies done among bachelor-level students in Nepal and abroad have indicated gaps in personal health hygiene behavior (Piryani et al., 2018; Rai, 2018; Miko et al., 2012). These studies have highlighted the necessity of targeted educational initiatives and supportive environments to promote personal hygiene habits on school grounds and close the knowledge and practice gaps in hygiene among college students (Piryani et al., 2018; Rai, 2018; Odonkor et al., 2019). Such measures could also help students act as agents of change by spreading their learning regarding hygienic practices to peers, family, and community members (Al-Riffai et al., 2018).

In this premise, identifying knowledge and practice gaps as well as obstacles pertaining to the personal hygiene of Baneshwor Multiple Campus (BMC) students is crucial. Identifying these gaps will aid in the development of measures to boost students' hygienic behavior, which helps to improve their health and welfare, lower absences due to illness, and avoid contracting communicable diseases. Therefore, the purpose of this study was to assess the personal hygiene related knowledge, self-reported practices, and barriers of first-year bachelor students at Baneshwor Multiple Campus in Kathmandu, Nepal.

Research Method

Carried out during November and December of 2023, this descriptive cross-sectional study involved the first-year bachelor's degree students at BMC. The researcher's convenience and familiarity with the institution were taken into consideration when choosing the study site. The study used the census method and surveyed all first-year bachelor's degree students studying at BMC and those giving their consent. The primary data on participating students' personal hygiene related knowledge, self-reported practices, and barriers were gathered using a self-administered, semi-structured questionnaire prepared in Nepali language.

The questionnaire was mostly modified from comparable studies on personal hygiene among school-age adolescents and bachelor-level university students that were published in Nepal (Rajbhandari et al., 2018; Rai, 2018). A review of international, regional, and local literature (Kumwenda, 2019; Piryani et al., 2018; Regina et al, 2019, and Singh et

al, 2023) and consultation with a public health specialist with extensive experience in this field was done to ascertain the study tool's validity and reliability.

The questionnaire contained 5 sections: socio-demographic characteristics, knowledge of personal hygiene, self-reported practices of personal hygiene, barriers of personal hygiene, and campus-specific questions. Twelve questions with a total score of 0 to 12 (1 for agree and 0 for disagree/don't know) were used to evaluate the level of knowledge. Twelve questions with a total score of 0 to 12 (1 for always and 0 for seldom/never) were used to gauge the degree of self-reported practices. Three categories were created based on the knowledge and self-reported practices: a score of less than 50% (<6) was considered poor, a score between 50 and 75% (6-9) was considered moderate, and a score greater than 75% (>9) was considered good (Elsabagh et al., 2016; Rajbhandari et al., 2018).

The study received ethical approval from BMC's Research Management Committee (RMC). Every participant in the study gave their informed consent. The respondents' anonymity and confidentiality were preserved. The survey was completed by students during their breaks and/or free time. The study did not include students who were absent or who could not be contacted after three attempts.

Only the completed questionnaires were taken into account for data entry for which Kobo Toolbox (https://kf.kobotoolbox.org/) was used. After completing entry, data were transferred to Microsoft Word. Data analysis employed descriptive statistics such as frequency, percentage, mean, and standard deviation.

Results

The study involved 231 first-year bachelor's degree students from all three faculties at BMC; however, the analysis only used data from 216 completed surveys. Students' socio-demographic features, knowledge distribution, distribution of self-reported practices and barriers related to personal hygiene were displayed through descriptive statistics.

