International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2024: 7.101

Assess the Knowledge on Management of Pediatric Care Unit among Staff Nurses at Selected Hospital, Maharashtra

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Abstract: ***PICU is a separate physical facility or unit specifically designated for the treatment of pediatric patients who, because of shock, trauma, or other life-threatening conditions, require intensified, comprehensive observation and care.[1] Pediatric Intensive Care Unit is a hospital department that offers high medical care. This Unit is too different as compared to the other General Medical Sections. In this section, patients' condition monitors frequently by the nurses and doctors. They monitor the aspects such as heart rate, breathing, and blood pressure of the kid. Compared to the other General Medical Sections, the medical staff gives medical therapies unavailable in the hospital's different medical sections. These intensive therapies include breathing machines (ventilators) and certain medicines under close supervision.[2] A study titled "Assess the knowledge on management of Pediatric care unit among staff nurses at selected hospital, Maharashtra." Has been carried out as a partial fulfilment requirement for being awarded the degree of the Master of Science in Nursing under the Maharashtra University of Health Sciences, Nashik Maharashtra.***

Keywords: Knowledge, Management, Pediatric care unit, Staff nurse, Hospital

1. Background of the Study

The intensive care unit (ICU) patient room is a highly complex patient care environment where the design of the room must support patient care delivery safely and efficiently. There is a lack of research examining how ICU design elements interact with other system components to impact patient care.[3]

Deficiencies in the quality of health care are major limiting factors to the achievement of the Millennium Development Goals for child and maternal health. Quality of patient care in hospitals is firmly on the agendas of Western countries but has been slower to gain traction in developing countries, despite evidence that there is substantial scope for improvement that hospitals have a major role in child survival, and that inequities in quality may be as important as inequities in access. There is now substantial global experience of strategies and interventions that improve the quality of care for children in hospitals with limited resources. The World Health Organization has developed a toolkit that contains adaptable instruments, including a framework for quality improvement, evidence-based clinical guidelines in the form of the *Pocket Book of Hospital Care for Children*, teaching material, assessment, and mortality audit tools. These tools have been field-tested by doctors, nurses, and other child health workers in many developing countries. This collective experience was brought together in a global World Health Organization meeting in Bali in 2007. This article describes how many countries are achieving improvements in quality of pediatric care, despite limited resources and other major obstacles, and how the evidence has progressed in recent years from documenting the nature and scope of the problems to describing the effectiveness of innovative interventions. The challenges remain to bring these and other strategies to scale and to support research into their use, impact, and sustainability in different environments.[4]

Pediatric medical care standards are always rising. Still, there are some circumstances in which our patients cannot receive a satisfactory quality of life or a cure. Sometimes, despite current technical advancements, all we can do is delay death. When a treatment is deemed ineffective, it is important to examine whether it is appropriate to continue or stop it, or whether it would be better to remove it altogether. Every situation should be assessed separately, and the family and all medical professionals engaged in the patient's care should agree on the final choice. The goal is to come to a consensus whereby life support methods and therapies are customized to the unique circumstances of every patient. As a result, the focus of care will shift from curing illness to ensuring comfort, and families need to be informed that their kid is receiving the best care possible.[3]

2. Introduction

PICU is a separate physical facility or unit specifically designated for the treatment of pediatric patients who, because of shock, trauma, or other life- threatening conditions, require intensified, comprehensive observation and care.[1] Pediatric critical care is an important component of reducing morbidity and mortality globally. Currently, pediatric critical care in low middle-income Countries (LMICs) remains in its infancy in most hospitals. The majority of Hospitals lack designated intensive care units, healthcare staff trained to care for critically ill children, adequate numbers of staff, and rapid access to necessary Medications, supplies and equipment. In addition, most LMICs lack pediatric Critical care training programs for healthcare providers or certification Procedures to accredit healthcare providers working in their pediatric

intensive Care units (PICU) and high dependency areas. PICU can improve the quality of Pediatric care in general and, if properly organized, can effectively treat the severe complications of high burden diseases, such as diarrhea, severe malaria, and respiratory distress using low-cost interventions. Setting up a PICU in a LMIC setting requires planning, specific resources, and most importantly Investment in the nursing and permanent medical staff. A thoughtful approach to developing pediatric critical care services in LMICs starts with fundamental building blocks: training healthcare professionals in skills and knowledge, selecting resource appropriate effective equipment, and having supportive leadership to provide an enabling environment for appropriate care. If these fundamentals can be built on in a sustainable manner, an appropriate critical care service will be established with the potential to significantly decrease pediatric morbidity and mortality in the context of public health goals as we reach toward the sustainable development goals.[5]

Patients who are children have distinct requirements than adults in terms of their environment and medical care. To give kids the best treatment possible, a pediatric hospital's design must take these demands into consideration. The hospital's layout is one of the most crucial components of pediatric hospital design. The layout must to be planned to meet the requirements of both the staff and the patients.[6]

Objectives

a) **Primary objective:** To assess the Knowledge on management of pediatric care unit among staff nurses at selected hospitals
b) **Secondary objective:** To find out the association between knowledge on management of pediatric care unit and demographic variables of staff nurses.

