

A Study to Assess the Knowledge on Warning Signs and Prevention of Selected Neurological Disorders among Patients' Attendants with a View to Develop an Informational Booklet in a Selected Hospital, Guwahati, Assam

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Abstract: *Background of the study:* The study aims to find the knowledge on warning signs and prevention of selected neurological disorders among patients' attendants with a view to develop an informational booklet in a selected hospital, Guwahati, Assam. **Objectives:** 1. To assess the knowledge on warning signs and prevention of selected neurological disorders among patient's attendants. 2. To determine the association between knowledge on warning signs and prevention of selected neurological disorders with selected demographic variables. 3. To develop an informational booklet on warning signs and prevention of selected neurological disorders. **Methods:** A descriptive survey research design and quantitative approach were carried out on 130 patients' attendants in Rahman Hospitals Pvt. Ltd, Guwahati, Assam by using a convenience sampling technique. **Results:** The findings of the study revealed that out of 130 patients' attendants (36.15%) of the patients' attendants belonged to the age group of 31- 40 years, (75.38%) of the patients' attendants were male, (36.92%) of the patients' attendants completed graduation, (71.54%) of the patients' attendants were Muslim, (45.38%) of the patients' attendants had a family income in between 10,001- 20,000, (69.23%) of the patients' attendants were doing private jobs, (96.15%) of the patients' attendants were not related to any health-related profession, (46.15%) patients' attendants had got information on neurological disorders from health care professionals, All (100%) patient's attendants did not have any neurological problems, (53.85%) of the patients' attendants had family members suffering from neurological problems. In the assessment of the knowledge on warning signs and prevention of selected neurological disorders, the majority of the patients' attendants have inadequate knowledge about the warning signs and prevention of selected neurological disorders. Analysis data of chi-square test showing the association between knowledge on warning signs of selected neurological disorders with selected demographic variables shows there was a significant association with any health-related profession at 0.05 level of significance. Chi-square test showing the association between knowledge on prevention of selected neurological disorders with selected demographic variables shows there was a significant association of educational status, occupation, and any health-related profession at 0.05 level of significance. **Conclusions:** The patients' attendants had inadequate knowledge about the warning signs and prevention of selected neurological disorders.

Keywords: Assess, Knowledge, Informational booklet, Patients' attendants, warning signs, prevention, neurological disorders

1. Introduction

"It is the health that is real wealth and not pieces of gold or silver."

-Mahatma Gandhi

Neurological disorders include diseases of the peripheral and central nervous systems. In worldwide people with hundreds of millions are affected by neurological disorders [1]. The neurological disorders include Stroke, epilepsy, and migraine. More than six million people die of stroke every year, over 80% of these deaths take place in low- and middle-income countries. People more than 50 million have epilepsy worldwide. The migraine prevalence worldwide is more than 10% [2].

Stroke is applied to a sudden focal neurologic syndrome, specifically the type due to cerebrovascular accidents [3]. A stroke is a cerebrovascular accident when part of the brain loses blood supply and the part of the body that the blood-deprived brain cells stop working [4]. It occurs when a blood vessel in the brain ruptures and bleeds, or when there is a blockage in the blood supply to the brain. According to the Centers for Disease Control and Prevention (CDC),

stroke is the fifth leading cause of death in the United States [5].

Epilepsy is a chronic non-communicable disease of the brain that affects people of all ages. It is defined as having two or more unprovoked seizures. Around 50 million people worldwide have epilepsy. Nearly 80% of people with epilepsy live in low and middle-income countries [6].

Migraine is a primary headache disorder that often begins at puberty and mostly affects those aged between 35 to 45 years. It causes moderate to severe pain that is throbbing or pulsating. The pain is on one side of the head, accompanied by nausea, vomiting. Medications can help prevent some migraines and make them lesser painful. The right and proper medications combined with self-help remedies and lifestyle changes might help reduce migraines [7].

2. Review of literature

A review of literature is a description and analysis of the literature relevant to a particular field or topic. It gives an overview of what has been said, who the key writers are, what are the prevailing theories and hypotheses, what

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questions are being asked and what methods and methodologies are appropriate, and it's results.

Section I: Studies related to knowledge of warning signs and prevention of stroke.

Section II: Studies related to knowledge of warning signs and prevention of epilepsy.

Section III: Studies related knowledge of warning signs and prevention of migraine.

