



Nurses' Perception Regarding the use of Technological Equipment in the Critical Care Unit Setting of Dhiraj General Hospital

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Abstract

Background of the Study: A Critical Care Unit is a specialized department in a hospital that provides intensive care medicine and nursing, and it is place where the challenge of machine technology in nursing is greatest. The development of intensive care units made the care for more seriously sick patients possible. It allows utilizing more technically oriented tools to monitor and get information instantly about any changes of the patient's physiological parameters and developed new strategies to save life to the critically ill patient who is characterized by the presence of real or potential life-threatening health problems and by the requirement for continuous observation and intervention to prevent complications and restore health. Technological developments become incorporated into nursing practice where nurses found that close observation could be done without present at the patient's side. Advance new technology may negatively affect the quality of care and they may produce many challenges to critical care nurse.

Objectives of the Study was to Assess perceptions of nursing personnel who work in the critical Care Units regarding the use of technological equipment and identify the association between demographic characteristics and the Perceptions of nurse participants.

Methods: Data collection instrument was composed of two parts: Part 1: Socio-Demographic data. Part 2: Perception about the Technological equipments. Five points Likert scale scoring method was used; as one (strongly disagree), two (disagree), three (uncertain), four (agree), and five (strongly agree). A quantitative, descriptive, and non-experimental study design was used in this study, as well as a non-probability sampling method. 60 nurse Participants were selected from ICU, ICCU, HDU, OT recovery and casualty. Descriptive and inferential statistics were used to analyze data.

Results: Demonstrated that the majority 86.7% (n=52) agreed that the Technology makes Easy completion of nursing duties, 91.7% (n=55) agreed Technology can save nurses time", 68.3% (n=41) uncertain, "Technology may provide Higher patient safety through prompt and proper recognition of complications, 48.3% (n=29) agreed, "Technology makes treatment more secure", 73.3% (n=44) agreed, "Technology equipment makes Faster completion of nursing duties" 82% (n=49) agreed that Technological equipments may Easy to use in emergency situation. 73% (n=44) agreed Accomplish task more quickly", 55% (n=33) agreed Technological equipment may Increased patient risk from misinterpretation of data, 48.3% (n=29) agreed, "Technology makes treatment more secure", 65% (n=39) agreed, "Advance technology keep nurses motivated for learning" The results of this study revealed that the majority of Critical Care Nurses has positive perception for using technological equipments and Significant association found between age and perception. (p=0.05)

Keywords: perception, critical care unit, Equipments.

Introduction

A Critical Care Unit (CCU) is a specialized department in a hospital that provides intensive care medicine and nursing, and it is place where the challenge of machine technology in nursing is greatest. In these settings, machines provide life support to patients and are vital to patient care management. The development of intensive care units made the care for more seriously sick patients possible. It allows utilizing more technically oriented tools to monitor and get information instantly about any changes of the patient's physiological parameters and developed new strategies to save life to the critically ill patient who is characterized by the presence of real or potential life-threatening health problems and by the requirement for continuous observation and intervention to prevent complications and restore health

Technology plays vital role in the patient care especially in the critical care unit setting, monitors are used to measure vital signs, and ventilators are used to assist a patient with breathing and balloon pumps are used to enhance cardiac output. Nurses require more training attention time and energy as technology advance. Reliance on various technology and multiple alarms may divert the attention of the nurses from patient and level of care can be compromised. Safe competent nursing practice is a result of knowledge and understanding of equipments, experience and education of nurses regarding the use of technology, alarms and the potential for the machine to malfunction will allow for greater competence in operating the equipment and increase the nurses' ability to care for the patient

Objectives of the Study

- 1) Assess perceptions of nursing personnel who work in the critical Care Units regarding the use of technological equipment.
- 2) Identify the association between demographic characteristics and the Perceptions of nurse participants.

Hypothesis

H1- There will be a right (positive) perception regarding use of technological equipment

H2- There will be a significant association between demographic characteristics and perception.

Research Methodology

Research Approach: A Quantitative approach

Research Design: Non-experimental, descriptive design

Variables in this Study

- **Research variable:** perception regarding use of technological equipments among Nurses.
- **Demographic variable:** Age, gender, education qualification, experience, working unit.

Research Setting: Critical Care Units at Dhiraj General Hospital vadodara.

Population: All ICU trained registered nurses working in the Intensive Care Units at the selected study site.

Sample and Sampling: In this study, sample size of 60 critical care unit trained nurse with the use of convenience sampling

Data Collection Instrument

Nurse's perception questionnaire regarding the use of technological equipment in Critical Care Units: It was composed of two parts:

Part 1: Socio-Demographic data form.

Part 2: Perception about the Technology.

Five points Likert scale scoring method was used; as one (strongly disagree), two (disagree), three (uncertain), four (agree), and five (strongly agree).

- The first section collects socio-demographic data; Age, gender, working unit, education level and experience in area of practice.
- Section 2 assessed the perception of the nurses about use of technology. This section comprised 25 items.

