

## A CROSS SECTIONAL SURVEY TO ASSESS THE LEVEL OF SKILL ON NEUROLOGICAL EXAMINATION AMONG NURSING STUDENTS

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### ABSTRACT

#### Background

The Neurological Examination is a systemic process that includes a variety of clinical tests, observations, and assessments designed to evaluate a complex system. It divided into five components that is cerebral function, cranial nerves, motor system, sensory system, and reflexes to determine whether the nervous system is impaired.

#### Objective

Assessing the level of skill on neurological examination among nursing students and to associate the demographic and clinical variables with the level of skill.

#### Methodology

This study was a cross sectional descriptive study design conducted among nursing students studying in selected in nursing institute, Tamilnadu. The samples for the present study consisted of nursing students who are studying BSc III year, BSc IV year, year who fulfils the inclusion criteria. A total of 60 samples were selected by using simple random technique with help of computer generated Haahr's random number table. The data was collected was using observational check list on neurological examination.

#### Results

The majority of nursing students 56 % of nursing students had very poor skill 34 % poor skill, 10 % had average skill on neurological examination. There was significant association between pre-test level of skill and demographic variables such as year of study ( $\chi^2 = 11.492$ ,  $p=0.000$ ), source of information ( $\chi^2 = 7.492$ ,  $p=0.002$ ).

#### Conclusion

Thus, on the basis of findings the authors conclude to teach neurological examination virtual reality, augmented reality and E-OSCE can be incorporated that can help the nursing students to gain more competent enough to detect or diagnose early neurological changes.

**Keywords:** Skill, Neurological Examination, Nursing Students, Chi-Square.

## INTRODUCTION

Generally, a neurological examination is focused towards finding out if there are lesions in the central and peripheral nervous system or whether there is another diffuse process which is troubling the patient. Finally, it is the role of the physician to find the etiological reasons for why such a problem has occurred, for example finding if the problem was due to inflammation or congenital (Mattar et al., 2013).

In hospital setting, many patients are admitted with different neurological disorder. The nurses should know how to assess the patient and how to find out neurological abnormalities. The use of continuous assessment methods as a means of evaluating a student's progress has been an integral part of basic nursing courses for some years now. In practice, this has often meant assessment of theoretical work in the form of essays, projects, and objective tests spread throughout the course. In the clinical areas, the assessment was usually based on specific skills tests, ward/unit reports and perhaps the one of the assessments in total patient care, managerial and teaching skills (Adams Jr, et al, 2007)

The nurse should perform the neurological examination to determine whether central nervous system dysfunction is present or not, to identify the functional deficit and how they impact on the individual ability to function in the activities of daily livings and other aspects of life, and to determine the human responses to actual or potential health problem precipitate by the dysfunction. The data collected creates a database for planning care that is patient centered. Advanced practice nurse may overlap with the physicians in the purpose of examination based on legal authority to practice in advanced practice role (Stanik-Hutt, Julie, et al., 2013)

Nurses are not competent enough in neurological examination; either they have insufficient skill on neurological examination because of various reasons. A nurse is usually the first person a patient interacts with, and they are responsible for the nursing assessment and preparation of appropriate nursing interventions. Therefore, nurses and nursing students must be skilled in assessing neurological changes and be prepared with the clinical skills necessary to provide quality patient care.

## OBJECTIVES

1. To assess the level of skill on neurological examination among nursing students
2. Find the association between demographic variables and level of skill on neurological examination among nursing students.

## HYPOTHESIS

1. There will be a significant association between level of skill and selected demographic among nursing students.

## METHODOLOGY

This study was a cross sectional descriptive study design conducted among nursing students studying in selected in nursing institute, Tamilnadu. The samples for the present study consisted of nursing students who are studying BSc III year, BSc IV year, year who fulfils the inclusion criteria. A total of 60 samples were selected by using simple random technique with help of computer generated Haahr's random number table. The data was collected was using observational check list on neurological examination.

### Description of the Tool

#### Section A: Demographic Variables

This was developed by the authors in accordance with the needs of the present study. This tool was self-administered, and it elicited information of the nursing students on general information such as age, gender, religion, year of study, place of living, previous clinical experience on neurological examination, source of information.

#### Section B: Observational check list on neurological examination

The developed on observational check list on neurological examination consisted of 4 broader areas like General protocol, mini mental status examination, cranial nerve assessment and deep tendon reflex assessment. There was total of 100 of items. A score of 1 is given for the correct performance, a score of 0 for incorrect performance.

#### Scoring for skill questionnaire:

**Table 1. The score was interpreted as follows for the level of skill**

Level of Skill	Score	Percentage
Very Poor	0-20	0-20
Poor	21-40	21- 40
Average	41-60	41 – 60
Good	61-80	61- 80
Excellent	81-100	81-100

### Content Validity and Reliability of the tool

The experts were asked to review the skill scale and rate the items in terms of relevance, clarity, simplicity, and ambiguity in the content evaluation form. After obtaining feedback from all experts, the tool was gathered and analysed, and necessary modifications tool were done before collecting the data. The reliability showed the tool was reliable with r value of 0.94. Reliability was calculated using Cohen Kappa reliability formula.

