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FACTORS AFFECTING NURSES' ADHERENCE TOWARDS INTRA HOSPITAL TRANSPORT PROTOCOL

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Abstract
Background: Critically ill patients appear to be at risk for death through problems related to intrahospital transfers, especially in intensive care units. Moreover, ill patients may be more vulnerable to iatrogenic injuries because of the severity and instability of their illness, as well as frequent need of medications and other interventions. Therefore, Numerous issues can be avoided with optimal pre-transport planning and communication.
Objectives: To assess the factor affecting adherence of staff Nurse to using intra hospital transport protocol.
Methods: The study utilized a descriptive research design, employing structured questionnaires to gather data .The questionnaires were designed to collect socio-demographic information and to assess the factor affecting adherence of staff Nurse to use intra hospital transport protocol .The study was conducted in IMS and SUM hospital Bhubaneswar. Odisha. The sample size for the study comprises of 200 participants, who met the eligibility criteria. Enumerative sampling techniques were employed to select participants who were who working in MICU, NICU, Main OT Medical and surgical ward of IMS and sum hospital Bhubaneswar.
Results: The study findings reveal that maximum 20-24 age group is mostly affected by various factors of adherence towards using intrahospital transport protocol. The most important factor for the staff nurse is "altered vital sign" of the patient during the time of transporting. The level of adherence of the staff nurse shows that 53.5% mildly affected by various factors in using intra hospital transport protocol. It shown that the association between level of adherence and professional education, monthly income, working department was statistically significant as the calculated chi-square value is 677.0774, -50.9083, -86.6507 respectively, the calculated p-value (0.0001) was <0.05 level of significance.
Conclusion: The study concluded that level of factor affecting adherence in intra hospital transport protocol is high among the staff nurse. The findings of the study reveal that, there is significant association between socio demographic variables and level of factor affecting adherence. Educating the staff nurses about various factors affect in intra transporting of patients and using intra hospital protocol, and how to get rid of those events. The use of evidence based facts may improve overall quality of nursing care during shifting of patient.
Keywords: Nurse, Adherence, Intra hospital, transport protocol.

INTRODUCTION

Patient safety is now considered a major priority in healthcare especially in critical care, and a public health concern also. In a hospital setting, patient transportation can be broadly categorized as prehospital, intrahospital, interhospital, and air transport. Patient transportation is a matter for administration and adequate preparation, evaluation, and patient stabilization prior to transfer are necessary. Administrative procedures, transport categories, staffing, equipment, monitoring, and training are minimum requirements for the transfer of critically ill patients (ANZCA Guidelines 2015).[1].Any intra- or inter-hospital patient transfer should aim at maintaining optimal health of the patient which is carried out by transferring the patient to the nearest facility providing highest specialised care.[2]The environment of the intensive care unit (ICU) is complex and fast paced, thereby presenting several patient safety challenges. The term "intra-hospital transport" denotes to the movement of patients within the hospital for the purpose of diagnosis, treatment, or to specialist medical units. Usually, this involves moving the patient from a hospital unit, such as the intensive care unit (ICU), emergency department (ED), or operating room department, to a different unit in which they might not receive the same level of intensive care. For critically ill patients, the reduction or change in care as well as the movement itself may result in major difficulties and threaten their health. These transfers occur frequently and may put patient safety at risk by leading to delays in care[3], interruptions in treatment [4], medication errors[5], increased infections [6], and inappropriate unit placement. Adverse events related to intra-hospital transfers can be used as markers of system failures but

