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St. Paul's Hospital Millennium Medical College

SCHOOL OF PUBLIC HEALTH
FACTORS AFFECTING SANITATION AND HYGIENE
PRACTICE AMONG STUDENTS IN PUBLIC UNIVERSITIES
AT ADDIS ABABA, ETHIOPIA, 2023.

BY

KIFLEMARIAM TSEGAYE AWOKE, (BSC)

ADDIS ABABA, ETHIOPIA

JULY, 2023



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**A THESIS SUBMITTED TO GRADUATE STUDIES COORDINATING
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ACRONYMS

AAU	Addis Ababa University
CI	Confidence Interval
ECSU	Ethiopian Civil Service University
KMU	Kotebe Metropolitan University
EDHS	Ethiopia Demographic and Health Survey
HSIU	Haile Selassie I University)
HSTP	Health Sector Transformation Plan
MoE	Ministry of Education
MDG	Millennium Development Goal
OR	Odds Ratio
SDGs	Sustainable Development Goals
SPHMMC	St. Paul's Hospital Millennium Medical College
UNICEF	United Nations International Children Fund

VIF	Variance Inflation Factor
WASH	Water, Sanitation and Hygiene

ABSTRACT

Background: Sanitation and hygiene in schools including public universities is a major problem in Ethiopia: 40% of schools have unimproved latrines; only 6% of schools have basic hand-washing facilities with soap; and 18% have limited services. Poor sanitation causes productivity losses including absenteeism in school because of the associated diarrheal diseases as well as the time taken to seek care in the health facilities. In Ethiopian public universities, gaps in sanitation and hygiene practice result in a more serious effect since the students are living in a confined condition, sharing common services. Sanitation and hygiene knowledge and practices are very important to decrease these disease burdens especially in places like public universities.

Objectives: This study was aimed to assess the status and factors affecting sanitation and hygiene practice among students in public universities at Addis Ababa, Ethiopia.

Methods: The study applied a cross-sectional study design from February –March, 2023. A total of 469 students from Kotebe Education University and Ethiopia Civil Service University were selected for the study. Data was collected using structured and pre-tested self-administered questionnaire and observational checklist. Data entry, cleaning, editing and analysis were done using Epi info version 7 and “SPSS version 25.” Both bivariate and multivariate logistic regressions were employed to assess the association between dependent and independent variables.

Results: About 63.8 % of students had high knowledge about hand washing and hygiene and about 61.2 % had bad sanitation and hygiene practice. Factors significantly associated with sanitation and hygiene practice at p value <0.05 were sex (AOR=5.37,95%CI (3.214,8.970). Residence before university admission (AOR=0.525, 95%CI (0.300, 0.919) and year of study (AOR=11.018, 95%CI (5.611,21.635). Based on the personal assessment, the possible problems that can affect the sanitation and hygiene practice in the universities were lack of water and soap at hand washing facility. It was recommended that the management of university should ensure the availability of sanitation and hygiene facilities.

Conclusion: This study revealed that sanitation and hygiene practices in public universities are remarkably poor. Despite the remarkable increase in the number of universities, the promotion of improved sanitary and hygiene facilities has been overlooked over the years. Therefore, a multi-level promotional intervention is needed to advance an enhanced, need-oriented, and effective sanitary and hygiene system that can promote improved hygiene and sanitary practices among university students.

Key words: Sanitation and hygiene practice, Factors, Public University.

1. INTRODUCTION

1.1 BACKGROUND

Basic sanitation is defined as having access to facilities for the safe disposal of human waste (feces and urine), as well as having the ability to maintain hygienic conditions, through services such as garbage collection, industrial/hazardous waste management, and wastewater treatment and disposal(1). The word hygiene is the practice of keeping oneself and one's surroundings clean, especially in order to prevent illness or the spread of diseases(2).

The world did not achieve the United Nations' Millennium Development Goal (MDG) sanitation target to halve the proportion of people without sustainable access to basic sanitation by 2015. Now, the United Nations' Sustainable Development goal (SDG) is for everyone to have "adequate and equitable" sanitation and basic hygiene for all by 2030(3).

Sanitation and hygiene are critical to health, survival, and development. Many countries face challenges in providing adequate sanitation for their entire populations, leaving people at risk for diseases related to water, sanitation, and hygiene. Throughout the world, an estimated 1.7 billion people lack basic sanitation (about 21% of the world's population)(3). Around 2.3 billion people (about 29%) lack access to basic hygiene, which includes access to a hand washing station with soap and water at home (2).

Around 829, 000 people in low- and middle-income countries die as a result of inadequate water, sanitation, and hygiene each year, representing 60% of total diarrhea deaths. Poor sanitation is believed to be the main cause in some 432 000 of these deaths and is a major factor in several neglected tropical diseases, including intestinal worms, schistosomiasis, and trachoma. Poor sanitation also contributes to malnutrition. In 2020, 54% of the global population (4.2 billion people) used a safely managed sanitation service; 34% (2.6 billion people) used private sanitation facilities connected to sewers from which wastewater was treated; 20% (1.6 billion people) used toilets or latrines and 78% of the world's population (6.1 billion people) used at least a basic sanitation service (4).

Quality of life, of which sound health is an essential component, should be a top priority by ensuring safe hygiene and sanitation practices among students for better performance. hygiene education and ensuring that environmental health(4) are necessary for effective health

promotion education and the appropriate conditions. The challenges of safe water, sanitation, and hygiene are crucial because clean water, hygiene, and sustainable sanitation have a strong positive impact on health, education, and development(5).

A Study conducted in Bangladesh shows that only 43% of students maintain proper hand hygiene, and less than 22% of students use soap during washing hands as well as their hygiene practice was shows a variation between male and female students(6).

Achieving SDG may be difficult for Ethiopia given the present state of development in water and sanitation. To address the problem of inadequate water supply and sanitation in schools, MoE has developed the following working documents: Developing a School WASH Strategy and Action Plan, Developing guidelines for water and sanitation needs of school children, Develop gender and age sensitive curriculum on sanitation and hygiene, Establish standards for construction of school latrines and hand washing facilities, Upgrade life skills of school children and teachers on sanitation and hygiene education, Establish health/environmental/school WASH clubs and promote children as agents of change(7).

Until recently, sanitation and hygiene practice-related studies in educational settings mainly focused on the school level (mostly in primary schools) in Ethiopia. Few studies have reported the hygiene practice of public university students in the context of Ethiopia. Moreover, most of these studies are gaps in identifying factors affecting sanitation and hygiene practices and insufficient to completely recognize and explore hygiene and sanitation related practices. Therefore, this study is aimed at identifying factors influencing sanitation and hygiene practice of students in public universities at Addis Ababa.

1.2 STATEMENT OF THE PROBLEM

Inadequate sanitation and hygiene services in schools increases their exposure to pathogens and risk of disease. Higher rates of infectious, gastrointestinal, neuro-cognitive and psychological illnesses have been documented where school water and sanitation facilities are inadequate in both developing and developed countries. Insufficient numbers of facilities can affect school attendance rates, increase open defecation, and put students and teachers at risk of sanitation and hygiene related diseases(8).

A previous study done in Bangladesh (9), New York(10), Nigeria(11), Ghana(12), India(13), and Kuwait(14) revealed that the university students had poor status regarding sanitation and hygiene practice. Another study also showed that outbreaks of viral gastroenteritis, upper respiratory tract infections, and group B streptococcal colonization also be associated with poor sanitation and hygiene practice, which ultimately affect potential human resource development(6). A study by Aklilu et al. found that over 45% of the studied food handlers who work for the students' canteen in Addis Ababa University are positive for different intestinal parasites (15). In that respect, water supply, hygiene, and sanitation are highly demanding to lower and avoid the burden of communicable diseases significantly (16).

Despite the proven effectiveness of improved sanitation and hygiene practices in educational settings (17), there is evidence that maintaining good hygiene practices in low-income countries including Ethiopia has a relatively low implementation rate (18). Until recently, sanitation and hygiene practice-related studies in educational settings mainly focused on the school level (mostly in primary schools) in Ethiopia. Few studies have reported the hygiene practice of public university students in the context of Ethiopia. No study reported the hygiene and sanitation practice in the study area. Moreover, most of these studies are gaps in identifying factors influencing sanitation and hygiene practices and insufficient to completely recognize and explore hygiene and sanitation related practices. For example, few cross-sectional studies reported sanitation and hygiene related descriptive statistics in university students (19), (23),. Globally including our country there is limited data that indicated factors affecting sanitation and hygiene practice in public universities. Therefore, the aim of this study is to determine factors influencing sanitation and hygiene practice among students in public universities.

1.3 SIGNIFICANCE OF THE STUDY

The progress of hygiene and sanitation work in the country was not satisfactory with regard to many standards. Few studies have reported the hygiene practice of university students in the context of Ethiopia. Therefore, this study will inform the Sanitation and Hygiene related actions needed in public universities to improve sanitation and hygiene practices among university students. On the other hand, this study has great role in increasing awareness of students on factors influencing hygiene and sanitation practices. It can also be used as a reference for further research.

2. LITERATURE REVIEW

Improved hygiene and sanitation practices in educational settings are effective for the prevention of infections, controlling the transmission of pathogens, and promoting good health. According to different studies, there are many factors that influence the sanitation and hygiene practice of students: Individual factors (gender, awareness, perception, and sense of health benefits), contextual factors (lack of cleanliness and maintenance, and the supply of sanitary products), socio-behavioral factors (norms, peer influence), and factors related to university infrastructure (shortage of female toilets, lack of monitoring and supervision of cleaning activities) emerged as the underpinning factors that determined the sanitation and hygiene behavior of the university students(22).

Among the various factors influencing sanitation and hygiene practices of students and magnitude indicated by different studies conducted so far, few important factors and magnitude indicated will be reviewed below:

2.1. MAGNITUDE OF POOR SANITATION AND HYGIENE PRACTICE

Based on comparable data from 70 countries in 2015, hygiene coverage, defined as the availability of a hand washing facility with soap and water on premises, varied widely across regions. In the 34 sub-Saharan Africa countries with data, less than 20 per cent of the population on average had a facility with soap and water at home in 2015. In the 14 countries with data in Latin America and the Caribbean, hygiene coverage was greater than 75 per cent on average (3).

Study conducted in Bangladesh observed that only 43% of students maintain proper hand hygiene, and less than 22% of students use soap during washing hands(6). Another study Findings show that 85.36% of the students wash their hands always before having their food; 91.79 % of students wash their hands after defecation & 85.71% of them always maintain regularity in taking a bath. Regularity in cutting is found 59.29% among students and wearing washed clothes is 71.79%. Sanitation practice showed that 40.36% of students use shared toilets (23).

One study conducted in Ghana showed that 52.1% students always wash their hands with soap and water. Some students admitted skipping hand washing after using the toilets. About 15.6%

of students usually skipped hand washing, 39.3% always use alcohol hand sanitizer whilst 12.1% do nothing. about washing their hands on the average every day, the majority (50.5%) of students was one to three times a day and only 6.2% washed their hands more than ten times a day (26). Similarly in another study in Turkish found that students washed their hands 6-10 times a day(4).

Another study conducted in Ghana observed that teeth brushing was highest and best hygiene practice item, recorded 84.2%,15%, and 3% for good practices, moderate practice, and poor hygiene practices, respectively. The poorest (25.6%) hygiene practice observed was nose picking. Furthermore, only 64.4% of respondents used handkerchiefs when picking their nose. When asked whether they washed their hands on their return from school, only 48.3% had a good hygiene practice with this, and 11.2% showed poor hygiene practice with this(24).

One study conducted in India on female college students showed that, 85.4% of the subjects use flush/pour latrines and a small percentage of subjects used dry pit latrines and composting toilets. In this study, 91.1% of the subjects disposed their garbage in municipal waste bins while 8.1% of the subjects used other methods of waste disposal such as throwing it in street corners and vacant lots. About a way to manage household waste, 75.4% of the subjects said composting, while 21.3% of the subjects answered landfills. About their hand washing with soap practice, 54.8% washed their hands at least 10 - 15 times a day, 37.9% washed their hands every hour or more, 7.3% washed their hands less than 5 times a day(25).