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Table 1

Socio-demographic Characteristics of 1st-year Bachelor Students of BMC, 2023 (n=216)

Variables	N	%
Age		
Mean Age 19.43 years SD ±2.13		
Sex		
M	100	46.3
F	116	53.7
Faculty		
Management	118	54.63
Humanities	55	25.46
Education	43	19.91
Place of Resident		
Rural	119	55.09
Urban	97	44.91
Ethnicity		
Hill dalit	12	5.56
Teraidalit	3	1.39
Hill janajati	42	19.44
Teraijanajati	26	12.04
Madhesi	13	6.02
Muslim	3	1.09
Brahmin/Chhetri	113	52.31
Others	4	1.85
Main source of family income		
Agriculture	103	47.69
Business	46	21.3
Service	41	18.98
Contract/Wage	16	7.41
Others	10	4.36

Socio-demographic characteristics of 1st-year bachelor students

Participants in the study ranged in age from 17 to 29, with a mean age of 19.43 years (SD ± 2.13). Of the 216 participants, 116 (53.7%) were female, 118 (54.63%) came from the Management stream, 55 (25.46%) from the Humanities stream, and 43 (19.91%) from the Education stream. Of the 216 participants, 103 (47.69%) said that agriculture

was the primary source of family income, 119 (55.09%) were from rural areas, and 113 (52.31%) were of Brahmin/Chhetri ethnicity. These data have shown in table 1.

Knowledge regarding personal hygiene among 1st-year bachelor students

More than 90% of participants said that they agreed with 10 of the 12 knowledge items: 213 (98.61%) agreed that washing hands with soap as healthy behavior, 211 (97.7%) agreed that neatness helps in keeping healthy and using handkerchief while coughing-sneezing as healthy behavior respectively, 208 (96.3%) agreed that flies could contaminate food, 203 (93.98%) agreed that wearing facemasks prevents spread of respiratory infection, 201 (93.06%) agreed that eating unwashed raw fruits affects health, 199 (92.13%) agreed that bathing everyday keeps us clean,196 (90.74%) agreed that brushing teeth regularly prevents teeth problems whereas 195 (90.28%) answered that spitting anywhere as unhealthy behavior and maintaining proper hand hygiene prevents infection respectively.

Likewise, 37 (17.13%) participants disagreed that leftover food should be reheated before eating, 27 (12.5%) disagreed that biting nail is an unhealthy behavior, 18 (8.33%) disagreed that maintaining hand hygiene prevents infection, 17 (7.87%) disagreed that spitting anywhere is an unhealthy behavior and 16 (7.41%) disagreed that brushing teeth regularly prevents teeth problem whereas 13 (6.02%) each disagreed that bathing everyday keeps us clean and eating unwashed raw fruit affects health. On the other hand, 6 (2.78%) didn't know wearing a face mask prevents respiratory infection, and 5 (2.31%) didn't know leftover food should be reheated before eating. Whereas 4 (1.85%) didn't know about bathing every day keeping oneself clean, biting nails is unhealthy behavior, spitting anywhere is unhealthy behavior, and brushing teeth regularly prevents teeth problems respectively. These result are presented in table 2.

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Table 2

Personal Hygiene Knowledge of 1st-year Bachelor Students at BMC, 2023 (n=216)

S.N	Variables	Agree N (%)	Disagree N (%)	Don't know N (%)
1	Neatness helps to keep us healthy	211 (97.69)	4 (1.85)	1 (0.46)
2	Bathing everyday keeps us clean	199 (92.13)	13 (6.02)	4 (1.85)
3	Washing hand with soap is a healthy behavior	213 (98.61)	2 (0.93)	1 (1.85)
4	Biting nail is an unhealthy behavior	185 (85.65)	27 (12.5)	4 (1.85)
5	Using handkerchief/tissue while coughing, sneezing/blowing nose is a healthy behavior	211 (97.69)	3 (1.39)	2 (0.93)
6	Spitting anywhere in surroundings is an unhealthy behavior	195 (90.28)	17 (7.87)	4 (1.85)
7	Brushing teeth regularly prevents teeth problems	196 (90.74)	16 (7.41)	4 (1.85)
8	Maintaining proper hand hygiene prevents infection	195 (90.28)	18 (8.33)	3 (1.39)
9	Wearing face masks reduces spread of respiratory infection	203 (93.98)	7 (3.24)	6 (2.78)
10	Flies could contaminate food	208 (96.30)	6 (2.78)	2 (0.93)
11	Eating raw fruits/vegetables without washing affects health	201 (93.06)	13 (6.02)	2 (0.93)
12	Leftover food should be reheated before eating	174 (80.56)	37 (17.13)	5 (2.31)

