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A study to assess the effectiveness of educational interventional programme on knowledge regarding neurological assessment among 2nd year BSC nursing students in selected nursing colleges, Hubli-Dharwad

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Abstract
Background: Nursing staff should have the required knowledge of neurological examination is intended to facilitate the physician in clinical check-ups, which would lead to the client's enhanced well-being. Reasons for completing a neurological exam include: detecting life-threatening conditions, identifying nervous system dysfunction and the effects of this dysfunction on activities of daily living, comparing current data to previous exams to determine trends, and to provide a database upon which to base collaborative care across disciplines.
Method: An evaluative approach with pre-experimental one group pre-test post-test design was used with Purposive sampling technique to select the sample (n=60). A structured knowledge questionnaire on Neurological assessment was used and EIP was administered to find its effectiveness. The collected data was analysed by using descriptive & inferential statistics.
Result: The mean percentage of post-test knowledge score 60% was higher than the mean percentage of pre-test knowledge score 47%. The calculated value is 7.429 for knowledge respectively. It shows a significant difference between mean pre and post- test knowledge scores. There was significant association found between Types of family with post-test knowledge score. No significant association between other Socio-demographical variables and post-test knowledge scores.
Conclusion: The finding of the study shows a deficit in knowledge of 2nd year BSc Nursing students before administration of EIP. The results indicated that the educational interventional programme was effective in increasing the knowledge of B.Sc Nursing 2nd year students regarding Neurological assessment.

Keywords: Effectiveness, educational interventional programme, knowledge

Introduction
The nervous system is a network of neurons whose main feature is to generate, modulate and transmit information between all the different parts of the human body. This property enables many important functions of the nervous system, such as regulation of vital body functions (heartbeat, breathing, and digestion), sensation and body movements. Ultimately, the nervous system structures preside over everything that makes us human; our consciousness, cognition, behaviour and memories. The nervous system consists of two divisions; Central nervous system (CNS) is the integration and command centre of the body. Peripheral represents the conduit between the CNS and the body. It is further subdivided into the somatic nervous system (SNS) and the autonomic nervous system (ANS). 2 Neurological diseases are conditions that affect nervous system. Nervous system includes brain and spinal cord as well as all the nerves that branch out to the rest of body. There are many different types of nervous system diseases, each with different causes. Nervous system is responsible for sending signals from brain to the rest of body and vice versa.
A report from the World Health Organization (WHO) shows that neurological disorders, ranging from epilepsy to Alzheimer disease, from stroke to headache, affect up to one billion people worldwide. Neurological disorders also include brain injuries, neuro infections, multiple sclerosis and Parkinson disease. The report, Neurological disorders: Public health challenges, reveals that of the one billion people affected worldwide, 50 million suffer from epilepsy and 24 million from Alzheimer and other dementias.

Neurological disorders affect people in all countries, irrespective of age, sex, education or income. An estimated 6.8 million people die every year as a result of neurological disorders. In Karnataka stroke, headache disorder and epilepsy contribute to 70.1 percent of the crude burden of DAILY (Disability adjusted life years) due to neurological disorder. Dr Rajang Parthasarathy, deputy director, mental health, department of health and family welfare, said "NITI Aayog, along with NIMHANS, has suggested conducting pilot projects in urban and rural areas recognising the need to improve care and reduce the burden of neurological disorder in the community.

The burden of stroke is increasing in India; stroke is now the fourth leading cause of death and the fifth leading cause of disability. Previous research suggests that the incidence of stroke in India ranges between 105 and 152/100,000 people per year. To identify high-quality prospective studies reporting the epidemiology of stroke in India. Further high-quality evidence is needed across India to guide stroke policy and inform the development and organization of stroke services. Future researchers should consider the World Health Organization Step wise approach to Surveillance framework, including longitudinal data collection, the inclusion of census population data, and a combination of hospital-registry and comprehensive community ascertainment strategies to ensure complete stroke identification.

Method

The investigator adopted the conceptual framework or theoretical framework provides a coherent, unified and orderly way of envisioning related events or processes relevant to a discipline. Polit and Hungler (1995) states that conceptual framework is inter-related concepts or abstractions that are assembled in same rational scheme by virtue of their relevance to a common thing. This is a device that helps to stimulate research and extension of knowledge by providing both direction and impetuous. This study is used to determine the effectiveness of Educational Interventional Programme on Neurological assessment among 2nd year BSc Nursing students in selected nursing colleges Hubli-Dharwad. The conceptual framework of the present study is based on Ludwing von Bertalaffy's General system theory. According to the general system theory a system consists of a set of interacting components that are regulated by biological, psychological and sociological factors. An individual composed of open and interactive subsystem. An open system consists of input, throughput and output. According to the theorist view the information, matter and energy that the system receives from the environment are called as input for the system. The system uses, organizes transforms the input in a process called as throughput and releases information, matter and energy as output into the environment. Output that returns to the system as input is called as feedback. In this study 2nd year BSc Nursing students are the persons, has an open and interactive subsystems.