Section IV: Studies related to the effectiveness of informational booklet/ self-instructional module of selected neurological disorders.

Section I: Studies related to knowledge of warning signs and prevention of stroke:

Saengsuwan J, Suangpho P, Tiamkao S (2017) conducted a study on knowledge of risk factors and warning signs in patients with recurrent stroke or recurrent Transient Ischaemic Attacks in Thailand. A cross-sectional questionnaire-based study of patients with recurrent stroke or recurrent TIA admitted to Srinagarind Hospital and KhonKaen Hospital, Thailand. A total of 140 patients were included in the study and with an open-ended questionnaire, nearly one-third of patients could not name risk factors of stroke. The most commonly recognized risk factors were hypertension (35%), dyslipidemia (28.6%), and diabetes (22.9%). The results showed that knowledge of stroke obtained from open-ended questionnaires is still unsatisfactory. The healthcare provider should provide structured interventions to increase knowledge and awareness of stroke in these patients [8].

Nordhorn M J, Nolte CH, Rossnagel K, Jungehulsing GJ, Reich A, Roll S, et al. (2006) conducted a study on knowledge about risk factors for stroke to assess the knowledge of stroke risk factors and to determine factors associated with knowledge. A population-based survey with 28090 participants was sent a questionnaire to randomly selected residents in Berlin who were ≥ 50 years of age. A total of 75720 residents (response rate 37%) responded to the questionnaire. Of all respondents, 68% were able to name ≥ 1 correct stroke risk factor, and 13% named 4 correct risk factors. Thus, they conclude that mass media was most frequently named as a source of information about stroke risk factors. The health education program should take this into account and be adoptedly. [9]

Section II: Studies related to knowledge of warning signs and prevention of epilepsy:

Obayi NO, Nweke MN, Okegbe J, Ndionuka NF, Ugbala JGN (2018) conducted a study of knowledge about Epilepsy and Attitudes towards Pupils with Epilepsy among Primary school Teachers in a Rural Community in South-East Nigeria to determine the general knowledge of epilepsy by teachers and the attitude of the teachers towards children with epilepsy. A cross-sectional research design was adopted. The data were collected using a sociodemographic questionnaire and the rating scale for Attitude Towards People with Epilepsy (ATPE) were used with the sample of 210 teachers in southeast Nigeria. The results show that their mean age was 34.4 ± 6.11 years. 50.5% had received some form of health education on

epilepsy and 17.6% had taught children suffering from epilepsy. They concluded that information about epilepsy should be included in the curriculum for future teachers and periodic workshops should be organized for teachers to increase their level of knowledge of epilepsy and to be prepared to give first aid treatment to the child [10]

Teferi J, Shewangizaw Z (2015) conducted a study on the assessment of the knowledge, attitude, and practice related to epilepsy in Africa. A Community based cross-sectional study design was used to assess the knowledge, attitude, and practice related to epilepsy and its associated factors using a pretested, semi-structured questionnaire among 660 respondents living in Sululta Woreda, Oromia, Ethiopia. The results show that 58.9% of the respondents possessed knowledge about epilepsy, 35.6% had a favorable attitude, and 33.5% of them adopted safe practices related to epilepsy. They concluded that the Sululta community is familiar with epilepsy, had an unfavorable attitude toward epilepsy, and unsafe practices related to epilepsy, but has a relatively promising knowledge of epilepsy [11]

Section III: Studies related knowledge of warning signs and prevention of migraine headache:

Gupta R, Malhotra A, Malhotra P (2019) conducted a study to assess the knowledge on migraine among patients with migraine at a tertiary care teaching hospital. A cross-sectional observational questionnaire-based study was conducted. The self-administered pre-validated questionnaires about various aspects of migraine were distributed among the patients diagnosed of having migraine and attending neurology OPD. The results show that the majority of the patients suffering from migraine were in the age group of 18-40 years (58.6%) and females were more commonly affected about 60.9% than males. The most common triggering factor cited by the patients was the lack of sleep in 29.9%, followed by stress at 27.6% and less water intake by 26.4% of the patients. They concluded that patients were aware of the associated signs and symptoms, but they had inadequate knowledge about all the aspects of the disease. [12]

