

THE PRACTICE OF UNIVERSAL HEALTH PRECAUTIONS AMONG NURSES IN A TERTIARY CARE HOSPITAL IN SOUTH INDIA – A CROSS-SECTIONAL STUDY

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ABSTRACT

Introduction: The level of preventive measures against hospital-acquired infections depends on the practice of universal precautions by the nurses. This study aimed to assess the awareness of universal health precautions among nurses. **Methods:** It's a cross-sectional study done among nursing staff in various specialties in a tertiary care hospital. Systematic random sampling was done and 200 nurses were tested with a study tool of a semi-structured questionnaire consisting of 20 questions. **Results:** Out of 200 respondents 44.5% were aged 26-30 years, 88.5% were females, 66.5% were from urban and 86% had Bachelor of Science in nursing degrees. The practice was assessed and the mean score was 16.71 range (12-24). The maximum score was for ages 31-35 years, Male, Married, Urban, Master of Science in Nursing, Inpatients Nursing staff, Surgical departments, the experience of more than 5 years. **Conclusion:** This study concludes with clues that there are gaps in formal teaching for nursing

students and practice. For the reduction of infection, we require repeated implementation and oversight of universal precaution measures along with formal teaching, and further research and intervention are needed.

Keywords: Nurses, Tertiary care, Universal Precautions, Hospital

Introduction

Healthcare workers [HCWs] are more prone to the Risk of various Blood Borne infections, like Hepatitis C and B, and Human immunodeficiency viruses (HIV) viruses. Various kinds of universal health precautions are used to reduce the risk of exposure to such infections with blood and body fluids. (Sadoh et al., 2006) In the medical industry, precautions are taken to lessen the risk of spreading pathogens from both known and unidentified sources, including blood-borne illnesses. They are the fundamental infection prevention measures that must be applied at the very least when providing care for all patients. Because the risk of Hepatitis B or HIV transmission through sputum, feces, vomit, tears, urine, or nasal secretions is extremely low or non-existent, universal precautions (UPs) should not apply to these substances unless they are contaminated with blood. (Broussard & Kahwaji, 2022) One of the best ways to prevent the spread of infections linked to the medical profession is by washing one's hands frequently, which is an essential component of healthcare measures. According to the findings of various research, HCW compliance with IPs and hand hygiene is frequently insufficient. (Eveillard et al., 2007; Kermode et al., 2005) A risk assessment and the anticipated level of contact with blood, bodily fluids, or infections should be used to determine the best personal protection equipment in addition to practicing excellent hand hygiene. (CDC, 2020; Chan et al., 2002)

Increased usage of healthcare precautions on a global scale would eliminate unneeded hazards related to healthcare. When giving treatment to all patients, healthcare precautions should be the minimal standard of care. Healthcare providers often work to prevent and control diseases, especially contagious ones. (Uddin et al., 2014) Healthcare workers are at risk of contracting bloodborne pathogens due to occupational exposure to blood, which has led to the widespread promotion of universal precautions (UPs) and more recently healthcare precautions. (Singh et al., 2021a) In low-income nations, things are substantially different: UPs are sometimes only partially or never practiced, putting HCWs at unnecessary risk for infection. (Kermode et al., 2005) To prevent healthcare workers from coming into contact with blood and other bodily fluids, the universal health care precautions (UHP) program employs several infection control strategies, including handwashing, the wearing of gloves and masks, the disposal of infectious waste safely, and the safe cleaning of used equipment. (Singh et al., 2021a)

To stop the transmission of infection, nurses must take precautions including constantly washing their hands, donning gloves when in touch with human fluids, and properly discarding needles and other

sharp objects. It is also important for nurses to be up-to-date on their vaccinations, as this can help to prevent the transmission of infectious diseases. (Infection Control Yearly, n.d.)

In addition to following these guidelines, nurses should also educate their patients about the importance of universal precautions and how to protect themselves from infections.(Akagbo et al., 2017) This may involve teaching patients how to properly wash their hands, use personal protective equipment, and follow other infection control measures.(Bouchoucha & Moore, 2018)

Overall, universal precautions are a crucial component of the nursing profession since they serve to prevent the spread of infectious diseases to both patients and healthcare staff. It is observed that knowledge influences the practice and compliance with these precautions, therefore there were many studies on knowledge assessment but limited studies about the practice.

The Objective was to assess the practice of Universal Health Precautions among nurses in tertiary care hospitals in the Perambalur district.