may not be reported or, when reported, descriptions often lack depth about underlying systems-level processes that caused the event to occur. Therefore, It is utmost important to identify potential risks during the transfer process and take necessary measures to mitigate them. Practical strategies that can be employed include using experienced nursing staff, conducting equipment checks, ensuring a complete understanding of the tools and technologies involved in the transfer process, and increasing awareness of Intra hospital transfer safety. Nurses play a crucial role in ensuring patient safety during the transfer process. They are an essential part of the transfer team. They can use their knowledge, skills and experience to identify potential risks that may be life-threatening and respond quickly to maintain patient safety.[7]The decision to transport a patient is based on the assessment of the benefits to be gained against the potential risks. Accident and emergency care is sometimes required during patient transport, with special procedures or examinations performed outside the hospital or internal wards. Patients in critical condition may be unstable and experience changes while being moved within a hospital area. Therefore, supervision is necessary while moving patients to ensure that caregivers can prescribe medication immediately if the patient develops abnormal symptoms. Intra-hospital patient transfers are common, but they come with significant risks. These situations can range from vital signs changes to life-threatening events like cardiac arrest. The emergency department, being the first point of contact for critical patients, is particularly vulnerable to these risks.

Key components of a safe transfer include the decision to transfer and communication about it, pre-transfer stabilization and preparation, selecting the right mode of transfer (air or land), staffing the patient during the transfer, any necessary equipment and monitoring, and, lastly, paperwork and patient handover at the receiving facility. Every transfer should adhere to these essential components in order to avoid any unfavorable outcomes that could seriously impair the patient's prognosis.The existing international guidelines are evidence based from various professional bodies in developed countries. However, in developing countries like India, with limited infrastructure, these guidelines can be modified accordingly.[8]

AIMS AND OBJECTIVE

To assess the factor affecting adherence of staff Nurse to using intra hospital transport protocol.

METHODOLOGY

A Quantitative research approach and descriptive research design was adopted.The study was conducted in the nursing staff who working in MICU, NICU, Main OT Medical and surgical ward of IMS and sum hospital Bhubaneswar. The sample size for the study comprises of 200 participants. The inclusion criteria for participants were as follows ICU(Neuro ICU, Surgery ICU, Medicine ICU) ,OT(Neuro OT, Uro OT, Surgery OT) and General ward(medicine, surgery, orthopedic, oncology and neuro ward). The exclusion criteria were ,Not interested to participate in the study. Toatl two self structured instruments was utilized to collect the data The first instruments comprised a Self structured questionnaire focusing on demographic variables such as Age, Sex, professional Education, Religion, monthly income , Department. The second instrument included self structure questionnaire contained a 13 –items for factor affecting adherence towards intrahospital transport protocol.

Prior to the commencement of the study, we obtained written informed consent from each participant, ensuring they were informed about the study's .Data was made upload the confidentiality of the participants. The study commenced following approval from our Institutional Ethics Committee (SNC ,SOA University –Reg.).Data were collected through interviews ,each lasting no more than 20 mints.Subsequently ,all data were entered in to a Microsoft Excel spreadsheet and analysed using SPSS version 22(Armonk,NY:IBM Crop.)

Descriptive and inferential analyses, including frequency, percentage ,mean and standard deviation ,were conducted. Additionally ,inferential statistics such as Chi- square tests association of level of adherence with demographic variables,with a significance level set at $p<0.05$

RESULTS

Description of demographic variables

The socio- demographic data from a sample of 200 participated staff nurses revealed significant findings across various parameters. In terms of age distribution, majority (46.0%) of the participants fell within the 20-24 years. Regarding gender distribution Maximum (76.0%) respondent are in female candidate. Based on educational qualification maximum participants (48.0%) are GNM Nursing. Majority of the participants (84.0%) was Hindu. Maximum (40.5%) participant monthly incomes were between Rs10000-14999. Based on department maximum participant (50.0%) work in ward.