V Narendhar (2019) conducted a study on assessment of knowledge, attitude, and practice towards migraine treatment and prevention among medical college students in Saveetha Medical College. A cross-sectional study (questionnaire-based) will be done to assess the knowledge and attitude and practice towards migraine treatment and prevention among medical college students from the first year to final year students. The results show that each and every student (100%) knew migraine definition and the fact women are commonly affected by migraine as compared to men was known only by 38% and 96.33% knew that migraine is caused by vascular disturbance and anomalous brain function, only 36.6% knew about the predisposing factors which influence migraine. They concluded that there is a lack of awareness, knowledge, attitudes, about migraine treatment and prevention among medical students. Further community-based population studies and awareness programs should be carried out to improve the knowledge about migraine prevention and treatment.[13]

Section IV: Studies related to effectiveness of informational booklet/ self- instructional module of selected neurological disorders:

Masne S (2019) conducted a study on effectiveness of self-instructional module on knowledge regarding prevention of stroke among adults in the selected rural area. A Quasi experimental one group pre- test post- test design was carried out on 60 adults selected by simple random sampling technique. The result showed that there was highly significance difference found between the pre-test and post- test knowledge scores. They conclude that self-instructional module is proved to be effective in improving the knowledge of adults at selected rural areas regarding prevention of stroke [14]

Tembhurne R S (2019) conducted a study to assess the effectiveness of self-instructional module on knowledge regarding emergency management of epilepsy among school teachers in selected area. A quasi experimental one group pre-test post- test research design was used. The structured knowledge questionnaire on epilepsy was used to collect the data from the samples. The result revealed that the mean percentage in pre-test was 12.45% where as in post- test 14.21% which shows that there in increase in mean percentage. They conclude that self – instructional module on knowledge regarding emergency management of epilepsy was effective. [15]

3. Methodology

The objective is to assess the knowledge on warning signs and prevention of selected neurological disorders among patients' attendants and to determine the association between the knowledge on warning signs and prevention of selected neurological disorders among patients' attendants with selected demographic variables and also to develop an informational booklet on warning signs and prevention of selected neurological disorders.

The research approach adopted for the study was a quantitative approach with a descriptive survey research design. The study was conducted in Rahman Hospitals Pvt. Ltd., Guwahati, Assam for a period of one month. A total sample of 130 patients' attendants either in-patient or out-patient departments were selected by using a non-probability convenient sampling technique. The data were collected by using demographic variables, a structured knowledge questionnaire on warning signs, and prevention of selected neurological disorders, and the technique used was paper and pencil.

Formal permission was obtained from the concerned authorities of Rahman Hospitals Pvt. Ltd. The data were collected for one month from 130 patients' attendants either in-patient or out-patient departments at Rahman Hospitals Pvt. Ltd, Guwahati, Assam. The investigator had given a self-introduction, explained the purpose of the study, and ascertained the willingness of the subjects to participate in the study. The subjects were assured and confidentiality of their information was provided by them and informed consent was obtained. The subjects were given a structured knowledge questionnaire on warning signs and prevention of selected neurological disorders for a time period of 20-30

mins to complete the questionnaire. After assessing the knowledge, an informational booklet on warning signs and prevention of selected neurological disorders was distributed to the subjects free of cost. Re-assessment of the knowledge was done only for in-patient attendants after the 8th day of the pre-assessment.

Plan for data analysis: (1) Descriptive statistics: Data collected will be analyzed by using descriptive statistics such as frequency and percentage, mean, standard deviation. **(2) Inferential statistics:** The re-assessment of knowledge on warning signs and prevention of selected neurological disorders will be tested by using 't'-test. The association between the knowledge on warning signs and prevention of selected neurological disorders with selected demographic variables will be tested by X^2 test.

4. Results

Section- 1: Description of frequency and percentage distribution of demographic variables of patients' attendants.

Table 1: Frequency and percentage distribution of patients' attendants according to demographic variables, n = 130

