

A Study to Assess Knowledge, Attitude and Practices of Using Hand Sanitizer among Nursing Students in a Selected Institution of Bhubaneswar, Odisha

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Abstract: *“Our dreams can come true, if we have the courage to pursue them” - Walt Disney. A student nurse should have correct knowledge, attitude and practice regarding hand sanitizer. Hand sanitation is the most important way to reduce infection. Hand sanitizer is easy to carry out, easy to use and also less time consuming. The success of hand sanitation solely depends on the use of effective hand disinfecting agent formulating in virus type and forms such as antimicrobial soap, water based or alcohol-based handsanitizer, with the latter being widely used in hospital settings. Hand sanitizer is the practice which keeps the hand free from pathogens or decreases the amount prior to any procedure or touching the patient. Hand sanitizer prevents cross infection in hospitals. Hospital acquired infections possess a very real and serious threat to all who are admitted in the hospital. Pathogens are readily transmitted through the head of the health care worker and hand sanitizer substantially reduces the transmission. Hand sanitizer is an effective measure to kill microorganisms. This study was conducted in Kalinga Institute of nursing sciences among B. Sc nursing 2nd year and 3rd year students. It was an observational study; 100 students were taken as sample for the observational study. Questionnaire, Likert scale, checklist tool was used for data collection. After the detailed analysis the study leads to the following conclusions: 86% of the nursing students of KINS are having good knowledge, 14% of them are having average knowledge and none are having poor knowledge; 77% of the them are having good attitude, 23% of them are having average attitude and none are having poor attitude and 89% of students are having good practice, 8% are having average practice and 3% of them are having poor practice regarding the usage of hand sanitizer.*

Keywords: Knowledge, Attitude, practice, Nursing Students, Hand sanitizer

1. Introduction

“Healthy bodies begin with clean hands”. According to WHO, “Hand hygiene is defined as a behavior of cleaning the hand with soap and water and by rubbing using hand sanitizer without water”. Hand hygiene is the best way to be healthy and to stay away from various diseases. Hand sanitizer is recognized as the leading measure to prevent cross transmission and to reduce the incidence of contamination. Hospital acquired infection results in higher morbidity, mortality and additional costs. WHO study has shown that higher prevalence of HAI occurs in ICU, Surgical and orthopedic wards. According to WHO, “Hand hygiene is defined as a behavior of cleaning the hand with soap and water and by rubbing using hand sanitizer without water”. WHO study has shown that higher prevalence of HAI occurs in ICU, Surgical and orthopedic wards. The prevalence of healthcare associated infection is high in this region; especially for nursing students. Now-a-days, most effective hand sanitizer products are alcohol-based formulations containing 62%-95% of alcohol as it is capable of denaturing the protein of microbes and viruses. Therefore, it is absolutely essential to assess and know the knowledge, attitude and practices about hand sanitizer so that appropriate strategies can be developed to reduce the transmission of contamination. Particularly in a situation

like pandemic outbreak, It is crucial to interrupt the transmission chain of the virus by practicing proper hand hygiene with hand sanitizer. The success of hand sanitization solely depends on the use of effective hand disinfecting agents formulated in virus type and form such as antimicrobial soap, water based or alcohol-based hand sanitizer, with the latter being widely used in hospital settings.

2. Review of Literature

“The first step to knowledge is to know that we are ignorant” -Richard Cecil

The term review of literature refers to the activities involved in identifying and searching for information on a topic and developing an understanding of the state of knowledge of the topic. This term is also used to designate a written summary of the state of the art on a research problem. The literature reviewed has been presented under the following headings:

Literature Review related to Assessment of Knowledge, Attitude and Practices of hand sanitizer.

Literature Review Related to Application of Hand Sanitizers in Congregate Settings.

Literature review related to Assessment of Attitude of health care workers towards hand hygiene compliance.

Literature Review related to Assessment of Knowledge, Attitude and Practices of hand sanitizer:

- 1) A study on 'Knowledge, Attitude and Practices of hand sanitizer among final year medical and nursing students at the University of Sri Jayewardenepura' was conducted in the year 2013. A self-administered questionnaire based cross sectional study was done to compare the knowledge, attitudes, practices and satisfaction (KAPS) of facilities between final year medical and nursing students of the Faculty of Medical Sciences, University of Sri Jayewardenepura. Participants had moderate knowledge (77%) but attitudes, practices and satisfaction of facilities of all the participants was overall poor (<50%). However, the nursing students had better knowledge ($p=0.023$), attitudes ($p<0.001$), practices ($p<0.001$) and satisfaction of facilities ($p<0.001$) compared with the medical students. The knowledge, attitudes, practices and satisfaction of facilities of medical and nursing students are unsatisfactory. The study shows the need for further improvement of the existing hand sanitizer training programs to address the gaps in knowledge, attitudes and practices. Further, there is a need to improve the facilities available for hand sanitizer and make them readily accessible for students at their training centers to enable them to engage in good practices which will be beneficial for them as doctors and nurses in the future.
- 2) A cross sectional study on 'Knowledge, Attitude and Self-Reported Performance and Challenges of Hand Hygiene Using Alcohol- Based Hand Sanitizers among Healthcare Workers during COVID-19 Pandemic at a Tertiary Hospital' was conducted in Jimma Medical Centre, Ethiopia in the year 2021. The study was conducted using 96 study participants. All of the study participants were at the forefront of the fight against Covid-19. Most of the study participants were nurses (27) and pharmacists (21). Their mean age was 28.69 ± 4.048 years. All of them were practicing different COVID-19 prevention methods. In this study, 95.8% of the respondents used alcohol-based hand sanitizers. The majority of the respondents were knowledgeable (93.8%), had a favorable attitude (74%), and good hand hygiene practices (76%) by alcohol-based hand sanitizers. However, 84.5% of the respondents were confronted with challenges during alcohol-based hand sanitizer use due to it is unavailable 66(68.8%), expensive 50 (52.1%), forgetting 11(11.5%), experiencing health-associated risks (skin irritation (28.1%), skin dryness (62.5%), ocular irritation (11.5%). The majority of respondents had good knowledge, attitude, and practices of alcohol-based hand sanitizer. But there were some items of their evaluation with relatively low scores that revealed some room for improvements.
- 3) A study on 'effectiveness of hand sanitizer as antimicrobial' was conducted at East Tennessee state

University among 300 students. According to the study the concentration of Isopropyl Alcohol determines effectiveness. Hand sanitizer with Isopropyl alcohol may instantly kill up to 99.99% non-spore forming bacteria in less than 30sec. Researchers suggest products contain a concentration of over 70% Isopropyl Alcohol as the sanitation standard for hospitals and clinics.

- 4) A study on 'Reduction of illness' absenteeism in elementary schools using an alcohol-free instant hand sanitizer was conducted. A Population of 769 elementary school children have participated in the study. Prior to the study, students were educated about proper hand rubbing technique, the importance of hand sanitizer to prevent transmission of germs. Children in kindergarten through the 6th grade (5-12) were assigned to the active or placebo hand sanitizer product instructed to use the product at scheduled times during the day and as needed after coughing or sneezing. Data on illness absenteeism were tracked. After 5 weeks, students using the active product were 33% less likely to have been absent because of illness when compared with the placebo group.
- 5) A study on 'Predicting and explaining behavioural and hand sanitizer use among U.S. army soldiers' was conducted in the year 2005. A total of 201 surveys are collected. All data were screened and entered into IBM SPSS for analysis. Results indicated that attitude, subjective norms, and perceived behavioural control explained 64% of the variance in behavioural intention, with attitude being the strongest predictor. Some of the limitations include commonly perceived social psychology bias. Further, Clustered samples were collected within one military installation in a relatively short amount of time.

Objectives of the Study

To assess the knowledge, attitude and practices of using hand sanitizer among nursing students.

Hypothesis

H1-There is no significant association between knowledge and selected demographic variables

H2- There is a significant association between knowledge and selected demographic variables

Research Approach

A quantitative research approach was considered to be the most appropriate for the present study as it aimed assess the knowledge, attitude and practices of students(B.sc nursing 2nd and 3rd year) regarding use of hand sanitizer in KALINGA INSTITUTE OF NURSING SCIENCES, Bhubaneswar, Odisha.

Study Design

According to Burn. N, Groove S.K "A research design is a blueprint for the conduct of study that maximizes control over factors that could interfere with studies outcome". In the research process the research design helps the researcher in the selection of subjects for observation and determining the type of analysis to be used to interpret the data. Keeping the view, the objective of the study, the research design for 0the present study is descriptive research design. In this

study we have chosen to focus or assess knowledge, attitude and practice regarding use of hand sanitizer in KALINGA INSTITUTE OF NURSING SCIENCES, Bhubaneswar, Odisha. The self-structured questionnaire, Likert scale and checklist.

Setting

According to Polit and Hungler "setting is the physical location and condition in which data collection takes place in a study" the present study was conducted on student (B.Sc nursing 2nd and 3rd year) of KALINGA INSTITUTE OF NURSING SCIENCES, Bhubaneswar, KIIT.

Sample Size and Sampling Technique

A total of 100 student nurses who satisfied inclusion criteria were present during the study.