Table 1. Description of Socio demographic variables based on frequency and percentage

(N=200)

Sample		Characteristics	Frequency (N)	Percentage (%)
1.	Age	20-24 years	92	46.0
		25-29 years	74	37.0
		29-35 years	34	17.0
2.	Gender	Male	48	24.0
		Female	152	76.0
3.	Professional Education	GNM Nursing	96	48.0
		Post basic nursing	49	24.5
		B.sc nursing	55	27.5
4.	Religion	Hindu	168	84.0
		Muslim	14	7.0
		Christian	18	9.0
5..	Monthly Income	10000-14999	81	40.5
		15000-19999	77	38.5
		20000 above	42	21.0
6.	Department	Ward	100	50.0
		Operational theater	53	26.5
		Intensive care unit	47	23.5

Note: *f*=frequency, and %=percentage

Factors affecting adherence of staff nurses in using intra hospital transport protocol

Among 200 staff nurses ,the data presented in the table depicts that, about 55.5% of Staff nurse Lack of preparedness to intra hospital transport, 54 % Were lack of preparedness of the health assistant to intrahospital transport protocol, 52% staff nurse lack of communication with concerned department, about 51 %staff nurses were not able to arrange oxygen cylinder at the time of transporting, About 74.5% feel that the vital sign are affected

during the time of transporting, 51% disease related complication arise during intra hospital transport ,52% staff nurse were responding that Physician not accompanied critical patient during intra hospital transporting, 77 % staff nurse said that Supportive member not accompanied during intra hospital transport, 70% staff nurse feel that at the time of transport mental status of the patient altered, 52% Staff nurse feel that the physician documentation is time taking, 60% said that at the time of transporting catheter displacement will be occur, 53 % agree that monitor failure will occur during intra hospital transport, 60% staff nurse said that the not available of emergency kit at the time of intra hospital transport.In order to Qno-1 i.e vital sign are affected during intra hospital transport protocol carrying 1st rank highest percentage of factor affecting adherence

Table 2. Rank order of various factors affecting adherence of staff nurses in using intra hospital transport protocol

(N=200)

SL no	Factor Affecting Adherence Staff Nurses	Achieved	Total	% score	Rank
1	Lack of preparedness of the nurses to intra hospital transport	89	200	(44.5%)	9th
2	Lack of preparedness of the health assistant to intra hospital transport	92	200	(46%)	8th
3	Lack of communication with concerned department	104	200	(52%)	4th
4	Not able to arrange oxygen cylinder at the time of transporting	98	200	(49%)	5th
5	The vital signs are affected during the time of transporting (blood pressure, pulse , temperature , respiration rate)	149	200	(74.5%)	1st
6	Any disease related complication arise during intra hospital transporting	98	200	(49%)	5th
7	Physician not accompanied critical patient during intra hospital transport	105	200	(52.5%)	3rd
8	Supporting staff not accompanied patient during intra hospital transport	46	200	(23%)	11th
9	At the time of transport mental status of the patient altered	141	200	(70.5%)	2nd
10	The physician documentation is time taking	96	200	(48%)	6th
11	At the time of transporting catheter displacement will be occur . (foleys catheter , intra venous catheter , central line catheter naso gastric tube catheter)	80	200	(40%)	10th
12	Monitor failure will occur during intra hospital transport . (low battery , failure of saturation probe , ECG lead displacement , problem with alarm)	93	200	(46.5%)	7th
13	Not Available of emergency kit at the time of intra hospital transporting	80	200	(40%)	10th

Note : %=percentage

Level of adherence among the staff nurse in using intra hospital transport protocol

Frequency (f) and percentage of level of adherence of staff nurses in using intra hospital transport protocol.

Level of adherence is calculated by the median value. less than median value is mild, equal to median value is moderate and above median value is severe in staff nurses.

Median value is 7, which is categorized as moderate, <7 is named as mild and >7 is named as severe.

The data presented in the table -3depicts that the level of adherencewas found that maximum 107 i.e 53.5% staff nurses level of adherence are mild. 30 staff nurses i.e 15% had moderate level of adherence. 63 i.e 31.5% staff nurses had severe level of adherence using intra hospital transport protocol.