Demographic variables	Groups	Frequency (f)	Percentage (%)
Age in years	21- 30	43	33.08%
	31- 40	47	36.15%
	41- 50	29	22.31%
	51- 60	11	8.46%
Gender	Male	98	75.38%
	Female	32	24.62%
Educational status	Under-matriculate	15	11.54%
	X passed	11	8.46%
	XII passed	43	33.08%
	Graduate	48	36.92%
	Post- graduate	13	10%
Religion	Hindu	29	22.31%
	Christian	8	6.15%
	Muslim	93	71.54%
Family Income (in rupees per month)	<10,000	39	30%
	10,001 – 20,000	59	45.38%
	20,001 – 30,000	20	15.38%
	>30,001	12	9.23%
Occupation	Government job	19	14.62%
	Private job	90	69.23%
	Unemployed	20	15.38%
	Retired	1	0.77%
Any health-related profession?	Yes	5	3.85%
	No	125	96.15%
Source of any information regarding neurological disorders.	Newspaper	17	13.08%
	Magazines	20	15.38%
	Mass media	33	25.38%
	Health care professionals	60	46.15%
Do you have any neurological problems?	Yes	0	0%
	No	130	100%
Any of your family members suffering from neurological problems?	Yes	70	53.85%
	No	60	46.15%

The data in Table 1 shows that the majority (36.15%) of the patients' attendants belonged to the age group of 31- 40 years. Regarding gender, the majority (75.38%) of the patients' attendants were male. Regarding educational status, the majority (36.92%) of the patients' attendants completed graduation. Regarding religion, the majority (71.54%) of the patients' attendants were Muslim. Regarding family income, the majority(45.38%) of the patients' attendants had a family incomebetween 10,001-20,000. With regards to occupation, the majority (69.23%) of the patients' attendants were doing private jobs. The majority (96.15%) of the patients' attendants are not related to any health-related profession. Regarding the source of information about neurological disorders, the majority (46.15%) of patients' attendants had got information on neurological disorders from Health care professionals. All (100%) patients' attendants did not have any neurological problems. Regarding family members suffering from neurological problems, the majority (53.85%) of the patients' attendants had family members suffering from neurological problems.

Table 2: Frequency and percentage distribution of patients' attendants according to family history of neurological problems, n = 70

Demographic variables	Neurological problems	Frequency	Percentage
Any of your family members suffering from neurological problems?	Stroke	20	15.38%
	Head injury	13	10%
	Lumbar discectomy	8	6.15%
	Seizure	6	4.62%
	Back pain	8	6.15%
	Brain tumor	6	4.62%
	Migraine	4	3.08%
	Brain aneurysm	5	3.85%

The data in Table 2 shows the distribution of patients' attendants family history of neurological problems which include stroke (15.38%), head injury (10%), lumbar discectomy (6.15%), seizure (4.62%), back pain (6.15%), brain tumor (4.62%), migraine (3.08%) and brain aneurysm (3.85%) of the patients' attendants had family members suffering from neurological problems.

Section II: Assessment of knowledge on warning signs and prevention of selected neurological disorders among patients' attendants.

Table 3: Frequency and percentage distribution of knowledge on warning signs of selected neurological disorders among patients' attendants, n=130

S. No.	Level of knowledge	Score	Frequency	Percentage
1.	Inadequate knowledge	1-10	71	54.62%
2.	Moderately adequate knowledge	11-15	56	43.07%
3.	Adequate knowledge	16-20	3	2.31%

The above Table 3 indicates thatthe majority (54.62%) of the patients' attendants had inadequate, (43.07%) of the patients' attendants had moderately adequate knowledge, and (2.31%) of the patients' attendants had adequate knowledge on warning signs of selected neurological disorders.

Table 4: Frequency and percentage distribution of knowledge on prevention of selected neurological disorders among patients' attendants, n=130

S. No.	Level of knowledge	Score	Frequency	Percentage
1.	Inadequate knowledge	1-10	73	56.15%
2.	Moderately adequate knowledge	11-15	52	40%
3.	Adequate knowledge	16-20	5	3.85%

The above Table 4 depicts thatthe majority (56.15%) of the patients' attendants had inadequate knowledge, (40%) of the patients' attendants had moderately adequate knowledge, and (3.85%) of the patients' attendants had adequate knowledge on prevention of selected neurological disorders.

Table 5: Range of scores, standard deviation and mean on warning signs and prevention of selected neurological disorders among patients' attendants, n = 130

Knowledge	Range of scores	Mean	Standard deviation	Total score
Warning signs	5 – 17	10.15	2.51	20
Prevention	4- 19	10.36	2.69	20

The above Table 5 shows that the range of scores on warning signs of selected neurological disorders was from 5-17, with mean knowledge was 10.15 and standard deviation of 2.51 and the ranges of scores on prevention of selected neurological disorders were from 4 – 19 with mean knowledge was 10.36 and standard deviation of 2.69.

