

### ASSESS THE EFFECTIVENESS OF DIGITAL VIDEO ASSISTED TEACHING ON KNOWLEDGE REGARDING CRANIAL NERVE ASSESSMENT AMONG B.SC NURSING 3<sup>rd</sup> YEAR STUDENTS

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#### ABSTRACT:

*Cranial nerves are the nerves of the brain, which emerge from or enter the skull (the cranium), as opposed to the spinal nerves, which emerge from the vertebral column. Cranial nerve assessment is a key component in the physical assessment of the patients with neurological deficit. It helps the nurse to appreciate the normal cranial nerve functions and detect the presence of any abnormalities.*

*During the clinical posting, the investigator observed B.SC Nursing 3rd year students*

- 1. The B.Sc Nursing 3rd students possess deficit knowledge and clinical nursing skills in assessment of cranial nerve.*
- 2. There is no written guideline available regarding cranial nerve assessment in the nursing institutions and hospitals.*
- 3. In clinical posting nursing students are getting less chance to assess the cranial nerve on patient because they have less knowledge about the different instruments used in procedure and the right way of assessing the cranial nerves.*

**Key Words:** Digital video, B.Sc Nursing student, cranial nerve, cancer patients.

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## INTRODUCTION

*“Activity of the nervous system improves the capacity for activity, just as exercising a muscle makes it stronger.”*

**-Dr. Ralph Gerard**

The nervous system is a complex network of nerves and cells that carry messages from the brain and spinal cord to various parts of the body. It includes both the Central nervous system and Peripheral nervous system. The central nervous system (CNS) consists of the brain and the spinal cord. The CNS receives sensory information from other parts of the body and transmits motor information to other parts of the body by way of the peripheral nervous system (PNS). The PNS of the human includes 31 pairs of spinal nerves and 12 pairs of cranial nerves. Some nerves contain only motor nerve fibres (efferent fibres); some nerves contain only sensory nerve fibres (afferent fibres); and some nerves contain both sensory and motor nerve fibres (mixed). All spinal nerves are mixed.<sup>1</sup>

**According to Medterms Medical Dictionary** - Cranial nerves are the nerves of the brain, which emerge from or enter the skull (the cranium), as opposed to the spinal nerves, which emerge from the vertebral column.<sup>2</sup>

The 12 pairs of cranial nerves include- Cranial nerves I (olfactory), II (optic), and VIII (vestibulocochlear) are entirely sensory. Cranial nerves III (oculomotor), IV (trochlear), VI (abducens), XI (accessory), and XII (hypoglossal) are classified as motor, although they do contain proprioceptive afferent fibres. Cranial nerves V (trigeminal), VII (facial), IX (glossopharyngeal), and X (vagus) are mixed. All cranial nerves except the olfactory nerves are connected to the brain stem (medulla, pons, mesencephalon), and all are distributed in the head and neck except the vagus, which also supply structures in the thorax and abdomen.<sup>1</sup>

## 12 CRANIAL NERVES

The twelve pairs of cranial nerves control the five senses, allow us to interact with the environment, and are necessary for our everyday activities. The cranial nerves may be affected by a wide range of conditions including trauma, infection, cerebrovascular ischemia, space-occupying lesions (such as tumours and aneurysms), and intracranial inflammation.<sup>3</sup> Disorders of cranial nerves include the following: Anosmia, ptosis convergent strabismus, Trigeminal neuralgia and bulbar palsy.

The brain and spinal cord cannot be examined as directly as other systems of the body. Thus, much of the Neurologic examination is an indirect evaluation that assesses the function of the specific body part or parts controlled or innervated by the nervous system.<sup>4</sup>

The human nervous system is a highly specialised system responsible for the control and integration of the body activities. The ability to conduct cranial nerve assessment depends on the nurse's knowledge of cranial nerves and skill in recognising and interpreting subtle deviations from normal.<sup>8</sup>

The purpose of cranial nerve assessment for the advanced practice nurse functioning in an expanded role is:

- To identify the presence of cranial nerve dysfunction.
- To determine the effects of cranial nerve dysfunction on activities of daily living and independent function.
- To detect life threatening situations.
- To provide database upon which nursing diagnosis will be based<sup>7</sup>

Nursing management of the neurological patient is based upon highly developed nursing assessment and clinical reasoning skills. The nurse must know what parameters to assess, proper technique for assessment and appropriate method of documentation and how to interpret the data to decide what action, if should be taken. To detect subtle and obvious changes in the cranial nerve examination and to incorporate such information into the context of the patient profile.<sup>7</sup>

## STATEMENT OF THE PRBLEM

*A study to assess the effectiveness of digital video assisted teaching on knowledge regarding cranial nerve assessments among the B.Sc nursing 3rd year students in selected nursing institutions of Patiala in Punjab*

## OBJECTIVES

1. To assess the level of knowledge regarding cranial nerve assessments before and after digital video assisted teaching among B.Sc Nursing 3rd year students.
2. To assess the effectiveness of digital video assisted teaching regarding cranial nerve assessments among B.Sc Nursing 3rd year students.
3. To associate the pre-test knowledge regarding cranial nerve assessment among B.Sc Nursing 3rd year students with their selected socio- demographic variables in nursing institutions of Patiala in Punjab.

