

Assessment of Adherence to Standard Operating Procedure in Blood Pressure Measurement of Children Above Three Years of Age Among Nurses Working in Paediatric Unit at Pondicherry Institute of Medical Sciences

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DOI: <https://doi.org/10.52403/ijshr.20240130>

ABSTRACT

Blood Pressure (BP) is the pressure of the blood flow which exerted against the wall of arteries when the ventricles contract. BP measurement based on guidelines is quality care and safe nursing practice. Adherence to guidelines reduces inaccuracies that may expose the patient to misdiagnosis and inappropriate care. An infant may have a pretty common blood pressure of 80/45 mm of Hg, while that evaluation in an adult is considered low. A teenager may have a satisfactory blood pressure of 110/70 mm of Hg, but that value would be of apprehension in a toddler. Measurement of BP in children is more difficult than in adults because readings are likely to be falsely high in crying children, and an appropriately sized cuff may not be available. According to Paediatric resuscitation guidelines 2012, it is important to measure Blood Pressure while assessing a sick child to determine the circulatory and neurological status. Therefore, BP measurement based on guidelines becomes truly a valuable tool in screening for high-risk patients, early detection and control of hypertension, and prevention of complications.

STATEMENT OF THE PROBLEM: "A Descriptive Study to assess adherence to the standard operating procedure in blood pressure measurement of children above three years of age among nurses working in the paediatric unit at Pondicherry institute of medical sciences"

OBJECTIVES:

1. To determine the level of adherence among the staff nurses in following the standard operating procedure in blood pressure measurement in pediatric patients admitted to the Pondicherry Institute of Medical Sciences.
2. To identify the barriers in adhering to the standard operating procedure in blood pressure measurement.
3. To associate the demographic variables of staff Nurses with their level of adherence in following standard operating procedures for BPM.

METHODOLOGY A descriptive non-experimental method was used to assess the level of adherence of standard operating procedures in blood pressure measurement of children above three years of age. The study was conducted in the pediatric ward, Pondicherry Institute of Medical Sciences, Pondicherry, in September 2019. Purposive sample method was used and the sample included 33 nurses. Each sample was observed three times using the observational checklist, which consists of twelve steps. Descriptive statistics were used to analyze the data. Frequency and percentage were used to assess the adherence level in following the standard operating procedure in blood pressure measurement.

RESULT The result of the analysis of data shows that the majority of 32 (97 %) were female nurses, 31(94%) had B.Sc. Nursing

degree and the majority of 27 (81.8 %) had work experience less than 4 years. Out of 33 participants, 6 (18.2 %) had adhered to the standard operating procedure in blood pressure measurement, 27 (81.8 %) were not able had adhered at all times while checking blood pressure with Aneroid BP Apparatus. Barriers related to adherence to SOP were related to lack of time, less manpower, workflow constraints, and some assumed that it is not necessary to follow each step every time, the cooperation of the child.

CONCLUSION The result of the study showed that very few nurses adhered to each step in the SOP of blood pressure measurement. The study concludes that there is a need to conduct in-service education between regular intervals on the importance of SOP and skills and the importance of blood pressure measurement among nurses of PIMS

Keywords: Standard Operating Procedure, Blood Pressure, Adherence, Nurses, Pediatric Unit

INTRODUCTION

Blood Pressure (BP) is the pressure of the blood flow which exerted against the wall of arteries when the ventricles contract. BP measurement based on guidelines is quality care and safe nursing practice. Adherence to guidelines reduces inaccuracies that may expose the patient to misdiagnosis and inappropriate care. An infant may have a pretty common blood pressure of 80/45 mm of Hg, while that evaluation in an adult is considered low. A teenager may have a satisfactory blood pressure of 110/70 mm of Hg, but that value would be of apprehension in a toddler. Measurement of BP in children is more difficult than in adults because readings are likely to be falsely high in crying children, and an appropriately sized cuff may not be available. According to Paediatric resuscitation guidelines 2012, it is important to measure Blood Pressure while assessing a sick child to determine the circulatory and neurological status. Therefore, BP measurement based on guidelines becomes truly a valuable tool in screening for high-risk patients, early

detection and control of hypertension, and prevention of complications.

OBJECTIVES

1. To determine the level of adherence among the staff nurses in the following standard Operating procedure in blood pressure measurement in pediatric patients admitted in Pondicherry Institute of Medical Sciences.
2. To identify the factors which are responsible for non-adherence to the standard operating procedure in blood pressure measurement.
3. To associate the demographic variables of staff Nurses with their level of adherence in following standard operating procedures for BPM

MATERIALS & METHODS

1. RESEARCH APPROACH:

Quantitative research approach was adopted in this study.