On personal hygiene knowledge, good level was found in 188 (87.04%) students, moderate level in 23 (10.65%) students and poor level in 5 (2.31%) students. On the whole, good level of knowledge was higher among female students (90.52%) than that of male students (83%). These data have shown in table 3.

Table 3

Sex-wise Knowledge Level on Personal Hygiene Among 1st-year Bachelor Students at BMC, 2023 (n=216)

Variables	Male-100	Female-116	Total-216
Students' Knowledge Level	N (%)	N (%)	N (%)
Good	83 (83)	105 (90.52)	188 (87.04)
Moderate	14 (14)	9 (7.76)	23 (10.65)
Poor	3 (3)	2 (1.72)	5 (2.31)

Self-reported practices regarding personal hygiene among 1st-year bachelor students

Out of 12 self-reported practice statements, over 90% participants answered of doing it always on 8 items: 215 (99.54%) on washing hand after using toilet, 213 (98.61%) on washing hand before and after meals, 211 (97.69%) on washing face in the morning, 207 (95.83%) on washing fruits before eating, 204 (94.44%) on brushing teeth after waking up, 199 (92.13%) on eating fresh fruits, and 198 (91.67%) on using soap for hand-washing. Likewise, 106 (49.07%) seldom cut their nails regularly, 85 (39.35%) seldom took daily bath, 58 (28.65%) seldom ate from street vendors, 42 (19.44%) seldom brushed teeth, and 17 (7.87%) seldom used handkerchief while coughing/sneezing. Similarly, 33 (15.28%) never ate from street vendors, 23 (10.65%) never brushed teeth before going to bed, 7 (3.24%) never washed hands with soap/detergents and 4 never used handkerchief while coughing/sneezing. These result are presented in table 4.

Table 4

Self-reported Personal Hygiene Practices Among 1st-year Bachelor Students at BMC, 2023 (n=216)

S.N	Variables	Always N (%)	Seldom N (%)	Never N (%)
1	I wash my face in the morning	211 (97.69)	3 (1.39)	2 (0.93)
2	I take bath daily	128 (59.26)	85 (39.35)	3 (1.39)
3	I brush my teeth after waking up	204 (94.44)	9 (4.17)	3 (1.39)
4	I brush my teeth before going to bed	151 (69.91)	42 (19.44)	23 (10.65)
5	I cut my nails regularly	110 (50.93)	106 (49.07)	00 (00)
6	I use soap or detergents for washing hands	198 (91.67)	11 (5.09)	7 (3.24)
7	I wash my hands before and after meals	213 (98.61)	3 (1.39)	00 (00)
8	I wash my hands after using toilet	215 (99.54)	1 (0.46)	00 (00)
9	I use handkerchief/tissue while coughing, sneezing and blowing nose	195 (90.28)	17 (7.87)	4 (1.85)
10	I eat fresh food	199 (92.13)	15 (6.94)	2 (0.93)
11	I wash fruits and vegetables before eating	207 (95.83)	7 (3.24)	2 (0.93)
12	I eat from street vendors	125 (57.87)	58 (26.85)	33 (15.28)

Table 5 deals that on personal hygiene practices, good level was found in 106 (49.07%) students, moderate level in 101 (46.76%) students and poor level in 9 (4.17%) students. On the whole, good level of practices in 58 (50%) female students was slightly higher than that of male students, i.e., 48 (48%).

