Assessment of knowledge on migraine and identify the triggering factors among migraine patients at tertiary care centre of Tirupati, Andhrapradesh.

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Abstract*: A study to assess the knowledge on migraine and identify the triggering factors among migraine patients attending neurology OPD, SVIMS, Tirupati.*
Objectives:
- *To assess the knowledge and identify the triggering factors of migraine among migraine patients.*
- *To determine the association between knowledge on migraine with selected demographic variables.*

Methodology: *The descriptive cross sectional research design was adopted. The independent variable was migraine patients and dependent variable was knowledge regarding migraine. The data was collected from 110 migraine patients ,sample has been selected by purposive sampling technique with inclusion criteria of diagnosed with migraine and aged between 19-58 years and patients who were having other types of headache includes tension type of headache, cluster headache and other types of secondary headaches were excluded. The tool included structured questionnaire on knowledge regarding migraine and check list to identify the triggering factors. The data was analyzed in terms of descriptive and inferential statistics by using SPSS version 16.*

Results:
1. *1.The majority of the patients 41.8% (46) were having moderate knowledge, and most common triggering factors were stress in 91.8%, exposure to excessive sunlight in 90.9% , lack of sleep in 90% , excessive excitement in 88.2%, skipping of meal in 83.6%, bright light in 81.8%, loud sounds in 80%, journey in 79%,strong smells in 70%, excessive physical activity in 66.4%, weather changes in 59%, caffeine with drawl or intake in 56.7%, dairy products in 52.7%, salty foods in 48.2%, and head injury in 47.3%.*
2. *The association between demographic variables with level of knowledge was assessed by Correlation, it revealed that age, age of onset of headache were positively correlated at p< 0.01 level, nature of occupation was correlated at p<0.05 and education is negatively correlated p <0.01 level.*

Conclusion: *The study concludes that majority of the patients were having moderate knowledge. Patients were having adequate knowledge regarding symptoms but they are having inadequate knowledge regarding other aspects of disease. Majority are having stress as a common triggering factor.*

Key words: *Knowledge, Migraine, Triggering factor.*

I. Introduction

Headache or cephalgia is one of the most common of all human physical complaints. It is a symptom rather than a disease entity. Head ache disorders are among the most common disorders of the nervous system. It accounts for approximately 25% of a general neurologist's outpatient practice. It may indicate organic disease (neurologic), a stress response, vasodilatation (migraine), skeletal muscle tension (tension head ache) or a combination of factors. Headache mainly divided into two types i.e primary headache and secondary headache. A primary headache is one for which no organic cause can be identified. A secondary headache is a symptom associated with organic cause such as brain tumors, aneurysms, stroke, and meningitis (1). Of all the disorders that present to the clinicians with headache, migraine is the commonest and also the most burdensome (2).

In this modern era, when imaging studies are easily available, most secondary headaches are identified and managed correctly. Management of secondary headaches depends on the causative factor and the strategies are the similar worldwide. Therefore, headache mismanagement generally pertains to primary headache, where imaging studies are normal and investigations don't reveal underlying cause. Among these primary headaches the most common one is migraine (2).

The exact cause of migraine is not known. It is caused by abnormal brain activity. It's primarily a vascular disturbance. It can occur through heredity, 60% of cases have positive family history of migraine (3). The abnormal brain activity can be triggered by many factors. They include: dietary factors, environmental factors, medications, psychological factors, change in habits and other factors.

Identifying and avoidance of triggering factors is very much important in reducing the frequent attacks of headache. In prevention of migraine the first and foremost one is identification and avoidance of triggering factors of migraine. Headache dairy is very much useful to identify and avoid the triggering factors (4).

Need For the Study

Headache disorders are among the most common disorders of the nervous system. It has been estimated that 47% of the adult population have headache at least once within last year in general. A minority of people with headache disorders worldwide are diagnosed appropriately by a health care provider. Half to three quarters of the adults aged 18-65 yrs in the world have headache in the last year and among those individuals more than 10% have reported migraine (5).