Another study conducted in India showed that students do not practice proper hand hygiene, 38.50% don't wash their hand with soap before taking meal and 13.75% were not washing hand with soap after defecation, whereas 34.50% didn't wash their hands after handling garbage or dirty things. It was found that only 67.75% of students cut their nails in a week. Practice for proper oral hygiene was found very inadequate, 83.25% didn't use to brush their teeth twice a day and were likewise also not cleaning their tongue; they did it only once a day. These students were very considerate of taking bath daily and 90% of them did this, but only 41.25% of them daily washed their genitals, merely 10% of the students got daily washed clothes to wear, and 19.25% do not change their undergarments daily. Most of them i.e. 98.75% had sanitary latrine build in their home and remaining 1.25% used public bathrooms. Only 40.50% of student's household waste was disposed properly rest of them didn't. It was found that only 81.25% students were cautious for not dipping finger in drinking water and rest of them were reluctant, whereas 93.75%% of them have the habit of keeping water and edibles safe from house flies, but when questioned for consuming edibles from vendors selling in

unhygienic condition it was found that about half of them i.e. 52.25% gave positive response(13). Similarly, other study conducted in senior secondary school students found that majority of the respondents (65.9%) gave positive responses for hand washing and a lesser (46.4%) of the respondents cut their nails weekly and almost (99.6%) of them were taking regular bath(26). Similarly, other study also reported that 31.8% students washed hands with soap before eating and 40.2% after handling garbage(27) Similarly study conducted in India reported that only 14.6% college students were brushing twice daily(25). Another study also found that in University students only 8% brush their teeth twice daily (26). On the contrary study conducted in Nigeria found that most of the students 98.2% were brushing teeth 1-2 times a day (14) and also in an another study done by Talinova, 90% of the grammar school students replied they cleaned their teeth twice a day(28).

One study conducted in Nigeria showed that 40.5% washed their hands always, 37.7% said before eating in the school, 21.2% said only after toilet use and 0.5% washed their hands sometimes(19). Another study conducted on Hygiene Practice of Students showed that 78% were answered correctly the practice questions while the rest 22% are answered the wrong practice questions (19).

In March 2010, Addis Ababa University (AAU) Technology Campus reported occurrence of an outbreak of diarrheal illness among students, with an attack rate of 6.8%. Risk factors associated with illness included eating specific foods at specific meal times. Food items served on Friday, March 26, at lunch time (OR: 3.59, CI: 1.0- 12.7, $p=0.04$) and on Saturday March 27, during dinner (OR: 2.89 CI: 1.0- 8.2, $p=0.04$) were significantly associated with increased odds of illness. Water stored in a tank in the cafeteria had evidence of fecal contamination (fecal coliform count >161 Mpn /100ml) and the hygiene and sanitary conditions in the cafeteria, kitchen, living area were unsatisfactory(29).

2.2. FACTORS ASSOCIATED WITH POOR SANITATION AND HYGIENE PRACTICE

2.2.1 Individual factors

One study conducted in private university of Bangladesh showed that, age and marital status were significant influence and predictor on hand hygiene practice. According to the study, age has a negative influence on hand hygiene practice, as older students have lower scores compared to the younger ones ($P, 0.01$). However, the unmarried students were a significant predictor for influencing the incensement of handwashing practice compared to the married ones ($P, 0.01$). This study t-test result also showed that there was a statistical significance difference in scores among marital status. There was also a small variation in the practice score among male (50.64) and female (51.17) students but statistically, it was not a significant difference(6). Another study observed that no significant difference was found in hygiene and sanitation practices regarding age of student(24)(13).

A recent study conducted in Ghana showed that there was a significant difference ($p=0.001$) in the mean scores of male and female students with females scoring higher than their male colleagues. Sex ($R^2=0.164$, $p=0.001$) and age group ($R^2=0.003$, $p=0.048$) were predictors of hygiene behavior among the students(12). Another similar study also observed that females had a significantly good practice and moderated practice of 83.3% and 14.5% respectively, while the minority (3.2%) of females had a poor practice, but was not significant ($P=0.114$). males represented 76.1% for good practice and 39% moderate practice. Males had relatively poor practice compared to females, however, that was also not significant ($P=0.114$). (24)

Another study conducted on personal hygiene practice of students indicated low hand washing practice. e.g. washing hand before and after eating snacks, after urination, with soap and water, after wiping nose and coughing among others. Most of the students do not brush their teeth before going to bed(5).

In one study conducted in Nigeria showed that there was a strong association between gender and utilized available sanitary facilities ($P (0.002) < 0.05$). There was also a strong association between year of study and utilized available sanitary facilities ($P (0.00) < 0.05$)(5).

Study conducted on personal hygiene among college students in Kuwait showed that there was a significant difference on hand hygiene practice between male and female respondents

because females tended to have greater soap availability in restrooms within their colleges. This finding is relatively similar to Snow et al. (30) who found that women tended to wash their hands more often than men. This study also found that body hygiene was significantly different between females and males, with females tending to be more concerned with their hygiene in relation to others, whereas, males show a greater focus on body hygiene practices than the female students. Oral care was found to be significantly different for both males and females, with males tending to show greater attention to oral care compared to females. This finding contrasts with that of Snow et al. (30) who found women to focus more on various factors of hygiene than men. This study found that men tend to brush their teeth more often than women, especially after eating sweets(14). Similarly, other study conducted in kottebe metropolitan university showed that students' knowledge and attitude on hand washing highly varies and significant difference($p \approx 0.00$) existed between genders(19).

Study conducted in public university results revealed significant correlation between the gender and knowledge and practice of food safety and sanitation ($F = 30.328$, $p = 0.000$) and ($F = 18.177$, $p = 0.000$), respectively. This study also showed that knowledge ($\beta = 3.677$, $p < .000$) fostered the practice of food safety and sanitation more in comparison with attitude ($\beta = 2.244$, $p < .000$)(31).

One study conducted on college students shown that knowledge of food safety does not directly affect the attitude towards food safety (p value > 0.05). On the other hand, overall food safety practice differed in terms of sex, year of schooling, and knowledge of food safety (p value < 0.05) among participants. Training and knowledge score had significant correlation among respondents (p value < 0.05). There was a significant association between knowledge and practice while food safety practices were independent with an attitude among the students(32).

Males had relatively poor hygiene practice compared to females. Among females, a majority (83.3%) of the females maintain good hygiene practice where this is only 76.1% for males, as well as 14.5% females and 39% males, follow moderated practice (6), similar with study conducted in Ghana (24). However, in most of the studies in literature showed the statistically non-significant relationship between hygiene practice and respondents' gender(6) (19). Other similar study also shows that the female students are 1.992 times more likely to have good hygiene and sanitation practices than male students(6).

2.2.2 Utility standard and quality related factors

Cleanliness of the washroom was strongly associated with improved handwashing behavior for both women and men, as was tap flow quality for female students, and Female students were more likely to wash their hands at all, and were more likely to wash both hands, than males(5). Similarly, Study conducted in Adama university showed that, the number of toilet available, presence of hand washing facility, presence of water, availability of water, availability of soap, cleanliness of toilet were factors affecting hygiene practice of students(32).

Another study conducted in Addis Ababa University (AAU) Technology Campus on outbreak of diarrheal illness among students showed that risk factors associated with illness included eating specific foods at specific meal times, unsatisfactory water contamination and hygiene and sanitary conditions in the cafeteria, kitchen, living area. Food items served at lunch time (OR: 3.59, CI: 1.0- 12.7, $p=0.04$) and during dinner (OR: 2.89 CI: 1.0- 8.2, $p=0.04$) were significantly associated with increased odds of illness(29).

Study conducted on the impact of gender and physical environment on the handwashing behavior of university students in Ghana, showed that gender, washroom cleanliness, tap-flow and soap availability was a highly significant predictor of handwashing behavior. This study revealed that nearly 70% of students in 'clean' facilities washed their hands, compared with 36% of those in moderately clean facilities and just 13% of those in dirty washrooms; and 45% of students encountering good tap-flow washed their hands compared with 31% of those faced with poor tap-flow(5).

2.2.3 Socio-economic factors

Study conducted in private university in Bangladesh showed that there was a small variation in the practice score related with living conditions, and the difference is statistically significant ($P,0.05$). The practice level of hand hygiene was higher among those who lived with family (51.6) compared to others and the lowest among those who lived alone (45.00). The level of higher grade education of participants had also played a significant impact on handwashing practices compared to that of lower grade education. Conversely, other study showed that the lower grade of mother education level was negatively associated with the handwashing practice

than the higher level of education. On the contrary, the sex of the participating students, father's education level, as well as the current living conditions were not significant predictors of hand washing practice (6). Similarly, Study conducted in India shown that highly significant difference in sanitation and hygiene practices was found regarding education of father, education of mother and socioeconomic status of the family (13).

Another study conducted in Ghana also showed that Respondents from urban areas exhibited good hygiene practice compared to those from urban residences. There was a significant association between residence and hygiene practice ($\chi^2=17.8, P\leq 0.001$). and also observed that those respondents within the upper class in society had a poor hygiene practice, compared to the Lower Class and Middle Class respondents. Lack of education (63.1%) was observed as the main barrier to personal hygiene among the respondents. And also observed that observed that hygiene practice correlated with age, ethnicity, level of study, social status, marital status, and type of residence. However, it is worth noting that ethnicity, marital status, and residence was positively correlated whiles age, level of study, and social statuses were negatively correlated. No correlation was observed between hygiene practice and religion, gender, programme of study, and health insurance(24).

There was a significant relationship between residences and hygiene practice ($P \leq 0.001$). However, respondents from rural residence had significantly poor ($P \leq 0.001$) hygiene practice compared to those in the urban residence. The study also reveals a significant relationship between hygiene practice and insurance and social status. Non-insured respondents had higher good hygiene practice (81.1%) than insured respondents (79.3%). However non-insured patient had a significantly poor hygiene practice ($P \leq 0.001$) compared to insured respondents. Interestingly, the Upper Class respondents have the poorest hygiene practice (15.4%) compared to 4% and 1.1% for Lower Class and Middle Class, respectively. There is no relationship between the respondents' programme of study and their hygiene practices. However, there is a significant relationship ($P \leq 0.001$) between the qualifications the students were enrolled for and their hygiene practices(24).

Study conducted among Bangladesh university student showed that there was a significant difference ($p<0.001$) in hygiene and sanitation practices regarding variable family type and socio-economic status for the students staying at home. The students staying in the nuclear family are 3.968 times more likely to have good hygiene and sanitation practices than the students staying in a joint family. Similarly, another study conducted by Sultana et al., in 2016

showed that the students who lived with family (51.6%) had higher practice levels of hand hygiene, and it was the lowest among those who lived (45.00%) without family (23). Conversely, another study observed that no significant difference was found in hygiene and sanitation practices regarding age of student, class and whether he belongs to nuclear or combined family (13).

Other study conducted in Bangladesh showed that the students staying at home are 3.745 times more likely to have good hygiene and sanitation practices than students staying at the hall(23).

Other study conducted in Gondar showed that, statistically significant difference in students' food safety knowledge according to their difference in year of education, department, and food safety-related training. (32).

Study conducted in Ghana, showed that, there is no significant association between students' year of study ($p=0.251$) and their hygiene behavior (12).

2.2.4 Environmental factors

In a recent study done in Nigeria, it was indicated that sanitation practices among the students are poor and age and gender influenced these practices. It was also found that inadequate water supply, poor toilet facilities, insufficient toilets, bathrooms, waste disposal facilities, and poor drainage systems are major causes of poor sanitation in the halls of residents(11).

Another Study conducted on sanitation variables as a predictor of the health of students in Nigeria revealed that poor solid waste disposal and dirty school environment significantly influence the health of students (33). Similarly, study conducted in university of Nigeria identified various causes of poor sanitation, the effects of sanitation on student health, the ways in which the school management has provided equipment/facilities to enhance sanitation as well as the strategies for improving school sanitation so as to reduce the negative effects of poor sanitation on student health(14).

2.3 HYPOTHESIS/QUESTIONS

- What is the level of practice of students on sanitation and hygiene?
- What are the factors that affect sanitation and hygiene practice among students?

