

# The Effect of Educational Program on Nurses Knowledge Regarding Physical Assessment of Cardiovascular System in Tertiary Hospital Lahore, Pakistan

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## ABSTRACT

Nurses play as frontline health care provider in clinical setting to assess patient illness, take timely and suitable decision to manage the patient health. In fact, critical care units and intensive care units are critical areas in which nurses frequently work alone, involved in decision making, and manage high risk patients. Literature findings that the physical examination is an important element of patient care in these settings, and nurses are generally well trained to perform a wide range of assessment skills to manage the critical care units. Nursing care has become more and more advance along with complexity of client treatment needed to improve their abilities in doing all physical assessment techniques, which is the first step to providing safe and effective care in clinical setting.

**Objective:** Evaluate the effects of educational interventions on nurse's knowledge regarding physical assessment of cardiovascular system.

**Methodology:** Quasi experimental study was conducted.

**Setting:** Research data was collected from critical care units in tertiary Hospital Lahore.

**Study Participants:** 36 Nurses were participated in this study.

**Results:** Before educational interventions Critical Care Nurses have minimum level of knowledge regarding physical assessment of cardiovascular system. Finding measured that before intervention less than 50% response of participants n=33 (91.7%) and after intervention above 50 % response of participants n=36 (100%). Study results indicated a significant mean difference between before intervention and after intervention scores of nurses knowledge,  $t = -29.663$ ,  $p < 0.000$ , Mean and SD (5.53±1.993 vs. 15.92±1.204).

**Conclusion:** Educational session enable the Critical Care Nurses to incorporate knowledge regarding physical assessment of cardiovascular system into their daily clinical practices. Post-test finding shows highly significant results after workshop, lectures and hands on practice conducted by researcher.

**Keywords:** Nurses knowledge, Cardiovascular System, Critical Care Units, Physical Assessment

## INTRODUCTION

Nurses play as frontline health care provider in clinical setting to assess patient illness, take timely and suitable decision to manage the patient health (Liyew, Dejen Tilahun, & Kassew, 2020). In fact, critical care units and intensive care units are critical areas in which nurses frequently work alone, are involved in decision making, and manage high risk patients. Literature findings that the physical examination is an important element of patient care in these settings, and nurses are generally well trained to perform a wide range of assessment skills to manage the critical care units (Cicolini et al., 2015).

Nurses should completely comprehend physical assessment of patient regarding cardiovascular system for critical care expertise. Nursing care has become more and more advance along with complexity of client treatment needed to improve their abilities in doing all physical assessment techniques, which is the first step to providing safe and effective care in clinical setting (Cicolini et al., 2015).

Furthermore, Physical examination is a significant part of the nursing process and main component of nursing healthcare services. It cannot be achieved without proper knowledge and correct clinical practices, if a nurse is not competent in the assessment phase, she may not establish at the initial phase of the nursing process, and will not be able to functioning the next steps of nursing process like diagnosis, planning, implementation and evaluation of the patient (Zeid Abadi, Ghazanfari, & Roudi Rasht Abadi, 2017).

The United Nations study shows that, the physical assessment was initiated in nursing profession in 1970 and 1980 as integral part of nursing education. In 1990 Canada and Australia started it into specialty educational program (Majder, Więch, Wojniak, & Bazaliński, 2020). The act of 15 July 2011 on nursing, midwives and regulation Ministry of Health of 28 February 2017 addresses physical examination as a component of nursing practices for client diagnosis (Majder et al., 2020).

Physical assessment is a systematic and organized method of health history and whole body examination or general body system examination base on gathering subjective and objective data (Liyew et al., 2020). Nurses should prepare for advance physical examination skills by the Educational training program that learn much better and accurate examination techniques for patient's assessment. The improvement in nursing practices will ultimately be helpful in the development of nursing profession (Zambas, Smythe, & Koziol-McLain, 2016). Patient health history and physical assessment techniques are the key elements that indicate the overall assessment of client condition, client decisions and client treatment (Padykuła, Czaja, Pieczyrak-Brhel, & Kózka, 2017).

