Section A-Research paper

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

Dr. N. Balasubramanian[1], Anoop[2] , Gurpreeti[3] , Dilpreet Kaur[4]

[1] Principal, Faculty of Nursing, Desh Bhagat University, Mandi Gobindgarh

[2]Associate Professor, Faculty of Nursing, Desh Bhagat University, Mandi Gobindgarh

[3] Lecturer, Faculty of Nursing, Desh Bhagat University, Mandi Gobindgarh

[4] Lecturer, Faculty of Nursing, Desh Bhagat University, Mandi Gobindgarh

Abstract

Background

The Neurological Examination is a clinical tests, to assess the sensory and motor response especially reflexes to evaluate the impairment of nervous system. It is divided into five components that is cerebral function, cranial nerves, motor system, sensory system and reflexes. It is a tool to recognize neurologic involvement in certain diseases. Nurses plays vital role in early detection of an abnormality and clinical manifestation to rule out the conditions. It reduces the prevalence of neurological disorders by reducing its duration.

Methodology

Non Experimental, descriptive research design with cross sectional survey approach was carried out to assess the skills of Neurological Examination of nursing students studying in III year BSc (N). Atotal of 60 samples were selected by using non probability, purposive sampling technique after administrative permission and informed consent from the students. Content validity was done from seven experts. Content Validity Ratio Value was 1 indicates the higher agreement of experts. The data was collected by using observational checklist reliability was computed, kappa formula was used and the r value was 0.72 shows that tool was reliable.

Results

The majority of nursing students (56%) of nursing students had very poor skill, 34% had poor skill and 10% had average skill on neurological examination .There was significant association between pre-test level of skill with selected demographic variables.

Conclusion

The findings show that nurses needs lots of training on neurological examination. Clinical instructions is required more to gain skills than spending lot of time in theory.

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

INTRODUCTION

The nervous system consists of the brain, the spinal cord, and the nerves from these areas. There are many aspects of this exam, including an assessment of motor and sensory skills, balance and coordination, mental status (the patient's level of awareness and interaction with the environment), reflexes, and functioning of the nerves. The extent of the exam depends on many

factors, including the initial problem that the patient is experiencing, the age of the patient, and the condition of the patient.

Detecting Nervous disorders require specific techniques and logical reasoning to interpret Signs and Symptoms of neurological examination is helpful.

Nervous System disorders are detected by a neurological examination. It may include epilepsy, Parkinson 'disease, Alzheimer's disease, dementia,multiple sclerosis,meningitis,encephalitis,stroke,Traumatic brain injury etc.

A **neurological examination** is the assessment of sensory neuron and motor responses, especially reflexes, to determine the nervous system is impairment. It includes a physical examination and a review of the patient's medical history,[1] but not deeper investigation such as neuroimaging. It can be used both as a screening tool and as an investigative tool, the former of which when examining the patient when there is no expected neurological deficit and the latter of which when examining a patient where you do expect to find abnormalities.[2] If a problem is found either in an investigative or screening process, then further tests can be carried out to focus on a particular aspect of the nervous system (such as lumbar punctures and blood tests).

A neurological exam may be done with instruments, such as lights and reflex hammers. It usually does not cause any pain to the patient. A complete neurological exam may be done:

- During a routine physical
- Following any type of trauma
- To follow the progression of a disease
- If the person has any of the following complaints:
    - Headaches
    - Blurry vision
    - Change in behavior
    - Fatigue
    - Change in balance or coordination
    - Numbness or tingling in the arms or legs
    - Decrease in movement of the arms or legs
    - Injury to the head, neck, or back
    - Fever
    - Seizures
    - Slurred speech
    - Weakness

…….takes 90 minutes or even longer to reform neurological examination. Experience health team members in neurology field takes less time. Nurses are the person who receives the patients in intensive care units and general ward. Nurses must have sound knowledge in physical assessment, including neurological examination. This main aim of study is to assess nursing students knowledge on neurological examination knowing about their knowledge helps to formulate or design theory and practical as well clinical training accordingly.