3. OBJECTIVES

3.1 GENERAL OBJECTIVES

To assess magnitude and factors affecting sanitation and hygiene practices among students in public universities at Addis Ababa, 2023.

3.2 SPECIFIC OBJECTIVES

- To assess magnitude of sanitation and hygiene practices among students in public universities.
- To identify factors affecting sanitation and hygiene practice among students in public universities.

4. METHODS AND MATERIALS

4.1 STUDY AREA AND PERIOD

The study was conducted among students at Kotebe Education University and Ethiopia Civil Service University from February –March, 2023.

Ethiopia Civil Service University currently employees 1520 staff, of which 319 are academic staff. Regarding sanitation, in Kotebe Education University, there are 68 sanitation and hygiene infrastructures according to the annual abstract of the university(34). The university is laid on little over 15 hectares of land located to the east of the capital, Addis Ababa.

4.2 STUDY DESIGN

Institutional based cross-sectional study was carried out.

4.3 POPULATION

4.3.1 SOURCE POPULATION

All students who were registered as a regular under graduate class student in public universities in Addis Ababa.

4.3.2 STUDY POPULATION

Sampled students who are registered and attend as a regular under graduate class student in the selected two public universities.

4.4 ELIGIBILITY CRITERIA

4.4.1 INCLUSION CRITERIA

Students who are registered as a regular second year and above for under graduate classes, students who are living inside the university, students who are not blind (not able to see) and who are not critically sick (to the extent of unable to read and write) during the data collection were included in the study.

4.4.2 EXCLUSION CRITERIA

Students who refused to participate in the study and students absent during study period were excluded from the study.

4.5 SAMPLE SIZE DETERMINATION AND SAMPLING TECHNIQUE

4.5.1 SAMPLE SIZE DETERMINATION

The sample size were estimated using both single and double population formula. The single one, we used using the following assumptions: P = proportion of primary school children with good Hygiene practice in Mereb-Leke District as 61.7%(35), 5% estimated margins of error(d), and 95% confidence interval ($Z_{\alpha/2}$), non-response rate of 10% were considered.

$$n_0 = \frac{Z_{\alpha/2}^2 p(1 - p)}{d^2}$$

$$N = \frac{(1.96)^2 (0.617) (1-0.617)}{(0.05)^2}$$

=363

Sample Size Determination for Factors of sanitation and hygiene practice among students in public university at Addis Ababa.

Two population proportion formulae were used to calculate sample size using OpenEpi software with risk factors by taking findings from a similar study in Ethiopia. (36,37) Population size of N = 10,621; precision (d) = 5%, Power = 80% and 95% CI were taken (Table) By taking the maximum sample size (426) from Table and adding 10% non-response, the total n = 426 + (0.1*426) = 469. To achieve the overall stated objectives, the larger sample size estimated by magnitude and factors of sanitation and hygiene practice were taken i.e. 469.

TABLE 1: SAMPLE SIZE DETERMINATION FOR FACTORS

Associated factors	Good hygiene practice	AOR	Sample size	Reference
Knowledge on hand washing and hygiene	52 (20.35%)	0.148	140	(37)
Ever trained on sanitation and hygiene	206(33.3%)	1.78	426	(36)

4.5.2 SAMPLING TECHNIQUE AND PROCEDURE

Stratified random sampling were used to select respondents. The first stage involves selecting universities and stratification of respondents into the various departments; secondly, proportional allocation were conducted from 2nd year to 4th year available within departments, and lastly, systematic random sampling were used to select particular respondent.

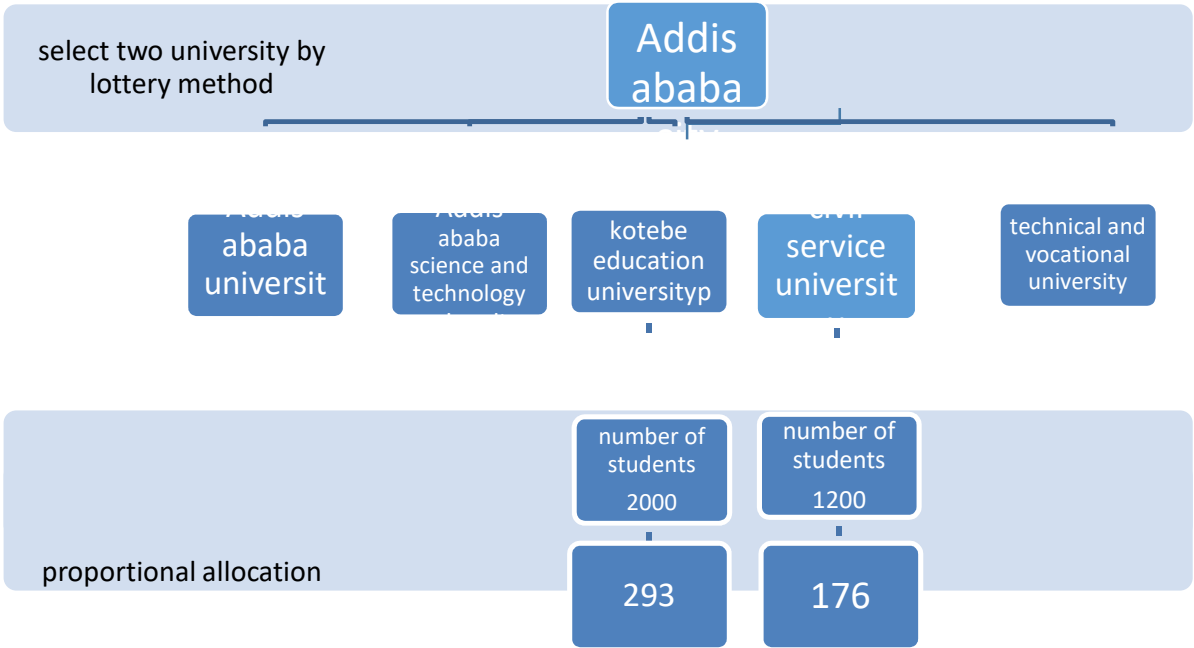


FIGURE 1: SCHEMATIC PRESENTATION OF SAMPLING PROCEDURE

4.6 STUDY VARIABLES

DEPENDENT VARIABLE: Sanitation and hygiene practice(Good/Bad)

INDEPENDENT VARIABLE: Socio- demographic: Age, sex, Religion, Year of study, Residence, Program of Study; knowledge on hand washing and hygiene, ever trained on sanitation and hygiene.

4.7 OPERATIONAL DEFINITIONS

Operational definition of knowledge on hand washing and hygiene(38–40)

High Knowledge

Those students who scored 100%– 80%and above in knowledge questions.

Average knowledge

Those students who scored 70% – 40% of the knowledge questions

Low knowledge

Those students who scored 30%– 0 of the knowledge questions

Good practice

Those students who scored at least 60% and above in practice questions(41).

Bad practice

Those students who answer less than 60% of practice questions(41).

City: a lots of people live in the town and there are different kinds of buildings.

Sub-urban area: a place where people live just outside of a city or town. There are lots of houses in sub-urban areas, but not many buildings and one or two small shops and stores.

Village: is the one with a lots of nature and open spaces, with fewer people. (42)

4.8 DATA COLLECTION TOOL. METHODS AND PROCEDURES

Data were collected using structured questionnaire for quantitative method that was adopted and modified after reviewing relevant literatures to the subject to include all the possible variables that address the objective of the study (6,11,13)

Hand washing and hygiene knowledge was assessed using nine items. Each scored 1, if the answer was right, and 0 for the wrong answer or I don't know. The total score ranged from 0 to 9 and a high score indicated a high level of knowledge on the topic. According to (38–40), success was ranked at 100%– 80% and above, while average was ranked 70% – 40% and failure at 30%– 0. Therefore, results were compared against a similar performance scale, which was indicated as 0– 2 as low/failure, 3– 6 as average/pass, and 6– 9 as high/ successful. measuring sanitation and hygiene practice, twenty questions were asked. The questions having options „always,' „frequently,' „sometimes, “ and „never“ will be marked 4,3,2, and 1 respectively. Furthermore, the questions having options „Yes“ and „No“ will be marked 1 and 0, respectively. Moreover, all other questions having other options except the options mentioned above will be marked conveniently. Therefore, the maximum mark an individual can obtain was 80. The hygiene and sanitation practice score were classified by taking cut-off value 60, which is equal to seventy-five percent of 80. The hygiene and sanitation practice score were classified as “Good Practice” if the score is equal to or greater than 60, and if the score is less than 60 were classified as “Bad Practice” (41)

Before collecting the data, a letter was issued for school deans clarifying the objectives and for asking their cooperation in doing so. Enrolment for the survey was through the help of assigned students and teachers. This individual was distributed questionnaire to individuals who are involved in joining the study. Before starting the data collection, study participants were asked for verbal consent and expressed that they can be left to participate in this study. This means that all study participants were included with their willingness. Then data collection was done and collected before class, when there is no class, during break time, and after class

immediately as the teachers ended their period, as they were take approximately 10– 15 min to answer. Filled questionnaires were immediately taken back to respective departments.

4.9 DATA QUALITY CONTROL

The questionnaire first prepared in English and translated in to Amharic (local language). Pre-test were done on 5% of the total sample size outside of the study area at FDRE technical and vocational training institute to assess the suitability with regards to duration, language appropriateness, content validity, and question comprehensibility. Based on the feedback from the pilot test, corrections were made. Missing responses like “I do not know” and “others” were added and missing item choices were also corrected.

The data collectors and supervisors were trained for two days before the process of data collection. Supervision and checking were made by the supervisors to ensure the completeness and consistency of the collected data.

4.10 DATA PROCESSING AND ANALYSIS

After collection, data was entered into Epi-info version 7 and exported to “SPSS version-25” for analysis. Descriptive analysis was used to summarize the data according to the variable type used. Both bivariate and multivariate logistic regression were employed to assess the association between dependent and independent variables. Variable with a p-value ≤ 0.2 in the bivariate analysis were entered into multivariate binary regression models. A p-value < 0.05 with 95 % CI was used to declare statistical significant association. Multi-collinearity among independent variable was diagnosed using VIF.

4.11 ETHICAL CONSIDERATIONS

Ethical approval for the study were obtained from St. Paul’s Hospital millennium medical college Institutional Review Board. Written permission letters were obtained from Addis Ababa city administration Health bureau and Permission were obtained from the Study university administration. Informed Verbal consent was obtained from participant students before being interviewed for the study.

4.12 PLAN FOR DISSEMINATION OF RESULTS

Findings of the envisioned study will be communicated to selected public universities where the study were conducted, to St. Paul's hospital millennium medical college and Addis Ababa administration health bureau through hard copy. The findings will finally be published to access others outside as well.