### RESULTS

Descriptive statistics and inferential statistics have computed the results by using SPSS software, version 24. The analyses of the data from the study are presented under the following headings:

**Section A: Distribution of nursing students based on demographic variables.**

**Section B: Description of level of skill on neurological examination among nursing students**

**Section C: Association of level of on skill neurological examination among nursing students with selected demographic variables.**

**Section A: Distribution of nursing students based on demographic variables.**

**Table 2: sample Characteristics**

**n =60**

Demographic Variables		f	%
Age in years	20	23	38.3
	21	21	35.0
	Above 21 years	16	26.7
Gender	Male	21	35.0
	Female	39	65.0
Religion	Hindu	45	75.0
	Christian	8	13.3
	Muslim	7	11.7
Year of Study	3 <sup>rd</sup> year	30	50.0
	4 <sup>th</sup> Year	30	50.0
Place of living	Home	25	41.7
	Hostel	35	58.3
Previous Clinical Experience on neurological examination	Yes	60	100
	No	0	0.0
Source of information	Classroom Teaching	28	46.7
	Clinical Training	20	33.3
	Internet	12	20.0

Table 2 depicts that the highest percentage of nursing students 38 % were belongs to age of 20 years. Highest percentages of nursing students 65 % were female. The highest percentage of nursing students 75 % were belongs to Hindu religion. Majority of the nursing students 50 % were studying 3<sup>rd</sup> and 4<sup>th</sup> year. Highest percentage of nursing students 58.3 % were living in hostel. All the nursing students 100 % had previous clinical experience on neurological examination experimental. Highest percentage of nursing students 46.7 % had source of information from classroom teaching.

## Section B: Description of level of skill on neurological examination among nursing students



Table 3: Description of Mean, SD and Mean percentage of skill score among nursing students. n=60

Skill	Max Score	Mean	SD	Mean %
Cranial Nerve Examination	68	11.56	3.49	17.0
Deep Tendon Reflex	32	7.41	2.51	23.15
<b>Overall</b>	<b>100</b>	<b>18.24</b>	<b>4.59</b>	<b>18.18</b>

Table 3 portrays that out of the maximum attainable score (100) the overall mean  $\pm$  SD among nursing students was  $18.24 \pm 4.59$  which was 18.18% of total score.

## Section C: Association of level of on skill neurological examination among nursing students with selected demographic variables.

Table 4: Association between level of skill and demographic variables among nursing students. n=60

Demographic Variables		Total	Above Mean (n=24)	Below Mean (n=36)	Chi-square test
Age in years	20	23	6	17	$\chi^2= 2.030$ P=0.713 Df= 2 Not Significant
	21	21	5	16	
	Above 21 years	16	4	12	
Gender	Male	21	5	16	$\chi^2= 0.689$ P=0.683 Df= 1 Not Significant
	Female	39	10	29	
Religion	Hindu	45	11	34	$\chi^2= 0.781$ P=0.903 Df= 2 Not Significant
	Christian	8	2	6	
	Muslim	7	2	5	
Year of Study	3 <sup>rd</sup> year	30	6	24	$\chi^2= 11.492$ P=0.000 Df= 1 Not Significant
	4 <sup>th</sup> Year	30	9	21	
Place of living	Home	25	6	19	$\chi^2= 0.392$ P=0.836 Df= 1 Not Significant
	Hostel	35	9	26	
Source of information	Classroom Teaching	28	7	21	$\chi^2= 7.492$ P=0.002 Df= 2 Significant
	Clinical Training	20	5	15	
	Internet	12	3	9	

The data presented in table 4 portrays that the association between pre-test level of skill among nursing students and the demographic variables. Pearson Chi-square test was used to calculate the association. There was significant association between pre-test level of skill and demographic variables such as year of study ( $\chi^2$

=11.492,  $p=0.000$ ), source of information ( $\chi^2 = 7.492$ ,  $p=0.002$ ). Hence null hypothesis ( $H_{01}$ ) was rejected for year of study, source of information and null hypothesis is accepted for other characteristics.

#### DISCUSSION

Findings of Moghadam et al. (2016) were parallel to the present study which showed that the (50%) nursing students had poor skills on neurological examination. The findings of present study are also consistent with Prabhu (2013), who demonstrated majority of the nursing had average skills on neurological examination. Similar findings were observed by Shin et al. (2017) that the mean score of skill on neurological examination was very less. The present study findings were supported by Amila et al. (2018) who demonstrated poor on skill on neurological examination nursing students.

#### CONCLUSION

The present study was conducted to assess the skill on neurological examination among nursing students. The study reveals that majority of the nursing students had very poor skill neurological examination. Thus, on the basis of findings the authors concludes to teach neurological examination virtual reality, augmented reality and E-OSCE can be incorporated that can help the nursing students to gain more competent enough to detect or diagnose early neurological changes.

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