Methods

In the month of June 2022, a cross-sectional study was carried out at a tertiary care facility close to Perambalur. The study's participants comprised nursing professionals with a range of specialties. Participants were selected by a simple random method like the name list of the nurses was taken and arranged in attendance order and then the 5th name was taken as the first participant and every 10th name was selected irrespective of the department. If the participant is not available the 2nd time then the next participant on the list was taken. As a research tool, a self-administered questionnaire was employed. To validate it, the questionnaire underwent a pilot test with 20 different specialists and was subsequently adjusted. The pilot testing experts were not included in the study. Written informed consent from selected nursing professionals was taken individually to collect participants' sociodemographic and personal information, including gender, age in years, marital status, residence, education, their designation, the department, and work year of experience, as well as to evaluate the disposal of used needles, use of barrier equipment, handwashing, and gloving practices. Each question received a score. A score of One was assigned to each appropriate response. Zero points were awarded for incorrect responses and unanswered questions. Zero is the lowest possible score, and 20 is the highest.

The collected data were entered into Microsoft Excel and analyzed using SPSS V 26 software. The overall mean score, standard deviation, and 95% Confidence interval of Mean were calculated for all participants. The descriptive data were analyzed using frequency and percentage. T-test and ANOVA were used to determine how the groups differed. Statistics were deemed significant when the p-value was less than 0.05.

Results

There were 200 participants. Results showed that 89 (44.5 %) of participants were between the ages of 26 and 30. They were followed by 89 (34.5 %) participants who were under 25. The majority of participants—177 (88.5%) were women, 101 (50.5%) were married people and 133 (66.5%) people from metropolitan areas. Of the participants, 86 % had BSc degrees in nursing, followed by 7.5 % who held nursing diplomas, and 83.5 % who worked as ward staff nurses.[Table 1].

Table 1: Analysis of variance for the association of practice score with age group, sex group, marital status, place of residence, designation, and educational qualification

PARAMETER	FREQUENCY	PERCENT	PRACTICE SCORE		p-VALUE
			MEAN	SD	
Age group (years)					
<25	69	34.5	16.6812	1.45008	0.366*
26-30	89	44.5	16.5730	1.60176	
31-35	31	15.5	17.1290	1.31001	
>35	11	5.5	16.7273	1.42063	
Gender					
Female	177	88.5	16.6723	1.51694	0.394**
Male	23	11.5	16.9565	1.36443	
Marital Status					
Married	101	50.5	16.8911	1.47581	0.076**
Unmarried	99	49.5	16.5152	1.50756	
Place of residence					
Rural	67	33.5	16.5075	1.55089	0.187**
Urban	133	66.5	16.8045	1.46917	
Education					

BSc	172	86	16.6570	1.50392	0.471*	
Dgmn	15	7.5	16.8667	1.68466		
MSc	13	6.5	17.1538	1.21423		
Designation						
Nursing Sister- IP	167	83.5	16.7246	1.52752	0.679**	
Nursing sister-OP	33	16.5	16.6061	1.36792		
Department						
General medicine	37	18.5	16.5405	1.48314	0.084*	
ICU	39	19.5	16.7179	1.50348		
Orthopaedics	23	11.5	16.3478	1.66812		
General surgery	16	8	17.1875	1.32759		
Paediatrics	10	5	15.7000	1.82878		
Radiology	3	1.5	16.3333	1.15470		
General OT	4	2	18.2500	1.50000		
OG	13	6.5	16.5385	1.19829		
Ophthalmology	2	1	17.5000	2.12132		
ENT	8	4	17.6250	.91613		
Casualty	20	10	16.5000	1.14708		
Super Specialty	25	12.5	17.0400	1.61967		
Year of Experience						
Less than 5 Years	153	76.5	16.5490	1.56416		0.008**
More than 5 Years	47	23.5	17.2128	1.14086		

*One Way ANOVA, **Independent t-test, p-Value <0.05 is statistically Significant

Out of 200 participants, 177 are saying hand washing is done in contacting different patients, 199 practices isolation of communicable diseases patients, but only 94 out of 200 have needle stick injury dangerous. But recapping of the needle is practiced by 190 out of 200 and 167 wear masks whenever there is a possibility of splash/splatter. All the participants use gloves for protection when working with or around blood and body fluids.