World health organization has shown that mental and neurological disorders collectively account for 30.8% of all years of healthy life lost due to disability, whilst the migraine, one among these alone accounts for 1.45 and is in the top 20 causes of disability worldwide. Migraine causes a large proportion of the non fatal disease related burden worldwide (6).

Global Data epidemiologists forecast that the total prevalent cases of migraine in the world, with 75.83 million total prevalent cases in 2013 and in 2023 total prevalent cases are 76.38 million, with an annual growth rate of 0.07% in the forecast period(7).

India with a population of 1100 million and it is the second most popular country in the world and with 16% of the world population. 95% of the population lives in cities. Low literacy levels lead to low awareness, myths and misunderstandings and faulty attitudes towards headache in general. Compounding the regional burden of headache further are some migraine triggers that are peculiar to the region. Being in the tropics, heat and light levels are very different from what prevails in the temperate countries and travel conditions are not ideal (8). During clinical experience at neurology OPD, SVIMS, the investigator observed that many patients with migraine are coming to hospital with moderate to severe intensity of migraine attacks and having many myths and misconceptions regarding disease condition and triggering factors. Some patients were asking the neurophysician to advice for imaging studies even though it is not needed and also many patients are suffering with recurrent migraine attacks due to poor identification and control of triggering factors. So the investigator found the necessity to create awareness regarding disease condition and identify the triggering factors among patients with migraine. Hence it is needed to assess the knowledge on migraine and to identify their triggering factors which are causing a migraine attack. Thus, it was expected that the study would help to prevent recurrent migraine attacks and reduces the disability and it helps to improve the quality of life among migraine patients.

1. Objectives of the study:
1.1 To assess the knowledge and identify the triggering factors of migraine among migraine patients.
1.2 To determine the association between knowledge on migraine with selected demographic variables.

II. Null Hypothesis

2.1 $H_0$1: There is no significant knowledge regarding migraine and its triggering factors among patients with migraine.
2.2 $H_0$2: There is no significant association between knowledge on migraine with their selected demographic variables.

III. Assumptions

3.1Patients attending OPD may not have adequate knowledge regarding migraine.
3.2The selected demographic variables will influence the knowledge of patients.
3.3Participants co-operate and respond appropriately to the structured questionnaire.
3.4Migraine patients may not able to identify the triggering factors of migraine.

IV. Projected Outcomes

4.1. Results of the study will help the nurse to know knowledge of patients regarding disease and various triggering factors of migraine among migraine patients.
4.2. Findings of the study will help the patients to identify and avoid the triggering factors, so that they can avoid the recurrent migraine attacks.

V. Conceptual Framework

The theoretical framework for this study was adopted from "Rosen stock Health Belief model (1974)'.The underlying concept of the original health belief model is that health behavior is determined by personal beliefs or perceptions about a disease and the strategies available to decrease its occurrence (9). There are three components in this model, they are: Modifying factors, Individual perceptions and Likelihood of action.

Fig No: 1 Modified conceptual framework based on Rosen stock's & Becker's health belief model (2015)
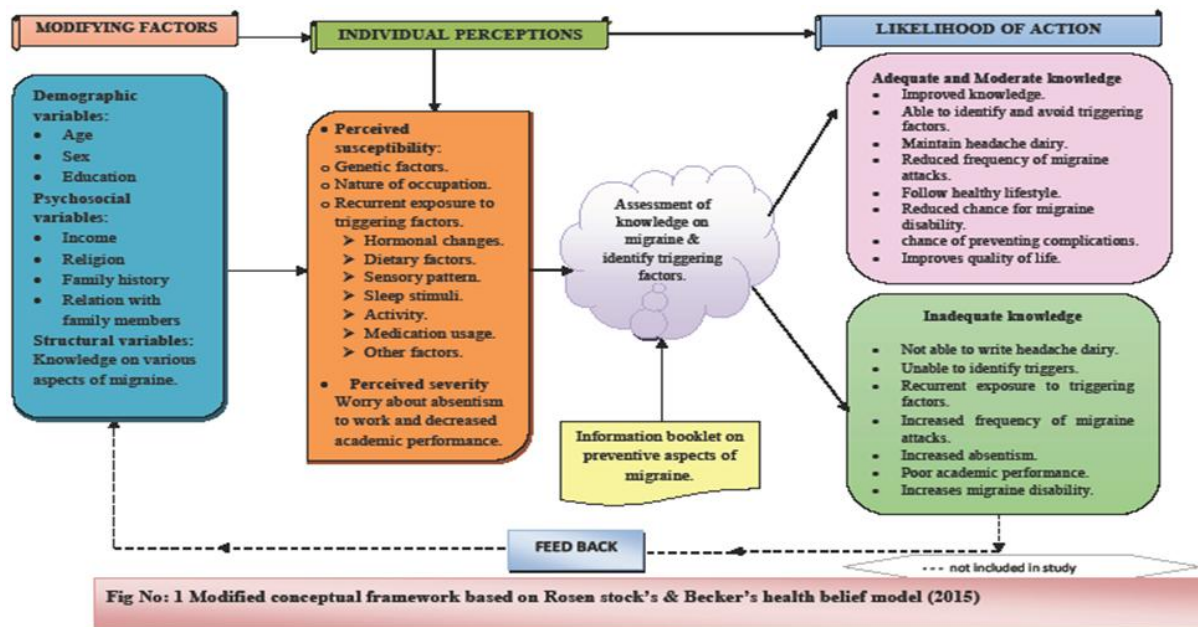
VI. Materials And Methods