3. Materials and Methods

The study was undertaken to assess the knowledge on management of pediatric care unit among staff in selected hospitals. This study was based on the quantitative research approach. The study subject was staff nurse in selected hospitals. Which consist of 110 subject selected by purposive sampling technique.

The tools used for data collection was Self-administered questionnaire. A descriptive research design was administered by using self-administered questionnaire. The conceptual framework was modified by pander's Health promotion model (1996). The data was obtained to describe the sample characteristics including Age in years, Gender, Educational qualification, Years of working experience, Designation in working hospitals. The content validity of the tools was done by 11 experts. Descriptive and inferential statistics was used for data analysis. The collected data was organized, tabulated and analyzed by using descriptive statistics such as; percentage, mean and standard deviation. And, the inferential statistics such as; chi– square test and paired t' test was used to test the hypothesis with SPSS software the study finding was presented in the form of tables, diagram and figures.

Pilot study was conducted on subject by structured questionnaire in selected hospitals. The investigator selected 11 samples by using purposive sampling technique. The investigator conducted the pre-test to assess the knowledge on management of pediatric care unit among staff nurses in selected hospitals.

After the pilot study, main study was conducted in similar setting but different hospitals. Descriptive research design was used to evaluate the knowledge of staff nurse on management of pediatric care unit. 110 subject were selected for the study by using purposive sampling technique. In this study the data were gathered by using self-administered questionnaire. The data were analyzed by using inferential statistics on the basis of objective and hypothesis of the study. The investigator introduced himself and obtained consent form from the subject in selected hospitals. chi– square test and paired t' test was used for data analysis and presented in the form of Graphs, tables and diagrams.

4. Data Analysis and Interpretation

4.1 Organization of the Findings

The analysis and interpretation of the observation are given in the following.

The collected data are plan to analyse under following headings-
Section - I: Distribution of staff nurses at selected hospitals according to their demographic variables.
Section – II: Assessment of the staff nurse's knowledge score.
Section – III: Association between knowledge of staff nurses with their demographic variables.

SECTION - I

Distribution of staff nurses at selected hospitals according to their demographic variables.
This section deals with percentage wise distribution of staff nurses at selected hospitals according to their demographic characteristics. A purposive sampling of 110 subjects was drawn from the study population, who were from selected hospitals. The data obtained to describe the sample characteristics including age, Gender, Educational Qualification, Year of work experience, designation in working hospital

4.1.1 Percentage wise distribution of staff nurse according to their Age

Demographic variables according to their age	Frequency	Percentage
23-28 years	46	41.8%
29-34 years	26	23.6%
35-40 years	26	23.6%
40 and above	12	10.9%
Total	110	100%

Distribution of staff nurses at selected hospitals, according to their age reveals that the highest percentage (41.80%)

were belonged to the age group of 23- 28 years whereas the staff nurses with 29-24 years are (23.60%). However, the staff nurses with the age group of 35-40 years are (23.60%) and age group of 40 and above years of staff nurses are only (10.90%). Hence, it was interpreted that the age distribution of staff nurses at selected hospitals was more or less similar.

4.1.2 Percentage wise distribution of staff nurse according to their Gender

Gender	Frequency	Percentage
Male	46	41.8%
Female	64	58.2%
Total	110	100.0%

Distribution of staff nurses at selected hospitals, according to their gender reveals that the highest percentage (58.20%) were belonged to the female group whereas the staff nurses with male are (41.80%). (fig. 4.1.2)
Hence, it was interpreted that the Gender distribution of staff nurses at selected hospitals was more or less similar.

4.1.3 Percentage wise distribution of staff nurse according to their Educational Qualification

Qualification	Frequency	Percentage
GNM	58	52.7%
B.Sc. Nursing	48	43.6%
MSc Nursing	4	3.6%
Total	110	100.0%

Distribution of staff nurses at selected hospitals, according to their Qualification reveals that the highest percentage (52.7%) were belonged to the GNM Qualification whereas the staff nurses with B.Sc. Nursing Qualification are (43.6%). However, the staff nurses with the MSC Nursing Qualification are (3.6%). Hence, it was interpreted that the Qualification distribution of staff nurses at selected hospitals was more or less similar.