Section III: Comparison of knowledge on warning signs and prevention of selected neurological disorders before and after implementation of an informational booklet among in-patients' attendants.

This section III presents the re-assessment of knowledge on warning signs and prevention of selected neurological disorders among patients' attendants of 40 samples in-patients' attendants after the implementation of an informational booklet on warning signs and prevention of selected neurological disorders.

Section III (a) This section deals with the comparison of knowledge on warning signs and prevention of selected neurological disorders before and after implementation of an informational booklet on warning signs and prevention of selected neurological disorders among patients' attendants by frequency, percentage, mean and standard deviation.

Table 6: Frequency and percentage distribution of knowledge on warning signs of selected neurological disorders before and after the implementation of an informational booklet among patients' attendants, n=40

SLNo.	Level of knowledge	Score	Pre-assessment		Post- assessment	
			Frequency	Percentage	Frequency	Percentage
1	Inadequate knowledge	0-10	26	65%	6	15%
2	Moderately adequate knowledge	11-15	13	32.50%	28	70%
3	Adequate knowledge	16-20	1	2.50%	6	15%

The above Table no. 6 indicates that the majority (65%) of the patients' attendants had inadequate knowledge,(32.50%) of the patients' attendants had moderately adequate knowledge, and (2.50%) of the patients' attendants had adequate knowledge in the pre-assessment knowledge, while in re-assessment of knowledge after distribution of

informational booklet, the majority(70%) of the patients' attendants had moderately adequate knowledge,(15%) of the patients' attendants had adequate knowledge and (15%) of the patients' attendants had inadequate knowledge.

Table 7: Frequency and percentage distribution of knowledge on prevention of selected neurological disorders before and after implementation of an informational booklet among patients' attendants, n=40

S. No.	Level of knowledge	Score	Pre-assessment		Post- assessment	
			Frequency	Percentage	Frequency	Percentage
1	Inadequate knowledge	0-10	20	50%	7	17.50%
2	Moderately adequate knowledge	11-15	18	45%	27	67.50%
3	Adequate knowledge	16-20	2	5%	6	15%

The data presented in Table 7 indicates that the majority (50%) of the patients' attendants had inadequate knowledge, (45%) of the patients' attendants had moderately adequate knowledge, and (5%) of the patients' attendants had adequate knowledge in pre-assessment of the knowledge, while in re-assessment of knowledge after

distribution of an informational booklet, the majority (67.50%) of the patients' attendants had moderately adequate knowledge,(17.50%) of the patients' attendants had inadequate knowledge and(15%) of the patients' attendants had adequate knowledge.

Table 8: Range of scores, standard deviation and mean on warning signs and prevention of selected neurological disorders before and after implementation of an informational booklet among patients' attendants, n = 40

Knowledge	Range of scores		Standard deviation		Mean	
	Pre-assessment	Post-assessment	Pre-assessment	Post-assessment	Pre-assessment	Post-assessment
Warning signs	5 – 17	9 – 18	2.52	2.29	9.90	12.85
Prevention	6- 18	9 – 19	2.96	2.54	10.73	12.83

The data presented in Table 8 indicates that the mean post-assessment of knowledge on warning signs score (12.85) was higher than the mean pre-assessment of knowledge score (9.9) on warning signs of selected neurological disorders while the mean post-assessment of knowledge on prevention (12.83) was higher than the mean pre-assessment of knowledge score (10.73) on prevention of selected neurological disorders among patients' attendants. In pre-assessment of knowledge on warning signs (SD =2.52) and in the post-assessment of knowledge on warning signs (SD = 2.29) while in the pre-assessment of knowledge on prevention (SD = 2.96) and the post-assessment of knowledge on prevention (SD = 2.54).

Section III b This section deals with the comparison of knowledge on warning signs and prevention of selected neurological disorders before and after implementation of an informational booklet on warning signs and prevention of selected neurological disorders among patients' attendants by using paired 't'-test.

Table 9: 't'-test table for the comparison of knowledge on warning signs of selected neurological disorders before and after implementation of an informational booklet among patients' attendants, n = 40

Knowledge Score	Mean difference	't'	df	p- value
Pre-assessment knowledge	2.95	16.83	39	<0.001
Post-assessment knowledge				

Significant at p<0.05

The above table 9 depicts that the calculated 't' value was 16.83 which was more than the tabulated value of 2.02 (df 39) at p<0.001. This shows that there was an improvement in the knowledge on warning signs of selected neurological disorders among patients' attendants after distributing an informational booklet on warning signs and prevention of selected neurological disorders.