6.1 Research approach: Non experimental approach was adopted to achieve the objective of the study.

6.2 **Research design:** The research design selected for the present study was cross–sectional descriptive design.

6.3 Variables:
Independent variables: Migraine patients.
Dependent variables: Level of knowledge.

6.4 **Inclusion criteria:** people who
* Were diagnosed as migraine and attending neurology OPD,SVIMS.
* Belongs to age group of 19-58 years.
* Can speak Telugu or English and willing to participate in the study, and available during data collection period.

6.5 Exclusion criteria: people who
* Were diagnosed with other types of headache (Tension type of headache, cluster headache and secondary headaches. Ex: Brain tumors, Meningitis, Head injuries, cerebral aneurysms).
* Were hospitalized with migraine.

6.6 Setting: The study was conducted at Neurology OPD, SVIMS, Tirupati.

6.7 Population: The population includes patients with migraine.

6.8 Sample: Migraine patients attending Neurology OPD, SVIMS.

6.9 Sample size: Sample size consists of 110 patients who fall under inclusion criteria.

6.10 Sampling technique: As the selection of sample depends on availability of patients, non probability purposive sampling technique was adopted based on inclusion criteria.

6.11 Method of data collection:
    A validated structured interview schedule was used to assess the knowledge on migraine and identify the triggering factors of migraine. Since the subjects were a combination of literate and illiterate, therefore the structured interview method of data collection.

6.11.1 Description of the tool: It consists of three parts.
Section-I: Consists of questions related to demographic data.

Section-II: A **structured questionnaire** to assess knowledge regarding migraine. It consists of 17 questions based on general information, cause and risk factors, symptoms, diagnosis and treatment, prevention, and complications of migraine. Multiple choice questions were used in general information, cause and risk factors, diagnosis and treatment. Dichotomous questions were used in symptoms, prevention and complications of migraine. The scoring pattern adopted was each correct answer carries "1" mark and wrong answer carries 'o" mark.

Section – III: A structured check list was prepared to identify the triggering factors of migraine. It has 30 items regarding triggers.

The scoring pattern adopted was "1" mark for a correct and 'o" for wrong answer. Tick (✓) mark was put in the appropriate columns after receiving the answers from the respondents.

6.11.2 Score Interpretation:

0-50% - Inadequate knowledge
51-75% - Moderate knowledge
>76% - Adequate knowledge.

6.12 Reliability of tool:

Internal consistency was established by split - half (odd-even) method using Karl Pearson correlation coefficient r=0.7 and stability of the tool was established by test-retest method with intra correlation coefficient r=0.67. The tool was found to be reliable.

6.13 Statistical treatment applied:

6.13.1 Frequency and percentage were used to describe the data and triggering factors.
6.13.2 Mean and standard deviation and item wise analysis for domains of knowledge on migraine.
6.13.3 Correlation was applied to determine the association between the knowledge and demographic variables.