5. RESULTS

5.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS

A total of 469 students were recruited giving a response rate of 100%. A high proportion of students (59.1%) was aged greater than 27 years, 39.2% aged between 24 and 27 years, majority of the students 361 (77.0%) were males and 108 (23.0%) were females. About half of the students (49.7%) were orthodox religion followers whereas 27.1, 23.0 and 2% were Muslim, protestant and other religion followers respectively. In terms of their year of study, 47.3% of the respondents were third year students, 35.8% were second year students and 16.8% were fourth year students. Regarding training on sanitation and hygiene, 75.9% were not trained on sanitation and hygiene and 24.1% were trained. (Table 2)

TABLE 2: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE STUDENTS IN PUBLIC UNIVERSITIES AT ADDIS ABABA, ETHIOPIA, 2023. (N=469)

Characteristics		Frequency (n=469)	Percent (%)
Age	21-23 Years	8	1.7%
	24-27 Years	184	39.2%
	Greater than 27 Years	277	59.1%
Sex	Male	361	77.0%
	Female	108	23.0%
Religion	Orthodox	233	49.7%
	Muslim	127	27.1%
	Protestant	108	23.0%
	Other	1	0.2%
Year of study	Second year	168	35.8%
	Third year	222	47.3%
	Fourth year	79	16.8%

Training on sanitation and hygiene	Yes	113	24.1%
	No	356	75.9%

5.2 KNOWLEDGE ABOUT HAND WASHING AND HYGIENE

From all students, 299(63.8%) had high knowledge and 30(6.4%) had low knowledge about hand washing and hygiene. Almost all 460(98.1%) of the students knew that hands need to be dried after washing and 455 (97%) knew that Frequent food contact surface cleaning can prevent contamination of the food. Further, 304(64.4%) of students knew that use of the same knife to cut vegetables and meat exposed to foodborne diseases. However, only 133 (28.4%) knew that rings should be removed during hand washing. About 1159(33.9%) of students were know that watch and bracelet should be removed during hand washing. Based on the specific responses by the participant students, over all 299(63.8%), 140(29.9%) and 30 (6.4%) students had high, average and low knowledge respectively. (Table 3)

TABLE 3: KNOWLEDGE ABOUT HAND WASHING AND HYGIENE OF THE STUDENTS IN PUBLIC UNIVERSITIES IN ADDIS ABABA, ETHIOPIA, 2023. (N=469)

Characteristics	Frequency	Percent
What type of water should be used for hand washing?		
cold water	303	64.6
Medium hot water	164	35.0
Hot water	2	0.4
With what you should wash your hand?		
Water with soap	416	88.7
Only water	52	11.1

Others	1	0.2
Watch and bracelet should be removed during hand washing?	159	33.9
Yes		
No	298	63.5
Do not Know	12	2.6
Rings should be removed during hand washing?		
Yes	133	28.4
No	325	69.3
Do not Know	11	2.3
Wrist should be washed during hand washing?		
Yes	252	53.7
No	29	6.2
Do not Know	188	40.1
Hands need to be dried after washing		
Yes	460	98.1
No	5	1.1
Do not Know	4	0.9
Contact between cooked and uncooked foods causes cross-contamination	322	68.7
Yes		
No	114	24.3
Do not Know	33	7.0
Use of the same knife to cut vegetables and meat exposed to foodborne diseases	302	64.4
Yes		

No	126	26.9
Do not Know	41	8.7
Frequent food contact surface cleaning can prevent contamination of the food	455	97.0
Yes		
No	10	2.1
Do not Know	4	0.9
Knowledge about hand washing and hygiene		
Knowledge about hand washing and hygiene Low	30	6.4
Average	140	29.9
High	299	63.8

5.3 SANITATION AND HYGIENE PRACTICE

Our study indicated that 447 (95.3%) of students always wash their hands before having food, 13 (2.8%) of students frequently wash their hands before having food and 9(1.9%) participants sometimes wash their hands before having food. On the other hands, 452 (96.4%) participants always wash their hands after having food, 10 (2.1%) of students frequently wash their hands after having food and only 7(1.5%) of students sometimes wash their hands after having food. Furthermore, 111 (23.7%) of students always wash their hands after defecation, 122(26%) frequently wash their hands after defecation and 236(50.3%) sometimes wash their hands after defecation. Only 36 (7.7%) students always wash their hands using soap, 228(48.6%) frequently wash their hands using soap and 205(43.7%) sometimes wash their hands using soap. Additionally, only 43(9.2%) of students always maintain regularity of taking bath, 348(74.2%) frequently maintain regularity of taking bath, 73(15.6%) sometimes maintain regularity of taking bath and only 5(1.1%) of students never maintain regularity of taking bath. Regarding their clothes, 125(26.7%) of students always wear washed clothes, 317(67.6%) of students frequently wear washed clothes and 27(5.8%) sometimes wear washed clothes. Further, only 22(4.7%) of students always brush their teeth twice a day, 88(18.8%) of students

regularly brush their teeth twice a day, 357(76.1%) sometimes brush their teeth twice a day and 2(0.4%) of students never brush their teeth twice a day. The study also showed 78(16.6%) of participants always maintain regularity cutting their nails, 286(61%) participants frequently maintain regularity cutting their nails and 105(22.4) sometimes maintain regularity cutting their nails. Regarding safe water, 451(96.2%) of students always drink safe water, 10(2.1%) participants frequently drink safe water and only 8(1.7%) sometimes drink safe water. Moreover, only 46(9.8%) of participants always maintain regularity cleaning their room, 181(38.6%) participants frequently maintain regularity cleaning and 242(51.6%) sometimes maintain regularity cleaning their room. On the other hand, regarding use of hand sanitizer, 9(1.9%) always use hand sanitizer outside home, 30(6.4%) frequently use hand sanitizer outside home, 429(91.5%) sometimes used hand sanitizer outside home and 1(0.2%) never using hand sanitizer outside home. Additionally, 220(46.9%) participants were always using flash after defecation, 228(48.6%) participants frequently using flash after defecation and 21(4.5%) sometimes using flash after defecation. Concerning disposal, 462(98.5%) participants were using bin to dispose their sanitary items, 5(1.1%) disposing their sanitary items outside and 2(0.4%) disposing their sanitary items by dropping on the road. Overall, 182 (38.8%) of the students had good practice and 287 (61.2%) had bad sanitation and hygiene practice (Table 4).

The overall good sanitation and hygiene practice among the students was 182(38.8%). Of those with high knowledge of hand washing and hygiene 164(34.9%) had good sanitation and hygiene practice (Figure 2).

TABLE 4: SANITATION AND HYGIENE PRACTICE OF STUDENTS IN PUBLIC UNIVERSITIES AT ADDIS ABABA, ETHIOPIA, 2023. (N=469)

Characteristics	Frequency	percent
Hand washing before having food		
Always	447	95.3
Frequently	13	2.8
Sometimes	9	1.9
Wash your hand after having food?		
Always	452	96.4
Frequently	10	2.1
Sometimes	7	1.5
Wash your hand after defecation?		
Always	111	23.7
Frequently	122	26.0
Sometimes	236	50.3
Using soap/hand wash to wash your hands		
Always	36	7.7
Frequently	228	48.6
Sometimes	205	43.7
Maintaining regularity in taking a bath		
Always	43	9.2
Frequently	348	74.2

Sometimes	73	15.6
Never	5	1.1
Wearing washed clothes		
Always	125	26.7
Frequently	317	67.6
Sometimes	27	5.8
Brushing teeth twice a day		
Always	22	4.7
Frequently	88	18.8
Sometimes	357	76.1
Never	2	0.4
Maintaining regularity in cutting nails		
Always	78	16.6
Frequently	286	61.0
Sometimes	105	22.4
Drinking Safe water		
Always	451	96.2
Frequently	10	2.1
Sometimes	8	1.7
Maintaining regularity in cleaning your room		
Always	46	9.8
Frequently	181	38.6
Sometimes	242	51.6
Usage of hand sanitizer outside from home		
Always	9	1.9
Frequently	30	6.4
Sometimes	429	91.5

Never	1	0.2
Using flash after defecation		
Always	220	46.9
Frequently	228	48.6
Sometimes	21	4.5
Intervened in cleaning the toilet		
Always	448	95.5
Frequently	18	3.8
Sometimes	1	0.2
Never	2	0.4
Where did you disposing sanitary item?		
Bin	462	98.5
Out side	5	1.1
Drop on the road	2	0.4
Practice about sanitation and hygiene	Bad practice	287
	Good practice	182
		38.8

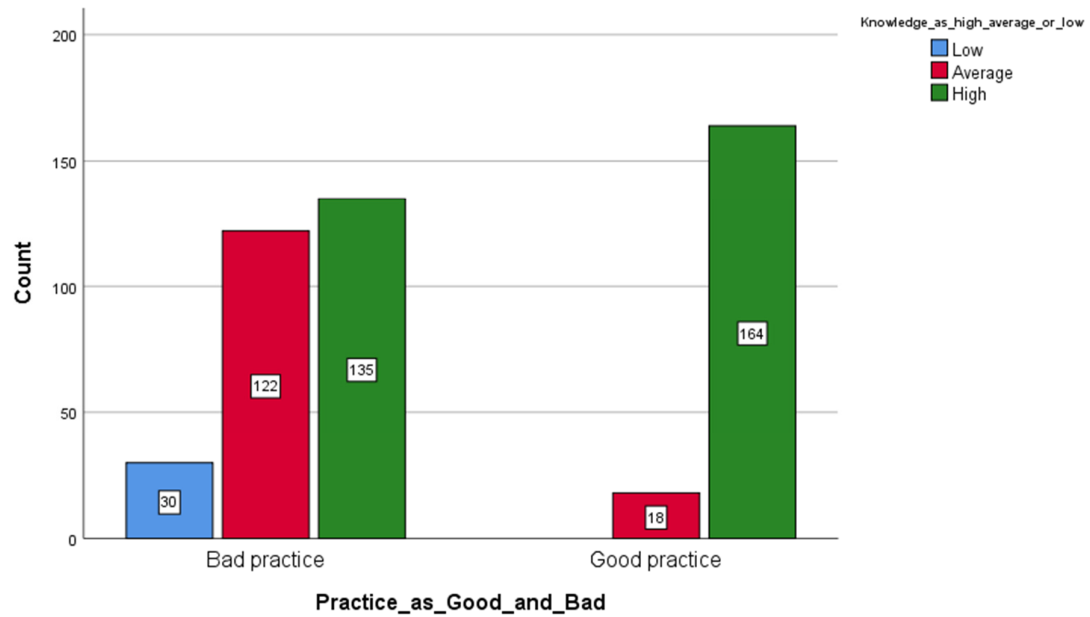


FIGURE 2: SANITATION AND HYGIENE PRACTICE WITH KNOWLEDGE ON HAND WASHING AND HYGIENE OF STUDENTS IN PUBLIC UNIVERSITIES AT ADDIS ABABA, ETHIOPIA, 2023

5.4 FACTORS ASSOCIATED WITH SANITATION AND HYGIENE PRACTICE

Variable with a p-value ≤ 0.2 in the bivariate analysis, such as sex, residence, year of study, training on sanitation and hygiene and religion were entered into multivariable binary regression models.

In multivariate logistic regression, sex, residence and year of study were significantly associated with sanitation and hygiene practice at p value <0.05 . On the other hand, religion and training on sanitation and hygiene did not show statistical association with sanitation and hygiene practice at p value >0.05 (Table 5)

Gender showed strong statistical association with sanitation and hygiene practice. In this regard, Female student were 5.37 times more likely to practice sanitation and hygiene as compared to male students (AOR=5.37,95%CI (3.214,8.970).

Regarding students' year of study with sanitation and hygiene practice. Fourth year students were 11.018 times more likely to practice sanitation and hygiene as compared to second year students (AOR=11.018, 95%CI (5.611,21.635)

Moreover, concerning residence before university admission, those students who are living in city before admission to university were 47.5% less likely to practice sanitation and hygiene as compared to those who are living in village (AOR=0.525, 95%CI (0.300, 0.919) and those students who are living in sub-urban area before admission to university were 53% less likely to practice sanitation and hygiene as compared to those who are living in village (AOR=0.470, 95%CI (0.257, 0.857). (Table 5)

TABLE 5: FACTOR ASSOCIATED WITH SANITATION AND HYGIENE PRACTICE OF PUBLIC UNIVERSITIES STUDENT IN ADDIS ABABA, ETHIOPIA, 2023. (N=469)

Variables		Sanitation and hygiene practice		Crude OR (95 % CI)	Adjusted OR (95 % CI)	P-value
		Good(%)	Bad(%)			
Sex	Male	114(31.6%)	247(68.4%)	1		
	Female	68(63%)	40(37%)	3.68(2.35,5.77)	5.37(3.21,8.97)	0.001
Year of study	Second year	52(31%)	116(69%)	1		
	Third year	69(31%)	153(69%)	1.00(0.65,1.55)		0.97
	Fourth year	61(77.2%)	18(22.8%)	7.56(4.07,14.04)	11.01(5.61,21.63)	0.001
Residence before university admission	Village	52(52%)	48(48%)	1		
	City	77(36.3%)	135(63.7%)	0.52(0.32,0.85)	0.52(0.30, 0.91)	0.02
	Sub-urban area	53(33.7%)	104(66.3%)	0.47(0.28,0.78)	0.47(0.25, 0.85)	0.01

The situations of sanitation facilities among two universities under study were analyzed. In this study the observation checklist showed that both of the schools used pipe line water supply and roof top tank water storage. In case of availability of soap at hand washing facility, available at civil service university while not available in kotebe university (Table 6). Based on the personal assessment, the possible problems that can affect the sanitation and hygiene practice in the school were lack of water and soap at hand washing facility. It was recommended that the management of schools should ensure the availability of sanitation and hygiene facilities.