Results

Findings are Organised in the Following Section

Section 1: Description of the demographic variables of Nurses

The demographic data section comprised five items namely age, gender, working unit, educational level and experience in area of practice. Sixty (n=60) nurses were included from ICUs, ICCU, HDU, OT Recovery and casualty. The current study revealed more than a half of nurses, 70% (n=42) were aged below 25 years, 30% (n=18) were aged between 25 and 35 years, majority of participants were female, 60% (n=36) and 40% (n=24) were male. majority of nurses, 46.66% (n=28) have between 1 to 3 years work experience, a quarter of the participants, 43.34% (n=26) have less than one year work experience, 10% (n=6) have more than three years work experience. Most of the nurses, 27% (n=16) were drawn from OT Recovery, 25% (n=15) were drawn from HDU, and 21% (n= 13) from ICU 17% (n=10) were drawn from ICCU and 10% (n=6) were drawn from casualty, the results showed the majority of nurses, 73% (n=44) were degree holders and 27% (n=16) were diploma holders.(Table -1)

Section 2: Item wise analysis of nurses’ perception regarding use of technological equipments.

The nurses’ responses demonstrated that the majority 86.7% (n=52) agreed that the Technology makes Easy completion of nursing duties, 91.7% (n=55) agreed Technology can save nurses time”, 68.3% (n=41) uncertain, “Technology may provide Higher patient safety through prompt and proper recognition of complications, 48.3% (n=29) agreed, “Technology makes treatment more secure”, 73.3% (n=44) agreed, “Technology equipment makes Faster completion of nursing duties” The nurses’ responses demonstrated that the majority 82% (n=49) agreed that Technological equipments may Easy to use in emergency situation. 73% (n=44) agreed Accomplish task more quickly”, 55% (n=33) agreed Technological equipment may Increased patient risk from misinterpretation of data, 48.3% (n=29) agreed, “Technology makes treatment more secure”, 65%

(n=39) agreed, “Advance technology keep nurses motivated for learning” the majority 65% (n=39) Disagreed that Technology may Correcting human mistakes. 52% (n=31) Uncertain about Technology may create ethical dilemmas”, 50% (n=30) agreed Inadequate knowledge about technology may Increases nurses psychological stress. (Table -2)

Section 3: Analysis of data to find an association between perception scores of nurses with selected socio-demographic variables

The obtained X² value in age variables is greater than the table value of X² at 0.05 level of significance. Hence the obtained X² value is significant and there is an association between selected age and nurses’ perception.

The obtained X² value in all other variables are less than the table value of X² at 0.05 level of significance. Hence the obtained X² value is not significant. There is no association between selected other demographic variables and nurses perception. (Table -3)

Table 1: frequency and percentage distribution of nurses (N=60)

Demographic data			
Variable	No	Percentage	
Age	<25	42	70.00%
	25-35	18	30.00%
	>35	0	0
Gender	Male	24	40%
	Female	36	60%
Experience	<1 year	26	43.34%
	1-3 year	28	46.66%
	>3year	6	10.00%
Working Unit	ICU	13	21.66%
	ICCU	10	16.66%
	HDU	15	25.00%
	OT recovery	16	26.66%
Education	Casualty	6	10.00%
	B.Sc	44	73.00%
	GNM	16	27.00%

Table 2: Item wise analysis of nurses’ perception regarding use of technological equipments

Statement	Disagree		Uncertain		Agree		score (max-5)		
	NO	%	NO	%	NO	%	M	SD	Mn
Technology makes Easy completion of nursing duties	3	5	5	8.3	52	86.7	4	0.75	4
Technology can save nurses time	2	3.3	3	5	55	91.7	4	0.78	4.2
Technology may provide Higher patient safety through prompt and proper recognition of complications.	9	15	41	68.3	10	16.7	3	0.65	3
Technological equipment directs and controls medical treatment	23	38.3	23	38.3	14	23.3	3	0.85	2.8
Technology makes treatment more secure	15	25	16	26.7	29	48.3	3	0.9	3.2
Technological equipment may provide Higher care effectiveness	21	35	24	40	15	25	3	0.99	2.8
Technology equipment makes Faster completion of nursing duties	4	6.7	12	20	44	73.3	4	0.84	3.8

Table 2: Analysis of data to find an association between perception scores of nurses with selected socio-demographic variables N=60

VARIABLES	HIGH	LOW	TOTAL	X ²	DF	LEVEL OF SIGNIFICANCE
AGE						
<25	19	23	42	5.3904	1	S
25-35	14	4	18			
>35	0	0	0			
Total	33	27	60			
GENDER						
MALE	15	9	24	0.909	1	NS
FEMALE	18	18	36			
Total	33	27	60			
EXPERIENCE						
<1 year	12	14	26	1.5214	2	NS
1-3 year	17	11	28			
>3year	4	2	6			
Total	33	27	60			
WORKING UNIT						
ICCU	10	3	13	5.67	4	NS
ICU	7	3	10			
OT Recovery	7	9	16			
HDU	6	9	15			
CASUALTY	3	3	6			
Total	33	27	60			
EDUCATION						
B.Sc	25	18	43	0.6043	1	NS
GNM	8	9	17			
Total	33	27	60			

Significant at 0.05

Recommendations

Based on the findings the following recommendation are suggested

Recommendation for nursing practice

- Nurses should encourage to attend in-service educational programs, seminar, workshop to update their knowledge about new technological equipments.
- Nurses should keep motivated to update their knowledge and to relieve stress.

- Specific books regarding technological equipments should be available.
- Nurses should be observe during use of technological equipments.

Recommendation for future studies

- The same study should be carried out with larger number of sample and setting.
- Other study is recommended with the qualitative research approach with probability sampling technique.

- It is recommended that nurses perception regarding particular equipment should be investigate.

Conclusion

From this study, it could be concluded that:

- Majority of nurse participant has positive perception regarding use of technological equipment in critical care unit.
- There is significant association between nurses perception of use of technological equipment and their age.

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