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Table 5

Sex-wise self-reported Practice Level on Personal Hygiene Among 1st-year Bachelor Students at BMC, 2023 (n=216)

Variables	Male-100	Female-116	Total-216
Students' Practice Level	N (%)	N (%)	N (%)
Good	48 (48)	58 (50)	106 (49.07)
Moderate	47 (47)	54 (46.55)	101 (46.76)
Poor	5 (5)	4 (3.45)	9 (4.17)

General views on barriers regarding personal hygiene among 1st-year bachelor students

Regarding students' general views on barrier statements, laziness was answered as yes by 138 (63.89%), lack of time by 138 (63.89%), lack of materials by 135 (62.5%), lack of water supply and custom/beliefs each by 131 (60.65%), and lack of information by 114 (52.78%). Likewise, lack of information was answered as no by 102 (47.22%), lack of water supply and custom beliefs each by 85 (39.35%), lack of materials by 81 (37.5%), lack of time by 78 (36.11%), and laziness by 76 (35.19%) students. These result are presented in table 6.

Table 6

General Views on Barriers Regarding Personal Hygiene Among 1st-year Bachelor Students of BMC, 2023 (n=216)

S.N	Variables	Yes-N (%)	No- N (%)
1	Lack of information and education on personal hygiene	114 (52.78)	102 (47.22)
2	Lack of water supply	131 (60.65)	85 (39.35)
3	Lack of materials (soap, detergents, sanitizer, pads, etc)	135 (62.5)	81 (37.5)
4	Lack of time	138 (63.89)	78 (36.11)
5	Custom/beliefs	131 (60.65)	85 (39.35)
6	Laziness	140 (64.81)	76 (35.19)

On campus specific questions, 57 (26.39%) students answered yes and 159 (73.61%) answered no for having taken a class on personal hygiene ever in campus. 137 (63.43%) answered yes and 79 (36.57%) answered no on campus having good facility for personal hygiene. Likewise, 55 (25.46%) said yes and 161 (74.54%) said no on campus providing adequate materials for to help personal hygiene of students. These outcomes are presented in table 7.

Table 7

Campus Specific Questions Regarding Personal Hygiene Among 1st-year Bachelor Students of BMC, 2023 (n=216)

S.N	Variables	Yes- N (%)	No- N (%)
1	Ever taking class on personal hygiene in campus	57 (26.39)	159 (73.61)
2	Does Campus have good facility to help maintain your personal hygiene?	137 (63.43)	79 (36.57)
3	Does Campus provide adequate materials to help maintain your personal hygiene?	55 (25.46)	161 (74.54)

160 participants (74.07%) responded to an open-ended question about what college administration should do to enhance bachelor's level students' personal hygiene. The major points mentioned were having provision of hand sanitizer, soap, water, separate toilets for boys and girls, regular cleaning of toilets, clean drinking water, dustbins and pads for girl students for use on campus. Likewise, provisioning educational programs on personal hygiene, involving students in cleaning classrooms/surroundings, having strict regulations to prohibit littering in campus, along with the provision of fresh, healthy food in the campus canteen, were suggested.

Discussion

According to this study, 87.4% of study participants had an excellent understanding of personal hygiene. This result was significantly lower than research conducted in Bangladesh (96.7%) and Nigeria (98.2%), comparable to research conducted in Nepal (88.5%) and India (85.5%), and significantly higher than research conducted in Iraq (57.2%) (Temitayo, 2016; Rajbhandari et al., 2018; Rahman et al., 2020, Kumar et al., 2015; Hassan et al., 2017). These discrepancies might have arisen because the majority of the study's participants were late teenagers and young people enrolled in the capital city, where they may have had greater access to knowledge and instruction. Higher levels of exposure to personal hygiene components during students' school years or at some point in the past, including the family environment, may potentially contribute to the study's higher level of findings.