OBECTIVES

1.To determine the level of skills of nursing students on neurological examination.

2. To find the association between demographic variables and level of skills of nursing students on neurological examination.

METHODOLOGY

Non-Experimental, descriptive research design with cross sectional Survey approach was carried out by the authors.It is a departmental study of Faculty of Nursing, DeshBhagat University, MandiGobindgarh, Punjab. The administrative permission was obtained from the Head of the institution and informed consent was obtained from the students. The prepared tool was subjected to the seven experts for content validity. The content validity ratio was computed and the value was 1.It Indicates high level of agreement on prepared Inter rates reliability was computed and Kappa formula was applied. The value was 0.72 indicates that the tool was reliable.

Description of the Tool: The tool was self administered and prepared by the study.

Section A: Demographic Variables

This was developed by the authors in accordance with the needs of the present study. It has two sections. It elicited information of the nursing students on general information such as age,religion,place of living ,previous clinical experience on neurological examination and source of information.

Section B: Observational check list on neurological examination

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

RESULTS

The result was computed by using SPSS Version. The analyses of the data are presented under the following headings:

Section A: Demographic variables of nursing students.

Section B: level of skills of nursing students on neurological examination

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

Section A: Demographic variables of nursing students.

Table :1.1 Sample Characteristics ± n=60

Demographic Variables		f	%
Age in years	20	50	89.28
	21	04	7.14
	Above 21 years	02	3.57

Religion	Sikh	31	26.78
	Muslims	15	17.85
	Hindu	10	55.35
Place of living	Home	10	17.85
	Hostel	46	100
Previous Clinical Experience on neurological examination	yes	56	100
	No	0	0.0
Source of information	Classroom Teaching	60	100
	Clinical Training	-	-
	Internet	-	-

Table 1 depicts that the highest percentage of nursing students .38% were belong to age of 20 years. Highest percentage of nursing students 100% was female.The highest percentage of nursing students 75%were belongs to Hindu Religion. Majority of the nursing students 50% were studying 3rd 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.

Table 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
Overall	**100**	**18.24**	**4.59**	**18.18**

Table portraits that out of 100 maximum attainable score , the overall mean ± SD among nursing students was 18.24 ±4.59 which was 18.18% of total score. It reveals that the nursing students had poor knowledge on neurological examination.

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

Table Association between level of skill and demographic variables among nursing students.

Demographic Variables		Total	Above mean (n=24)	Below mean (n-36)	Chi- square test
Age in year	20	23	6	17	X2=2.030 P=0.713 Df=2 Not Significant
	21	21	3	16	
	Above 21 years	16	4	12	

	Female	39	10	29	
Religion	Hindu	45	11	34	X2=0.781 P=0.903 Df=2 Not Significant
	Christian	8	2	6	
	Muslim	7	2	5	
Place of living	Home	25	6	19	X2=0.392 P=0.836 Df=1 Not Significant
	Hostel	35	9	26	
Source of information	Classroom teaching	28	7	21	X2=7.492 P=0.000 Df=1 Not Significant
	Clinical training	20	5	15	X2=7.492 P=0.002 Df=2 Not Significant
	internet	12	3	9	X2=2.030 P=0.713 Df=2 Not Significant

The data presented on table 3 portrays that two X two contingency table was used to compute chi square to find out the association between the skill core and demographic variables of nursing students. There was no significant association between level of skill and demographic variables when compared with age, religion, place of living, source of information of ($P<0.05$). hence it can be interpreted that the difference in mean score value related to demonstrated variables were only by chance.

DISCUSSION

Findings of moghadam et.al (2016) were parallel to te 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 was very less. The present study findings were supported by amile et.al (2018) who demonstrated poor on skill on neurological changes.