The investigator adopted the conceptual framework used in the study was based on the Ludwig von Bertalanffy's General Systems theory. This theory includes 3 important components i.e. input, Throughput, and Output. The research design selected for the study was Pre Experimental research design of one group pre-test and post-test design. The independent variable was educational intervention programme regarding neurological assessment. And dependent variables were knowledge of students regarding neurological assessment the sample of this study comprised of 60 students of 2d year B.sc nursing non probability Purposive sampling technique was used to draw the sample for the study. The tool developed and used for the data collection was structured knowledge questionnaire. The reliability of the tool was established by Karl Pearson coefficient of correlation where r = 0,723.

Pilot study was conducted from 3-6-2023 to 10-6-2023 as a part of the major study, tool proved to be comprehensive, feasible and acceptable.

Data collection procedure: Data was collected from 19 June 2023 to 31 July 2023 after obtaining administrative permission from selected Nursing College. The investigator personally explained the participants the need and assured them of the confidentiality of their responses. The pre-test was administered followed by an administration of educational package, data of pre- test was analysed and post-test was administered 7 days after the administration of educational package by using the same questionnaire used in the pre-test.

Plan of data analysis: It was planned to use both descriptive and inferential statistics for analysis of the data.

- Frequency and percentage distribution was used to analyse the selected personal variables.
- Percentage, mean, median and standard deviation was computed to analyse the knowledge scores.
- Paired 't' test was used to analyse pre-test - post-test Mean knowledge score differences.
- Chi square was used to analyse association between pre-test knowledge scores and socio demographic variables

Result

Organization of findings

The analysis of the data is organized and presented under following section:

Section A: Socio-Demographic characteristics of the participants.

Section B: Distribution of level of knowledge on Neurological assessment

Section C: Comparison of pre and post-test knowledge on Neurological assessment among 2 nd year BSc Nursing students.

Section D: Association of socio demographic variables with the post-test level of knowledge on Neurological assessment among 2nd year BSc Nursing students.

Association between knowledge and practice scores with selected demographic variables.

Section A: Socio demographical variables of respondents

Table 1: Show the Sociodemographic variables, Frequency (f) and its Percentage (%)

N=60

S. No.	Sociodemographic variables	Frequency (f)	Percentage (%)
1.	**Age in years**		
	19	37	62
	20	20	33
	21	3	5
2.	Gender		
	Male	31	52
	Female	29	48
3.	Type of family		
	Nuclear family	37	62
	Joint family	23	38
4.	Religion		
	Hindu	29	48
	Muslim	26	44
	Christine	5	8
	other	-	-
5	**Suffer from any neurological disease**		
	Yes	8	13
	no	52	87
6	**Previous knowledge regarding neurological assessment**		
	Yes	-	-
	No	60	100

Section B: Analysis of pre-test and post-test knowledge level classification of respondent's pre-test and post-test knowledge on neurological assessment

Table 2: Pre-test and post-test knowledge level classification of respondent's

N=60

S. No.	Pre-test level of knowledge	Score	Frequency	Percentage
1.	Inadequate knowledge (<50%)	0-17	21	35
2.	Moderately knowledge (51-75%)	18-26	29	65
3.	Adequate knowledge (>75%)	27-35	-	-

The Table-2 reveals that 21(35%) study participants had inadequate knowledge, 29(65%) had moderate knowledge and 0(0%) study participants have adequate knowledge regarding Neurological assessment in pre-test. And 52(87%) study participants had moderately knowledge, 8(13%) had adequate knowledge regarding Neurological assessment. The 0% have the below knowledge regarding Neurological Assessment in post-test.

Section C

Table 3: Comparison of pre-test and post-test knowledge score on neurological assessment

N=60

S. No.	Aspects	Max. score	Mean	SD	Mean%	SD%	Paired T test	P valve
1.	Pre-test	35	16.50	0.480	47	24	7.429 df=59	P=0.000 **S**
2.	Post- test	35	21.33	0.342	60	46		
3.	Enhancement	35	0.483	0.278	15	8		

The Data from Table-3 depict that, mean, mean%, SD, SD% of pre-test and post-test knowledge scores, paired 't' test value. The mean percentage of pre-test was 47% and post-test was 60%. The paired "t" test value is 7429 calculated' value is greater than table value (p>0.000) and the enhancement is 15% .Hence the null hypothesis (H_0) is rejected, research hypothesis (H_1) is accepted. This indicates that there is significance difference between mean pre-test and post-test knowledge scores of 2nd year BSc Nursing students.

Section D

Association between Demographic variables and post-test Knowledge Score on Neurological assessment

This area consists of data related to demographic variables that are Age, Gender, Religion, Type of family, Any one family member suffer with neurological disease, previous knowledge regarding neurological disease.