#### RESEARCH HYPOTHESIS

- H<sub>1</sub>:** The mean post-test knowledge scores of B.Sc nursing 3rd year students who will be administered the digital video assisted teaching regarding cranial nerve assessment will be significantly higher than their mean pre-test knowledge score.
- H<sub>2</sub>:** There will be significant difference between mean post-test knowledge scores of B.Sc nursing 3rd year students regarding cranial nerve assessment among control and experimental group.
- H<sub>01</sub>:** There will be no significant difference between mean pre-test knowledge scores of B.Sc nursing 3rd year students regarding cranial nerve assessment among control and experimental group.
- H<sub>02</sub>:** There will be no significant association between the B.Sc nursing 3rd year students' mean pre-test knowledge scores regarding cranial nerve assessment with their selected socio demographic variable of both control and experimental groups.

#### MATERIAL AND MEHTODS

It indicates the general pattern of organising data for investigation.

##### Research approach

A Quasi-Experimental research approach was employed for the study to test the effectiveness of digital video assisted teaching for B.Sc nursing 3rd year students regarding cranial nerve assessment.

##### Research design:

The research design used in this study was pre-test post-test control group design. In two group pre-test post-test design, the investigator introduced base measure to experimental group (E) before and after digital video assisted teaching which is depicted as O<sub>1</sub> and O<sub>2</sub> and base measure is also introduced to control group (C) without exposure to digital video assisted teaching as O<sub>1</sub> and O<sub>2</sub> respectively. In this study the base measure was structured knowledge questionnaire used to assess the effectiveness of digital video assisted teaching on knowledge regarding cranial nerve assessment among B.Sc nursing 3rd year students. The administration of digital video assisted teaching (Intervention) is depicted as X.

**Table 1: Schematic representation of Research design of the study**

GROUP	PRE-TEST	INTERVENTION (X)	POST-TEST
Experimental group (E)	Pre-test (O <sub>1</sub> )	Administration of digital video assisted teaching (X)	Post-test (O <sub>2</sub> )
Control group (C)	Pre-test (O <sub>2</sub> )	No Intervention	Post-test (O <sub>2</sub> )

##### Research Setting

Firstly, Data was collected from Adarsh College of Nursing, V.P.O Chounth Kheri, Patiala, Punjab and it was experimental group. Where total strength of B.Sc nursing 3rd year students was 60 and control group study was conducted in Swift institute of Nursing, V.P.O Ghaggar Sarai, Teh. Rajpura district, Patiala in Punjab. Where total strength of B.Sc nursing 3rd year students was 60. The population of the selected B.Sc nursing 3rd year students is 40 each from both institutions. The selection of area was done on the basis of:

- Feasibility of conducting the study.
- Availability of sample.

**Target population:**

The population for present study includes B.Sc nursing 3rd year students in selected nursing institutions of Patiala in Punjab during the study period.

**Sample size:**

The sample size for the study was 80 B.Sc nursing 3rd year students out of which 40 in experimental group and 40 in control group and who were available at the time of data collection and also who fulfilled the inclusion criteria.

**Sampling technique:**

Purposive sampling method used to select the B.Sc nursing 3rd year students in selected nursing institutions of Patiala, Punjab.

**Sampling criteria:**

Sampling criteria is the list of characteristics essential for inclusion in the target population.

**RESULT**

This chapter deals with the analysis and interpretation of data collected from total 80 B.Sc nursing 3rd year students, 40 in each experimental and control group respectively to determine the effectiveness of digital video assisted teaching on knowledge regarding cranial nerve assessment. The collected data was tabulated, organised, analysed and interpreted by using descriptive and inferential statistics based upon the objectives of the study and the hypothesis to be tested. All the data was also summarised in the master data sheet.

The data collected is organised and presented under the following headings:

**Section - I: Socio demographic profile of study subjects**

- Frequency and Percentage distribution of B.Sc nursing 3rd year students with their selected socio demographic variables among experimental group and control group.

