

A Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge Regarding Guillain Barre Syndrome among Nursing Officers Multispeciality Hospitals at Bangalore

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Abstract: Introduction: Nervous system places a role in nearly every aspect of health and wellbeing. Its acts as a control network within the body. The functional unit of Nervous system is called Neurons, which are responsible for the reception and response to the change in internal and external environment. It is a collection of clinical syndrome that manifests as acute inflammatory polyneuropathy. Guillain-Barre Syndrome is caused by the body's immune system attacking the peripheral nerves. The fact that the syndrome usually comes on after an infection (or extremely rarely, after an immunization) has led us to suspect that at a molecular level, some infectious agents look like parts of the nervous system. This causes the immune system to mistake the identity of peripheral nerves, thinking that parts of the nerve are an infection. As a result, the immune system releases antibodies that attack the peripheral nerves. This has motivated the researcher to conduct a study "A Study To Assess The Effectiveness Of Structured Teaching Programme on Knowledge Regarding Guillain barre syndrome among nursing officers multispecialty hospitals at selected Bangalore".^{1,2,3} Methodology: The researcher has followed pre-experimental one group pre-test post-test design with quantitative approach to assess the effectiveness of structured teaching programme on knowledge regarding GB syndrome among Nursing officers Bangalore. Non probability convenient sampling technique was used to select the subjects. The sample included 60 nursing officers. Data was collected through structured questionnaire by administering the questionnaire to the samples. After the pre-test, structured teaching programme on GB syndrome was administered on the same day to the participants. On seventh day post-test was given using the same questionnaire to evaluate the effectiveness of structured teaching programme. Collected data was analyzed by using descriptive and inferential statistics; the level of significance was set at 0.05 levels. Results: The highest pre-test mean percentage in the aspect of general concept was 4.86 with a SD of 1.50. The lowest pre-test mean percentage in the aspect of causes and classification was 2.47 with a SD of 1.18. The highest post-test mean percentage in the aspect of general concept was 9.35 with a SD of 0.79. The lowest post-test mean percentage in the aspect of clinical features was 5.13 with a SD of 13.1. The enhancement was found between mean pre-test and post-test was 12.98 with mean percentage of 43.3 percentage with a SD of 3.25. Interpretation and conclusion: Further, effectiveness of STP was tested by inferential statistics using the paired 't' test. The mean difference between the pre-test and post-test knowledge score of teachers was found to be significant ($t(56) = 3.06$) at 0.05 levels. This confirms that structured teaching program is found to be an effective strategy in improving the knowledge of Nursing Officers regarding GB syndrome. Hence the research hypothesis H1 was accepted.

Keywords: Effectiveness; structured teaching program; GB syndrome, nursing officers

1. Introduction

Nervous system places a role in nearly every aspect of health and wellbeing. Its acts as a control network within the body. The functional unit of Nervous system is called Neurons, which are responsible for the reception and response to the change in internal and external environment. It is estimated that Human Nervous system is composed of more than 100 Billion Neurons. The Nervous system can be divided anatomically and functionally into different divisions.² Anatomical Division of Nervous System. The Nervous system is broadly classified into two divisions. 1) Central Nervous System (CNS). 2) Peripheral Nervous system (PNS). Central Nervous System which occupies central axis of body includes Brain and Spinal Cord.⁴

Peripheral Nervous System its part of Nervous system which lies outside the Central Nervous System. The PNS consists of peripheral nerves and the ganglia associated with them. Peripheral nerves attached to the brain are called Cranial nerves (12 pairs), and those attached with the spinal cords are Spinal nerves.

The nervous system helps all the parts of the body to communicate with each other. It also reacts to changes both outside and inside the body. The nervous system uses both electrical and chemical means to send and receive messages.⁴ Neurological disorders have become major public health concern globally including India, with increasing prevalence due to escalating longevity and perpetually changing lifestyle. Brain diseases causes more morbidity and mortality than Cancers and Heart diseases combined. The key to improvement is creating awareness leading to timely diagnosis and treatment.¹

Guillain-Barre syndrome (GBS) is a rare disorder of the peripheral nervous system. The syndrome is named after the French physicians Georges Guillain and Jean Alexander Barre, who described it in 1916. It is also called acute inflammatory demyelinating polyneuropathy (AIDP)⁵

Guillain-Barre Syndrome affects an individual person depends on where the antibodies attack the nerves. For this reason, Guillain-Barre is perhaps best thought of as a family of disorders, which can cause different kinds of problems. Acute Inflammatory Demyelinating Polyneuropathy