Physical examination is an important aspect of a physician's duty, but it is also an important component of a nurse's duty (Liyew et al., 2020). The ability of nurses to make clinical decisions on time has a greater impact to the quality of client care and treatment. Furthermore the ability of nurses to examine accurate physical assessment based on knowledge and practice. Nurses must have strong physical assessment skill, strong evaluation skills, strong teaching skills, and strong desire to use technology that will helpful to complete clinical task successfully (Khoran, Alhani, & Hajizadeh, 2018). Intensive nursing care demands are focused on patient assessment that assist to assess patient actual problem and easily treat the problem by accurate diagnosis based on expertise and accurate physical examination potential (Birks, James, Chung, Cant, & Davis, 2014).

According to Osborne et al., nurses' physical assessment skills are essential for clinical care setting (Osborne, Douglas, Reid, Jones, & Gardner, 2015). Lack of self-confidence, time constraints, lack of encouragement from others, and lack of nursing position simulations have all been described as factors affecting to implementation of physical assessment examination techniques. Nurses in specialties that allow for greater flexibility

are more likely to master and practice a broader variety of skills (Douglas et al., 2014).

## METHODOLOGY

**Study Design:** Quasi experimental study was conducted to evaluate the effects of educational interventions on nurse's knowledge regarding physical assessment of cardiovascular system.

**Setting:** Research data was collected from critical care units in tertiary Hospital Lahore.

**Study Participants:** 36 Nurses were participated in this study.

**Study Instrument:** Data was collected through adopted questionnaire to evaluate the effect of Nurses knowledge regarding physical assessment of cardiovascular system in critical care unit. Study instrument including two parts: the

**First part** was contained descriptive statistics involved 7 items and the

**Second part** was contained inferential statistics involved 17 items to measure the Nurses knowledge regarding physical assessment of cardiovascular system (Mitoma & Yamauchi, 2018). Correct response marked "1" and wrong marked "0".

**Data Collection Procedure:** Firstly, introduced details of study with study participant and written consent was taken. Then 36 participants were divided in to four convenient groups, two groups of nurses from ICU I and two groups of nurses from ICU II, each group containing 9 nurses from the ICUs department of Lahore General Hospital Lahore. Secondly, after grouping, collect demographic data from all participants, after than pre-test was conducted to assess the nurse's knowledge and skills through adopted multiple-choice questionnaire regarding cardiopulmonary assessment. Thirdly, 64 educational session was completed into 16 weeks. Per week 04 sessions was conducted. Educational session included workshop, lectures and hands on practice. Post-test was conducted after 16 weeks of educational session and skills (hands on practices) through same questionnaire to assess the effects of interventional educational program.

**Data Analysis:** Statistical analysis was conducted through SPSS software, version 29.0. Descriptive statistics was analyzed through frequencies and percentage. Inferential statistics was analyzed through frequencies, proportions and comparisons of means using paired t-test.

**Ethical Consideration:** Institutional Review Board was approved this study. Participants were willingly participate in this study and informed them to withdraw this study any time.

## RESULTS

### Descriptive Statistics

Table 1: Age Groups of Nurses

Age Groups (in Years)	Frequency	Percent
24 ---27	13	36.1
28 ---31	11	30.6
32 ---35	9	25.0
36 ---39	3	8.3
Total	36	100.0

Table 1 shows that n=13 (36.1%) participants were respond with in the age group between 24-27 years, n=11 (30.6%) participants were respond between 28-31 years of age group, n=9 (25%) research participants were respond between 32-35 years of age group and n=3 (8.3%) participants were respond 36-39 year of age group.

Table 2: Professional Education

	Frequency	Percent
Generic BSN	1	2.8
Diploma Nursing	31	86.1
Post Register Nurses	4	11.1
Total	36	100.0

Table 2 shows that professional education of participants included in this study Diploma nursing n=31 (86.1%), post RN n=4 (11.1%) and Generic BSN n=1 (2.8%).

Table 3: What is Your Mother Language?

	Frequency	Percent
Urdu	23	63.9
Punjabi	13	36.1
Total	36	100.0

Table 3 shows that mother language of participants were Urdu n=23 (63.9%) and Punjabi n=13 (36.1%).

Table 4: Marital Status

	Frequency	Percent
Unmarried	15	41.7
Married	21	58.3
Total	36	100.0

Table 4 shows that most of participants were married n=21 (58.3%) and unmarried n=15 (41.7%).