2. **RESEARCH DESIGN:** Descriptive non-experimental research design was adopted in this study.

SETTING OF THE STUDY: The study was conducted in the Pediatric unit among nurses working in pediatric wards, Pondicherry Institute of Medical Sciences.

3. **VARIABLES:** In this study, the variables are the level of adherence among nurses, the Standard Operating procedure on blood pressure measurement and the staff nurses.
4. **POPULATION:** The target population refers to nurses posted in pediatric wards, Pondicherry Institute of Medical Sciences.
5. **SAMPLE:** Sample for the present study were nurses in pediatric wards who were involved in blood pressure measurement at Pondicherry Institute of Medical Sciences.
6. **SAMPLE SIZE:** The sample size calculated for the present study was 95, due to the unavailability of participants the size decided was 33.

7. **SAMPLING TECHNIQUE:** In this study, purposive sampling technique was used.

8. **SAMPLING CRITERIA:**

Inclusion Criteria: • Nurses posted in the pediatric unit and who were involved in blood pressure measurement.

Exclusion Criteria: • Nurses who were on leave during the data collection.

SECTION A: Demographic data. It includes details of nurses such as gender, qualification and years of experience.

SECTION B: Includes twelve steps, which is to be observed during the measurement of blood pressure. The first four steps are related to preparation for the procedure, the remaining eight are the steps of the procedure.

DEVELOPMENT AND DESCRIPTION OF TOOL: The tool used was made after a literature review and discussion with experts. An observational checklist was used based on the SOP on blood pressure measurement which was used by the nurses at PIMS. The tool consists of two sections

STATISTICAL ANALYSIS:

Descriptive and Inferential statistical was used for statistical analysis

RESULT

SECTION 1: DEMOGRAPHIC VARIABLES OF NURSES

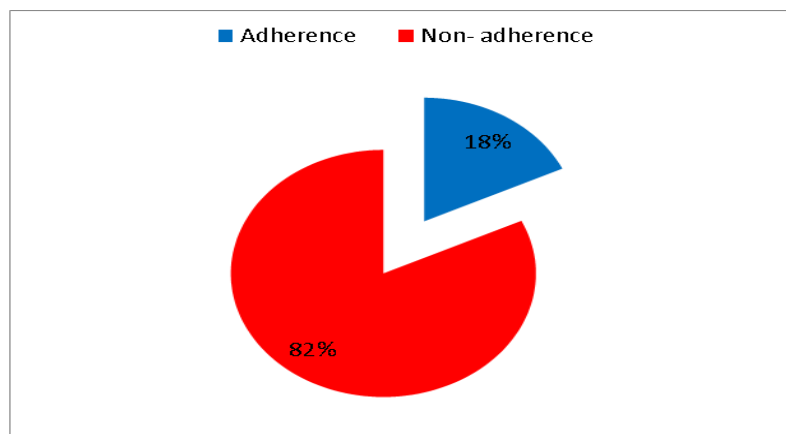
TABLE 1-Distribution of Nurses based on Demographic variables n=33

Sl. No	DEMOGRAPHIC VARIABLES	FREQUENCY(F)	PERCENTAGE(%)	P VALUE
1	Gender			
	Female	32	97	-
	Male	1	3	-
2	Educational qualification			
	GNM	1	3	-
	B.Sc.	31	94	-
	M.sc.	1	3	-
3	Working Experience in years			
	Less than 4 years	27	81.8	1.000
	4 to 6 years	4	12.1	-
	>6 years	2	6.1	-

The above table shows that among 33 nurses' majority, 32 (97 %) were females, majority 31 (94 %) were B.Sc. Nurses. Most of the 27 (81.8 %) had less than 4 years of experience.

SECTION II: LEVEL OF ADHERENCE AMONG NURSES TO SOP ON BP MEASUREMENT.