6.14 Ethical consideration:

The study was approved by scientific research ethics committee, faculty of Nursing, SVIMS University. Participants were given explanation about the purpose of the study and they were also informed that they could withdraw from the study at any time before the completion of the study. Participants who agreed to complete this study were asked to sign a consent form. Confidentiality of participants was assured and the data were accessed only by the investigator involved in the study.

VII.   Results

Results shown that with respect to age majority 50.9% (56) were in the age group of 33-46 years, 79.1% (87) were females, 76.4%(84) belongs to Hindu religion, 29%.1(32) having secondary education, 60% (66) doing moderate work, 61.8% (68) belongs to nuclear family, 74.5%(82) not having family history of migraine,15.5% (17) of their parents were having migraine,86.4% (95) having the monthly income of Rs.3000-18,000,48.2% (53) having the age of onset of headache between 25-37 years, 77.3% (85) have duration of headache was 1-24hrs,80.9% (89)having 2-6 migraine attacks per month, 57.3% (63) visiting doctor three months once,42.7%(47) were not known about type of medication they are using, and 79%(87) had 0-5 years of duration of treatment.(TABLE-1)

Study results have shown that 19% (21) of migraine patients were having inadequate knowledge, 41.8% (46) were having moderate knowledge and 39.1% (43) were having adequate knowledge (Fig-2). The total mean knowledge score was 27.781+6.369. Considering to general information the mean knowledge score was 2.136+0.829, With regard to cause and risk factor, the mean knowledge score was 1.036+0.753. With regard to symptoms, the mean knowledge score was15.481 +4.001. Pertaining to diagnosis and treatment, the mean knowledge score was 2.563+1.547. Related to prevention, the mean knowledge score was 4.172+1.445, and related to complications, the mean knowledge score was 2.390 +1.212 (Fig-.3).Study results have also shown that most common triggering factors of migraine among patients were stress in 91.8% (101), exposure to excessive sunlight in 90.9%(100),lack of sleep in 90% (99), excessive excitement in 88.2% (97), skipping of meal in 83.6% (92), bright light/light glare in 81.8%(90), loud sounds in 80% (88), journey in 79% (87), strong smells in 70% (77), excessive physical activity in 66.4%(73), weather changes in 59% (65), caffeine withdrawal or intake in 56.7% (62), dairy products in 52.7% (58), salty foods in 48.2% (44), head injury in 47.3%(52), neck or back injury in 46.1% (54), menstruation in 45.6%(48), processed foods in 40% (44), excessive sleep in 35.5% (39), shift of work in 32.7% (36), lack of water intake in 31.8% (35), usage of food additives in 29% (32), usage of hormone replacement tablets in 20.9% (23), lack of exercise in 17.3%(19), high blood pressure in 13.6% (15), excessive exercise in 12.7% (14), smoking and alcoholism in 11.8%(11), and medications and usage of oral contraceptive pills in 10%(11) of patients (TABLE-2).

The association between level of knowledge and demographic variables was assessed by correlation it has shown that age and age of onset of headache were positively correlated at p<0.01 level, nature of occupation was correlated at p<0.05 and education was negatively correlated at p<0.01 level (TABLE-3).

In comparison of mean variances among the demographic variables with level of knowledge among migraine patients education was significant at p< 0.05 and family history of migraine significant at p < 0.01 level(TABLE-4).

VIII. Discussion

The purpose of the study was to assess the level of knowledge on migraine and identify the triggering factors of migraine among migraine patients attending neurology OPD, SVIMS, Tirupati.

The first objective of the study was to assess the level of knowledge and identify the triggering factors of migraine among migraine patients. The study findings revealed that, 19% (21) had inadequate knowledge, 41.8% (46) had moderate knowledge and 39.1% (43) had adequate knowledge. And over all mean knowledge score was 27.7+6.3. In Mysore at south Indian tertiary care teaching hospital few patients were aware of the causes, signs and symptoms, triggers and management of migraine. The mean knowledge score among migraine patients were 13.29+3.4 (10) .