Table 5: Residential Area

	Frequency	Percent
Rural	10	27.8
Urban	26	72.2
Total	36	100.0

Table 5 shows that residential area of participants were urban n=26 (72.2%) and rural n=10 (27.8%).

Table 6: Previous Results Division

	Frequency	Percent
1 <sup>st</sup>	30	83.3
2 <sup>nd</sup>	6	16.7
Total	36	100.0

Table 6 shows that previous results division of participants were 1st division n=30 (83.3%) and 2nd division n=6 (16.7%).

Table 7: Previous Physical Assessment Exposure

	Frequency	Percentage
Yes	28	77.8
No	8	22.2
Total	36	100.0

Table 7 shows that previous physical assessment exposure of participants were yes n=28 (77.8%) and no n=8 (22.2%).

Inferential statistics base on Physical Assessment of Cardiovascular System

Table 8: Nurses Knowledge regarding Physical Assessment of Cardiovascular System

Knowledge regarding Cardiovascular system	Pre Intervention		Post Intervention	
	f	Percentage	f	Percentage
Inadequate Knowledge (< 50%)	33	91.7%	-	-
Adequate Knowledge (>50%)	3	8.3%	36	100%

In table 8 results indicates that Pre-interventional study Score of nurses were inadequate knowledge n=33 (91.7%) and adequate knowledge was n=3 (8.3%). While in the Post-interventional study Score was highly significant that increase adequate knowledge n=36 (100%).

A paired t-test was conducted to evaluate the effect of the interventional study regarding physical assessment of cardiovascular system among ICU nurses. Study results indicated a significant mean difference between before intervention and after intervention scores of nurses knowledge,  $t = -29.663$ ,  $p < 0.000$ , Mean and SD ( $5.53 \pm 1.993$  vs.  $15.92 \pm 1.204$ ).

Table 9: Comparison of Pre-Cardiac Physical Assessment Score and Post-Cardiac Physical Assessment Score

Physical Assessment of Cardiovascular	Before Intervention	After Intervention	Mean Difference	t	p
	mean±sd	mean±sd	mean±sd		
Knowledge	5.53±1.993	15.92±1.204	-10.389±2.101	-29.663	.000

**DISCUSSION**

Before educational interventions Critical Care Nurses have minimum level of knowledge regarding physical assessment of cardiovascular system. Finding measured before intervention nurses response inadequate knowledge n=33 (91.7%) and adequate knowledge measured n=3 (8.3%) that was <50% response of study participants. While after intervention adequate knowledge measured n=36 (100%) that was >50 % response of participants knowledge regarding physical assessment of cardiovascular system. Present study shows highly significant results after intervention. Before intervention Critical Care Nurses have minimum level of knowledge regarding physical assessment of cardiovascular system. Same as previous study was conducted by Italian nurses. Cicolini G. et al. reveals that 60% of cardiovascular assessment including auscultation were not performed in their clinical setting due to inadequate knowledge (Birks, Cant, James, Chung, & Davis, 2013).

**CONCLUSION**

The level of expertise in physical assessment of cardiovascular system and their implementation in clinical settings among nurses was not satisfactory, concerning that the examination of cardiovascular system has important role in the patients' assessment, and this issue needs special training measures and encourage to implement independently.

**Limitation:** Study was conducted only in critical care units. The study had short sample size.

**Recommendation:** Douglas et al., stated that lack of self-confidence, time constraints, lack of encouragement from others, and lack of nursing position simulations have all been described as factors affecting to implementation of physical assessment examination techniques. Same as in this study lack of nurses knowledge about physical assessment technique regarding cardiovascular system. Because poor practices due to workload and did not made effort to do practices independently in clinical setting. These factors can be minimize by giving opportunity to the nurse doing physical assessment independently in clinical setting, minimize their workload and other extra responsibility during duty only focus on client care and encourage them to do their practices independently and giving authority to implement their knowledge and skill during clinical practices. Nurses with specialties and with master degree they have knowledge regarding physical assessment but they never implement their knowledge due to above discus factors. Nurses with Specialty must be allow them greater flexibility to doing practices in clinical setting independently.

Need special training measures among nurses regarding physical assessment and encourage to implement independently.

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