Figure 1: Level of adherence of nurses to SOP on blood pressure measurement n = 33



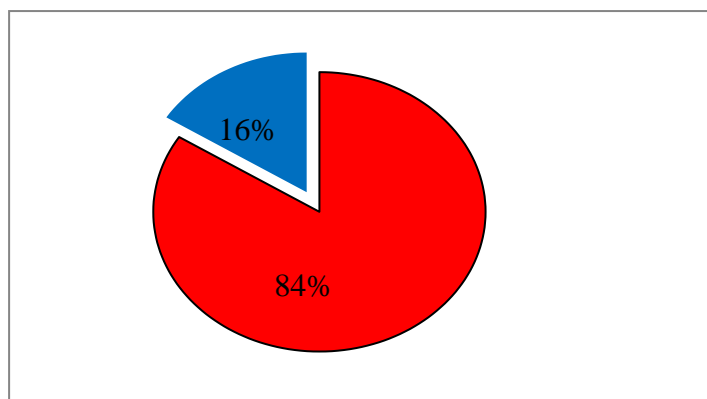
The above figure shows that 33 nurses were observed 3 times each, 18 % of the nurses had complete adherence to the SOP

Table 2: Adherence Among Nurses To The Steps In Sop Of Blood Pressure Measurement. n=33

S.No	Steps	Adherence		Non- Adherence	
		n	%	N	%
I	PREPARATION				
1	Collection of articles	33	100	0	-
2	Explanation of the procedure	31	93.9	2	6.1
3	Ensure a comfortable position.	33	100	0	-
4	Correct cuff size	21	63.6	12	36.4
II	PROCEDURE STEPS				
5	Wrap the cuff firmly above the antecubital fossa.	22	66.7	11	33.3
6	Palpate the radial artery	15	45.5	18	54.5
7	Inflate the cuff until the pulse can no longer be felt.	15	45.5	18	54.5
8	Deflate the cuff before proceeding to the auscultatory method.	5	15.2	28	84.8
9	Check the diaphragm of the stethoscope.	13	39.4	20	60.6
10	Palpate brachial artery and place stethoscope	24	72.7	9	27.3
11	Deflated cuff till the second sound.	33	100	0	-
12	Completely Deflate the cuff	33	100	0	-
13	Record BP	26	78.8	7	21.2

The above table shows 33 nurses were observed 3 times each. The average of the three observations was taken to assess the level of adherence. Step 1, 3, 11 and 12 were followed 100%. and step 8 was least followed.

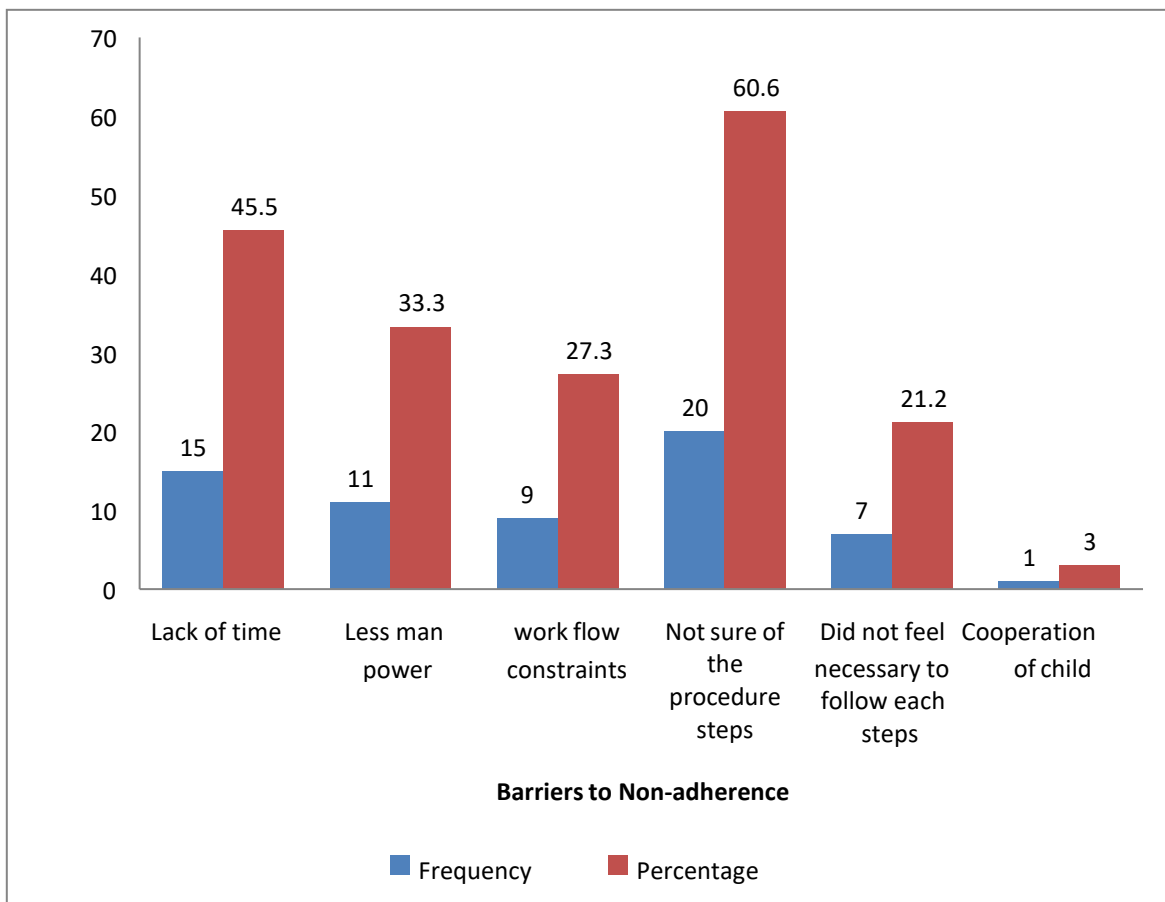
FIGURE 2: The Overall Adherence To Sop Among Nurses Based On The Observation Of Steps In Sop Of Blood Pressure Measurement. n=1255



