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AWARENESS ON SPILL MANAGEMENT AT TERTIARY CARE CENTER, A.P

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ABSTRACT

OBJECTIVES: To assess the knowledge on spill management among B.Sc. Nursing students and to determine the association between knowledge on spill management with selected demographic variables. **MATERIAL AND METHODS:** A Cross sectional descriptive design with 182 nursing students who filled inclusion criteria were selected by probability simple random sampling technique. The knowledge was assessed by using self-structured questionnaire which comprises of 2 sections. Section I deals with demographic data and section II deals with knowledge on spill management. **RESULTS:** The data was analyzed by descriptive and inferential statistics. Majority of students 65.4% had moderate knowledge, 19.2% had adequate knowledge and 15.4% had inadequate knowledge on spill management with a total score for knowledge was 2.04 ± 0.589. with regard to association age, year of study, previous knowledge of spill management and vaccination against hepatitis B shows significant at $p<0.05$. with a mean variance for both 1st and 2nd year B.Sc. nursing students significant at $p<0.01$. **CONCLUSION:** Majority of students had moderate knowledge hence there should be continuous nursing education programmes from time to time so that the nurses and student nurses keep themselves updated with the latest guidelines on spill management as per National Accreditation Board for Hospital and Health care Providers to provide quality nursing care.

INTRODUCTION:

Occupational accidents are common in any area of work including hospitals, Health care workers in all health care setting who are at risk for acquiring infection because of exposure to number of types of diseases. Occupational blood and body fluid exposure continues to be the major worldwide public health problems, despite advances in our understanding and control of this infections. Nurses are the major health care provider in the hospital and they are more potential to expose to blood and body fluid. Nursing students as other health care workers who come into the contact with patient's blood and body fluid may be exposed to fatal infectious when they perform their clinical activities in the hospital. Hospital spillage can occur at any time this can be due to broken or faulty equipment, human error, and it this happens everyone in the area is at risk, from staff to visitors to patients. It may also mean that a department has to close temporarily, which means that vital services may be denied to those their needs them. Proper preparation for spill management and safe remediation requires a multi-faceted approach. Maintaining appropriate spill clean-up supplies and personal protective equipment (PPE) is vital, as is step-by-step training of nursing staff on the multiple risks posed by spills in various departments and how to handle each type. Running drills on spill management should be integral to overall safety and risk management preparedness. Fortunately, there are straightforward, checklist-based methods for achieving continued awareness of a sometimes overlooked, but essential area of safety. It is essential that all the students should know about the spill management to protect them self from occupational diseases. Spill management in hospitals is vital due to the combination of hazardous substances, busy environment and vulnerable patients, but with the correct training and equipment in place, staff can minimize the risk to themselves, to visitors and to patients.

MATERIAL AND METHODS: An institutional research ethical committee of college of nursing, SVIMS, Tirupati, approval. Before embarking on the study, was obtained and individual participant consent was taken from online google forms prior to recruitment, in the study. A Cross sectional descriptive design with probability simple random sampling technique was employed in the study. Data on 182 students who are persuing 1st and 2nd year B.Sc. Nursing students at college of nursing SVIMS, Tirupati and who fulfilled the inclusion criteria of the study were collected. The criteria for inclusion were : Willing to participate in the study through online; Studying I&II year B.Sc. Nursing; Having internet access; studying 1st and 2nd B.Sc. Nursing on regular batches. Who are Absent at the time of data collection were excluded. Students who fulfilled inclusion criteria were administered a self structured questionnaire which consists of the aspects of general information, interventions, role of nurse and prevention of spill management with 48 dichotomous questionnaire with true or false options. Each right response were given score of 1 mark. The item scores of questionnaire score was good validity and content validity and split half reliability with a score of 0.87. data such as age, gender, year of study, previous knowledge on spill management, vaccination against Hepatitis- B and number of doses taken were recorded.

Statistical analysis:

The data were analyzed by using SPSS 26.0 version. Frequencies, mean, standard deviation, 't' test., one way analysis of variance were used for present study. Means were compared t test and ANOVA.

RESULTS:

Altogether 182 nursing students were participated in the present study results showed that 76.9% were belongs to age group of <19 years, 89.6% were females, 10.4% were males, 52.7% were belongs to 2nd year B.Sc. nursing, 47.3% belongs to 1st year B.Sc. nursing, 35.7% have previous knowledge, 49.2% were medical & nursing personnel, 27.5% were vaccinated and 52.0% took 2 doses of vaccine. The association of demographic variables with level of knowledge on spill management among B.Sc. Nursing students, age has obtained Chi-square value 7.776 with 'p' value 0.020; gender has obtained Chi-square value 3.628 with 'p' value 0.436; year of study has obtained Chi-square value 8.085 with 'p' value 0.018; previous knowledge on spill management has obtained Chi-square value 6.804 with 'p' value 0.033; Source of information on spill management has obtained Chi-square value 4.342 with 'p' value 0.362; vaccine against hepatitis B had obtained Chi-square value 8.732 with 'p' value 0.013; no of doses taken against hepatitis b had obtained Chi-square value 3.287 with 'p' value 0.772. age, year of study, previous knowledge on spill management, vaccination against Hepatitis- B shows significance at <0.05 and other variables such as gender source of information, no of doses taken against Hepatitis- B vaccine were not found to have significant association with level of knowledge. **(Table-1)**

Among 182, 119 (65.4%) of nursing students had moderate knowledge, 35 (19.2%) had adequate knowledge and 28 (15.4%) had inadequate knowledge on spill management with a mean score of 2.01 ± 0.589**. (Table-2)**

The mean variance for both 1st and 2nd year B.Sc. nursing students shows significant at p<0.01.(**Table-3&4)**.