[Figure 1]

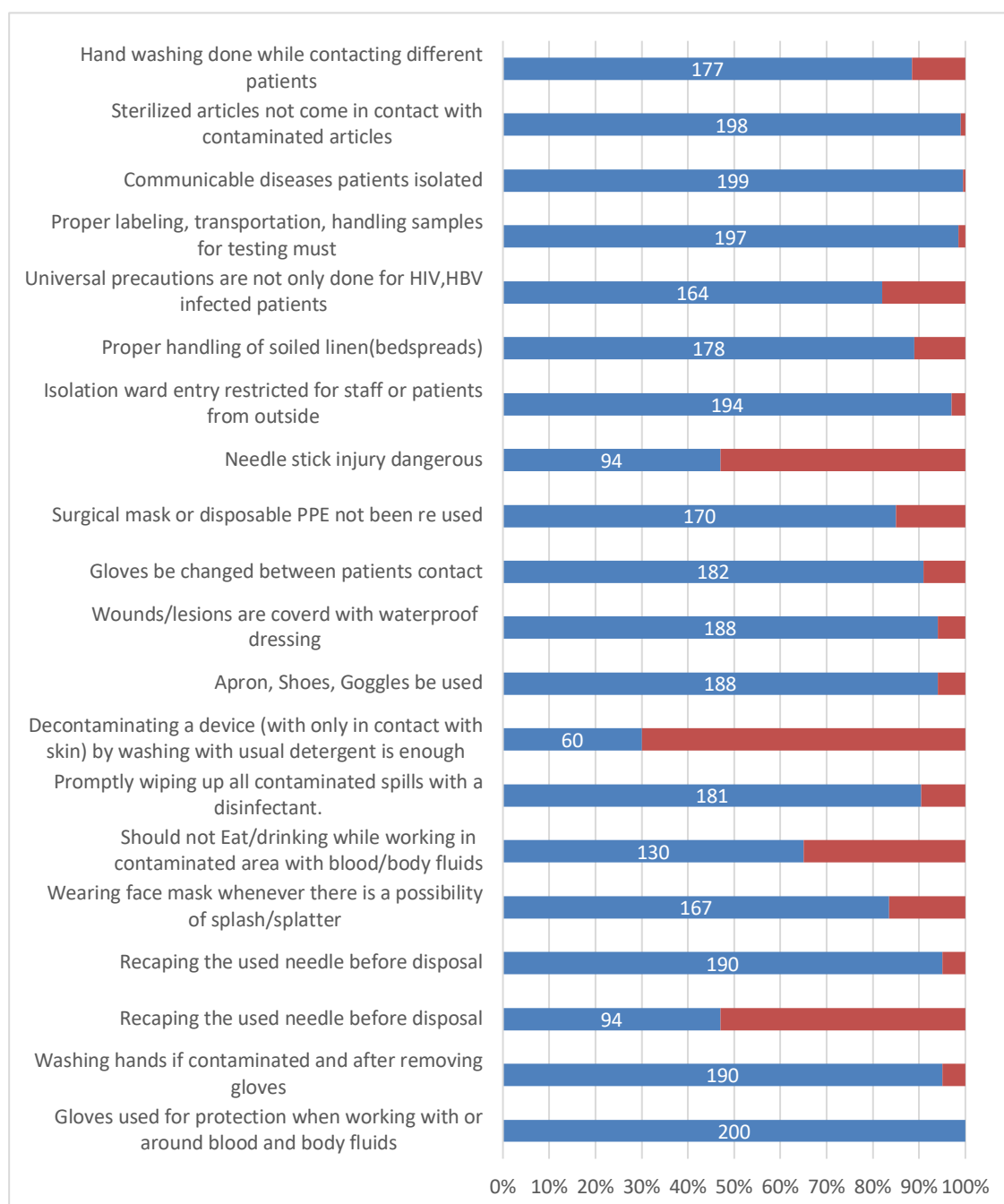


Figure no. 1: Practice regarding Universal Health Precautions in Nurses

The mean practice score of the respondents was 16.71 ± 1.50 with a range of a minimum of 12 to a maximum of 24 [Table 2].