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(AIDP) is the most common subtype of Guillain-Barre, and what most physicians think of when the term “Guillain-Barre” is used. In AIDP, antibodies don’t attack the nerve cells directly, but instead, damage the glial support cells that surround the axon of the nerve. Typically, this leads to sensory changes and weakness that starts in the toes and fingertips and spreads upwards, worsening over a matter of days to weeks. People with Guillain-Barre may also suffer from deep aching pain in their weakened areas and back. Like most forms of Guillain-Barre, both sides of the body tend to be equally affected in AIDP.⁶

Guillain-Barre is most concerning when it changes how we breathe or protect our airway. In the Miller-Fisher variant of Guillain-Barre, the face and eyes are attacked first. The loss of the control of throat muscles can make it impossible to swallow without food or saliva going into the lungs, increasing the risk of pulmonary infections, and choking. While all forms of Guillain-Barre require close monitoring to see if the patient may need to be intubated or placed on mechanical ventilation, the Miller-Fisher variant requires especially close attention. Most varieties of Guillain-Barre also affect the autonomic nervous system in some way, resulting in the loss of control of functions like sweating, heart rate, temperature, and blood pressure. Acute pan autonomic neuropathy is a rare type in which movement and sensation are left intact, but the autonomic functions are lost. This can lead to lightheadedness, cardiac arrhythmias, and more. The most common symptom of Guillain-Barre is a progressive loss of strength that sometimes includes a loss of sensation and autonomic control. Whereas most peripheral neuropathies worsen over a matter of months to years, Guillain-Barre changes over days and sometimes hours. Because Guillain-Barre can lead to a weakness that is so severe that an afflicted person cannot even breathe on their own, it is important that you get help as soon as possible if you notice these symptoms.^{7,8}

Guillain-Barre (gee-YAH-buh-RAY) syndrome is a rare disorder in which your body's immune system attacks your nerves. Weakness and tingling in your hands and feet are usually the first symptoms. These sensations can quickly spread, eventually paralyzing your whole body. In its most severe form Guillain-Barre syndrome is a medical emergency. Most people with the condition must be hospitalized to receive treatment. The exact cause of Guillain-Barre syndrome is unknown. But two-thirds of patients report symptoms of an infection in the six weeks preceding. These include a COVID-19, respiratory or a gastrointestinal infection or Zika virus⁹.

According to senior Nimhans doctors the 45-year-old woman, from Raichur, complained of pain in the lower limbs and suffered a bout of vomiting on January 27, seven days after the first vaccine dose. She was brought to Nimhans on February 17 who are treating her, instances of GBS as an AEFI were seen in DPT, rabies and influenza vaccines earlier. “It is tough to arrive at conclusive statements like GBS was caused by the Covid-19 vaccine. Earlier, cases were reported after the administration of other vaccines. The condition is marked by an overactive immune system, which doesn’t correctly see the difference between the body’s own cells and vaccine proteins. Doctors say it is

not possible to predict which person will develop GBS after vaccination. “We will never be able to predict. This is an unfortunate situation, but it should not deter people from taking the Covid-19 vaccine,” another Nimhans doctor told STOI¹⁰.

A retrospective study was conducted in a tertiary care center in South India, departments of Neurology, Medicine, and Pediatrics to analyze the monthly and seasonal occurrence of GBS. The outpatient and inpatient records of all patients who had presented to our hospital with symptoms of acute flaccid paralysis were reviewed retrospectively from June 2008 to May 2013 with special attention to the time of occurrence with respect to month and season. A diagnosis of GBS was made when the clinical features, electrophysiological findings, and CSF par ammitters satisfied the Asbury and Cornblath diagnostic criteria. Patients with other causes of acute flaccid quadriplegia like acute transverse myelitis, hypokalemic paralysis, polymyositis, and myasthenia gravis were excluded. Meteorological Department. During the 3 year period, there were a total of 284 patients diagnosed with GBS. The male to female ratio was 1.7:1 (males: 179, females: 105), with age of onset from 5 months to 85 years. The highest incidence of GBS was seen in the monsoon (n = 92, 32.39%) and winter (n = 75, 26.40%). There were 67 (23.59%) cases in summer and 50 (17.60%) cases in post-Monsoon [Table 1], [Figure 1]. The monthly incidences of the disease were significantly high during January (10.21%), May (9.15%), June (9.85%), November (10.91%), and December (10.56%).¹¹