Table 10: 't'-test table for the comparison of knowledge on prevention of selected neurological disorders before and after implementation of an informational booklet among patients' attendants, n = 40

Knowledge Score	Mean difference	't'	df	p- value
Pre-assessment knowledge	2.10	14.76	39	<0.001
Post-assessment knowledge				

Significant at p<0.05

The above table 10 depicts that the calculated ‘t’ value was 14.76 which was more than the tabulated value of 2.02 (df 39) at p<0.001. This shows that there was an improvement in the knowledge on the prevention of selected neurological disorders among patients’ attendants after distributing an

informational booklet on warning signs and prevention of selected neurological disorders.

Section IV: Association between knowledge on warning signs and prevention of selected neurological disorders with selected demographic variables

Table 11: Chi-square test showing the association of knowledge on warning signs of selected neurological disorders with selected demographic variables, n = 130

Demographic variables	Groups	Knowledge on warning signs			Chi-Square	df	P- value
		Inadequate	Moderately adequate	Adequate			
Age in years	21- 30 years	21	21	1	7.26	6	0.29 ^{NS}
	31- 40 years	31	15	1			
	41- 50 years	16	12	1			
	51- 60 years	3	8	0			
Gender	Male	55	41	2	0.43	2	0.80 ^{NS}
	Female	16	15	1			
Educational Status	Under matric	6	9	0	14.89	8	0.06 ^{NS}
	X passed	8	3	0			
	XII passed	26	17	0			
	Graduate	25	22	1			
	Post Graduate	6	5	2			
Occupation	Government job	8	9	2	8.79	6	0.18 ^{NS}
	Private job	52	37	1			
	Unemployed	11	9	0			
	Retired	0	1	0			
Any health- related profession	Yes	0	5	0	6.73	2	0.03 ^S
	No	71	51	3			
Source of any information regarding neurological disorders	Newspaper	9	8	0	6.99	6	0.32 ^{NS}
	Magazines	9	10	1			
	Mass media	21	10	2			
	Health care professionals	32	28	0			
Any of your family members having neurological problems	Yes	38	31	1	0.56	2	0.75 ^{NS}
	No	33	25	2			

NS- Not significant at 0.05 level of significance, S – Significant at 0.05 level of significance

The above table 11 Chi-square test shows the association of knowledge on warning signs of selected neurological disorders with selected demographic variables. It revealed that there was a significant association of knowledge on warning signs of selected neurological disorders with selected demographic variables like Any health-related profession. Hence, the research hypothesis was partially accepted. Indicating that there was a significant association

of knowledge on warning signs of selected neurological disorders with selected demographic variables like Any health-related profession but no significant association with respect to Age in years, Gender, Educational status, Occupation, Source of information regarding neurological disorders, and Any of your family members having neurological problems at 0.05 level of significances.

Table 12: Chi-square test showing the association of knowledge on prevention of selected neurological disorders with selected demographic variables, n=130

Demographic Variables	Groups	Knowledge on prevention			Chi-Square	df	P- value
		Inadequate	Moderately adequate	Adequate			
Age in years	21- 30 years	25	15	3	7.31	6	0.29 ^{NS}
	31- 40 years	22	24	1			
	41- 50 years	20	9	0			
	51- 60 years	6	4	1			
Gender	Male	57	39	2	3.66	2	0.16 ^{NS}
	Female	16	13	3			
Educational Status	Under matric	10	5	0	15.49	8	0.04 ^S
	X passed	6	5	0			
	XII passed	25	17	1			
	Graduate	27	20	1			
	Post Graduate	5	5	3			
Occupation	Government job	11	4	4	20.61	6	0.02 ^S
	Private job	51	38	1			
	Unemployed	11	9	0			
	Retired	0	1	0			

Any health- related profession	Yes	0	4	1	8.53	2	0.01 ^S
	No	73	48	4			
Source of any information regarding neurological disorders	Newspaper	10	7	0	2.38	6	0.88 ^{NS}
	Magazines	12	8	0			
	Mass media	19	12	2			
	Health care professionals	32	25	3			
Any of your family members having neurological problems	Yes	38	28	4	1.47	2	0.47 ^{NS}
	No	35	24	1			

