

A study to assess the knowledge, attitude, and practice on occupational blood and body fluid spill management awareness among nursing students in a tertiary care hospital in Chennai, Tamil Nadu



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ABSTRACT

Background: Nurses form a major taskforce of healthcare providers in hospitals and are hence at a great risk of such exposure. Occupational exposure in the context of this study is the exposure of skin to blood and body fluids. Transmission of these infections puts healthcare providers at major risk. Proper decontamination and taking measures to prevent occupational exposure to blood, mercury and body fluids is a primary method of prevention of disease in a healthcare setup. **Aims and Objectives:** To estimate, the level of knowledge, attitude & practice of nursing students regarding the management of blood and body fluid spill. **Materials and Methods:** A Cross sectional –KAP among Second and third years from Nursing school, Chennai. **Result:** Among 98 nursing students, second year nursing 40%, 61%, 40 % shows knowledge, attitude and practice respectively. Third year students shows better than second year which was 57%, 71%, 71 % shows knowledge, attitude and practice respectively. The studied participants had a median (IQR) percentage KAP score of 8(7-9) and 11 (10-13) for second and third year students respectively. Comparison KAP score of the excellent and fair among second and third year students showed the significant p-value (<0.001*) by the Mann- Whitney U test. **Conclusion:** Majority of third year nursing students showed better KAP than second year students hence we recommend more mock training classes to improve the knowledge and practice.

Key words: KAP; Occupational blood and body fluid spill management; Score; Nursing students; Chennai

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INTRODUCTION

Despite leaps in the medical field, issues such as occupational exposure to blood and body fluids continue to pose a major problem with no effective means of control. Nurses form a major taskforce of healthcare providers in hospitals and are hence at a great risk of such exposure. Occupational exposure in the context of this study is the exposure of skin to blood and body fluids. The routes of exposure include percutaneous, mucocutaneous and via

non-intact skin.¹ Body fluids include urine, saliva, sputum, vomitus, cerebrospinal fluid, vaginal secretions, semen, effusion fluid, etc potentially containing pathogens.

Exposure to blood and body fluids places healthcare workers at risk for numerous infections, of which the most important ones are Human Immunodeficiency virus (HIV), Hepatitis B virus (HBV), Hepatitis C virus (HCV).² Transmission of these infections puts healthcare providers at major risk. Sources of human

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exposure to elemental mercury included dental amalgam, thermometers, sphygmomanometer, barometers, batteries & incineration of medical waste.³ Mercury spillage was dangerous and hence the use of mercury containing objects like Sphygmomanometer & thermometer were banned.^{4,5}

Transmission of blood and body fluid- borne pathogens are likely related to the patient's status, type of injury, quantity of blood/body fluid involved in the exposure, the health status of the healthcare worker as well as the safety precautions employed before, during and after exposure.⁶ Proper decontamination and taking measures to prevent occupational exposure to blood, mercury and body fluids is a primary method of prevention of disease in a healthcare setup.

Justification of the study

Occupational exposure to blood and body fluids is a serious concern for health care workers. Among health care workers, nurses are the first person to handle it which causes a major risk factor for transmission of infectious disease. Hence to study the knowledge attitude and practice among the nursing students can identify the lacunae in their understanding and can train them better.

Aims and objectives

- 1) To estimate, the level of knowledge & attitude of nursing students regarding the management of blood and body fluid spill.
- 2) To assess the practice of nursing students regarding blood and body fluid exposure.

MATERIALS AND METHODS

A Cross sectional –KAP among the Second and third years Nursing students from Chennai was conducted for two months period from August to September after getting the institutional ethical clearance. By using Universal Sampling technique with predesigned semi structured questionnaire data was collected after taking informed consent. The Inclusion Criteria was nursing students of second and third year batches and Exclusion Criteria was 1) Students not willing to participate in the study 2) Students not available during the time of study and 3) First year students.

Brief procedure

To assess the level of knowledge & attitude of nursing students regarding the management of blood and body fluid spill based on the guidelines prescribed by Centers of Disease Control and Prevention⁷ (for blood and body fluids) and National Institute of Occupational Safety and Health, USA,^{8,9} a list of all the nursing students in this tertiary care hospital will be procured and sample population is selected based on the inclusion and exclusion

criteria. Data was collected using a predesigned semi-structured questionnaire. The survey was concluded by instructing the nursing students regarding the appropriate way to handle blood and body fluid spills.

Statistical analysis

Data was entered in Microsoft Excel and analyzed in SPSS. Descriptive statistics was used to describe the distribution of all variables. Differences in median percentage KAP scores between second and third year students by Mann Whitney U test.

Implications

Nurses are an integral component of the healthcare provision system and all the more likely to face such situations wherein they are subject to exposure to blood and body fluid spillage. Hence, assessment of their knowledge, attitude and practice regarding the above is necessary to identify lacunae in their awareness and rectify it.

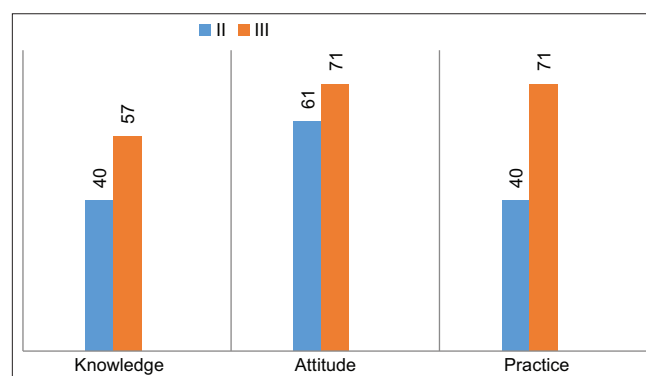
RESULTS

Second and third year nursing students in the age group of 19 to 23 years with a mean age of 19.69(SD=0.830). First year nursing students were excluded due to their lesser clinical exposure at the bedside clinics. Among 98 female nursing students, 48 were in second year and 50 were in third year showed the percentage of knowledge, attitude and practice [Graph 1].