A study was done within 48 hours in 99 (91.7%) patients, after initial stabilization. All the patients underwent stool examination for poliovirus detection. Lumbar puncture was done in 102 (94.4%) patients in the second week after disease onset. Hughes GBS disability grade was applied to assess the outcome at eight weeks (n=66) and six months (n=45) after discharge [14]. Statistical analyses: SPSS 24.0 and Graph Pad Prism version 5 were used for analysis. Proportions were compared by Chi square test or Fischer exact test as appropriate. P value < 0.05 was considered to be statistically significant. A total of 108 cases of GBS in the age range 1.2 to 10 years, median (IQR) age of 4.2 years (2 year 3 month - 5 year) were enrolled in the present study of which 66 were boys. Preceding respiratory and GI infections were found in 33.3% (n=36) and 25% (n=27) children, respectively. History of antecedent illness was present in 72 (66.7%) patients including diphtheria- tetanus- whole cell pertussis vaccination in one child.²⁶

2. Objectives of the Study

- 1) To assess the level of knowledge regarding Guillain Barre Syndrome among Nursing Officers at selected multi-specialty hospitals.
- 2) To evaluate the effectiveness of structured teaching program on knowledge regarding Guillain Barre Syndrome among Nursing Officers.
- 3) To find out the association between the knowledge regarding Guillain Barre Syndrome among Nursing Officers with the selected demographic variables.

Hypothesis

H1: There will be a significant difference between pretest and post-test knowledge scores on knowledge regarding of Guillain Barre Syndrome among Nursing Officers.

H2: There will be a significant association between post-test knowledge scores and selected demographic variables.

Assumptions:

- 1) The Nursing Officers working in hospital will have inadequate knowledge regarding Guillain Barre Syndrome.
- 2) The Structured teaching program will help to update the current knowledge of Nursing Officers.

Conceptual Framework

The conceptual framework for this study is based on Adaptation model(theory) developed by Sister Callista Roy in 1976. In Roy's model the human being has a set of interrelated systems (biological, psychological and social) and strives to maintain a balance between these systems and the outside environment, but there is no absolute level of balance. Human being strives to live within a unique group in which he or she can cope adequately.

3. Material and Methods

Criteria for sample Selection: The following criteria were set by the researcher for the selection of sample.

Inclusion criteria

- Nursing officers who are who are present at the time of data collection.
- Who are willing to participate at the study.
- Nursing officers who are working at H K hospital, Kengeri Urban Bangalore.

Exclusion criteria:

- Nursing officers who are not willing to participate.
- Nursing officers who are already know about GB syndrome.

Pre-test data was collected by researcher herself by using closed ended questionnaire with Interview Schedule. Interview Schedule was done for each participant within 30 mins for both the groups (experimental and control). Structured teaching programme intervened with the areas like general information about GB syndrome and its prevention only for experimental group. No intervention has provided for Control group. Seven days after intervention, post test data was collected by closed ended questionnaire with Interview method for both groups and completed within 50 days.

Description of Tool: Data was collected by means of structured questionnaire with interview schedule. It consists of 30 knowledge items related to GB syndrome and its prevention. These items were closed ended, Multiple Choice Questions. The tool was made with 3 sections they are,

- **Section A:** The first section includes of 7 questions; each questions carries 1 mark. It consists of general information on GB Syndrome and causes.
- **Section B:** The second section includes of 9 questions; each questions carries 1 mark. It consists of risk factors

and Signs and symptoms of leading GB syndrome.

- **Section C:** The third section includes of 14 questions; each questions carries 1 mark. It consists of management related to GB syndrome
- **Score interpretation:** The knowledge regarding the importance of GB syndrome and its prevention was measured in terms of knowledge scores. Each correct scoring was given a score of one (1) and wrong answers a score of zero (0). The maximum score was 30 and the minimum score was 0.

Descriptive & Inferential Statistics

Independent 't' test will be used to assess the effectiveness between two groups. Fishers Exact Test will be used to find out the association of post test scores with their selected demographic variables. The level of significance would be set at $p \leq 0.05$ levels to test the significance of difference. This level is often used as a standard for testing the difference.

Organization of Findings

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

Section-A: Frequency and percentage distribution of socio demographic variables.