In this survey, female students scored higher (90.52%) than male students (83%) for having a strong level of awareness about personal hygiene.This finding correlates with the studies from Nigeria, Kuwait, Saudi Arabia, India and Nepal (Nurudeen et al., 2020, Al-Riffai et al., 2018, Iqbal et al., 2020, Pukhraj et al., 2021, Rajbhandari et al., 2018) but in disagreement with the findings from the 2016 study in Egypt (Elsabagh et al., 2016). These differences in knowledge scores between males and females may be

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caused by variations in family socioeconomic status and sociocultural differences, as well as a general tendency for females to be more hygienic than males or adolescent/ youth females to be more concerned with cleanliness for maintaining a good appearance (Odonkor et al., 2019, Iqbal et al., 2020, Rajbhandari et al., 2018).

The vast majority of participants in this study (98.61%) agreed that washing hands with soap is a healthy habit. This was comparable to a study conducted in Nepal (98.2%), but significantly higher than studies conducted in the USA (83.3%) and Egypt (Rajbhandari et al., 2018, Miko et al., 2012, Elsabagh et al., 2016). Similarly, the vast majority of participants in this survey believed that being tidy helps them stay healthy (97.7%), which was found to be quite similar to that revealed by a study conducted in Nepal (97.9%) but significantly higher than that showed by a study conducted in Nigeria (81.4%) and India (79.0%) (Rajbhandari et al., 2018, Nurudeen et al., 2020, Seikh, 2020). In contrast to research conducted in Nepal (20.75%), Bangladesh (48.3%), and Egypt (76.6%), this study revealed that 97.69% of participants believed that covering one's mouth with a handkerchief or paper when coughing or sneezing is a healthy activity (Koirala et al., 2021, Rahman et al., 2020, Elsabagh et al., 2016).

Similarly, 92.13% of participants in this survey agreed that taking a bath every day keeps them clean, which is significantly higher than the results of studies conducted in Nigeria (82.9%) and Nepal (80.2%) (Nurudeen et al., 2020, Rajbhandari et al., 2018). In this survey, 90.74% of participants agreed that frequent tooth brushing helps avoid dental issues. This result was significantly lower than the 95% observed in a research conducted in Nigeria, substantially greater than that found in a study conducted in India (49.2%) and marginally lower than that found in a study conducted in Nepal (91.5%) (Temitayo, 2016, Rajbhandari et al., 2018, Sheikh, 2020). 90.28% of participants in this study agreed that practicing good hand hygiene prevents infection, which is significantly lower than that found in studies conducted in Nigeria (98%) and Nepal (97.3%) but much higher than that found in studies conducted in the USA (85.1%) and India (37.7%) (Temitayo, 2016, Rajbhandari et al., 2018, Miko et al., 2012, Kumar et al., 2015). In a similar vein, 93.98% of participants in this study agreed that wearing a face mask prevents respiratory infection, which was significantly higher than that of another study conducted in Nepal (78%) and India (86.7%) but lower than that of a study conducted in Ethiopia (98.4%)(Larebo et al., 2021, Rajbhandari et al., 2018, Nagarajan et al., 2021). 85.65% of participants in this study believed that biting one's nails is an unhealthy activity, which is slightly lower than that of another study conducted in Nepal (88.5%) but significantly higher than that of a study conducted in India (40%) (Rajbhandari et al., 2018, Sheikh, 2020). These variations may have resulted from variations in the

study groups' age, educational attainment, family socioeconomic backgrounds, and prior exposure to information about personal cleanliness.

This study showed that, in spite of having good level of knowledge, only about half (49.07%) of the students were found to have good level of self-reported practices of personal hygiene. This result was nearly half that of a study conducted in Thailand (98%), lower than that of a study conducted in Pakistan, and higher than that of a study conducted in Nigeria (Regina et al., 2019, Singh et al., 2023, Wungtongkum, 2022). The finding of having lower score on self-reported practices (49.07%) despite having higher score for good level of knowledge on personal hygiene (87.4%) as shown by this study correlates with studies done in Nigeria, Ghana, Saudi Arabia and Pakistan (Regina et al., 2019, Odonkor et al., 2019, Iqbal et al., 2020, Singh et al., 2023). This gap correlates to the common phrase of 'knowing is not always enough' or the "know-do gap" (Wray et al., 2023). Program to foster proper attitude or mindset to cultivate the correct habit of putting what one knows into practice among students is suggested to reduce such gap (Iqbal et al., 2020).