Hence, from the above graph states the third year students display better KAP than second year students.

Table 1 shows the median score obtained by third year students was 11 and the median score for the KAP obtained by second year was 8 which is comparatively less than the third year students.

Table 2 shows the Comparison KAP score of the excellent and fair among second and third year students showed the



Graph 1: Knowledge, attitude and practice of third and second year nursing students

Table 1: Descriptive variables for KAP among 2nd and 3rd years

Batch	n	Median (IQD)	Minimum	Maximum	SD
2 nd year	48	8 (7–9)	4	14	2.440
3 rd year	50	11 (10–13)	7	17	2.003

KAP: Knowledge, attitude, and practice, IQR: Interquartile range

Table 2: Comparison KAP scores among 2nd and 3rd year

KAPScore%	2 nd year (n=48) (%)	3 rd year (n=50) (%)	P-valueAsympSig (2-tailed)
Excellent	12.5 (06)	46 (23)	0.000*
Fair	87.5 (42)	54 (27)	

P<0.001*, *Mann-Whitney U test, KAP: Knowledge, attitude, and practice

significant p-value (<0.001*) by the Mann-Whitney U test. Scores obtained by third year compared with the second year hence it shows the significance in the overall score of the Knowledge, attitude and practice.

DISCUSSION

Knowledge and practice of standard precautions are very important in preventing HAI and also in the protection of health care personnel from risk of acquiring infections especially from blood borne pathogens like HIV, HBV and HCV.¹⁰ Nurses are front-line workers who handle the blood and body fluids and occupational blood spillage is most common among them. A proper guidance to the nursing students will avoid and handle such occupational spillage. The exposure of HCWs to BBFs during intervention has exposed them to different blood-borne diseases which in turn have had an impact on their health and health care services in many countries, particularly developing countries with limited human resources and poor infrastructure.¹¹ In our study among 98 nursing students, second year nursing 40%, 61%, 40% shows knowledge, attitude and practice respectively.

In our study, Third year students showed [Graph 1] better than second year which was 57%, 71%, 71% for knowledge, attitude and practice respectively. Similarly Aluko OO *et al.* composite KAP of respondents revealed that close to two-fifth (38%) had positive rating in KAP while, one-fifth (20%) had poor knowledge, good attitude and perception.¹² Another study by Kaur A¹³ *et al.* shows out of 100 nurses, 41 have very good knowledge score i.e. > 90%. Yet need to improve the knowledge and practice among nursing students with more mock classes. In our study the median KAP score was 11 among third year which is comparatively higher than the median score of the second year 8. First year students were excluded

since there is no clinical exposure. Among 50 students in third year, 23 (46%) scored excellent and 27 (54%) were fair. Similarly in Sheela¹⁴ *et al.* showed the knowledge and practice of safety measures is about 60% in both nurses and compulsory rotatory residential internships. In our study we compared Knowledge, attitude and practice score which was excellent and fair among second and third year students. In the present study, the Scores obtained by third year compared with the second year hence it shows the significance in the overall score of the Knowledge, attitude and practice significant by the Mann-Whitney U test with the p-value (<0.001*). Another study by Ogoina¹⁵ *et al.* showed significantly lower than the median knowledge scores of the staff nurse (90%) by Mann-Whitney test compared with other groups like medical laboratory scientists. In our study scoring based on Knowledge, attitude and practice was measured by a set of 17 questions. For every correct response, 1 point was given and 0 was given for an incorrect answer. Consequently, knowledge, attitude and practice scores ranged from 0 to 17. According to Kim H¹⁶ *et al.* the KAP score of 1-10 was considered as poor, 11-20 as fair, 21-30 as Good and >30 as excellent and he stated nursing staff were deficient about knowledge of percentage of disinfectant solution to be used as well as spillage of laboratory forms and specimen containers. In the present study even though third year students were better than second year nursing students but their excellent score was 46% only which need to be improved by more mock training classes. In the present pandemic situation the Awareness about the universal standard precautions play a significant role in reducing the infection. In our present, nursing students of second and third year was given a health education about the universal precaution. Infection prevention training programme should be imparted during the earlier years of nursing students.^{17,18} Similarly from our study when third year showed better score than second year hence training classes for this future nurse will control the occupational infection control. The immediate care and risk assessment should be done with the designated person who will assess and document the risk as soon as possible after every incident of occupational exposure.¹⁹

Limitations of the study

Study was done among the second and third year students of the one single college and first year students were excluded since no clinical exposure.

CONCLUSION

Third year students showed better KAP than second year students but still need to improve the knowledge and practice. Mandatory IPAC training are made routinely available and preferably more mock classes to be kept to

ensure the knowledge and practice of standard precautions hospital staff and nursing students.

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Authors Contributions:

VMD- Concept and design of the study, prepared first draft of manuscript, Interpreted the results, statistical analysis and interpretation; **RR**- Preparation of manuscript and revision of the manuscript; **DH**- Data collection, reviewed the literature, coordination.

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