According to Burn and Groove, "Sampling technique is the process of selecting a group of people, events, behavior or other elements that are representative of the population being studied". For the present study, Convenient Sampling Technique is the sampling technique.

Duration of Study

6 months

Criteria for the selection of the sample:

Availability of the study sample

Feasibility of conducting study

Familiarity and co-operation from authorities in getting permission and conducting study economy of time.

Inclusion Criteria:

- 1) Students who can read, write and understand English.
- 2) Student nurses who are willing to participate in the study.
- 3) Student nurses who are available during the period of data collection.

Exclusion Criteria

- 1) Those are not willing to participate.
- 2) Those are not present during study.

Data Collection Tools

A self-structured questionnaire, Likert scale & checklist.

Data Collection Procedure

After taking permission from the competent authority and informed consent was taken from 100 student nurses in BSc nursing 2nd year and 3rd year & convenient sampling techniques were used to select the samples.

3. Result

The analysis and interpretation of data of this study are based on data are collected through self-structured questionnaire for assessing the knowledge, Likert scale is prepared for assessing the attitude and checklist is prepared for assessing the practices regarding uses of hand sanitizer among nursing students (B.Sc nursing 2nd and 3rd year) of Kalinga institute of nursing sciences, Bhubaneswar, Odisha.

Presentation of data

Section A

The knowledge scores were obtained through self-structured knowledge questionnaires and analyzed by using descriptive statistics. According to the score obtained, the knowledge level of nursing students was divided into 3 categories: good knowledge, average knowledge and poor knowledge and are highlighted in table 1

Table 1: Frequency and percentage distribution of level of knowledge of nursing students regarding the usage of hand sanitizer

Parameters	Frequency	Percentage
Good Knowledge ($\geq 75\%$)	86	86%
Average Knowledge (51%-74%)	14	14%
Poor Knowledge ($\leq 50\%$)	0	0%

Comparison of level of knowledge of nursing students regarding hand sanitizer usage is observed in table-1 in which 86% nursing students have good knowledge, 14% have average knowledge & no student have poor knowledge regarding hand sanitizer usage.

Assessment of attitude of using hand sanitizer among nursing students in a selected institution of Bhubaneswar

Section B

Assessment of attitude of using hand sanitizer among nursing students in a selected institution of Bhubaneswar. The attitude scores were obtained through Likert scale and analyzed by using descriptive statistics.

Table 2: Frequency and percentage distribution of level of attitude of nursing students regarding the usage of hand sanitizer

Parameters	Frequency	Percentage
Positive Attitude ($\geq 75\%$)	77	77%
Neutral Attitude (51%-74%)	23	23%
Negative Attitude ($\leq 50\%$)	0	0%

According to the score obtained, the attitude level of nursing students was divided into 3 categories: good attitude, average attitude and poor attitude and are highlighted in table 2.

Section C

Assessment of practice of using hand sanitizer among nursing students in a selected institution of Bhubaneswar

Table 3: Frequency and percentage distribution of level of practice of nursing students regarding the usage of hand sanitizer

Parameters	Frequency	Percentage
Good Practice ($\geq 75\%$)	89	89%
Average Practice (51%-74%)	8	8%
Poor Practice ($\leq 50\%$)	3	3%

This section describes the practice level of nursing students in a selected institution of Bhubaneswar, Odisha. The practice scores were obtained through Checklist and analyzed by using descriptive statistics. According to the score obtained, the practice level of nursing students was

divided into 3 categories as good practice, average practice and poor practice and are highlighted in table 3.

4. Conclusion

The detailed analysis of the study led to the following conclusion that the B.Sc nursing 2nd year and 3rd year students do not have 100% knowledge, attitude and practice regarding usage of hand sanitizer. There is no significant association between knowledge with age, sex, year of study of nursing students. The findings of this study have implications in various areas of nursing namely nursing education, nursing practice and nursing research. Implications of the study:

Nursing Education

Findings of the study can be used by the nurse educator to frame booklets in order to provide education to the students regarding hand sanitizer usage which will further help them to create awareness regarding the same among the patients.

Nursing Practice

The finding of the present study will help the staff nurse in disseminating knowledge, attitude and practices regarding hand sanitizer usage to the patients as well as subordinates.

Nursing Research

Finding of the present study will add to the existing body of knowledge among students. Other researchers may utilize the suggestion & recommendation for conducting further study. The tool and technique used has added to the body of knowledge & can be used for further references.

5. Limitations

- 1) The study was confined to a fewer number of subjects, which limit the generalization of the findings.
- 2) A structured knowledge questionnaire was used for data collection, which restricts the amount of information that can be obtained from the respondents.
- 3) Only the knowledge of student nurses was assessed, no attempt was made to assess the subsequent application of knowledge gained into practice.
- 4) No attempt was made to do the follow up, to measure retention of knowledge of student nurses.