The above figure shows the overall adherence to SOP. It was observed 1255 times, out of 1255 times, Nurses had adhered to all the steps in the SOP for 1030 times.

SECTION III: BARRIERS IN ADHERING TO SOP ON MEASURING BLOOD PRESSURE. n=33

The figure shows the barriers identified related to non-adherence to SOP. The major factors were 20 (60.6 %) were due to not sure of the procedure step, 15 (45.5 %) due to lack of time and the child was not cooperative 1 (3%)



SECTION IV: ASSOCIATION OF LEVEL OF ADHERENCE AMONG NURSES WITH THEIR DEMOGRAPHIC VARIABLES. n = 33

Demographic variable	Level of adherence in standard operating procedure				P-Value
	adherence		Non- adherence		
	n	%	n	%	
1 Gender					
Female	6	18.8	26	81.3	-
Male	0	0	1	100	
2 Educational qualification					
B.Sc. Nursing	5	16.1	26	83.9	-
M.Sc. Nursing	1	100	0	0	
GNM	0	0	1	100	
3 Working experience					
<4 years	3	11.1	24	88.9	1.000
4 to 6 years	3	75	1	25	NS
>6 years	0	0	2	100	

Table-3: shows 18.8% of adherence level found in female participants, 100 % adherence found among postgraduate nurses, 75 % among nurses were 4 to 6 years of experience.

Fisher's Exact Test was used to find out the association of level of adherence to Standard Operating Procedure in blood pressure measurement. There was no statistical significance in the association of level of adherence among nurses to SOP with their demographic variables

DISCUSSION

THE FIRST OBJECTIVE: To determine the level of adherence among the staff nurses in following standard operating procedure in blood pressure measurement in pediatric patient above three years of age

The majority of the nurses working in pediatric units had non-adherence level 27 (81.8 %) and few of them had adherence level 6 (18.2 %) in blood pressure measurement procedure, only 42.4 % were non-adhering and 56.6% were adhering in the preparation phase. 34,2 % were adherence and 64.8% were non-adherence in performing procedure steps. A similar observational study was conducted in the City of Manila, February 20, 2014, among 118 public health nurses to compare the level of adherence of public health nurses to BP measurement guidelines based on their pre and post-training program on knowledge of the guidelines and skills in blood pressure measurement. Nurses in the BPM training program group showed improved adherence ($p < 0.05$) compared to nurses in the control group

THE SECOND OBJECTIVE: To identify the barriers in adhering to the standard operating procedure in blood pressure measurement.

Findings revealed few barriers were identified in not-adhering to SOP in blood pressure measurement procedures performed by nurses working in the pediatric ward. Barrier for non-adherence to SOP on blood pressure measurement, maximum nurses (60.6 %) said due to the not sure of the procedure steps and (3 %) nurses said it is due to child behavior. Other barriers were less manpower, workflow constraints.

CONCLUSION

The study findings reveal that nurses working in the pediatric unit should be reinforced about adhering to all the steps in SOP each time the procedure is done.

- The staff nurses need to be reinforcing that the following SOP would minimize error in blood pressure measurement

Declaration by Authors

Ethical Approval: Approved

Acknowledgement: None

Source of Funding: None

Conflict of Interest: The authors declare no conflict of interest.

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How to cite this article: Bishnu Rai, Rose Rajesh, Saritha G. Assessment of adherence to standard operating procedure in blood pressure measurement of children above three years of age among Nurses Working in Paediatric Unit at Pondicherry Institute of Medical Sciences. *International Journal of Science & Healthcare Research*. 2024; 9(1): 235-240. DOI: <https://doi.org/10.52403/ijshr.20240130>