CONCLUSION

The present study was conducted to assess the skills on neurological examination among nursing students. The study reveals that mean score of the nursing students is 18.24 indicates very poor skill on neurological examination. Nurses need sound knowledge to increase the skill in clinical tasks lot of clinical exposure in resigns for the students to become an experts in neurological examination. Nurses are mainly responsible for early detection of all cases hence special courses can be designed with clinical exposure and not true. Hence null hypothesis was accepted for akk demographic variables.

FUNDING

Self- funded.

REFRENCES

1. Kniestedt C, Stamper RL. Visual acuity and its measurement. OphthalmolClin North Am. 2003 Jun;16(2):155-70, v. [PubMed]
2. Dhoot R, Margolin E. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): Aug 8, 2022. Papilledema. [PubMed]
3. Virgo JD, Plant GT. Internuclearophthalmoplegia. Pract Neurol. 2017 Apr;17(2):149-153. [PubMed]
4. Walker HK. Cranial Nerve V: The Trigeminal Nerve. In: Walker HK, Hall WD, Hurst JW, editors. Clinical Methods: The History, Physical, and Laboratory Examinations. 3rd ed. Butterworths; Boston: 1990. [PubMed]
5. Sonne J, Lopez-Ojeda W. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): Dec 9, 2022. Neuroanatomy, Cranial Nerve. [PubMed]
6. Kong EL, Fowler JB. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): Jan 30, 2023. Rinne Test. [PubMed]
7. Erman AB, Kejner AE, Hogikyan ND, Feldman EL. Disorders of cranial nerves IX and X. Semin Neurol. 2009 Feb;29(1):85-92. [PMC free article] [PubMed]
8. Bordoni B, Reed RR, Tadi P, Varacallo M. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): Jul 18, 2022. Neuroanatomy, Cranial Nerve 11 (Accessory) [PubMed]
9. Finsterer J, Grisold W. Disorders of the lower cranial nerves. J Neurosci Rural Pract. 2015 Jul-Sep;6(3):377-91. [PMC free article] [PubMed]
10. Matsukiyo A, Goh AC, Asagai Y. Relationship between muscle-tendon length, range of motion, and resistance to passive movement in children with normal and increased tone. J PhysTher Sci. 2017 Feb;29(2):349-355. [PMC free article] [PubMed]
11. Naqvi U, Sherman AL. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): Aug 29, 2022. Muscle Strength Grading. [PubMed]
12. Roberts TT, Leonard GR, Cepela DJ. Classifications In Brief: American Spinal Injury Association (ASIA) Impairment Scale. ClinOrthopRelat Res. 2017 May;475(5):1499-1504. [PMC free article] [PubMed]
13. Clark A, M Das J, Weisbrod LJ, Mesfin FB. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): Nov 4, 2022. Trauma Neurological Exam. [PubMed]
14. Jahn K, Zwergal A, Schniepp R. Gait disturbances in old age: classification, diagnosis, and treatment from a neurological perspective. DtschArztebl Int. 2010 Apr;107(17):306-15; quiz 316. [PMC free article] [PubMed]
15. Pirker W, Katzenschlager R. Gait disorders in adults and the elderly : A clinical guide. Wien KlinWochenschr. 2017 Feb;129(3-4):81-95. [PMC free article] [PubMed]
16. Javed K, Daly DT. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): Aug 22, 2022. Neuroanatomy, Lower Motor Neuron Lesion. [PubMed]
17. Emos MC, Agarwal S. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL):

Aug 22, 2022. Neuroanatomy, Upper Motor Neuron Lesion. [PubMed

18. Ward MA, Greenwood TM, Kumar DR, Mazza JJ, Yale SH. Josef Brudzinski and Vladimir MikhailovichKernig: signs for diagnosing meningitis. Clin Med Res. 2010 Mar;8(1):13-7. [PMC free article] [PubMed]
19. Cheshire WP, Goldstein DS. The physical examination as a window into autonomic disorders. ClinAuton Res. 2018 Feb;28(1):23-33. [PMC free article] [PubMed]
20. Delmas P, Tambini M. [The nurse and the clinical examination of the nervous system]. Rev Infirm. 2014 Mar;