According to this study, women practiced personal hygiene at a higher rate (58%) than men (48%). A study conducted in Pakistan found that 84.4% of females had good or moderate practices, whereas only 68.6% of males had good practices. In contrast, a study conducted in Thailand found that males had better practice attitudes than females (Singh et al., 2023, Wungtongkum, 2022). A study done in Ghana reported 83.3% of females having good practices of personal hygiene as compared to 76.1% of males (Odonkor et al., 2019). Likewise, a study done in Saudi Arabia reported of both genders having poor practices with females having slightly higher percentage of good practice as compared to males (Iqbal et al., 2020). These disparities may have resulted from population variations as well as social and cultural distinctions between males and girls in various regions of the world.

This study revealed that hand washing after using the restroom was almost universal (99.54%), which is comparable to findings from studies conducted in Nepal (99.7%) and India (97.1%), but significantly higher than findings from studies conducted in Ghana (76.2%) and Pakistan (93.6%) (Rajbhandari et al., 2018, Kumar et al., 2015, Odonkor et al., 2019, Singh et al., 2023). In this study, 98.61% of participants reported washing their hands before and after meals, which is comparable to a study conducted in India (96.4%) but significantly higher than a study conducted in Nigeria (89.6%) and Turkey (89.6%) (Kumar et al., 2015, Regina et al., 2019, Bulut et al., 2022). In this study, 97.69% of participants washed face in the morning, which was found to be higher than that shown by a study done in Turkey (95.7%) and Nepal (40.25%) (Bulut

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et al., 2022, Koirala et al., 2021). Compared to studies conducted in Ghana (84.2%) and Nepal (74.6%), this study indicated that 94.44% of participants brushed their teeth after waking up (Rajbhandari et al., 2018, Odonkor et al., 2019). This study indicated that 91.67% of participants washed their hands with soap, which is comparable to a study conducted in India (91.55%) but significantly higher than a study conducted in Nepal (79.9%) and Nigeria (57.2%) (Ratnaprabha et al., 2018, Rajbhandari et al., 2018, Regina et al., 2019).

Likewise, 90.28% of participants in this study reported of covering mouth/nose using handkerchief or tissue while coughing, sneezing and blowing nose. This result was significantly higher than the 39.2% found in a study conducted in Bangladesh (Rahman et al., 2020). Compared to studies conducted in Saudi Arabia (31%) and Nigeria (19.9%), almost two-thirds of participants (69.91%) reported cleaning their teeth before bed (Kannan et al., 2020, Regina et al., 2019). Compared to a study conducted in Ghana (80.1%), India (85.5%), and Nigeria (92.2%), 59.26% of individuals in this study reported bathing every day (Odonkor et al., 2019, Ratnaprabha et al., 2018, Regina et al., 2019). The majority of participants in this study (57.87%) reported eating from street vendors, which was slightly higher than that reported in an Indian study (51%) (Agrawal et al., 2023). In this study, only half of the participants (50.93%) reported routinely trimming their nails, which was lower than that of a study conducted in Turkey (84.8%) but higher than that of a study conducted in Nigeria (32.7%) (Regina et al., 2019, Bulut et al., 2022). These variations may have resulted from variations in the study cohorts' age, educational attainment, sociocultural backgrounds, and family/school orientation.