**Section - II:** To evaluate the effectiveness of digital video assisted teaching regarding cranial nerve assessment.

**Section - III:** To associate the knowledge regarding cranial nerve assessment with selected demographic variables

**SECTION I****Socio demographic profile of study subjects**

**Table-3:** Frequency and Percentage distribution of B.Sc nursing 3rd year students with their selected socio demographic variables among experimental group and control group

**N=80**

SOCIODEMOGRAPHIC VARIABLES	Experimental group (N=40)		Control group(N=40)	
	(f)	(%)	(f)	(%)
<b>Age</b>				
18-20 yrs	16	40.0	5.0	40.0
21-23 yrs	14	35.0	7.5	42.5
24-26 yrs	10	25.0	87.5	17.5
<b>Gender</b>				
Male	0	0	6.0	15.0
Female	40	100.0	34.0	85.0
<b>Religion</b>				
Hindu	14	35.0	15.0	37.5
Sikh	20	50.0	17.0	42.5
Muslim	0	0	2.0	5.0
Christian	6	15.0	6.0	15.5
<b>Educational Programme</b>				
Yes	0	0	10.0	25.0

No	40	100.0	30.0	75.0
<b>Previous Knowledge</b>				
Yes	37	92.5	38.0	95.0
No	3	7.5	2.0	5.0
<b>Previous source of information</b>				
Newspaper/ Magazine	2	5.0	2.0	5.0
Mass Media	3	7.5	3.0	7.5
Curriculum	35	87.5	35.0	87.5

**Table-10:** Distribution of subjects according to level of knowledge.**N = 80**

Assessment of knowledge (Range)	Number of subjects (%)		Number of subjects (%)	
	Experimental group (n=40)		Control group(n=40)	
	Pre-test	Post-test	Pre-test	Post-test
Poor (0-10)	8(20%)	0(0%)	10(25%)	10(25%)
Average (11-20)	32(80%)	5(12.5%)	30(75%)	30(75%)
Good (21-30)	0(0%)	35(87.5%)	0(0%)	0(0%)

**SECTION II****Assess the effectiveness of digital video assisted teaching regarding cranial nerve assessment**

**OBJECTIVE 1:** To assess the effectiveness of digital video assisted teaching regarding cranial nerve assessment among B.Sc nursing 3rd year students.

**Table-11:** Comparison of pre-test and post-test knowledge scores of B.Sc nursing 3rd year students in experimental group  
**N=80**

Score	Mean	SD	Paired t-value	df	P
EXPERIMENTAL GROUP					
(Pre-test)	13.10	2.37	16.5*	39	< 0.001
(Post-test)	23.38	2.64			

NS=Not significant

\*Significant (HS) at 0.001 percent level

**Table-11** indicate the comparison between mean pre-test knowledge score (13.21) and mean post-test knowledge score (23.38) of B.Sc nursing 3rd year students assigned to experimental group with DVAT showed statistical significance ( $p < 0.001$ ). Hence hypothesis  $H_1$  is accepted i.e. there is significant difference between mean pre-test and post test knowledge scores.

**Table-12:** Comparison of pre-test and post-test knowledge scores of B.Sc nursing 3rd year students in control group.

Score	Mean	SD	Paired t-value	df	P
CONTROL GROUP					
(Pre-test)	13.38	3.06	2,82*	39	< 0.001
(Post-test)	13.50	3.02			

NS=Not significant level

\*significant (S) at 0.01 percent

**Comparison of pre-test post-test mean knowledge scores of study subjects in control group**

**Table-13** Comparison of mean pre-test knowledge score of B.Sc Nursing 3rd year students in experimental and control group regarding cranial nerve assessment. N=80

Group	Mean	SD	Unpaired t-value	df	P
Experimental group (n=40)	13.10	2.37	0.40 <sup>NS</sup>	78	p> 0.05
Control group (n=40)	13.38	3.06			

NS=Not significant

\*significant (S)

**Table-14** Comparison of mean post-test knowledge scores of B.Sc Nursing 3rd year students among experimental and control group respectively regarding cranial nerve assessment N=80

Group	Mean	SD	Unpaired t-value	df	P
Experimental group (n=40)	23.38	2.64	15.02***	78	P< 0.01
Control group (n=40)	13.90	3.02			

NS=Not significant

\*Highly significant (HS) at 0.01 percent level

**SECTION III****Association between pre-test knowledge score of B.Sc Nursing 3rd year students regarding cranial nerve assessment with selected socio-demographic variables****Table-15:** Association of pre-test knowledge score of B.Sc nursing 3<sup>rd</sup> year students in experimental group with their selected socio-demographic variables N=40