TABLE 6: THE SITUATION OF WATER AND SANITATION FACILITIES AMONG UNIVERSITIES UNDER STUDY, IN ADDIS ABABA, ETHIOPIA, 2023.

Checklist	Kotebe University	Civil service University
Availability of water supply source		
Available ground water		
Available surface water		
Municipal supply(piped water supply)	√	√
Availability of water storage		
Underground tank		
top tank	√	√
Reserve plastic tank		
Availability of treated water		
Available	√	√
Not available		
Availability of water at hand washing facility		
Available		
Not available	√	√
Availability of soap at hand washing facility		
Available		
Not available	√	√
Availability of sufficient toilets		
Available	√	√
Not available		
Accessibility of toilets		
Accessible	√	√
Not accessible		
Availability of improved toilets		
Available	√	√
Not available		

6. DISCUSSION

This institutional based cross-sectional study tried to assess the magnitude of sanitation and hygiene practice and factors influencing sanitation and hygiene practice of public university students in Addis Ababa. In addition, the study tried to assess the magnitude of sanitation and hygiene practice of the students.

The overall bad sanitation and hygiene practice among the students was found 61.2%. This finding is relatively comparable with study done in 2016 in Bangladesh, (57%) (6) and higher than findings conducted in 2019 in India (38.50%), in Ethiopia (22%), in Ghana (3%), (13,19,24). This difference might be due to their dissimilarity in their socio-demographic profile, study period, study area, and study design.

Most participants always wash their hands before having food (447, 95.3%) and after having food, (452, 96.4%) whereas only 111 (23.7%) after defecation. This finding has relatively comparable with finding from Bangladesh interims of hand washing before having food (85.36%), but hand washing after defecation is lower than that of Bangladesh (91.79%)(23). This shows better practice of hand washing in the university but those participants fail to wash their hands after toilet visit and those that do not use soap are at high risk for disease transmission. In this study, 50.3% of the respondents reported they sometimes wash their hands after defecation. This finding was higher than study conducted in India (13.75%) ((13)). Also, 36 (7.7%) participants always wash their hands with soap, it was lower than similar study conducted in Ethiopia (40.5%), in Ghana (52.1%), India (37.9%), (19,20,25). Only 1.9% of respondents sometimes wash their hands before having food. This finding is lower than that of other similar studies (13,19,27). This may promote transmission of disease causing microbes from wet hand and increased number of residual micro-organisms on hand.

Nearly ten percent participants always maintaining regularity of taking bath, it was lower compared to study done India (90%), in Bangladesh (85.1), Niger (99.6%) (13,23,26). In this study, 26.7% participants always wearing washed clothes, this is lower compared to study done in Bangladesh (71.9%) (23) but higher compared to study done in India (13). Further, 76.1% of respondents reported sometimes brushing their teeth twice a day. It was relatively comparable to study done in India (83,25%), Nigeria (98.2%), Talinovia (90%) (13,14,28), but higher compare to study done in Nigeria (98.2%), in India (14.6%), Niger (8%), (14,25,26).

Maintaining regularity cutting nails always or sometimes is lower compared to study done in Bangladesh (23), India and Niger(13,26). Further, using hand sanitizer outside home is lower

compared to study done in Ghana (39.3%) (20). This difference might be due to the shortage of supplies and students their own sanitation practice behavior. This result implies the students are not develop using sanitizer outside home and this may expose students to communicable diseases.

Overall, only 38.8% of the students had good practice of sanitation and hygiene practice. This poor sanitation and hygiene practice among students in the study area might be due to lack of hygiene facilities and lack knowledge about personal hygiene. Therefore, education on sanitation and hygiene and development of comprehensive sanitation and hygiene intervention programs among public universities in Ethiopian is needed in order to prevent the communicable disease related to bad sanitation and hygiene practice among university students.

Female student were 5.37 times more likely to practice sanitation and hygiene as compared to male students (AOR=5.37,95%CI (3.214,8.970). This could be more concern of females toward hygiene and beauty issues and because females tended to have greater soap availability in restrooms within their colleges (14). This finding was in agreement with the study conducted in Nigeria, in India, in Kuwait, in Ghana and in Kenya (11,13,14,24,31). However, study conducted in 2016 in Bangladesh showed the statistically non-significant relationship between hygiene practice and respondents gender, there was a small variation in the practice score among male (50.64) and female (51.17) students but statistically insignificant. (6)

Fourth year students were 11.018 times more likely to practice sanitation and hygiene as compared to second year students (AOR=11.018, 95%CI (5.611,21.635). This result shows when students become mature and improved self-care, also increases their sanitation and hygiene practice. This finding is consistent with other studies done in Gondar (32), but contrast with study conducted in Ghana, which showed that, there is no significant association between students' year of study and their sanitation and hygiene practice($p=0.251$) (12).

Moreover, concerning residence before university admission, those students who are living in city before admission to university were 47.5% less likely to practice sanitation and hygiene as compared to those who are living in village (AOR=0.525, 95%CI (0.300, 0.919). Those students who are living in sub-urban area before admission to university were 53% less likely to practice sanitation and hygiene as compared to those who are living in village (AOR=0.470, 95%CI (0.257, 0.857). This finding is similar with study conducted in Bangladesh and in Ghana

(23,24) but contrast with study conducted in India (13). The difference might be due to their socio-demographic characteristics.

7. STRENGTH AND LIMITATION OF THE STUDY

STRENGTH OF THE STUDY

- The response rate was 100%.
- In addition to this, at the design stage and before the implementation of the study well defined inclusion and exclusion criteria were made, data collectors were trained, questionnaires were tested and necessary corrections made. The field activities of the data collectors and the supervisors were closely observed, the data was entered, and cleaned thoroughly by the principal investigator. These were the strengths of the study which are believed to minimize highly the possibility of systematic bias

LIMITATION OF THE STUDY

- This research typically takes into account certain limitations when evaluating the findings. The first was the inherent limitation of the nature of the cross-sectional sample that does not allow cause-effect relationships to be formed. second. The shortage of literatures in the area of sanitation and hygiene practice at universities nationally is critical. Therefore, it was an important problem to make good discussion.

8. CONCLUSION AND RECOMMENDATION

It can be concluded from the present study that good sanitation and hygiene practice among students in the study area was low. About 61.2% had bad sanitation and hygiene practice. Based on an understanding of the factors that influence sanitation and hygiene practice; the assessment shown that Sex, residence and year of study were significantly associated with sanitation and hygiene practice. Based on the observation, the possible problems that can affect the sanitation and hygiene practice in the universities were lack of water and soap at hand washing facility.

Based on the findings, the following recommendations were made;

- The university management has to ensure that the various ways of improving sanitation and hygiene practice within the institution. Awareness program should be taken in university based on student's sex, their residence and year of study
- The university management should provide soap and water in hand washing facility to enhance hygiene practices in the institutions
- The students should improve on their sanitation and hygiene practices by making sure they observe good hygiene practices as the need arises.
- Sanitation and hygiene-related materials and agents (i.e. supplying hand washing products, cleaning materials, washing equipment) should be regularly supplied to ensure quality cleaning services

REFERENCE

1. CDC. Cholera, Typhoid, and Preventable Diseases Disease Threats and Global WASH Killers Other Waterborne Infections [Internet]. Available from: <http://wcmis-wp.cdc.gov/healthywater/global/WASH.html>
2. Boot MT CS. International Water and Sanitation Centre Actions Speak. London; 1993.
3. UN-Water, United Nations. Sustainable development goal. 6, Synthesis report 2018 on water and sanitation. New York 10017: United Nations; 2018. 195 p.
4. Adams J, World Health Organization. Water, sanitation and hygiene standards for schools in low-cost settings. World Health Organization; 2009. 55 p.
5. Mariwah S, Hampshire K, Kasim A. The impact of gender and physical environment on the handwashing behaviour of university students in Ghana. *Trop Med Int Heal*. 2012 Apr;17(4):447–54.
6. Sultana M, Alam Mahumud R, Razzaque Sarker A, Mahmud Hossain S. Hand hygiene knowledge and practice among university students: Evidence from private universities of Bangladesh. *Risk Manag Healthc Policy*. 2016 Feb 12;9:13–20.
7. Wilson R, Faris K, Getaneh A. ONE WASH NATIONAL PROGRAM 2 FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA ONE WASH NATIONAL PROGRAM (OWNP) A Multi-Sectoral SWAP REVIEW OF PHASE I FINAL ONE WASH NATIONAL PROGRAM (OWNP) A Multi-Sectoral SWAP Consultants. 2018.
8. Jasper C, Le TT, Bartram J. Water and sanitation in schools: A systematic review of the health and educational outcomes. Vol. 9, *International Journal of Environmental Research and Public Health*. MDPI; 2012. p. 2772–87.
9. Rabbi SE, Dey NC. Exploring the gap between hand washing knowledge and practices in Bangladesh: a cross-sectional comparative study. *BMC Public Health*. 2013;13:89.
10. Miko BA, Cohen B, Conway L, Gilman A, Seward SL, Larson E. Determinants of personal and household hygiene among college students in New York City, 2011. *Am J*

Infect Control. 2012 Dec;40(10):940–5.

11. Igudia EO, Agbonifoh JA, Omobude-Idiado SN. Sanitation Practices Among University of Benin Undergraduate Students, Nigeria. 2019.
12. Prah J, Abdulai MN, Lasim O, Ampofo-Asiama A. Assessment of Hygiene Practices [Internet]. Cape Coast, Ghana; 2018. Available from: <https://www.researchgate.net/publication/329196169>
13. Anand D, Prakash S. Assessment of the hygiene and sanitation practices of students of class VI to IX in urban government inter college at Allahabad district, India. *Int J Community Med Public Heal*. 2018 Aug 24;5(9):3870.
14. Al-Rifaai J, Al Haddad A, Qasem J. Personal hygiene among college students in Kuwait: A Health promotion perspective. *J Educ Health Promot*. 2018;7(1):92.
15. Aklilu A, Kahase D, Dessalegn M, Tarekegn N, Gebremichael S, Zenebe S, et al. Prevalence of intestinal parasites, salmonella and shigella among apparently health food handlers of Addis Ababa University student's cafeteria, Addis Ababa, Ethiopia. *BMC Res Notes*. 2015 Dec 14;8(1).
16. Vivas A, Gelaye B, Aboset N, Kumie A, Berhane Y, Williams MA. Knowledge, Attitudes, and Practices (KAP) of Hygiene among School Children in Angolela, Ethiopia.
17. Willmott M, Nicholson A, Busse H, Macarthur GJ, Brookes S, Campbell R. Effectiveness of hand hygiene interventions in reducing illness absence among children in educational settings: A systematic review and meta-analysis. Vol. 101, *Archives of Disease in Childhood*. BMJ Publishing Group; 2016. p. 42–50.
18. Smith L, Butler L, Tully MA, Jacob L, Barnett Y, López-Sánchez GF, et al. Hand-washing practices among adolescents aged 12–15 years from 80 countries. *Int J Environ Res Public Health*. 2021 Jan 1;18(1):1–15.
19. Gebreeyessus GD, Adem DB. Knowledge, Attitude, and Practice on Hygiene and Morbidity Status among Tertiary Students: The Case of Kotebe Metropolitan University, Addis Ababa, Ethiopia. *J Environ Public Health*. 2018;2018.
20. Kebede Worku HE, Ato HE, Gujo A, Chewicha HEMK. Federal Democratic Republic

of Ethiopia National Hygiene and Environmental Health Strategy(2016-2020). Addis Ababa; 2016.