4.1.4 Percentage wise distribution of staff nurse according to their Year of work experience

Years of experience	Frequency	Percentage
1 to 5 years	43	39.1%
6 to 10 years	32	29.1%
11 to 15 years	21	19.1%
16 and above	14	12.7%
Total	110	100.0%

Distribution of staff nurses at selected hospitals, according to their Year of work experience reveals that the highest percentage (39.1%) were belonged to the 1 to 5 Year of work experience whereas the staff nurses with 6 to 10 Year of work experience are (29.1%). However, the staff nurses with the 11 to 15 Year of work experience are (19.1%) and the staff nurses with the 16 and above Year of work experience are (12.7%)

4.1.5 Percentage wise distribution of staff nurse according to their designation in working hospitals.

Designation	Frequency	Percentage
Nursing Superintendent	5	4.5%
In charge sister	18	16.4%
Senior staff nurse	41	37.3%
Junior staff nurse	46	41.8%
Total	110	100.0%

Distribution of staff nurses at selected hospitals, according to their designation reveals that the highest percentage (41.8%) were belonged to the Junior staff nurse designation whereas the staff nurses with Nursing Superintendent designation are (4.5%). However, the staff nurses with the in-charge sister designation are (16.4%) and the staff nurses with the Senior Staff Nurse designation are (37.3%) (fig. 4.1.5) Hence, it was interpreted that the designation distribution of staff nurses at selected hospitals was more or less similar.

Section – II

Assessment of level of Knowledge on management of pediatric care unit among staff nurses working in pediatric unit of selected hospitals

This section deals with the Assessment of level of Knowledge on management of paediatric care unit among staff nurses working in paediatric unit of selected hospitals. The level of knowledge score is divided under following heading of poor and good compliance.

Assessment of level of Knowledge on management of pediatric care unit among staff nurses working in pediatric unit of selected hospitals, Maharashtra

4.2.1 Percentage wise distribution of knowledge score of staff nurse on management of pediatric care unit.

Knowledge Score	Frequency	Percentage
very good	26	23.6
good	52	47.3
Average	29	26.4
poor	3	2.7
Very Poor	0	0%
Total	110	100.0

Percentage distribution of knowledge score of staff nurse on management of pediatric care unit according to their level of knowledge show that out of 110 staff nurse, highest 47.3% of them had good knowledge. Whereas 23.6% staff nurses had very good knowledge. However, 26.4% had average knowledge, 2.7% of staff nurses had poor knowledge and 0% of staff nurses had very poor knowledge on management of pediatric care unit.

4.2.2 Mean & SD of knowledge score of staff nurse on management of pediatric care unit.

Sr. No	Level of Knowledge	Frequency	Mean	SD
1.	Very good	26	23.96	2.44
2.	Good	52	23.480	3.13
3.	Average	29	18.060	2.01
4.	Poor	3	13.2	1.95
5.	Very poor	0	0	0
6.	Overall	110	22.11	3.414

Minimum knowledge score was 11 and maximum compliance score was 28. Distribution of mean knowledge score on staff nurse on management of pediatric care unit shows the 26 staff nurses had very good knowledge with a mean score of 23.96 and SD Score is 2.44, other 52 staff nurses had good knowledge with a mean score of 23.480 and SD score is 3.13 and 29 staff nurses had Average knowledge with mean score of 18.06 and SD score is 2.01, 3 staff nurses had Poor knowledge with mean score of 13.2 and SD score is 1.95 whereas none of them had very poor knowledge on management of pediatric care unit. **(Table 4.2.2)**

Hence, it can be interpreted that majority of the staff nurses had good knowledge on management of pediatric care unit.