Table 3: Frequency and percentage of level of adherence among the staff nurse in using intra hospital transport protocol

(N=200)

Level of Adherence	Frequency	Percentage
Mild	107	53.5%
Moderate	30	15%
Severe	63	31.5%

Note: *f*=frequency, and %=percentage

Compare the level of adherence of among general ward, OT and ICU nurses in using intrahospital transport protocol

Comparison of the level of adherence among staff nurses is calculated by the frequency of the level of adherence based on median value.

The data presented in the Table-4 depicts that level of Adherence towards OT, ward and ICU the higher level of adherence in ward. In ward 50 staff nurses level of adherence are mild, 16 staff nurses moderately and 34 staff nurses level of adherence severe. In operational theater 26 staff nurses mild, 9 staff nurses moderate and 18 staff nurses had severe level of adherence. In ICU 30 staff nurses mild, 5 staff nurses moderate and 12 staff nurses had severe level of adherence using intra hospital transport protocol.

Table 4: **Comparing the frequency of level of adherence of among general ward, OT and ICU nurses in using intrahospital transport protocol**

(N=200)

Department	Mild (f)	Moderate(f)	Severe(f)
Ward	50	16	34
Operational theater	26	9	18
ICU	30	5	12

Note: *f*=frequency

Association level of adherence with sociodemographic variables

The data presented in the table -5 shows that the chi-square association of level of adherence with age was statistically significant as the calculated chi-square value is 677.0774; the calculated p value (0.0001) was <0.005 level of significance. The chi-square association of level of adherence with gender was statistically significant as the calculated chi square value is 41.302; the calculated p value (0.0001) was <0.005 level of significance. The chi square association level of adherence with religion was not statistically significant and the chi-square

association of level of adherence with professional education, monthly income, department was statistically significant as the calculated chi-square value is 677.0774, -50.9083, -86.6507 respectively, the calculated p-value (0.0001) was <0.05 level of significance.

Table 5: Association of level of adherence with socio demographic variables by using chi square test

(N=200)

SL NO	demographic variables		level of adherence			chi-square value	f	p value	inference
			MILD (F)	MODERATE (f)	SEVERE (F)				
1	age	20-24 years	47	30	36	677.0774	5	.0001*	Significant
		25-29 years	37		28				
		29-35 years	22						
2	gender	Male	31	30	11	41.302	5	.0001*	Significant
		Female	75		53				
3	professional education	GNM Nursing	43	18	35	677.0774	5	.0001*	Significant
		Post basic nursing	26	12	17				
		B.sc nursing	37		12				
4	religion	Hindu	92	20	56	5.733817	5	.204965	Not Significant
		Muslim	8	5	8				
		Christian	6	5					
5	monthly income in rupees	10000-14999	41	56	20	-50.9083	5	.0001*	Significant
		15000-19999	41	53	26				
		20000-24999	24	31					
6	department	Ward	50	16	34	-86.6507	5	.0001*	Significant
		Operational theater	26	14	18				
		Intensive care unit	30		12				

Note: *f* = frequency, x^2 =Chi –square value, *df*= degree of freedom ,p =significance at <.05*.

DISCUSSION

The current study investigated the Factor affecting adherence of staff nurses to use intrahospital transport protocol were components 13 items. It was found that about 55.5% of Staff nurse Lack of preparedness to intra hospital transport, 54 % Were lack of preparedness of the health assistant to intrahospital transport protocol, 52% staff nurse lack of communication with concerned department, about 51 %staff nurses were not able to arrange oxygen cylinder at the time of transporting, About 74.5% feel that the vital sign are affected during the time of transporting, 51% disease related complication arise during intra hospital transport ,52% staff nurse were responding that Physician accompanied critical patient during intra hospital transporting, 77 % staff nurse said that Supportive member accompanied during intra hospital transport, 70% staff nurse feel that at the time of transport mental status of the patient altered, 52% Staff nurse feel that the physician documentation is time taking, 60% said that at the time of transporting catheter displacement will be occur, 53 % agree that monitor failure will occur during intra hospital transport, 60% staff nurse said that the available of emergency kit at the time of intra hospital transport.In order to Qno-8 i.e whether supporting member accompanied patient during intra hospital transport protocol carrying 1st rank highest percentage of factor affecting adherence.