6. Recommendation

- 1) A similar study can be conducted by using larger samples for the generalization of finding.
- 2) A study may be conducted to evaluate the knowledge, attitude and practices regarding hand hygiene.

References

- [1] Assefa D, Melaku T, Bayisa B, Alemu S. Knowledge, Attitude and Self-Reported Performance and Challenges of Hand Hygiene Using Alcohol-Based Hand Sanitizers Among Healthcare Workers During COVID-19 Pandemic at a Tertiary Hospital: A Cross-Sectional Study. *Infection and Drug Resistance*. 2021;14:303.
- [2] Naik S, Khanagar S, Kumar A, Vadavadagi S, Neelakantappa HM, Ramachandra S. Knowledge, attitude, and practice of hand hygiene among dentists practicing in Bangalore city—Across-sectional survey. *Journal of International Society of Preventive & Community Dentistry*. 2014 Sep;4(3):159.
- [3] Ango UM, Awosan KJ, Adamu H, Salawu S, Sani MM, Asma'u HI. Knowledge, attitude and practice of hand hygiene among healthcare providers in semi-urban communities of Sokoto State, Nigeria. *International Journal of Tropical Disease & Health*. 2017 Oct 6:1-9.
- [4] Myers R, Larson E, Cheng B, Schwartz A, Da Silva K, Kunzel C. Hand hygiene among general practice dentists :a survey of knowledge, attitudes and practices. *The Journal of the American Dental Association*. 2008 Jul 1;139(7):948-57.
- [5] Addis SG, Nega AD, Miretu DG. Knowledge, attitude and practice of patients with chronic diseases towards COVID-19 pandemic in Dessie town hospitals, Northeast Ethiopia. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*. 2021 May 1;15(3):847-56.
- [6] Austrian K, Pinchoff J, Tidwell JB, White C, Abuya T, Kangwana B, Ochako R, Wanyungu J, Muluve E, Mbushi F, Mwanga D. COVID-19 related knowledge, attitudes, practices and needs of households in informal settlements in Nairobi, Kenya.
- [7] Kaur G, Kaur AP, Kaur L. Knowledge, attitude and practices during Covid 19: Interventions and preventions. *Indian Journal of Positive Psychology*. 2020 Sep 1;11(3):241-4.
- [8] Gunjawate DR, Ravi R, Yerraguntla K, Rajashekhar B, Verma A. Impact of corona virus disease 2019 on professional practices of audiologists and speech-language pathologists in India: A knowledge, attitude and practices survey. *Clinical epidemiology and global health*. 2021 Jan 1;9:110-5.
- [9] Chatterjee SS, Bhattacharyya R, Bhattacharyya S, Gupta S, Das S, Banerjee BB. Attitude, practice, behavior, and mental health impact of COVID-19 on doctors. *Indian Journal of Psychiatry*. 2020 May;62(3):257.
- [10] Mbroh LA. Assessing Knowledge, Attitude and Practices of Hand Hygiene among University Students (Doctoral dissertation, Minnesota State University, Mankato).
- [11] Malik UR, Atif N, Hashmi FK, Saleem F, Saeed H, Islam M, Jiang M, Zhao M, Yang C, Fang Y. Knowledge, attitude, and practices of healthcare professionals on COVID-19 and risk assessment to prevent the epidemic spread: a multicenter cross-sectional study from Punjab, Pakistan. *International journal of environmental research and public health*. 2020 Jan;17(17):6395.
- [12] Ghazi HF, Taher TM, Abdal Qader MA, Raheema RH, Baobaid MF, Hasan TN. Knowledge, attitude, and practice regarding corona virus disease-19: population-based study in Iraq. *Open Access Macedonian Journal of Medical Sciences*. 2020 Sep 20;8(T1):137-41.
- [13] Maheshwari S, Gupta PK, Sinha R, Rawat P. Knowledge, attitude, and practice towards corona virus disease 2019 (COVID-19) among medical students: A

cross-sectional study. *Journal of Acute Disease*. 2020 May 1;9(3):100.

- [14] Pang J, Chua SW, Hsu L. Current knowledge, attitude and behavior of hand and food hygiene in a developed residential community of Singapore: a cross-sectional survey. *BMC Public Health*. 2015 Dec;15(1):1-2.
- [15] Akalu Y, Ayelign B, Molla MD. Knowledge, attitude and practice towards COVID-19 among chronic disease patients at Addis Zemen Hospital, Northwest Ethiopia. *Infection and drug resistance*. 2020;13:1949.