4.2.3 Area wise percentage distribution of knowledge scores of staff nurse on management of pediatric care unit.

Sr. No.	Section/ Areas	Questions	Question in %
1	Introduction of pediatric care unit.	05	16.66%
2	Planning of pediatric care unit in the hospitals.	10	33.33%
3	Organization of pediatric care unit in the hospitals	05	16.66%
4	Staffing of pediatric care unit in the hospitals.	05	16.66%
5	Health care services of pediatric care unit	05	16.66%
	Total	30	100%

Area wise percentage distribution of knowledge scores of staff nurse on management of pediatric care unit. show that higher percentage (33.33%) were had the knowledge on the area of Planning of pediatric care unit in the hospitals whereas lowest percentage (16.66) were had knowledge on the area of Introduction of pediatric care unit, Organization of pediatric care unit in the hospitals, Staffing of pediatric care unit in the hospitals, Health care services of pediatric care unit respectively. **(Table 4.2.3)**

4.2.4 Area wise mean & SD of knowledge scores of staff nurse on management of pediatric care unit.

S. No.	Section/ Areas	No of Item	Mean	Standard Deviation
1	Introduction of pediatric care unit.	05	0.68	0.46
2	Planning of pediatric care unit in the hospitals.	10	0.67	0.47
3	Organization of pediatric care unit in the hospitals	05	0.81	0.38
4	Staffing of pediatric care unit in the hospitals.	05	0.69	0.46
5	Health care services of pediatric care unit	05	0.81	0.39
	Over All	30	0.725	0.45

Distribution of mean and SD knowledge score on management of pediatric care unit shows that higher knowledge mean score (0.81) was had the knowledge on area Health care services of pediatric care unit and, Health care services of pediatric care unit, whereas lowest (0.67) of them had knowledge on the area of Planning of pediatric care unit in the hospitals in the hospitals. However, the staff nurse had knowledge mean score on Introduction of pediatric care unit had (0.68), staffing of pediatric care unit in the hospitals had (0.69), respectively. **(Table 4.2.4)**

Hence, was interpreted that the staff nurse had more or less similar knowledge mean scores between the area of management of pediatric care unit.

4.2.5 Item analysis of knowledge score of staff nurse on management of pediatric care unit on Introduction of pediatric care unit.

Item number	Item	No. of corrected responses	Percentage
1	In which year the Indian academy of Pediatrics consensus Guidelines was published……	54	14%
2	What is pediatric care unit?	110	29%
3	Which of the following are the child specific safety element available in pediatric	94	25%
4	The pediatric care unit should be preferably located near the	46	12%
5	Following are the objectives of pediatric care unit, except	74	20%

4.2.6 Item analysis of knowledge score of staff nurse on management of pediatric care unit on Planning of paediatric care unit in the hospitals.

Item number	Item	No. of corrected responses	Percentage
6	The minimum area required to establish the PICU should be	62	8%
7	Which of the following is recommended to setup PICU	99	13%
8	In pediatric ward how much area should be provided to each infant	63	8%
9	All beds must have a side railing for	102	14%
10	Following are the equipment kept on Crash cart trolly, except	104	14%
11	In NICU Design the space for per bed required is	41	6%
12	A central station in PICU should provide	96	13%
13	The activities cannot be performed at the nursing station	44	6%
14	The use of refrigerator in PICU is, Ex	42	6%
15	In PICU the conference room is use for	90	12%

4.2.7 Item analysis of knowledge score of staff nurse on management of pediatric care unit on Organization of pediatric care unit in the hospitals

Item number	Item	No. of corrected responses	Percentage
16	The primary responsibilities of medical director are, Except	82	18%
17	The staff included in establishing the policies and protocol for pediatric care unit, Are	87	19%
18	The main organizational member of pediatric care unit is	71	16%
19	The implementation of policies and protocol in pediatric care unit is important for	102	23%
20	The role of clerical staff is	106	24%

4.2.8 Item analysis of knowledge score of staff nurse on management of pediatric care unit on Staffing of pediatric care unit in the hospitals.

Item number	Item	No. of corrected responses	Percentage
21	Which among the following are considered as emergency staff in PICU, Except	64	17%
22	The staff who is not included in ancillary staff is	76	20%
23	What is the nurse patient ratio for serious and unconscious patient in PICU	89	23%
24	What is nurse patient ratio for stable patient in PICU	90	24%
25	What is junior resident doctor and patient ratio in PICU?	61	16%

4.2.9 Item analysis of knowledge score of staff nurse on management of pediatric care unit on Health care services of paediatric care unit.

Item number	Item	No. of corrected responses	Percentage
26	The Laboratory test carried out in an emergency situation is	110	25%
27	The hospitalized infant or child may need to transfer to another area of hospital for	98	22%
28	The health care services of pediatric care unit include	107	24%
29	Children visiting the outpatient or staying in hospital have a basic need for	74	16%
30	There should be one dispensing counter for	57	13%

Section III

Association of Knowledge on management of pediatric care unit among staff nurses working in pediatric unit of selected hospitals with their selected demographic variables.