A similar study was conducted in September 2018 and January 2019 had the participation of 160 critical care nurses in this study. Utilizing a 53-item questionnaire created by Brunsveld-Reinders et al., data were gathered via a semi-structured interview. This study evaluates the adverse events that nurses encounter during the three stages of intra-hospital transport in relation to patient physiology, equipment, monitoring, drugs, and hydration management. Using SPSS software, descriptive statistics were used to analyze the data, and a traditional qualitative content analysis was used to analyze the answers to open-ended questions. Regarding the ability to perform a safe intra-hospital transport, the mean (and standard deviation) scores were 2.66 (2.73), 6.45 (3.16), and 7.75 (1.55) on a scale ranging from 0 to 10. The most common reasons for the nurses' fear or lack of confidence regarding the transport were oxygen desaturation, extubation, cardiac arrest, and unstable patient conditions.[9]

A subsequent study conducted on (2015) Bambi et.al, a retrospective study explored the complications among critically ill adult patients during intra and inter hospital transports. Adverse events ranging from 22.2 to 75.7% have an impact on intrahospital transfers. There is a range of 4.2 to 31% for major adverse events, which are classified as life-threatening situations requiring immediate treatment action. It is not common to die. A maximum of 34% of adverse outcomes occur during interhospital stays. 29 negative occurrences, ranging from 0% to 17%. There were no reported deaths. Risk factors pertaining to equipment, transport teams, coordination and organization, and patients are associated with the development of adverse events.

Issues with power supply, extracorporeal circuit components, and vehicles were noted in the interhospital transfer of patients on extracorporeal membrane oxygenation life support. Additionally, during shipping, ECMO/ECLS experienced technical issues.[10]

Between 2009 and 2010, a prospective observational study involving 38 beds in a medical ICU was carried out in France. Out of the 184 patients in 262 transfers that were observed, 120 (45.8%) had adverse outcomes linked to them. 68 (or 26% of all intrahospital transports) had a patient-related adverse event linked to them. The following risk variables were found: treatment modification before to travel and positive end-expiratory pressure more than 6 cmH2O. For 44 cases (16.8% of all intrahospital trips), adverse outcomes resulted in severity. Adverse events in this trial did not statistically increase the incidence of pneumonia related to ventilator use. According to the study's findings, there are a lot of unfavorable things that happen when critically sick patients are transported within hospitals.[11]

Prospective cohort research spanning (2015) included prognostic scores, length of stay, clinical data, and hospital discharge outcome in the data collection process. Transport and unfavorable event data were gathered. Based on the extent of harm, the World Health Organization categorized adverse events. Five percent was threshold significance with143 patient transportations as follow-up and 86 adverse event data, a total of 293 patients were examined. Of these occurrences, physiological changes accounted for 44.1%, equipment failure for 23.5%, team failure for 19.7%, and delays for 12.7%. Moderate conditions applied to half of the events. The mean time of hospital stay of the group with adverse events was higher compared to patients without adverse events (31.4 versus 16.6 days, resp., $p < 0.001$).[12]

CONCLUSION

The study highlights the level factor affecting adherence in intra hospital transport protocol is high among in staff nurse , finding of the study reveals that, there is significant association between socio demographic variables and level factor affecting adherence . Results show that there is a co -relation between different department of staff nurse and statistical significant.Therefore safe Intra hospital transfer of critically ill patients in the emergency department involves enormous challenges. Hence, collecting information about the performances of those working at the sharp end (i.e., close to patient care) will provide opportunities to redesign systems and may be one way to facilitate improvements in the Intra hospital transfer process. There is a need for proper documentation at all stages of patient transfer with continuous quality assessments to improve upon the existing protocols.

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