Section-B: Level of knowledge on GB syndrome among Nursing officers.

a) Overall pre-test knowledge level of participants b.) Overall post-test knowledge level of participants

Section-C: Comparison of aspect wise pre-test and post-test level of knowledge

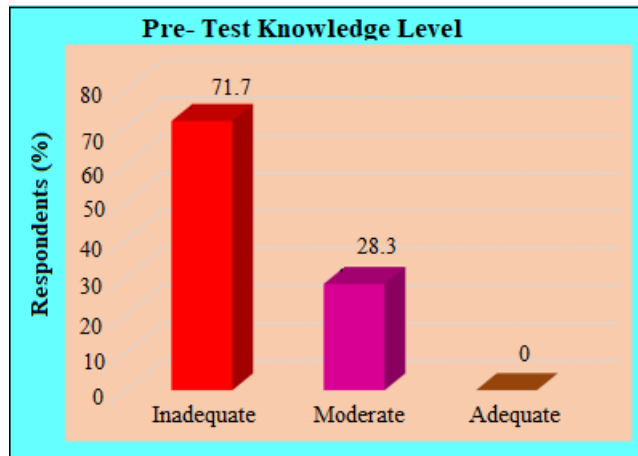
Section-D: Effectiveness of structured teaching program on knowledge regarding **GB syndrome**.

Section-E: The association between pre-test knowledge scores and selected demographic variables

Section A: Frequency and percentage distribution of socio demographic variables.

Characteristics	Category	Respondents	
		Number	Percent%
Age group (years)	21-30 years	17	28%
	31-40 years	19	32%
	41-50 years	16	27%
	Above 50 years	8	13%
Gender	Male	31	52%
	Female	29	48%
Educational qualification	GNM	6	10
	B.Sc	45	75%
	M.Sc	9	15%
Religion	Hindu	41	68%
	Muslim	10	17%
	Christian	5	8%
	Any other	4	7%
Year of experience	0-5 years	14	23%
	6-10 years	21	35%
	Above 10 years	25	42%
Specialty of working	Neuro	31	52%
	cardiac	7	12%
	Casuality	6	10%
	Gynaec	5	8%
	Ortho	4	7%
	Paediatric	7	12%
	Total	60	100%

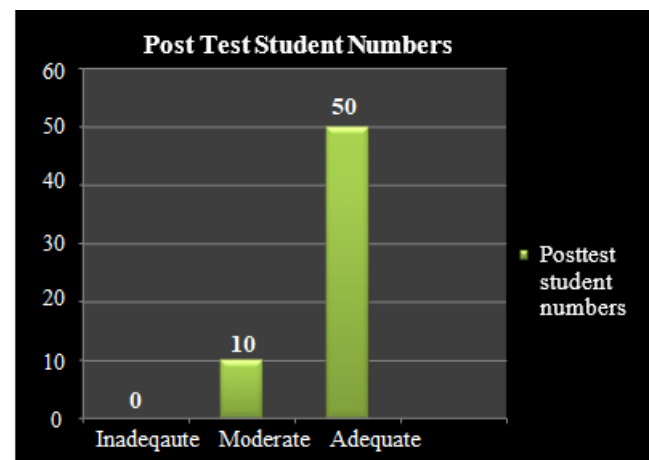
Section B: Pre-test and post-test level of knowledge regarding GB syndrome



The data reveals that among 60 participants majority 43 (71.7 percentage) had inadequate knowledge and remaining 17 subjects (28.3 percentage) had moderately adequate knowledge and none had adequate knowledge.

Bar diagram representing overall post-test knowledge scores.

The data in figure below reveals that among 60 participant's majority 50 (83.3percentage) had adequate knowledge and remaining 10 subjects (16.6 percentage) had moderately adequate knowledge and none had inadequate knowledge.



Aspect wise Pre-test Mean Knowledge scores of Respondents on GB syndrome

No.	Knowledge Aspects	Statements	Max. Score	Knowledge Scores			
				Mean	SD	Mean (%)	SD (%)
I	Meaning and General Information causes	9	9	4.86	1.50	42.11	21.4
II	Clinical features	12	12	4.21	1.00	36.48	16.6
III	Management	9	9	2.47	1.18	21.4	19.6
	Combined	30	30	11.54	2.91	100	9.7

The above table reveals that the pre-test mean knowledge of meaning and causes on GB syndrome was 4.86 (42%) with SD 1.50. Mean knowledge clinical feature and

complications of was 4.21(36.48%) with SD of 1.0, mean knowledge on GB syndrome Management and was 2.47 (21.4%) with SD of 1.18 respectively.