21. Wudneh Ayele, Jan-Olof Drangert NH. UNIVERSITY STUDENT'S HYGIENE BEHAVIOUR AND ATTITUDE TOWARDS ECOLOGICAL SANITATION: A STATUS REPORT ON STUDIES CONDUCTED IN ADAMA UNIVERSITY, ETHIOPIA. ?thiopian J Sci Sustain Dev [Internet]. Available from: www.adama-university.net/index.php?id=108
22. Kabir A, Roy S, Begum K, Kabir AH, Miah MS. Factors influencing sanitation and hygiene practices among students in a public university in Bangladesh. PLoS One. 2021 Sep 1;16(9 September).
23. Shakhawat Hossain M, Islam A, Fahad N, Das P, Rahaman A, Hossain MS. Bangladeshi university students. Int J Nat Soc Sci. 2020;7(2):40.
24. Odonkor ST, Kitcher J, Okyere M, Mahami T. Self-Assessment of Hygiene Practices towards Predictive and Preventive Medicine Intervention: A Case Study of University Students in Ghana. Biomed Res Int. 2019;2019.
25. Jemima D, Kumari N, Dikshit N, Kant S. Assessing the Knowledge and Practice of Water, Sanitation and Hygiene (Wash) among Female College Students. Vol. 4, Acta Scientific Gastrointestinal Disorders. 2021.
26. Bashiru B, Anthony I. Oral self-care practices among university students in Port Harcourt, Rivers State. Niger Med J. 2014;55(6):486.
27. Tamilarasi R, Arunmozhi R, Karthick Raja V, Rajajeyakumar M. A Study to Assess the Knowledge and Practice of Hand Washing among School Going Adolescents in Chennai. Int J Heal Sci Res [Internet]. 2016;6(8):147. Available from: www.ijhsr.org
28. Taliánová M. Social and Health Aspects of Health Education. Vol. 21, School and Health. 2008.
29. Merawi A, Addissie A, Aragaw A, Tafese T, Beyene Z, Hailemariam Z, et al. SHIGELLOSIS OUTBREAK AT ADDIS ABABA UNIVERSITY: MARCH-APRIL 2010 [Internet]. Vol. 49, Article in Ethiopian Medical Journal. 2011. Available from: <https://www.researchgate.net/publication/235626718>

30. Snow M, White GL, Alder SC, Stanford JB. Mentor's hand hygiene practices influence student's hand hygiene rates. *Am J Infect Control*. 2006;34(1):18–24.
31. Serrem K, Illés CB, Serrem C, Atubukha B, Dunay A. Food safety and sanitation challenges of public university students in a developing country. *Food Sci Nutr*. 2021 Aug 1;9(8):4287–97.
32. Azanaw J, Dagne H, Andualem Z, Adane T. Food Safety Knowledge, Attitude, and Practice of College Students, Ethiopia, 2019: A Cross-Sectional Study. *Biomed Res Int*. 2021;2021.
33. Offiong E, Theresa B, Francis O, Roseline I, John T, Winifred I, et al. PALGO JOURNAL OF MEDICINE AND MEDICAL SCIENCE SANITATION VARIABLES AS A PREDICTOR OF HEALTH OF STUDENTS. Available from: <http://www.palgojournals.org/PJMMS/Index.htm>CorrespondingAuthors
34. College K university. Annual abstarct of the university. 2015;
35. Assefa M, Kumie A. Assessment of factors influencing hygiene behaviour among school children in Mereb-Leke District , Northern Ethiopia : a cross-sectional study. *BioMed Cent Ltd*. 2014;1–8.
36. Shehmolo M, Gari T, Tesfaye DJ, Boti N, Oumer B. Magnitude and factors associated with hygiene practice among primary school children in mareko district, Southern Ethiopia: A cross-sectional study. *J Multidiscip Healthc*. 2021;14:311–20.
37. Beya M, Agegnehu W, Shinde SS. Assessment of Hygiene Behavior and Associated Factors Among School Children in Shey Bench, Southwest, Ethiopia. An Institutional Based-Cross Sectional Study. *Open Public Health J*. 2022;15(1):1–8.
38. Al-shabib E. cross-sectional study on food safety knowledge, attitude and practice of male food handlers employed in restaurants of king saud university, saudi Arabia. [Internet]. 2016. Available from: <http://www.sciencedirect.com/science/article/pii/S0956713515002650>
39. Ferk CC, Calder BL, Camire ME. Assessing the Food Safety Knowledge of University of Maine Students. 2016;15:14–22.
40. Adam I, Hiamey SE, Afenyo EA. Students ' food safety concerns and choice of eating

place in Ghana. 2014;43:2013–5.

41. Buda AS, Mekengo DE, Lodebo TM, Sadore AA, Mekonnen B. Knowledge , attitude and practice on hand washing and associated factors among public primary schools children in Hosanna town , Southern Ethiopia. Acad J Public Heal Epidemiol. 2018;10(June):205–14.
42. Academy K. No Title. Available from: <http://www.khanacademy.org/>

APPENDICES

CONCEPTUAL FRAMEWORK

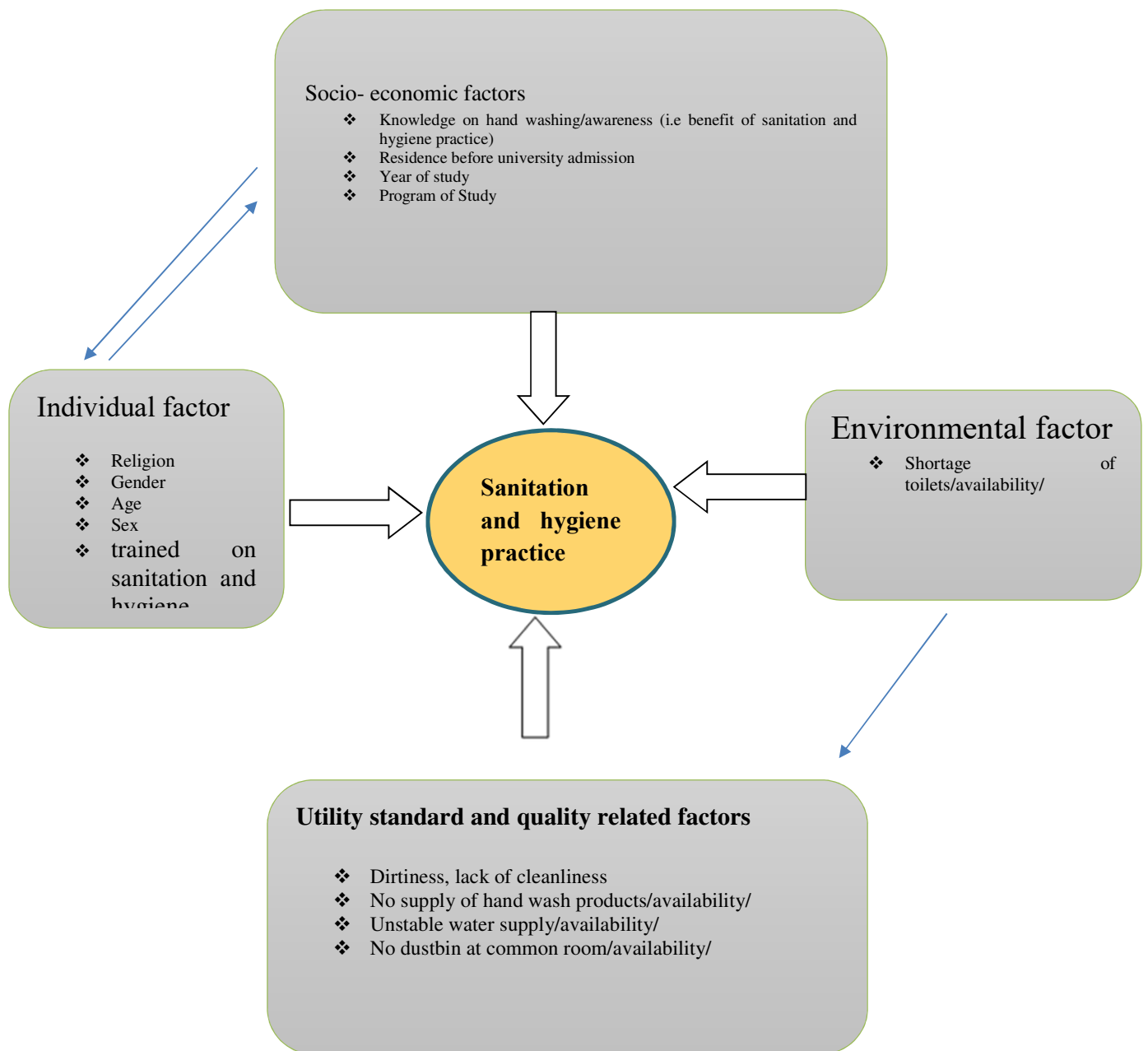


FIGURE 3: CONCEPTUAL FRAME WORK DEVELOPED FOR FACTOR AFFECTING SANITATION AND HYGIENE PRACTICE (THIS FRAME WORK IS ADOPTED AND MODIFIED(22))

ENGLISH AND AMHARIC VERSION QUESTIONNAIRE

ST. PAUL HOSPITAL MILLENNIUM MEDICAL COLLEGE

SCHOOL OF PUBLIC HEALTH

QUESTIONNAIRE DESIGN ON INSTITUTION-BASED CROSS SECTIONAL STUDY

INFORMATION SHEET AND CONSENT FORM

INFORMATION SHEET AND CONSENT FORM ENGLISH VERSION

Dear respondent, my name is _____. I am here to collect data for a study entitled factors affecting sanitation and hygiene practice among students in public universities in Addis Ababa. It is being conducted by **Name**, Who is Master student at St. Paul's Hospital Millennium medical college, school of Public health. The interview asks about your experience and opinion on Sanitation and hygiene practice and will require about **10 to 15** minutes to be completed.

As a study participant you will be benefited when the result is utilized. The study will be carried out in the form of self-administered and do not cause any harm to you. The result will be displayed in general form not in individual. To achieve the study, your honest and genuine participation by responding to the question prepared is very important and highly appreciated. You have also a right to continue or to discontinue as a participant and there is no influence that insists you to participate unless you permit.

We will proceed to the Questionnaires after you understand the following points

Objective of the study: To assess factors affecting sanitation and hygiene practice among students in public universities

Benefit: The information generated from the study help policy makers and program planning, to improve sanitation and hygiene practice of students in public universities

Harm: The participants do not have any harm by participating to the study.

Duration of the study and interview: The study will be conducted for one month and the interview may take from **10- 15 minutes**.

Alternatives to participation: You do not have to take part in this research if you do not wish to do so. You have the right to terminate from the study by any reason, related to the study or personal reason.

Confidentiality: We would like to assure you that the privacy will strictly be maintained throughout. Your responses to any of the questions will not be given to anyone else and no reports of the study will ever identify you. If a report of the results is published, only information about the total group will appear.

Persons to contact: If you have any question you can contact the investigator at the following address and you may ask at any time you want:

Name: Kiflemariam Tsegaye Awoke

Tel: +251920771726

E-mail: kiflemariamtsegaye@gmail.com

Consent form: It has been read to me by the data collector as I can understand all conditions stated above.

Therefore, I have decided to:

1. Agree _____

2. Disagree _____ on participation of the study.

Name of the interviewer: _____ Sign. _____ Date of interview _____

Name of the supervisor: _____ Sign. _____ Date _____

Thank You for willingness to participate!