The results have shown that most common triggering factors of migraine among patients were stress in 91.8%, exposure to excessive sunlight in 90.9%, lack of sleep in 90%, excessive excitement in 88.2%, skipping of meal in 83.6% , bright light/light glare in 81.8%, loud sounds in 80%, journey in 79%,strong smell in 70%, excessive physical activity in 66.4%, weather changes in 59%, caffeine with drawl or intake in 56.7%, dairy products in 52.7%, salty foods in 48.2%, head injury in 47.3% , neck or back injury in 46.1%, menstruation in 45.6%, processed foods in 40%, excessive sleep in 35.5%, shift of work in 32.7%, lack of water intake in 31.8%,usage of food additives in 29%, usage of hormonal replacement tablets in 20.9%, lack of exercise in 17.3%, high blood pressure in 13.6%, smoking and alcoholism in 11.8%,and medication usage and oral contraceptive pills in 10% of patients. In Atlanta, U.S.A the most common triggering factors among migraine patients were stress 79.7%, hormones in women 65.1%, not eating in 57.3%, weather 53.2%, sleep disturbance in 49.8%, odor or strong smell in 43.7%, alcohol 37.8%, smoke in 35.7%, sleeping late 32%, heat 30.3%, food 26.9%, exercise in 22.1%, and sexual activity in 5.2% (11).

As the present study findings revealed that majority of migraine patients had moderate level of knowledge and able to identify the triggering factors so null hypothesis $H_0 1$ was rejected. Majority of patients are having moderate level of knowledge because most of the patients have been explained by physician regarding their disease condition, but there is no specific awareness programmes being conducted on migraine. Most of the patients are able to identify their triggering factors but they don't how to avoid their triggering factors, and there is increased frequency of migraine attacks.

The second objective of the study was to find out the association between knowledge on migraine with demographic variables. The study results have shown that age, age of onset of headache were positively correlated and significant at p < 0.01 level, nature of occupation was significant at p<0.05 and education is negatively correlated and significant at p < 0.01 level and. In comparison of mean variances among the demographic variables with level of knowledge among migraine patients education was significant at p< 0.05 and family history of migraine significant at p < 0.01 level. In Florianopolis at Brazil, Migraine was significantly more prevalent in females than males. Knowledge on migraine was significantly associated with low socio economic status, education and marital status at p< 0.05. There was a preponderance of migraine in females, divorced or widowed with a low socioeconomic status (12) .

So the null hypothesis $H_0 2$ states that there is no significant relationship between knowledge on migraine and socio demographic variables was rejected.

IX. Conclusion

The study findings revealed that majority of the patients were having moderate knowledge. Patients were having adequate knowledge regarding symptoms but they are having inadequate knowledge regarding other aspects of disease. Majority were having stress as a common triggering factor because of their lifestyle changes (poor sleep hygiene, exposure to excessive sunlight).

X. Recommendations

The study recommended the following
- A quasi experimental study can be conducted on effectiveness of structured teaching programme regarding prevention and lifestyle modifications among migraine patients.
- A case control study can be conducted to assess knowledge regarding migraine.
- A similar study could be conducted on large sample.
- A longitudinal descriptive study can be conducted to assess the quality of life among migraine patients.

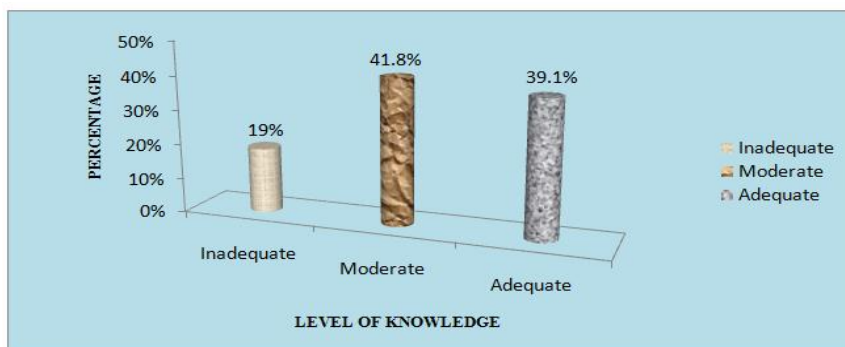**Table-1:** Frequency and percentage distribution of demographic variables among migraine patients.n=110

