

The Study to Assess the Effectiveness of the Structured Teaching Program on the Knowledge Regarding the Neurological Examination of Staff Nurses to the Selected Hospital Meerut Uttar Pradesh

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ABSTRACT

Background: Neurological disorders affect approximately one billion people globally, according to the World Health Organization (WHO), with increasing prevalence due to aging populations. Accurate neurological examination is essential for early detection and management of neurological conditions. Unlike general physical examination, it specifically evaluates the functioning of the nervous system and provides critical insights into brain and spinal cord integrity. This study aimed to evaluate the effectiveness of a structured teaching program (STP) in enhancing the knowledge of staff nurses regarding neurological assessment.

Methods: A quasi-experimental, non-equivalent control group design was employed. Sixty staff nurses from selected hospitals in Meerut, Uttar Pradesh, were divided into experimental (n=45) and control (n=40) groups using purposive sampling. A self-structured knowledge questionnaire was developed and validated (Cronbach's alpha = 0.72, KR-23 = 0.96) to collect data. Pre-test was conducted for both groups, followed by administration of the STP to the experimental group. Post-test was conducted after 15 days.

Results: The experimental group showed a significant improvement in mean knowledge scores from pre-test (17.6 ± 3.87) to post-test (24.48 ± 2.75), with a *t*-value of 6.57 ($p < 0.001$). The control group showed minimal change. The modified gain percentage in the experimental group was 43.38% across domains such as concepts, cleaning solutions, hand hygiene, and aseptic techniques. No significant association was found between knowledge scores and socio-demographic variables.

Conclusion: The structured teaching program significantly improved the knowledge of staff nurses regarding neurological examination, indicating its effectiveness as an educational intervention in clinical settings.

Keywords: Neurological Examination, Structured Teaching Programme, Staff Nurses, Knowledge.

INTRODUCTION

The nervous system is a complex network responsible for regulating and coordinating bodily functions. A thorough neurological examination is a systematic evaluation of sensory and motor functions, mental status, cranial nerves, and reflexes, allowing healthcare providers to detect abnormalities and localize lesions within the nervous system.

With the rising burden of neurological conditions such as stroke, epilepsy, traumatic brain injury, and dementia, the ability to perform accurate neurological assessments is crucial for nurses, especially in critical care units. Nurses are often the first to observe changes in a patient's neurological status, making their role pivotal in early intervention and improved outcomes.

Despite its importance, many nurses lack adequate training in neurological assessment. The Glasgow Coma Scale (GCS), introduced by Teasdale and Jennett in 1974, remains the most widely used tool for assessing consciousness in clinical practice, particularly in intensive care and emergency settings. However, comprehensive neurological examination goes beyond GCS and includes evaluation of motor strength, sensory perception, coordination, and cranial nerve function.

This study focuses on enhancing nurses' knowledge through a structured teaching program, aiming to bridge the gap between theoretical knowledge and clinical application in neurological assessment.

METHODOLOGY

Study Design: A quasi-experimental pre-test/post-test design with a control group was adopted.

Setting: The study was conducted in selected hospitals in Meerut, Uttar Pradesh, including LLRM Hospital and LTR Hospital.

Sample and sampling technique

A total of 60 staff nurses were selected via purposive sampling. The experimental group (n=45) received the intervention, while the control group (n=40) did not.

Inclusion Criteria:

- Staff nurses willing to participate
- Available during both pre- and post-tests
- Able to read and understand English or Hindi

Exclusion Criteria:

- Absent during intervention or post-test
- Lack of basic language comprehension

Intervention:

A Structured Teaching Program (STP) on neurological examination was delivered in a single session to the experimental group. The session included lectures, demonstrations, and interactive discussions.

Data Collection tool

A two-part questionnaire was developed:

1. Part 1: Socio-demographic details (age, gender, work experience, department, prior knowledge)
2. Part 2: 30-item structured knowledge questionnaire on neurological examination

Validity and Reliability:

- Content validity confirmed by expert review
- Reliability tested using Kuder-Richardson Formula 23 (KR-23 = 0.96) and test-retest method ($r = 0.72$, $p < 0.01$)

Data Analysis: Descriptive statistics (frequencies, percentages, mean, SD) and inferential statistics

(paired *t*-test, independent *t*-test) were used. Data were analyzed using SPSS software.

RESULTS

A total of 60 staff nurse participated in the study. In the experimental group, the Majority (60%) of Staff Nurses were female. Remaining 40% Nursing Personnel were male. Maximum (33.3% & 33.3%) of Staff Nurses had working in ICU and Trauma. Followed by 20% of Staff Nurses had working in CCU and remaining 13.4% of Staff Nurses had working in emergency. Majority (60%) of Staff Nurses had working experience 1-2 years. Followed by 26.7% of Staff Nurses had working experience 3-4 years and remaining 13.3% of Staff Nurses had working experience 5 and above. Majority (53.3%) of Staff Nurses not having previous knowledge regarding neurological examination and remaining 46.7% of Staff Nurses having previous knowledge regarding neurological examination.

Study finding related to the frequency or the percentage distribution to the sociodemographic characteristics of the Nursing regarding Neurological Examination

Table No. 4.1: The Frequency or the percentage of distribution to the socio-demographic characteristics of Nursing regarding Neurological Examination.