Sl. No.	CHARACTERISTICS	Pre-test scores		Chi square	df	P value
		Below median	Above median			
1.	AGE			1.94 <sup>NS</sup>	2	5.99 p>0.05
	18-20 yrs	12	4			
	21-23 yrs	8	6			
	24-26 yrs	5	5			
2.	<b>GENDER</b>			0 <sup>NS</sup>	1	3.84 p>0.05
	Male	0	0			
	Female	25	15			
3.	RELIGION			0.93 <sup>NS</sup>	3	7.81 p>0.05
	Hindu	10	4			
	Sikh	12	8			
	Muslim	0	0			
	Christian	3	3			
4.	<b>EDUCATIONAL PROGRAMME</b>			0 <sup>NS</sup>	1	3.84 p>0.05
	Yes	0	0			
	No	25	15			
5.	<b>PREVIOUS KNOWLEDGE</b>			1.17 <sup>NS</sup>	1	3.84 p>0.05
	Yes	24	13			
	No	1	2			
6.	<b>PREVIOUS SOURCE OF INFORMATION</b>					

	Newspaper/Magazine	1	1	1.37 <sup>NS</sup>	2	5.99 p>0.05
	Mass media	1	2			
	Curriculum	23	12			

NS=Not significant

\*Significant (S) at 5 percent level

The data in Table 15 depicted that the computed chi square values for age( $\chi^2=1.94$ ,  $p>0.05$ ), gender( $\chi^2=0$ ,  $p>0.05$ ), religion( $\chi^2=0.93$ ,  $p>0.05$ ), educational programme ( $\chi^2=0$ ,  $p>0.05$ ) and previous knowledge( $\chi^2=1.17$ ,  $p>0.05$ ), previous source of information( $\chi^2=1.37$ ,  $p>0.05$ ) was lesser than the table value which indicates that there was no significant association between knowledge scores and socio-demographic variables. Hence  $H_{02}$  is accepted.

**Table-16:** Association of pre-test and post-test knowledge scores of B.Sc nursing 3<sup>rd</sup> year students in control group with their selected socio-demographic variables N=40

Sl. No.	CHARACTERSTICS	Pre-test scores		Chi square	df	P value
		Below median	Above median			
1.	AGE			2.21 <sup>NS</sup>	2	5.99
	18-20 yrs	6	10			
	21-23 yrs	3	14			
	24-26 yrs	3	4			
2.	<b>GENDER</b>			4.50 <sup>S</sup>	1	3.84
	Male	48	2			
	Female	25	26			
3.	RELIGION			0.96 <sup>NS</sup>	3	7.81
	Hindu	5	10			
	Sikh	5	12			
	Muslim	1	1			
	Christian	1	5			
4.	<b>EDUCATIONAL PROGRAMME</b>			0.62 <sup>NS</sup>	1	3.84
	Yes	2	8			
	No	10	20			
5.	<b>PREVIOUS KNOWLEDGE</b>			0.40 <sup>NS</sup>	1	3.84
	Yes	11	27			
	No	1	1			
6.	<b>PREVIOUS SOURCE OF INFORMATION</b>			0.42 <sup>NS</sup>	2	5.99
	Newspaper/Magazine	1	1			
	Mass media	1	2			
	Curriculum	10	25			

## DISCUSSION

Present study was conducted to assess the effectiveness of Digital video assisted teaching on knowledge among B.Sc nursing 3rd year students regarding cranial nerve assessment in selected nursing institutions of Patiala, Punjab.

### 5.1 Major Findings

#### Sample characteristics

Out of 80 B.Sc nursing 3rd year students, 40 in experimental and 40 in control group

#### Description of knowledge scores

As was predicted after the DVAT was administered to the experimental group majority 35(87.5%) had good knowledge scores in the post-test in comparison with pre-test during which majority 32(80%) had average knowledge score. It reveals that the administration of DVAT had significantly improved their knowledge score levels. But in control group both pre-test and post-test knowledge scores remained the same where majority 30(75%) had average knowledge score respectively. The association between the pre-test and post-test knowledge scores of subjects and their selected socio-demographic variables was not found to be statistically significant ( $p>0.05$ ).

The difference between mean pre-test knowledge score (13.1) and mean post-test knowledge scores (23.38) of B.Sc nursing 3rd year students assigned to experimental group after attending the DVAT regarding cranial nerve assessment showed statistically high significance ( $p<0.001$ ) suggesting that DVAT was effective in increasing the knowledge scores among these B.Sc nursing 3rd year students. But on the other hand B.Sc. nursing 3rd year students in control group who have not attended the DVAT showed difference between pre-test and post-test knowledge scores as they were found to be statically significant ( $p<0.001$ ).

## CONCLUSION

It is concluded that DVAT for cranial nerve assessment was very effective that helped the B.Sc nursing 3rd year students studying at Adarsh College of Nursing, Patiala to improve their knowledge scores.

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