SL.NO	Demographic variables	Frequency(F)	Percentage (%)
1.	**Age in years**		
	• 19-32	39	35.5
	• 33-46	56	50.9
	• 47-60	15	13.6
2.	**Sex**		
	• Male	23	20.9
	• Female	87	79.1
3.	**Religion**		
	• Hindu	84	76.4
	• Christian	11	10.6
	• Muslim	15	13.6
4.	**Educational status**		
	• Illiterate	22	20
	• Primary education	17	15.5
	• Secondary education	32	29.1
	• intermediate	14	12.7
	• Graduation	24	21.8
	• Post-graduation	1	0.9
5.	**Nature of work**		
	• Sedentary work	12	10.9
	• Moderate work	66	60.0
	• Heavy work	31	28.2
6.	**Type of family**		
	• Nuclear	68	61.8
	• Joint	23	20.9
	• Extended	19	17.3
7.	**Family history of migraine**		
	• Yes	28	25.5
	• No	82	74.5
8.	**If yes, specify the relation ship**		
	• Parents	17	15.5
	• Siblings	6	5.5
	• Grand parents	2	1.8
	• Others	3	2.7
9.	**Monthly income in rupees**		
	• 3000-18000	95	86.4
	• 18001-34000	9	8.2
	• 34001-50000	6	5.5
10	**Age of onset of headache in years**		
	• 12-24	41	37.3
	• 25-37	53	48.2
	• 38-50	16	14.5
11	**Duration of headache in hrs**		
	• 1-24	85	77.3
	• 25-48	15	13.6
	• 49-72	10	9.1
12	**Frequency of migraine attacks per month**		
	• 2-6	89	80.9
	• 7-11	14	12.7
	• 12-16	7	6.4
13	**How often visits doctor for treatment**		
	• Monthly once	19	17.3
	• Three months once	63	57.3
	• Six months once	28	25.5
14	**Type of medication**		
	• Acute medication	30	27.3
	• Preventive medication	33	30
	• Don't know	47	42.7
15	**Duration of treatment in years**		
	• 0-5	87	79
	• 6-10	22	20
	• 11-15	1	0.9

Table-2: Frequency and percentage distribution of triggering factors of migraine among migraine patients.   n=110

Sl. No	Name of the triggering factor	Frequency(F)	Percentage (%)
1	Usage of oral contraceptive pills	11	10
2	Usage of hormone replacement tablets	23	20.9
3	Menstruation	48	45.6
4	Dairy products eg: Cheese, butter	58	52.7
5	Salty foods eg: Pickles, chips	53	48.2
6	Processed foods eg: Canned foods	44	40
7	Skipping meal	92	83.6
8	Caffeine intake or with drawl	62	56.7
9	Usage of food additives	32	29.1
10	Bright light/ light glare	90	81.8
11	Exposure to excessive sunlight	100	90.9
12	Loud sounds	88	80
13	Strong smells	77	70
14	Lack of sleep	99	90
15	Excessive sleep	39	35.5
16	Lack of exercise	19	17.3
17	Excessive exercise	14	12.7
18	Excessive physical activity	73	66.4
19	Medicines (Anti hypertensives)	11	10
20	Journey	87	79
21	shift of work	36	32.7
22	Less water intake	35	31.8
23	Head injury	52	47.3
24	Neck or back injury	54	46.1
25	Stress	101	91.8
26	Excessive excitement	97	88.2
27	High blood pressure	15	13.6
28	Weather change	65	59.1
29	Alcohol intake	13	11.8
30	smoking	13	11.8