TABLE 2: Descriptive statistics showing overall mean practice score

	N	Minimum-Maximum	Mean	SD	95% CI of Mean
Practice score	200	12-20	16.71	1.50	16.50-16.90

ANOVA was applied to evaluate the practice differential among different groups. The mean practice score varies from 17.13 ± 1.31 (31-35 years) followed by 16.73 ± 1.42 (>35 years) then follow by ages less than 30 years. It was not statistically significant that this difference existed ($P=0.366$). The mean practice score of males was 16.95 ± 1.36 higher than females (16.67 ± 1.51) which is statistically insignificant ($P=0.394$). The practice score is higher for Married (16.89 ± 1.48) than for unmarried which is statistically insignificant ($P=0.076$) and comparatively Urban (16.80 ± 1.47) has a higher practice score than rural (16.50 ± 1.55) which is statistically insignificant ($P=0.187$). The participants holding a degree of M.Sc., have a higher practice score of 17.15 ± 1.21 compared to that of B.Sc., and Dgmn., which is statistically insignificant (p-value = 0.471). The Ward nurse's mean score was 16.72 ± 1.53 which is slightly higher than outpatient sisters (16.60 ± 1.37) which is statistically insignificant (p=0.679).

The majority of the surgical departments have a higher practice score in order of General OT (18.25 ± 1.5), ENT(17.63 ± 0.92), ophthalmology (17.50 ± 2.12), General Surgery (17.19 ± 1.33), Super specialty (17.04 ± 1.62), ICU (16.71 ± 1.50), General medicine (16.54 ± 1.48), Obg (16.53 ± 1.20), Casualty (16.50 ± 1.15), Orthopaedics (16.34 ± 1.67) Radiology (16.33 ± 1.15) and Paediatrics (15.70 ± 1.83) which is statistically not significant (p=0.084). [Table 1]

Discussion

In a Tertiary Care Hospital, this study examines how nurses practice universal precautions. The study's conclusions showed that nurses generally followed the Universal Precaution principles to a good degree. (Gershon et al., 1995a) The term "universal precautions" refers to a set of rules that medical personnel, including nurses, adhere to stop the spread of infections, especially blood-borne illnesses like HIV, hepatitis B, and hepatitis C. To prevent healthcare professionals from coming into contact with potentially infectious materials, these measures apply to all patients, regardless of how contagious they may appear to be.(Moriceau et al., 2016; Nugmanova et al., 2015)

UPs must be known and followed properly by all healthcare workers. In tertiary care, this survey was undertaken among nursing professionals. In our investigation, we discovered that the average practice score represented 16.71% of the possible score overall. Compared to Fayaz et al., this score was higher. (Fayaz et al., 2014) In research by Afemikhe et al., nursing practitioners in Edo state, Nigeria, received a higher score than our study.(Afemikhe et al., 2020)

Some significant differences in the Practice score have been produced by our investigation. Respondents who were between the ages of 31 and 35, married, male, urban inhabitants, M.Sc., and ward sisters performed better than respondents who were under 30 years old, single, female, rural residents, B.Sc., and op sisters. The Surgical ward nurses also scored better than the Medicine ward sisters. Among the departments, the operation Theater Nurses have better practice than the outpatient sisters and other medical ward sisters. This might be due to the supervision or monitoring by the Doctors and continuous practice. The Nurses with Experience over 5 years have a better mean score than those less than 5 years. This might be due to the experience and training that one could have undergone in the institution or elsewhere during these past years.

Healthcare practitioners must adhere to a set of rules known as universal precautions to stop the spread of illnesses. (Singh et al., 2021b; Standard Precautions, 2022) These guidelines are based on the assumption that all bodily fluids are potentially infectious, and as such, healthcare professionals should take the necessary precautions to protect themselves and their patients from coming into contact with

these fluids. (Gershon et al., 1995b; Summary of Infection Prevention Practices in Dental Settings, 2022)

For numerous elements of the infection chain, the significance of all-encompassing measures for nursing staff, nosocomial infections, hand hygiene, etc., the Practice score in the current study was extremely good.

Nursing educators must regularly reinforce and monitor students' understanding of the universal precautions issue that is covered in the first year of their training.

Limitation:

The study was done by subjective assessment considering a few variables in a tertiary care hospital and the results were not generalizable to all teaching medical institutes in Tamil Nādu.

Conclusion

The current study reports that the overall practice of universal precautions and their importance thereby reduces many infections. Our study shows a major difference between surgical and non-surgical wards and year of experience plays a major role in their practice. Continuous training should be made compulsory for providing a better environment for healthcare workers and patients. Formal teaching is not just enough for this precaution.

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Conflicts of Interest

The author declares no conflicts of interest.

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