The Hypothesis was stated as follows:

H_2: There will be a significant association between selected socio demographic variables with post-test level of knowledge regarding Neurological assessment.

In order to determine the significance of association between the level of knowledge after the administration of Educational Interventional Programme and the selected demographic variables, χ 2 were computed from the available data

Table 4: Association of demographic variables with post -test knowledge level on neurological assessment

N=60

S. No.	Socio- demographic variables	Moderately knowledge	Adequate knowledge	Chi square value (χ^2)	P value
1.	**Age in years**				
	19	34	3	3.692 df = 2	0.158 NS
	20	15	5		
	21	3	0		
2.	**Gender**				
	Male	27	4	0.010 df =1	0.919 NS
	Female	25	4		
3.	**Type of family**				
	Nuclear family	35	2	5.250 df =1	0.022 **S**
	Joint family	17	6		
4	**Religion**				
	Hindu	25	4	0.869 df =2	0.648 NS
	Christian	22	4		
	Muslim	5	0		
5	**Suffer from any neurological disease**				
	Yes	7	1	0.006 df =1	0.941 NS
	No	45	7		

Variables with regard to Gender, Residential area, previous knowledge, any family member suffer with disease research hypothesis is rejected at 0.05 levels of significance.

Discussion

The major findings of the study are summarized as follows:

- Majority of the subjects 62% were between the age group of 19 years and 33% were between 20 years and 5% from 21 years.
- Regarding Gender, majority of the subjects 52% were Males and 48% were Females.
- Majority of the subjects 48% belongs to Hindu Religion, 8% were Christian, and 44% belongs to Muslim religion. No one from other religion.
- Respondent's Type of family majority of the Respondents 37% were from Nuclear family and 38% were from joint family.
- When come suffer with neurological disease 13% suffer with neurological disease and 87% are not suffering with neurological disease.
- The previous knowledge about neurological assessment Respondents no one have previous knowledge regarding Neurological assessment.

Findings related to effectiveness of structured teaching programme

Using a structured knowledge questionnaire was used to assess the knowledge, Findings related to effectiveness of structured teaching programme Using a structured knowledge questionnaire was used to assess the knowledge, regarding Neurological assessment among 2nd year B.Sc. Nursing students before and after imparting the educational intervention programme findings reveals that; Most of respondents 21% had Below Average knowledge, 29%% of them had Average knowledge and only 0% had above average knowledge in pre-test. Butin post-test majority of respondent's 87%hadAboveaverageknowledge and only 13% of them had average knowledge. The mean pre-test knowledge score of respondents was 47% and that of post-test was 60%with the enhancement of15%. The mean Knowledge score of respondence in post test21.33% the mean knowledge score of respondence pre-test is 16.50%.

Findings related to association between post-test levels of knowledge scores with selected demographic variables of 2nd year B.SC. Nursing

Chi-square values were computed to find the association between post-test level of knowledge and selected socio-demographic variables viz; Age, Gender, Religion, Type of family, previous knowledge, any family member suffers with neurological condition.

Socio-demographic variables with post-test knowledge score

Age: χ 2=3.692, (NS), p>0.05.
Gender: χ 2= 0.010, (NS), p>0.05.
Type of family: χ 2=5.250, (S) < P0.05.
Religion: χ 2=0.869, (NS), p>0.05.

Any family member suffer with neurological disease- χ 2=0.006, (NS), p>0.05.

These findings indicated that except for Type of family with post-test Knowledge score, χ 2 values of all other socio-demographic variables were greater than the table value at 0.05 levels of significance. Therefore, the null hypothesis is rejected.

Conclusion

The findings of the study showed that educational interventional programme is an effective teaching strategy to increase the knowledge of BSc Nursing 2nd Year students regarding Neurological assessment. The mean percentage of post-test knowledge score 60% was higher than the mean percentage of pre-test knowledge score 47%%. The calculated' value is 7.429for knowledge. It shows a significant difference between mean pre and post-test knowledge scores. There was significant association found between Type of family with post -test knowledge score 52(87%). No significant association between other Sociodemographical variables and post-test knowledge scores. The main findings of pre-test indicate that BSc Nursing 2nd Year students had below average level of knowledge about Neurological assessment.

The effectiveness of educational interventional programme

was tested in terms of differences between pre-test and post-test scores and the findings showed that it was statistically significant at 2.1333 level of significance. The findings of the study proved that educational interventional programme is an effective teaching strategy in improving the knowledge of the 2nd year BSc Nursing students regarding Neurological assessment. Thus, the educational interventional programme given by the investigator helped the 2nd year BSc Nursing students to improve their knowledge. On the whole, carrying out the present study was really an enriching experience to the investigator. It also helped a great deal to explore and improve the knowledge of the researcher and the respondents. The constant encouragement and guidance by the guide and experts, personal co-operation and interest of respondents in the study contributed to the fruitful completion of the study.

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