ENGLISH QUESTIONNAIRE

**QUESTIONNAIRE ON FACTORS AFFECTING SANITATION AND HYGIENE
PRACTICE AMONG STUDENTS IN PUBLIC UNIVERSITIES AT ADDIS ABABA**

001. Questionnaire identification number /-----/-----/

002: Data collector code [-----/-----] Name_____

003: Date of data collection: [-----/-----/-----]

Checked by supervisor: Name-----

Date-----

Signature-----

Section-1: Socio-demographic Characteristics			
Sr. No	Questions	Alternative answers	Code
101	How old are you?	1. 18-20 years 2. 21-23 Years 3. 24-27 Years 4. Greater than 27 years	/----/
102	What is the Sex of interviewee?	1. Male 2. Female	/----/
103	What is your Religion?	1. Orthodox 2. muslim 3. protestant 4. Catholic 5. Other(specified)-----	/----/
105	What is your year of study?	1. 2 nd year 2. 3 rd year 3. 4 th year	/----/

106	What is your program of study?	1. Accounting and finance 2. Urban Engineering 3. Urban planning 4. Bachelor of education 5. Bachelor of teaching 6. Other(Specify)-----	/----/
107	Where is your residence before university admission?	1. Village 2. City 3. Sub-urban area	/----/
108	Ever trained on sanitation and hygiene	1. Yes 2. No	/----/

Section 2: Knowledge on hand washing and hygiene

Sr. No	Questions	Alternative answers	Code
201	What type of water should be used for handwashing?	1. cold water 2. Medium hot water 3. Hot water	/----/
202	With what you should wash your hand?	1. Water and soap 2. Only Water 3. Others	/----/
203	Watch and bracelet should be removed during handwashing?	1. Yes 2. No 3. Do not Know	/----/
204	Rings should be removed during handwashing?	1. Yes 2. No	/----/

		3. Do not Know	
205	Wrist should be washed during handwashing?	1. Yes 2. No 3. Do not Know	/----/
206	Hands need to be dried after washing	1. Yes 2. No 3. Do not Know	/----/
207	Contact between cooked and uncooked foods causes cross-contamination	1. Yes 2. No 3. Do not Know	
208	Use of the same knife to cut vegetables and meat exposed to foodborne diseases	1. Yes 2. No 3. Do not Know	
209	Frequent food contact surface cleaning can prevent contamination of the food	1. Yes 2. No 3. Do not Know	

Section-3.1: Questionnaire on Basic hygiene practices

Sr. No	Questions	Alternative answers	Code
301	How often did you wash your hand before having food?	1. Always 2. Frequently 3. Sometimes 4. Never	/----/
302	How often did you wash your hand after having food?	1. Always 2. Frequently	/----/

		3. Sometimes 4. Never	
303	How often did you wash your hand after defecation?	1. Always 2. Frequently 3. Sometimes 4. Never	/----/
304	How often did you Using soap/hand wash to wash your hands?	1. Always 2. Frequently 3. Sometimes 4. Never	/----/
305	How often did you Maintaining regularity in taking a bath?	1. Always 2. Frequently 3. Sometimes 4. Never	/----/
306	How often did you Wearing washed clothes?	1. Always 2. Frequently 3. Sometimes 4. Never	/----/
307	How often did you Brushing teeth twice a day?	1. Always 2. Frequently 3. Sometimes 4. Never	/----/
308	How often did you Maintaining regularity in cutting nails?	1. Always 2. Frequently 3. Sometimes 4. Never	/----/
309	How often did you Drinking Safe water?	1. Always 2. Frequently 3. Sometimes 4. Never	
310	How often did you Maintaining regularity in cleaning your room?	1. Always 2. Frequently 3. Sometimes.	

		4. Never	
311	Do you use instant hand sterilizer when you are outside from home?	1. Yes 2. Sometimes 3. No 3. Do not know	

Section 3.2 Questionnaire on Basic sanitation practice			
Sr. No	Questions	Alternative answers	Code
312	How often did you Using personal toilet?	1. Always 2. Frequently 3. Sometimes 4. Never	/----/
313	How often did you Using separate sandals for toilet?	1. Always 2. Frequently 3. Sometimes 4. Never	/----/
314	How often did you Using flash after defecation?	1. Always 2. Frequently 3. Sometimes 4. Never	
315	How often did you Intervened in cleaning the toilet?	1. Daily 2. Weekly 3. Monthly 4. Yearly	/----/
316	Where did you Disposing sanitary items?	1. Commode 2. Bin 3. Outside	/----/

		4. Don't care	
317	How often did you Intervened in cleaning the campus environment?	1. Daily 2. Weekly 3. Monthly 4. yearly	
318	Please rank the general cleanness of the sanitation facilities in your hall	1. Bad 2. Average, 3. Good, 4. Excellent	
319	Is the toilet in the hall cleaned regularly?	1. Yes 2. Sometimes 3. No 4. I don't know	
320	What mainly promotes to use of latrine?	1. Sex separated 2. Cleanliness 3. Privacy 4. Safety	

Observational checklist

በቅዱስ ፓውሎስ ሆስፒታል ሚሊኒየም የህክምና ኮሌጅ

Checklist	Kotebe university	Civil service university
Are hands washing facilities Available in this school?/		
Available		
Not available		
Are soap and water available at the wash basins?		
Available		
Not available		
Is alcohol-based hand sanitizer available at the wash basins?		
Available		
Not available		
Availability of water supply source		
Available ground water		
Available surface water		
Availability of water storage		
Underground tank		
Underground and top tank		
Reserve plastic tank		
Availability of treated water		
Available		
Not available		
Availability of water at hand washing facility		
Available		
Not available		
Availability of soap at hand washing facility		
Available		
Not available		
Availability of sufficient toilets		
Available		
Not available		
Accessibility of toilets		
Accessible		
Not accessible		
Availability of improved toilets		
Available		
Not available		

የህብረተሰብ ጤና ሳይንስ ክፍል

በመንግስት ዩኒቨርሲቲ በመደበኛ የትምህርት ፕሮግራም ትምህርታቸውን ለሚከታተሉ ተማሪዎች መጠይቅ

ተማሪዎች በጥናቱ ለመሳተፍ ፈቃደኛ መሆናቸውን የሚገልጹበት ፎርም

እንደምን ሰነበቱ ? እኔ ከዚህ የመጣሁበት አላማ በአዲስ አበባ ከተማ አስተዳደር በመንግስት ዩኒቨርሲቲዎች እየተማሩ ላሉ ተማሪዎችን የሳንቴሽንና ንጽህና እየተተገበሩ ያሉ ተግባራትንና ለመተግነር ምክንያት ሊሆኑ የሚችሉ ተግዳሮቶችን ለተመለከተ የዳሰሳ ጥናት ለመስራትና መረጃ ለመሰብሰብ ነው። ጥናቱ የሚሰራው መስም ክፍለማርያም ጸጋየ አወቀ የሚባል ሲሆን በቅዱስ ፓውሎስ ሆስፒታል ሚሊኒየም ሜዲካል ኮሌጅ የሁለተኛ ዲግሪ ተማሪ ነው። ጥያቄዎቹ የእርስዎን ልምድና ተግባር በሳንቴሽንና ንጽህና በተመለከተ ነው። ጥያቄዎቹ የሚፈጁት ከ 10 እስከ 15 ደቂቃ ነው።

እንደ ጥናቱ ተሳታፊ እርስዎ በዚህ ጥናት ተጠቃሚ ይሆናሉ። ጥያቄዎችን በራስዎ የሚሞሏቸው ሲሆን በእርስዎ ላይ የሚያደርሰው ምንም ጉዳት የለም። የጥናቱ ውጤት እንደ አጠቃላይ ነው እንጂ እንደ ግለሰብ አይወጣም። ለአላማው መሳካት የእርስዎን ትብብር እንሻለን። የእርስዎ ስምም ሆነ አድራሻ በመጠይቁ ውስጥ አይካተትም። በዚህ ጥናት ለመሳተፍ እኛ የእርስዎን ሙሉ ፈቃደኝነት ስንጠይቅ ያለ ምንም አስገዳጅነት ሲሆን ፈቃደኛ ካልሆኑ ከመጀመሪያዎም ሆነ ከጀመሩ በላይ ከመሃል ላይ ማቋረጥ ይቻላል።

የሚከተሉት ነጥቦች ከተረዱ በኋላ ጥያቄዎችን ወደ መመለስ ይገባሉ

የጥናቱ አላማ፡ በአዲስ አበባ ከተማ አስተዳደር በመንግስት ዩኒቨርሲቲዎች እየተማሩ ላሉ ተማሪዎችን የሳንቴሽንና ንጽህና እየተተገበሩ ያሉ ተግባራትንና ለመተግነር ምክንያት ሊሆኑ የሚችሉ ተግዳሮቶችን ለተመለከተ የዳሰሳ ጥናት መስራት ነው።

ጥቅም፡ የዚህ ጥናት ውጤት የፖሊሲ አዋቂዎችንና የፕሮግራም እቅድ ለማቀድ ከፍተኛ ጥቅም ያለው ሲሆን ለመንግስት ዩኒቨርሲቲ ተማሪዎች የሳንቴሽንና ንጽህና ተግባራትን ለማሻሻል ይረዳል።

ጉዳት፡ በዚህ ጥናት በመሳተፍዎ የሚደርስብዎ ምንም ጉዳት የለም።

ጥናቱና መጠይቁ የሚፈጅው ጊዜ፡ ጥናቱ ለአንድ ወር የሚካሄድ ሲሆን መጠይቁ ከ10 እስከ 15 ደቂቃ ይወስዳል።

ለጥናቱ ተሳታፊ አማራጭ፡ በጥናቱ ያለመሳተፍ ፍላጎት ካለዎት አለመሳተፍ ይችላሉ። ከጥናቱ ጋር ወይም ከግላዊ ምክንያት በተነሳ በጥናቱ ያለመሳተፍ ሙሉ መብት አለዎት።

ሚስጥራዊነት፡ እርስዎ የሚሰጡት መረጃ ሚስጥራዊነቱ የተጠበቀ መሆኑን ልናረጋግጥልዎ እንወዳለን. ለጥያቄዎቹ ለሚሰጡት መረጃ ለሌላ ሰው አሳልፎ እንደማይሰጥና ሪፖርትም እንደማይሆን እንዲያወቁ እንፈልጋለን. የዚህ ጥናት ውጤት ቢታተም እነኪ በጥናቱ የሚወጣው አጠቃላይ መረጃ እንጅ እንደ ግለሰብ አይወጣም።

ለማነጋገር የሚረዷችሁ ሰዉ፡ ማንኛውን አይነት ጥያቄ ቢኖርዎት የጥናቱን የጥሂ በማንኛውም ሰአት በሚከተለው አድራሻ ማግኘት ይችላሉ፡

ስም፡ ክፍለማርያም ጸጋየ አወቀ

ስልክ፡ 0920771726

ኢ-ሜል፡ kiflemariamtsegaye@gmail.com

ፍቃደኝነት መግለጫ፡ አጠቃላይ ሁኔታው የተገለጠልኝና የተረዳው ሲሆን. በጥናቱ ለመሳተፍ

- 1. ፍቃደኝ ነኝ
- 2. ፍቃደኛ አይደለሁም

የመረጃ ሰብሳቢዉ ስም-----ፍርማ-----መረጃዉ የተሰበሰበበት ቀን-----

የተቆጣጣሪዉ ስም-----ፍርማ-----ቀን-----

ስለ ትብብርዎ እናመሰግናለን.