Section - 5: Association between Demographic variables with Pre-test Knowledge level on GB syndrome

Demographic Variables	Category	Sample	Knowledge Level				χ^2 Value	P Value
			Inadequate		Moderate			
			N	%	N	%		
Age group (years)	21-30	17	25	86.2	4	13.8	8.44*	P<0.05 (5.991)
	31-40	19	17	70.2	6	18.8		
	41-50	16	13	68.4	6	31.6		
	Above 50	8	5	41.7	7	58.3		
Gender	Male	31	26	73.3	4	26.7	0.64	P>0.05 (7.815)
	Female	29	16	66.7	8	33.3	NS	
Educational qualification	GNM	6	14	66.7	7	33.3	0.41 NS	P>0.05 (7.815)
	B.Sc	45	9	75.0	3	25.0		
	M.Sc	9	9	75.0	3	25.0		
Year of experience	0-5 years	22	15	68.2	7	31.8	0.70 NS	P>0.05 (5.991)
	6-10 years	23	16	69.6	7	30.4		
	>10 years	15	12	80.0	3	20.0		
Religion	Hindu	37	29	78.4	8	21.6	5.21 NS	P>0.05 (7.815)
	Christian	16	11	68.8	5	31.2		
	Muslim	4	1	25.0	3	75.0		
	Others	3	2	66.7	1	33.3		
Areas of working	Neuro	31	2	10	29	90.0	5.25 NS	P>0.05 (11.07)
	Cardiac	7	2	36.7	5	73.3		
	Causality	6	3	50.0	3	50.0		
	Ortho	5	2	40.7	3	59.3		
	OBG and Gynaec	4	1	25	3	75		
	Pediatrics	7	2	36.7	5	73.3		

Significant at 5% Level, NS: Non-significant. Note: Figures in the parenthesis indicate Table value

The data shows in this table 8 reveals that the obtained Chi-square values were 8.44, 5.92, 7.41, 6.46, 5.32 and 4.10. It

shows that there was significant association between pre-test level of knowledge and selected demographic variables like age and previous information but there was no significant association between the pre-test level of knowledge and selected demographic variables like gender, educational qualification, religion source of information.

The Findings are summarized as follows: Among 60 respondent's majority of participants 19(32 percentage) were falling in the age groups of 31-40years, majority 31(52 percentage) were belongs to male. With regard to education qualification majority 45(75 percentage) participants were B.Sc, majority 41(68 percentage) Hindu. With respect to year of experience majority of the participants 25(42.0 percentage) were above 10 years. With respect to area of working out of 60 participants majority 31(52 percentage) had from neuro. In pre-test knowledge on GB syndrome majority of the participants 43 (71.7 percentage) had inadequate knowledge and remaining 17 subjects (28.3 percentage) had moderately adequate knowledge and none had adequate knowledge.

In post-test knowledge on GB syndrome majority of the participants 50 (90 percentage) had adequate knowledge and remaining 10 subjects (18.3 percentage) had moderately adequate knowledge and none had inadequate knowledge.

The highest pre-test mean percentage in the aspect of general concept was 4.86 with a SD of 1.50. The lowest pre-test mean percentage in the aspect of causes and classification was 2.47 with a SD of 1.18.

The highest post-test mean percentage in the aspect of general concept was 9.35 with a SD of 0.79. The lowest post-test mean percentage in the aspect of clinical features was 5.13 with a SD of 13.1.

The 't' value was computed to determine the effectiveness of structured teaching program on knowledge. The computed 't' value (30.06) is found to be significant at 5% level. Hence the research hypothesis stating, that "There will be significant difference between pre and post test level of knowledge regarding GB syndrome among Nursing officers after the structured teaching program than before structured teaching program" is accepted. The post-test mean knowledge is 21.01, which is higher than the pre-test mean knowledge that is 11.54. The mean difference between pre-test and post-test score is 9.47. The difference of means observed is a true difference. Hence it can be calculated that the structured teaching program has an influence in improving the knowledge of nursing officers on GB syndrome. The obtained Chi-square values were 8.44, 5.92, 7.41, 6.46, 5.32 and 4.10. It shows that there was significant association between pre- test level of knowledge and selected demographic variables like age but there was no significant association between the pre-test level of knowledge and selected demographic variables like gender, educational qualification, religion, area of working.

Overall experience of conducting this study was satisfying and enriching, even the respondents were happy and satisfied with the information they received. For the investigator the study was a new learning experience, this

also showed that there is great need to educate the nursing officers regarding GB syndrome.

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