Group	Mean SD	MD	SeMD	"t" value	Df	"p" value
Experimental Group n=45	17.6+- 3.87	2.025	0.68	2.94	78	0.043*
Comparison Group n=40	15.57+- 1.98					
Experimental Group n=45	24.48 ± 2.75	1.63	0.665	2.45	78	0.017*
Comparison Group n=40	22.85 ± 3.18					
*Significant(p<0.05)			^{NS} Not Significant(0>0.05)			
t(83)=1.9989						

To assess the effectiveness of Structured Teaching Programme on knowledge regarding The Neurological Examination among Nursing personnel experimental group and control group

Part-A: To assess the effectiveness of Structured Teaching Programme on knowledge regarding Neurological Examination among Staff Nurses in experimental group

Group	Mean SD	MD	SeMD	"t" value	Df	"p" value
Experimental Group(n=40)	17.6±3.87	5.2	0.792	6.57	78	5.21E-09
Pre-Test						
Post-test	22.85 ±3.18					
Significant (p<0.05)			^{NS} Not significant(p>0.05)			

$$T(39) = \pm 2.0227$$

The pre-test & post-test knowledge mean percentage obtained was 0.6% respectively with an enhancement of 0.2%. The t- value obtained was 4.78 with degrees of freedom 29 and it was found to be significant ($p=.00$) Hence, it is inferred that research hypothesis was (H1) accepted at the $p \leq 0.05$ level of significance

Group	Area	Max Score	Pre-Test Mean	Post-test Mean	Actual Gain	Possible Gain	Modified Gain %
Exp (n=45)	Concept	8	4.64	6.1	1.45	3.36	43.38%
	Cleaning solution	6	3.58	4.6	1.02	2.42	42.20%
	Hand hygiene	6	3.38	4.475	1.097	2.622	41.84%
	Diff aseptic dressing	10	6.6	8.375	1.77	3.4	52.21%
Comp (n=40)	Concept	7	4	4.44	0.4	3	13.33
	Cleaning solution	12	6	7.42	1.42	6	23.66
	Hand hygiene	3	1.88	1.28	0.6	1.88	31.91
	Diff aseptic dressing	8	3.97	4.14	0.17	4.03	4.21
Maximum score: 30				Minimum score=0			

Maximum 24 Staff Nurses had inadequate level of knowledge regarding Neurological Examination and 6 Staff Nurses had adequate level of knowledge regarding Neurological Examination in pre-test.

Pre-test practice score (Experimental Group)	Post-test practice score (Experimental Group)	Pre-test practice score (Control Group)	Post-test practice score (Control Group)	
Inadequate Knowledge (0-15)	24	4	25	5
Adequate knowledge (16-30)	6	26	17	13
244256 5261713	5 010152025No. of Staff Nurses			

The Combined distribution or comparison of the overall pre or post-test knowledge score regarding Neurological Examination among Staff Nurses in experimental & control group.

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Maximum 26 Staff Nurses had adequate level of knowledge regarding Neurological Examination and 4 Staff Nurses had inadequate level of knowledge regarding Neurological Examination in post-test. Maximum 25 Staff Nurses had inadequate level of knowledge regarding Neurological Examination and 5 Staff Nurses had adequate level of knowledge regarding Neurological Examination in pre-test. Maximum 17 Staff Nurses had inadequate level of knowledge regarding Neurological Examination and 13 Staff Nurses had adequate level of knowledge regarding Neurological Examination in post-test.

To find out the association between post-test levels of knowledge regarding Neurological Examination among Staff Nurses in experimental group with their selected Socio-demographic variables

Table No. 4.4: Association the between post-test levels of knowledge regarding Neurological Examination among Staff Nurses in experimental group with their selected Socio-demographic variables

Area	Mean ±SD	Comparison Group	M _D	SEM _D	t value	df	“P” value
Experimental Group							
Concept	6.1±0.955	6.35±0.975	-0.25	0.22	1.16	78	0.25
Cleaning solution	4.6±0.98	4.825±0.984	-0.23	0.22	1.03	78	0.31
Hand hygiene	4.47±1.22	4.9±1.316	-0.43	0.28	1.51	78	0.14
Different aseptic dressing	7.625±1.42	8.25±1.44	-0.63	0.31	1.96	78	0.05
*significant (p<0.05)			^{NS} Not Significant(p.0.05)				
T(78)= ±1.990							

DISCUSSION

The current study among staff nurse from selected in Meerut, found that the Maximum (56.7%) of Nursing personnel of the age group to 24 or it’s above. Followed by 40% of Nursing personnel of the age group of 21-23 years and remaining 3.3% of the age group in the age group of less than greater than 20 years. Majority (60%) of Staff Nurses were female. Remaining 40% Nursing Personnel were male. Maximum (33.3% & 33.3%) of Staff Nurses had working in ICU and Trauma. Followed by 20% of Staff Nurses had working in CCU and remaining 13.4% of Staff Nurses had working in emergency. Majority (60%) of Staff Nurses had working experience 1-2 years. Followed by 26.7% of Staff Nurses had working experience 3-4 years and remaining 13.3% of Staff Nurses had working experience 5 and above. Majority (53.3%) of Staff Nurses not having previous knowledge regarding neurological examination and remaining 46.7% of Staff Nurses having previous knowledge regarding neurological examination. Maximum (60%) of Nursing Personnel got information from health personnel, followed by 30% of Staff Nurses got information through friends and remaining 10% of Staff Nurses got information from mass media.

CONCLUSION:

Present study was concluded that the levels of knowledge regarding Neurological Examination among Staff Nurses. The finding of the study proved to the progressive of the Structured Teaching Programme on the knowledge regarding the Neurological Examination among Nursing personnel was effective to increase the level of the knowledge, regarding Neurological Examination among Staff Nurses. The study revealed that irrespective of variations in socio-demographic variables, all Nursing personnel in the experimental group or control group showed increase the level of knowledge, regarding Neurological Examination among Staff Nurses.

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