NS- Not significant at 0.05 level of significance, S - significant at 0.05 level of significance

The above table 12 depicts Chi-square test showing the association of knowledge on prevention of selected neurological disorders with selected demographic variables. It revealed that there was a significant association of knowledge on prevention of selected neurological disorders with selected demographic variables like educational status, Occupation, and Any health-related profession. Hence, the research hypothesis was partially accepted. Indicating that there was a significant association of knowledge on prevention of selected neurological disorders among patients' attendants with the selected demographic variables like educational status, Occupation, and Any health-related profession but no significant association with respect to Age in years, Gender, Source of information regarding neurological disorders, any of your family members having neurological problems at 0.05 level of significance.

5. Discussion

The title of the study was to assess the knowledge on warning signs and prevention of selected neurological disorders among patients' attendants with a view to develop an informational booklet in a selected hospital, Guwahati, Assam.

Major findings of the study were as follows

Demographic variables of the participants

- Less than half (36.15%) of the patients' attendants belonged to the age group of 31- 40 years.
- Majority (75.38%) of the patients' attendants were male.
- Less than half (36.92%) of the patients' attendants completed graduation.
- Majority (71.54%) of the patients' attendants belonged to the Muslim community.
- Near half (45.38%) of the patients' attendants belonged to family income of 10,001- 20,000.
- Majority (69.23%) of the patients' attendants were having a private job.
- Most (96.15%) of the patients' attendants didn't have any health-related profession.
- Near half (46.15%) patients' attendants had information of neurological disorders from health care professionals.
- All (100%) patients' attendants did not have any neurological problems.
- Majority (53.85%) of the patients' attendants had family members suffering from neurological problems.

Discussion of the findings based on the objectives of the research study:

Assessment of the knowledge on warning signs and prevention of selected neurological disorders among patients' attendants

Assessment of the knowledge on warning signs of selected neurological disorders among patients' attendants

The present study was done to assess the knowledge on warning signs of selected neurological disorders among patients' attendants. The assessment of the knowledge on warning signs of selected neurological disorders shows that the majority (54.62%) of the patients' attendants had inadequate knowledge, (43.07%) had moderate knowledge, and (2.31%) had adequate knowledge on warning signs of selected neurological disorders.

The finding is supported by another comparative cross-sectional survey conducted by Sapna, Bhatia Rohit, Sharma Gautam, Gopi Chandran L (2016) on knowledge on risk factors, warning signs, and immediate treatment of stroke among stroke survivors and patients of cardiovascular disorders who are at risk of stroke. It was concluded that the majority of the patients were not found to have adequate knowledge on risk factors, warning signs, and the need for immediate treatment. [16].

Assessment of the knowledge on prevention of selected neurological disorders among patients' attendants

The assessment of the knowledge on prevention of selected neurological disorders shows that the majority (56.15%) of the patients' attendants had inadequate knowledge, (40%) had moderate knowledge and (3.85%) had adequate knowledge on prevention of selected neurological disorders.

The finding is supported by a descriptive cross-sectional study by Alkhudhairi OS, Alghity AM, Mohammed W S, Alqassemi SIQ (2018) on assessment of knowledge and attitude and practice towards migraine prevention and treatment among the general population in Saudi Arabia. The result shows that the knowledge, attitude, and practice level regarding migraine prevention was inadequate among most of the included subjects. [17]

The finding is also supported by a cross-sectional design study conducted by Missriya S, Jhoney John (2017) on assessing the prevalence of hypertension and knowledge regarding the prevention of stroke in Panachikkadu Grama Panchayat of Kottayam district in Kerala. It was concluded that there was more prevalence of hypertension and most of

them had inadequate knowledge on prevention of stroke. [18]

Association between the knowledge on warning signs and prevention of selected neurological disorders among patients' attendants with selected demographic variables

Association between the knowledge on warning signs of selected neurological disorders among patients' attendants with selected demographic variables:

The present study was done to determine the association between the knowledge on warning signs of selected neurological disorders with selected demographic variables.

The present study revealed that there was no significant association of the knowledge on warning signs of selected neurological disorders with selected demographic variables among patients' attendants with respect of age, gender, educational status, occupation, source of information, any of your family members having neurological disorders at 0.05 level of significance. But there was a significant association of the knowledge on warning signs of selected neurological disorders with selected demographic variables with Any health-related profession.