Table 1: Association of Knowledge on management of pediatric care unit among staff nurses working in pediatric unit of selected hospitals with **age**, n=110

Age (yrs)	No. of staff nurses	Mean score	SD	F-value	p-value
23 – 28 Years	46(41.8%)	19.13	2.06	2.369	0.006 p<0.05 Significant
29 – 34 Years	26(23.6%)	9.55	1.66		
35 – 40 Years	26(23.6%)	9.55	1.66		
40 And Above	12(10.9%)	6.60	1.34		

Analysis of variance (F test) was computed to find out the significant of Knowledge on management of pediatric care unit among staff nurses working in pediatric unit of selected hospitals with age. The findings of F value shows that there is significant association ($p<0.05$) between Knowledge on management of pediatric care unit among staff nurses working in pediatric unit of selected hospitals with **age.**

Table 2: Association of Knowledge on management of pediatric care unit among staff nurses working in pediatric unit of selected hospitals with Gender, n=110

Gender	No. of staff nurses	Mean score	SD	F-value	p-value
Male	46(41.8%)	19.13	2.06	0.536	00.914, p>0.05 Non-Significant
Female	64(58.2%)	25.43	1.66		

Analysis of variance (F test) was computed to find out the significant of Knowledge on management of pediatric care unit among staff nurses working in pediatric unit of selected hospitals with Gender. The findings of F value shows that there is no significant association ($p>0.05$) between Knowledge on management of pediatric care unit among staff nurses working in pediatric unit of selected hospitals with Gender**.**

Table 3: Association of Knowledge on management of pediatric care unit among staff nurses working in pediatric unit of selected hospitals with **qualification,** n=110

Qualification	No. of staff nurses	Mean score	SD	F-value	p-value
GNM	58(52.7%)	21.45	2.09	1.338	0.17 p>0.05 Non-Significant
BSc Nursing	48(43.6%)	19.57	2.66		
Msc Nursing	4(3.6%)	3.55	0.33		

Analysis of variance (F test) was computed to find out the significant of Knowledge on management of pediatric care unit among staff nurses working in pediatric unit of selected hospitals with **qualification** The findings of F value shows that there is no significant association (p>0.05) between Knowledge on management of pediatric care unit among staff nurses working in pediatric unit of selected hospitals with **qualification.**

Table 4: Association of Knowledge on management of pediatric care unit among staff nurses working in pediatric unit of selected hospitals with **Years of Experience**

Years of Experience	No. of staff nurses	Mean score	SD	F-value	p-value
1 to 5 year	43(39.1%)	18.45	2.09	2.053	0.019 p<0.05 Significant
6 to 10 year	32(29.1%)	14.57	2.66		
11 to 15 year	21(19.1%)	9.55	0.89		
16 and above	14(12.7%)	5.34	0.45		

Analysis of variance (F test) was computed to find out the significant of Knowledge on management of pediatric care unit among staff nurses working in pediatric unit of selected hospitals with **Years of Experience** The findings of F value shows that there is significant association (p<0.05) between Knowledge on management of pediatric care unit among staff nurses working in pediatric unit of selected hospitals with **Years of Experience.**

Table 4: Association of Knowledge on management of pediatric care unit among staff nurses working in pediatric unit of selected hospitals with **Designation,** n=110

Designation	No. of staff nurses	Mean score	SD	F-value	p-value
Nursing Superintendent	5(4.5%)	3.76	0.45	2.049	0.019 p<0.05 Significant
In charge sister	18(16.4%)	8.55	0.51		
Senior staff nurse	41(37.3%)	18.15	1.99		
Junior staff nurse	46(41.8%)	19.13	2.06		

Analysis of variance (F test) was computed to find out the significant of Knowledge on management of pediatric care unit among staff nurses working in pediatric unit of selected hospitals with **Designation** The findings of F value shows that there is significant association (p<0.05) between Knowledge on management of pediatric care unit among staff nurses working in pediatric unit of selected hospitals with **Designation.**

Analysis of variance (F-test) was computed to find out the significant association between the knowledge score and the age of staff nurse, Gender, Qualification, and Year of experience and Designation. The finding of F value shows that there is significant association (p<0.05) i.e. p=0.006, p=0.019 and p=0.019 for age of staff nurse, Years of experience and Designation respectively, which shows the highly significant value.

Therefore, the research hypothesis was accepted for age of staff nurse, Years of experience and Designation.

Whereas, it was interoperated that the gender and qualification was not associated with the knowledge on Knowledge on management of pediatric care unit. However, F value was by chance and true difference. Therefore, the research hypothesis was rejected for gender and qualification.

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