Fig no 2: Percentage distribution of Level of knowledge among migraine patients.
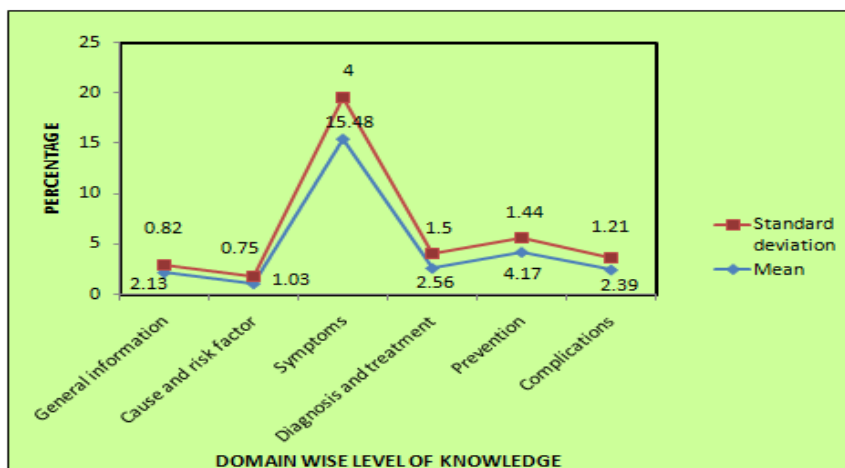
Fig -3: Mean and standard deviation of domain wise knowledge among migraine patients.

Table-3: Correlation of demographic variables with level of knowledge regarding migraine among migraine patients

n=110

S.N0	Demographic variables	'r' value	'P' value
1.	Age	1	0.001**
2.	Sex	0.001	0.995
3.	Religion	-0.040	0.675
4.	Education	-0.403	0.000**
5.	Nature of occupation	0.203	0.033*
6.	Type of family	0.048	0.620
7.	Family history of migraine	0.028	0.772
8.	If yes relationship	-0.011	0.905
9.	Monthly income in rupees	-0.171	0.075
10.	Age of onset of headache	0.531	0.000**
11	Duration of headache	-0.029	0.760
12	Frequency of migraine	0.003	0.978
13	How often visiting doctor	0.126	0.191
14	Type of medication	0.115	0.233
15	Duration of treatment	0.133	0.166

Table- 4: Mean variances of demographic variables with level of knowledge among migraine patients.

n=110

SL. NO	Demographic variables	Mean	Standard deviation	'F' value	'P' value
1.	**Age in years** • 19-32 • 33-46 • 47-60	27.71 28.17 26.46	6.02 6.03 8.48	0.426	0.654
2.	**Sex** • Male • Female	27.35 29.39	6.20 6.84	1.871	0.174
3.	**Religion** • Hindu • Christian • Muslim	28.15 27.26 25.63	6.59 3.99 7.201	0.814	0.446
4.	**Educational status** • Illiterate • Primary education • Secondary education • intermediate • Graduation • Post-graduation	23.68 27.82 29.18 28.35 29.08 33.00	7.50 4.27 5.85 6.34 6.10 -	2.685	0.025*
5.	**Nature of work** • Sedentary work • Moderate work • Heavy work	30.91 27.90 26.54	3.87 6.06 7.38	1.909	0.133
6.	**Type of family** • Nuclear • Joint • Extended	28.16 27.56 26.68	6.5 5.8 6.4	0.412	0.663
7.	**Family history of migraine** • Yes • NO	31.07 26.65	5.84 6.18	10.930	0.001**
8.	**Monthly income in rupees** • 3000-18000 • 18001-34000 • 34001-50000	27.92 28.33 24.66	6.291 8.306 4.179	0.772	0.464
9	**Age of onset of headache** • 12-24 • 25-37 • 38-50	27.60 28.20 26.81	5.932 6.694 6.625	0.315	0.731
10	**Duration of headache** • 1-24 • 25-48 • 49-72	27.27 30.46 28.10	6.334 6.446 6.136	1.638	0.199
11	**Frequency of migraine attacks per month** • 2-6 • 7-11 • 12-16	27.53 27.35 31.71	6.315 7.260 4.309	1.441	0.241

12	**How often visits doctor for treatment** • Monthly once • Three months once • Six months once	27.31 28.23 27.07	6.472 6.447 6.265	0.382	0.683
13	**Type of medication** • Acute medication • Preventive medication • Don't know	28.96 27.03 27.64	5.391 7.015 6.620	0.585	0.626
14	**Duration of treatment** • 0-5 • 6-10 • 11-15	28.08 26.50 30.00	6.119 7.411 –	0.597	0.552

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