Regarding general opinions about the barriers to personal hygiene, 64.81% of participants said that laziness was at the top. This was found to be lower than that of a study conducted in Pakistan (94.6%), but significantly higher than that of a study conducted in Ghana (20%) and Eastern Nigeria (27.8%) (Singh et al., 2023, Odonkor et al., 2019, Innocent et al., 2020). 63.89% of study participants in this study reported lack of time as 2nd most common barrier influencing practice of personal hygiene, which was found to be much higher than that shown by a study in Pakistan (52.4%), Nigeria (24%) and Ghana (12%) (Singh et al., 2023, Odonkor et al., 2019, Innocent et al., 2020). Lack of materials was reported as the 3rd most common barrier to maintain their personal hygiene by study participants. Likewise, 60.65% of participants reported lack of water supply as well as custom/beliefs as 4th and 5th commonest barriers influencing their personal hygiene respectively. The finding for lack of water supply was found to be in coherence with studies done in Pakistan (76.5%) and Nigeria (89%) but in contrast with that shown by a study done in Ghana (0.5%) (Singh et al., 2023, Innocent et al., 2020, Odonkor et al.,

2019). The finding for custom/beliefs was to some extent were in coherence with the finding of a study done in Pakistan (28.4%) but were in contrast with the findings shown by studies done in Ghana (0.5%) and Nigeria (0.5%) (Singh et al., 2023, Odonkor et al., 2019). Lack of information/education was reported as the least common barriers by around half of participants (52.78%). This finding was much lower than that shown by studies done in Nigeria (92.8%), Pakistan (86.2%) and Ghana (63%) respectively (Innocent et al., 2020, Singh et al., 2023, Odonkor et al., 2019). These discrepancies may have resulted from variations in the study groups' age, educational attainment, sociocultural backgrounds, and family/college environments.

Nearly three out of four students (73.61%) said they had never taken a personal hygiene class on campus; three out of five students (63.43%) said the campus had good facilities to help students maintain their personal hygiene; however, three out of four students (74.54%) said the materials provided by the campus were insufficient to maintain their personal hygiene, indicating the need for improvement in the coming days.

On open-ended question about the measures the college should take to help improve students' personal hygiene in future, large majority of participants pointed out the need for provisioning adequate materials (e.g., hand sanitizer, soap, water, dustbins) for use in campus, providing educational sessions on personal hygiene, keeping classroom/ surroundings clean, and improving canteen service with fresh healthy food.

Limitations

When drawing conclusions from the study's results, a number of limitations must be taken into account. Initially, this study was conducted among first-year bachelor's degree students at a community campus in the Kathmandu Valley, and information was gathered from individuals who were present in campus during study period. As a result, the study's conclusions may not apply to other higher education institutions. Second, students' self-reported activities may be over reported compared to their real practices (a phenomenon known as self-report bias). Third, the study's descriptive cross-sectional methodology restricts the ability to infer a causal relationship between the study variables.

Conclusion

According to this study, the vast majority of first-year bachelor's degree students at a community campus in Kathmandu have a solid understanding of personal hygiene. When it came to knowledge regarding personal hygiene, females appeared to know more than males. Only over half of the students seemed to demonstrate good personal hygiene

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practices, in contrast to the knowledge domain. Consistent to the knowledge domain, female students demonstrated superior personal hygiene practices in comparison to their male counterparts. Despite having a fairly good level of knowledge, only about half of the students' level of personal hygiene practices was good. This suggests that appropriate educational interventions are needed to promote proper attitudes toward personal hygiene in order to improve their practices.

According to the majority of students in this study, laziness was the biggest obstacle to maintaining personal hygiene, followed by a lack of time, supplies, and water. Likewise, only about one in four students reported of ever received a class on personal hygiene in campus as well as campus having adequate materials to facilitate students' personal hygiene needs respectively. This implied the need for improving personal hygiene related facilities and material supply in campus in future.

Recommendations to Campus management

This study suggests that in order to raise students' awareness, campus administration should deliver sessions on personal hygiene. The study also suggested that campus administration encourage students to help maintain a clean classroom and surrounding area. Besides, the availability of supplies related to personal hygiene should be improved, and cleaner restrooms with enough water and waste disposal bins should be made available.

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