ክፍል አንድ፡- አጠቃላይ የግለሰቡ መረጃ			
ተ.ቁ	መጠይቅ	መልስ	ኮድ

101	እድሜዎ ስንት ነው?	1. 18-20 አመት 2. 21-23 አመት 3. 24-27 አመት 4. ከ27 አመት በላይ	/----/
102	ጾታዎ ምንድን ነው?	1. ወንድ 2. ሴት	/----/
103	ሃይማኖትዎ ምንድን ነው?	1. ኦርቶዶክስ 2. ሙስሊም 3. ፕሮቴስታንት 4. ካቶሊክ 5. ሌላ-----	/----/
104	የስንተኛ አመት ተማሪ ነዎት?	1. 2ኛ አመት 2. 3ኛ አመት 3. 4ኛ አመት	/----/
105	የሚያጠኑት የትምህርት ዘርፍ ምንድን ነው?	1. አካውንቲንግ ኤንድ ፋይናንስ 2. አርባን ኢንጅነሪንግ 2. አርባን ፕላኒንግ 3. ባችለር አፍ ኢጂኬሽን 4. ባችለር አፍ ቲችንግ 5. ሌላ-----	/----/
106	ዩኒቨርሲቲ ከመግባተዎ በፊት የሚኖሩነት አካባቢ ምንድን ነው?	1. የገጠር መንደር 2. ከተማ 3. መካከለኛ ከተማ	/----/
107	በሳንቴሽንና ንጽህናን በተመለከተ ስልጠና ሰልጥነው ያዉቃሉ?	1. አዎ 2. አላዉቅም	/----/

ክፍል 2: የእጅ አስተጣጥብና የንጽህና እዉቀትን በተመለከተ

ተ.ቁ	መጠይቅ	መልስ	ከድ
201	ምን አይነት ዉሃ ነዉ እጅን ለመታጠብ የሚጠቀሙት ?	4. ቀዝቃዛ ዉሃ 5. መካከለኛ ሙቅ ዉሃ 6. ሙቅ ዉሃ	/----/
202	ምንን በመጠቀም ነዉ እጅዎን የሚታጠቡ?	4. ዉሃ ከሰሙና ጋር 5. ዉሃ ብቻ 6. ሌላ	/----/
203	ሰአታና የእጅ አምባር እጅን ለመታጠብ መዉለቅ አለነት?	4. አዎ መዉለቅ አለበት 5. መዉለቅ የለበትም 6. አላዉቅም	/----/
2054	የእጅ ቀለበት በእጅ መታጠብ ሰአት መዉለቅ አለበት?	4. አዎ መዉለቅ አለበት 5. መዉለቅ የለበትም 6. አላዉቅም	/----/
205	የእጅ አንጓ እጅን በምንታጠብበት ሰአት መታጠብ አለበት?	4. አዎ መታጠብ አለበት 5. መታጠብ የለበትም 6. አላዉቅም	/----/
206	እጅን ከታጠብን በኋላ መድረቅ አለበት?	4. አዎ መድረቅ አለበት 5. መድረቅ የለበትም 6. አላዉቅም	/----/
207	የበሰለና ያልበሰለ ምግብ ንክኪ ለምግብ ብክለት ያጋልጣል?	4. አዎ ያጋልጣል 5. አያጋልጥም 6. አላዉቅም	
208	አትክልትና ስጋን ለመክተፍ ተመሳሳይ ቢላዎ መጠቀም ለምግብ ወለድ በሽታ ያጋልጣል	1. አዎ ያጋልጣል 2. አያጋልጥም 3. አላዉቅም	
209	ምግብ የነካዉንና የተቀመጠበትን በታ ተሎ ተሎ ማጠብ የምግብ ብክለትን ይከላከላል?	1. አዎ ይከላከላል 2. አይከላከልም 3. አላዉቅም	

ክፍል ሶስት፡- የሳንቴሽንና የንጽህና አተገባበር ሁኔታዎን በተመለከተ

ተ.ቁ	መጠይቅ	መልስ	ኮድ
301	በአማካይ በየስንት ጊዜዉ ምግብ ከመብላትዎ በፊት እጅዎን ይታጠባሉ?	1. ሁልጊዜ እታጠባለሁ 2. አዘዉትሬ እታጠባለሁ 3. አልፎ አልፎ እታጠባለሁ 4. ታጥቤ አላዉቅም	/----/
302	በአማካይ በየስንት ጊዜዉ ምግብ ከተመገቡ በኋላ እጅዎን ይታጠባሉ?	1. ሁልጊዜ እታጠባለሁ 2. አዘዉትሬ እታጠባለሁ 3. አልፎ አልፎ እታጠባለሁ 4. ታጥቤ አላዉቅም	/----/
303	በአማካይ በየስንት ጊዜዉ ምግብ ከመጻዳጃ መልስ በኋላ እጅዎን ይታጠባሉ?	1. ሁልጊዜ እታጠባለሁ 2. አዘዉትሬ እታጠባለሁ 3. አልፎ አልፎ እታጠባለሁ 4. ታጥቤ አላዉቅም	/----/
304	በአማካይ በየስንት ጊዜዉ እጅዎን ሲታጠቡ ሳሙና ይጠቀማሉ?	1. ሁልጊዜ እጠቀማለሁ 2. አዘዉትሬ እጠቀማለሁ 3. አልፎ አልፎ እጠቀማለሁ 4. ተጠቅሜ አላዉቅም	/----/
305	የገላ መታጠቢያ ጊዜዎን ጠብቀዉ ይታጠባሉ ?	1. ሁልጊዜ እታጠባለሁ	/----/

		2. አዘውትሬ እታጠባለሁ 3. አልፎ አልፎ እታጠባለሁ 4. የመታጠቢያ ጊዜ በአግባቡ ጠብቄ ታጥቤ አላውቅም	
306	በአማካይ በየስንት ጊዜው የታጠቡ ልብሶችን ይለብሳሉ?	1. ሁልጊዜ 2. አዘውትሬ 3. አልፎ አልፎ 4. ንጹህ ልብስ ለብሽ አላውቅም	/----/
307	በአማካይ በየስንት ጊዜው ጥርስዎን በቀን ሁል ጊዜ ቦርሽው ያዉቃሉ?	1. ሁልጊዜ 2. አዘውትሬ 3. አልፎ አልፎ 4. ቦርሽ አላውቅም	/----/
308	የእጅ እጣት ጥፍረዎን ግዜውን ጠብቀው የቆረጣሉ?	1. ሁልጊዜ እቆረጣለሁ 2. አዘውትሬ እቆረጣለሁ 3. አልፎ አልፎ እቆረጣለሁ 4. ጥፍሮችን ቆርጬ አላውቅም	/----/
309	በአማካይ በየስንት ጊዜው ንጹህ የመጠጥ ዉሃ ይጠጣሉ ?	1. ሁልጊዜ እጠጣለሁ 2. አዘውትሬ እጠጣለሁ 3. አልፎ አልፎ እጠጣለሁ 4. ጠጥቼ አላውቅም	/----/
310	በአማካይ በየስንት ጊዜው ክፍልዎን ያጸዳሉ ?	1. ሁልጊዜ አጸዳለሁ 2. አዘውትሬ አጸዳለሁ 3. አልፎ አልፎ አጸዳለሁ	/----/

		4. አጽድቶ አላዉቅም	
311	ከቤትዎ ዉጭ በሚሆኑበት ጊዜ የእጅ ሳኒታይዘር ይጠቀማሉ?	1. ሁልጊዜ እጠቀማለሁ 2. አዘዉትሬ እጠቀማለሁ 2. አልፎ አልፎ እጠቀማለሁ 3. አልጠቀምም	/----/
312	በአማካኝ ለምን ያህል ጊዜ የግል መጻዳጃ ቤት ይጠቀማሉ?	1. ሁልጊዜ እጠቀማለሁ 2. አዘዉትሬ እጠቀማለሁ 3. አልፎ አልፎ እጠቀማለሁ 4. አልጠቀምም	/----/
313	በአማካኝ ምን ያህል ጊዜ የተለየ ጭማ ለመጻዳጃ ቤት ይጠቀማሉ?	1. ሁልጊዜ እጠቀማለሁ 2. አዘዉትሬ እጠቀማለሁ 3. አልፎ አልፎ እጠቀማለሁ 4. አልጠቀምም	/----/
314	ከተጻዳዱ በኋላ መጻዳጃ ቤቱ ላይ ዉሃ ይደፋሉ ?	1. ሁልጊዜ 2. አዘዉትሬ 3. አልፎ አልፎ 4. አልደፋም	
315	የመጻዳጃ ቤት ንጽህና ለመጠበቅ በምን ያህል ጊዜ ተግባራዊ ያደርጋሉ?	1. በየቀኑ 2. በየሳምንቱ 3. በየወሩ 4. በየአመቱ	/----/
316	የንጽህና መጠበቂያ ቁሳቁሶችን የት ነዉ የሚያሰውግዱ ?	1. የቆሻሻ ማጠራቀሚያ ቢን 2. ወደ ዉጭ መጣል 3. በመንገድ ላይ መጣል 4. ግድ የለኝም	/----/

317	በዩኒቨርሲቲ ግቢዉ የጽዳት ዘመቻ ምን ያህል ግዜ ይሳተፋሉ?	1. በየቀኑ 2. በየሳምንቱ 3. በየወሩ 4. በየአመቱ	/----/
318	አጠቃላይ በግቢዉ የንጽህና ሃይጅን አገልግሎት መስጫ ቦታዎች ያላቸዉ ንጽህናና ጽዳት እንዴት ይገልጹታል?	1. መጥፎ 2. መካከለኛ 3. ጥሩ 4. በጣም ጥሩ	/----/
329	የግቢዉ መጻዳጃ ቤቶች ሁልግዜ ይጻዳሉ?	1. አዎ 2. አልፎ አልፎ ይጻዳሉ 3. አይጻዱም 4. አላዉቅም	/----/
320	መጻዳጃ ቤት ለመጠቀም የሚስችሉ ሁኔታዎች ምንድን ይመስልዎታል?	1. በጾታ የተለየ መሆኑ 2. የመጻዳጃ ቤቱ ንጽህናዉ 3. ነጻነት መኖሩ(ፕራይቪሲ) 4. ምቹ መሆኑ	/----/

የሳንቴሽን አተገባበር በተመለከተ

ተ.ቁ	መጠይቅ	መልስ	ክድ
312	ምን አይነት የመጻዳጃ አይነት ነዉ የእርስዎ ቤተሰብ የሚጠቀም?	1. የህዝብ መጻዳጃ ቤት 2. የግል መጻዳጃ ቤት 3. ክፍት መጻዳጃ ቤት 4. የጋራ መጻዳጃ ቤት	/----/
313	በአማካኝ ለምን ያህል ጊዜ የግል መጻዳጃ ቤት ይጠቀማሉ?	5. ሁልጊዜ እጠቀማለሁ 6. አዘዉትሬ እጠቀማለሁ 7. አልፎ አልፎ እጠቀማለሁ 8. አልጠቀምም	/----/
314	በአማካኝ ምን ያህል ጊዜ የተለየ ጫማ ለመጻዳጃ ቤት ይጠቀማሉ?	5. ሁልጊዜ እጠቀማለሁ 6. አዘዉትሬ እጠቀማለሁ 7. አልፎ አልፎ እጠቀማለሁ 8. አልጠቀምም	/----/
315	ከተጻዳዱ በኋላ መጻዳጃ ቤቱ ላይ ዉሃ ይደፋሉ ?	5. ሁልጊዜ 6. አዘዉትሬ 7. አልፎ አልፎ 8. አልደፋም	
316	የመጻዳጃ ቤት ንጽህና ለመጠበቅ በምን ያህል ጊዜ ተግባራዊ ያደርጋሉ?	1. ሁልጊዜ 2. አዘዉትሬ 3. አልፎ አልፎ 4. አላጻዳም	/----/

317	የንጽህና መጠበቂያ ቁሳቁሶችን የት ነው የሚያሰጥዎት ?	5. የቆሻሻ ማጠራቀሚያ ቢን 6. ወደ ውጭ መጣል 7. ግድ የለኝም	/----/
318	በዩኒቨርሲቲ ግቢው የጽዳት ዘመቻ ምን ያህል ጊዜ ይሳተፋሉ?	1. በየቀኑ 2. በየሳምንቱ 3. በየወሩ 4. ተሳትፎ አላወቅም	/----/
319	አጠቃላይ በግቢው የንጽህና ሃይጅን አገልግሎት መስጫ ቦታዎች ያላቸው ንጽህናና ጽዳት እንዴት ይገልጹታል?	1. መጥፎ 2. መካከለኛ 3. ጥሩ 4. በጣም ጥሩ	/----/
320	የግቢው መጻዳጃ ቤቶች ሁልጊዜ ይጻዳሉ?	1. አዎ 2. አልፎ አልፎ 3. አይጻዱም	/----/
321	መጻዳጃ ቤት ለመጠቀም የሚስችሉ ሁኔታዎች ምንድን ይመስልዎታል?	1. በጾታ የተለየ መሆኑ 2. የመጻዳጃ ቤቱ ንጽህናው 3. ነጻነት መኖሩ(ፕራይቪሲ) 4. ምቹ መሆኑ	/----/

DECLARATION

I, the undersigned, declare that the thesis comprises my own work. In compliance with internationally accepted practices, I have acknowledged and refereed all materials used in this work. I understand that non-adherence to the principles of academic honesty and integrity, misrepresentation/ fabrication of any idea/data/fact/source will constitute sufficient ground for disciplinary action by the college and can also evoke penal action from the sources which have not been properly cited or acknowledged.

Name of the student: Kiflemariam Tsegaye Awoke

Date of submission: _____

Place: Addis Ababa, Ethiopia

This thesis has been submitted for examination with my approval as a college advisor

Advisor's Name (primary): _____ signature _____

Advisor's Name(co-advisor): _____ signature _____