The finding is also supported by a descriptive cross-sectional survey conducted by Karimi N, Akbarian SA (2016) on knowledge and attitude toward epilepsy of close family members of people with epilepsy in North Iran. The study concluded that a significant association between a positive attitude score and the female gender and level of education but no association with age, marital status and occupation. [19]

Association between the knowledge on prevention of selected neurological disorders among patients' attendants with selected demographic variables:

The present study was done to determine the association between the knowledge on prevention of selected neurological disorders with selected demographic variables.

The present study revealed that there was no significant association of the knowledge on prevention of selected neurological disorders with selected demographic variables among patients' attendants with respect to Age, Gender, Source of information, any of your family members having neurological disorders at 0.05 level of significance. But there was a significant association of knowledge on the prevention of selected neurological disorders among patients' attendants with selected demographic variables like educational status, Occupation, and Any health-related profession.

The finding is supported by a non-experimental descriptive survey design by Jambhulkar MC, Manorama Kashyap (2019) on assessing the knowledge and practice regarding epilepsy management among staff nurses in a selected hospital. Where the study shows that there was a significant association between knowledge scores with selected demographic variables like the educational qualification of the staff nurses [20].

Develop an informational booklet on warning signs and prevention of selected neurological disorders.

The present study developed an informational booklet on warning signs and prevention of stroke, epilepsy, and migraine and it was distributed at the end of the assessment of knowledge to the patients' attendants.

The finding is contradicted by a pre-experimental one-group pre-test post-test design by Jayalakshmi H (2016) in this study, it assessed the effectiveness of self-instructional module on knowledge regarding prevention of stroke among hypertensive patients. [21]

The finding is also contradicted by a quasi-experiment (one group pre-test) design by Kanakalmath R, Eshwarappa S (2020) in this study, it assessed the effectiveness of self-instructional module on knowledge regarding epilepsy among B.Ed. students in selected colleges at Bijapur. [22]

6. Nursing Implications

The investigator had drawn the following implications from the study which is a vital concern to the field of nursing practice, nursing education, nursing administration, and nursing research.

Nursing Practice:

Research plays a vital role in the nursing profession and nurses should do research for upgrading their knowledge, solving their queries, provide quality care to the patient. The findings of the present study show the need for improving the knowledge of warning signs and prevention of selected neurological disorders among patients' attendants. Nurses as healthcare workers should provide education about the warning signs and prevention of neurological disorders among patients' attendants as well as the community.

Nursing Education:

The curriculum for nurses needs to give more emphasis on patient education in relation to the knowledge on warning signs and prevention of selected neurological disorders which are needed to prevent the patient and family members from complications of neurological disorders. The nurse educator should assess the knowledge of the patients' attendants and provide education about warning signs and prevention of selected neurological disorders. So that patients' attendants will be aware and be able to identify what are the warning signs and what are the needed steps to be taken in case of emergency in the hospital as well as in community settings.

Nursing Administration:

The nurse administrator can make policies, protocols, and programs to improve knowledge on warning signs and prevention of selected neurological disorders to the patients' attendants. Nursing standards ensure the mandatory practice of patient education as well as the patients' attendants about the early warning signs and prevention of occurrence of disease and reaching the patients to the nearest health care system before the life-threatening situation occurs.

Nursing Research:

Nursing research provides a body of knowledge that helps advance nursing practice. Neurological disorders pose a large burden on worldwide health and it is important for the patients' attendants to have knowledge on warning signs and prevention of neurological disorders.

7. Limitations

- In the present study, re-assessment of knowledge could be done only for 40 in-patients' attendants.
- This study took samples only from one institution, so the findings cannot be generalized.
- The study does not include a planned teaching programme.

8. Recommendations

- A similar study can be replicated in different settings.
- The effectiveness of a planned teaching programme regarding selected neurological disorders and their treatment can be studied by conducting experimental research, after giving education to the group or individual counseling and its efficacy can be tested after a period of time.
- A study can be undertaken to assess the knowledge, attitudes, and awareness on selected neurological disorders in the community which will help to know the magnitude of the problem in the community so that proper intervention can be planned.

9. Conclusion

From the findings of the present study, it can be concluded that the patients' attendants have inadequate knowledge about the warning signs and prevention of selected neurological disorders. So, the investigator distributed an informational booklet prepared on warning signs and prevention of stroke, epilepsy, and migraine to patients' attendants.

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