DISUCSSION: The purpose of the study was to assess the knowledge on spill management among nursing students. Student nurses are at high risk of blood-borne pathogens transmitted via

spills of blood and other body fluids. Understanding various aspects of spill management is essential if they are to avoid the risks associated with it.[12] The present study was mainly focused to assess knowledge on spill management among 1st and 2nd year B.Sc. Nursing students. The problem statement selected for the study was assess the knowledge on spill management among B.Sc. nursing students, SVIMS, Tirupati."

The first objective of the study was to assess the knowledge on spill management among 1st and 2nd year B.Sc. Nursing students. The study findings revealed that 119 (65.4%) students had moderate knowledge and 35 (19.2) students had adequate knowledge, 28(15.4%) students had inadequate knowledge. In Madhya Pradesh a study showed that majority of nurses had average knowledge on spill management.[13]

The second objective of the study was to determine the association between knowledge on spill management with selected demographic variables. The study findings revelled that related to year of study (p=0.018), age (0.020), gender (p=0.436), previous knowledge on spill management (p=0.033) and source of information (p=0.362), Hepatitis- B vaccination(p=0.013), no of doses taken (p=0.772). which is statistically significant at (p<0.01) level. Thus there is significant difference between the knowledge regarding spill management with their demographic variables among 1st and 2nd year B.Sc. Nursing students. In Madhya Pradesh a study on staff nurses (P=0.048), thus there was a significant association of knowledge score with selected socio demographic variables.[13]

CONCLUSION: Majority of students had moderate knowledge hence there should be continuous nursing education programmes from time to time so that the nurses and student nurses keep themselves updated with the latest guidelines on spill management as per National Accreditation Board for Hospital and Health care Providers to provide quality

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Table- 1: Frequency and percentage distribution of demographic variables among B.Sc. nursing students.

(n=182)

Demographic variables		Frequency (f)	Percentage (%)	Chi-square χ^2	p value	Mean	SD
Age in years	< 19 Years	140	76.9	7.776	0.020*	1.23	0.422
	> 19 Years	42	23.1				
Gender	Male	19	10.4	3.628	0.436	1.90	0.307
	Female	163	89.6				
Year of Study	1 Year	86	47.3	8.085	0.018*	1.53	0.501
	2 Year	96	52.7				
Spill Management	Yes	65	35.7	6.804	0.033*	1.64	0.480
	No	117	64.3				
Source of information	Newspaper, Magazines	25	38.5	4.342	0.362	0.77	1.167
	Internet	8	12.3				
	Medical & Nursing Personnel	32	49.2				
Hepatitis B	Yes	50	27.5	8.732	0.013*	1.73	0.448
	No	132	72.5				
No. of Doses taken	0 Dose	5	10.0	3.287	0.772	0.66	1.138
	1st Dose	19	38.0				
	2nd Dose	26	52.0				

Note: **=p<0.01 *=p<0.05 NS=not significant.

Table- 2: Frequency and percentage distribution of level of knowledge on spill management among B.Sc. nursing students.

(n=182)

Knowledge on spill management	Frequency (f)	Percentage (%)	Mean	SD
Moderate	119	65.4	2.04	0.589
Adequate	35	19.2		
Inadequate	28	15.4		

Table 3 : Distribution of mean variance among different domains of spill management.

Domains	First Year			F-value	(p-value)
	Level of Awareness				
	nadequate (n=15)	**loderate (n=53)**	**dequate (n=18)**		
	Mean ± S D	Mean ± S D	Mean ± S D		
General Information	12.80 ± 1.42	14.60 ± 2.06	19.11 ± 3.80	31.948	0.000**
Interventions	7.47 ± 1.55	9.23 ± 1.44	13.28 ± 1.07	81.637	0.000**
Role of Nurse	1.40 ± 0.74	1.36 ± 0.62	2.56 ± 0.78	22.076	0.000**
Prevention	6.13 ± 1.36	8.96 ± 1.41	10.44 ± 0.70	47.245	0.000**
Overall Knowledge	27.80 ± 2.14	34.15 ± 2.37	45.39 ± 4.82	151.693	0.000**

Note : ** = p< 0.01 * = p <0.05 NS = not significant.

Table 4: Distribution of mean variance among different domains of spill management

Domains	Second Year			F-value	p-value
	Inadequate (n=13)	**loderate (n=66)**	**dequate (n=17)**		
	Mean ± S D	Mean ± S D	Mean ± S D		
General Information	11.69 ± 3.35	14.65 ± 1.76	18.65 ± 1.62	46.355	0.000**
Interventions	6.92 ± 1.89	9.47 ± 1.49	12.29 ± 1.57	44.619	0.000**
Role of Nurse	1.15 ± .69	1.58 ± .70	2.53 ± .62	17.642	0.000**
Prevention	5.62 ± 2.79	9.44 ± 1.07	10.29 ± .92	48.474	0.000**
Overall Knowledge	25.38 ± 4.56	35.14 ± 2.43	43.76 ± 2.86	151.965	0.000**