Prevalence, determinants and impact of migraine on quality of life of healthcare workers at primary healthcare centers in Abha City, Saudi Arabia

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Abstract

Objective: To assess prevalence, determinants and impact of migraine on health-related quality of life (HRQOL) among healthcare workers in Abha primary healthcare centers.

Methods: Following a cross-sectional research design, the present study was conducted on 212 healthcare workers at primary healthcare centers belonging to the Ministry of Health in Abha City, Saudi Arabia. A self-administered questionnaire was used for data collection.

Results: 51.9% were males and 38.2% were residents. The mean±SD of MIDAS score was 12±10.6, and the mean±SD score of HRQOL was 54.9±7.4. The migraine disability assessment (MIDAS) grades differed significantly according to gender (p=0.011), position (p<0.001), migraine attacks (P<0.001), and positive family history of migraine (p=0.006). The HRQOL was significantly associated with smoking habits (p=0.037), migraine attacks in the previous year (p<0.001), and accompanied symptoms (P=0.037).

Conclusions: Prevalence of migraine varies according to several factors. The attacks of migraine affected grades of migraine disability and health-related quality of life of healthcare workers.

Key words: Migraine, Health Care Workers, Quality of life, Saudi Arabia.

Introduction

Headache causes substantial disability [1] and it is one of the commonest reported neurological disorders seen in primary care settings [2]. The three disorders that are responsible for the majority of headache-attributed burden are tension-type headache, migraine, and medication-overuse headache (MOH) [3-7].

Migraine is characterized by unilateral, pulsatile attacks of headache, which is more present in the temporal area and its duration ranges between 4 and 72 hours [8-10]. It is more observed among females than males, which could be attributed to changes in the hormone levels [11]. Migraine could reduce work performance and daily activities, as most migraine sufferers reported reduction of activities during headache attacks [12-14].

Globally, migraine is a prevalent disorder with a prevalence of approximately 12% among the general population [15]. According to the World Health Organization (WHO), [16] it is ranked 19th among all diseases causing disability and is the 12th leading cause of years lived with disability among the general population of all ages worldwide. Migraine is generally considered a disease that can significantly reduce the quality of life (QOL) of affected individuals [17, 18].

Work-related stress is considered an important environmental cause of migraine [19]. Healthcare workers (HCWs) have a stressful work environment, are frequently exposed to emotional stress, are often on rotating work shifts because of their job demands [20, 21]. Almost half (45%) of HCWs, particularly physicians and nurses, reported highly stressful workdays [22].

The prevalence of migraine among HCWs is variable. In Taiwan, [23] it is approximately 29% among nurses, whereas in Northern China, [24] it is nearly 15% in nurses. In Norway, it is 19.6% among nurses [25]. However, prevalence of migraine among HCWs remains to be explored.

The aim of this study was to assess prevalence, determinants and impact of migraine on primary healthcare workers' quality of life in Abha City, Saudi Arabia.

Methodology

Following a cross-sectional study design, the present study was conducted during the period from February 2020 till December 2020. Healthcare workers at the primary healthcare (PHC) centers in Abha City belonging to the Ministry of Health constituted the study population (N=491 in 52 PHC centers).

The sample size was calculated to be 193, using the single proportion equation in Raosoft Sample Size Calculator website, [26] at 95% confidence intervals, expected frequency 29%, and 5% accepted margin of error. However, the study sample was increased to 212 to compensate for any drop out.

A simple random sampling technique was applied. The total sample (n=212) was proportionally distributed among physicians and nurses (164 nurses and 48 physicians). A total of 23 primary healthcare centers were selected by simple random sampling technique from a list that included all 52 primary care centers. In a selected center, all healthcare workers in the selected centers were invited to participate until the required sample size could be fulfilled.

A self-administered questionnaire was used for data collection. It included demographic data and details of migraine headache using the Headache Assessment Questionnaire throughout the period of the past 12 months. To measure the impact of headache on a person's daily functioning, the valid and reliable Migraine Disability Assessment (MIDAS) test was applied [27]. Moreover, the abbreviated World Health Organization Quality of Life (WHOQOL-BREF) questionnaire was applied to assess the quality of life among participants. It is a validated tool assessing quality of life in the domains of physical health, psychological health, social relationships and environment. This tool has been tested across cultures including in the general Arabic population and showed very good psychometric properties, such as construct validity and internal consistency with Cronbach's alpha superior to other QoL assessment tools. Scores ≤ 45 were considered as "poor" HRQOL; scores 46–65 were considered as "moderate" HRQOL; and scores > 65 were considered as "high" HRQOL [28-32].

Migraine was defined as recurrent headache, lasting 4 to 72 hours, with at least 2-4 of the following quality of pain features: unilateral, pulsatile, or throbbing; moderate to severe headache; exacerbating on movement; and associated with gastrointestinal symptoms (either nausea or vomiting) or photophobia/phonophobia. However, no attempt was made by the researchers to differentiate between the different forms of migraine [33].

A pilot study was applied on 10 participants (5 physicians and 5 nurses), whose responses were not included into the main study. The purpose of the pilot study was to assess the validity and reliability of the study questionnaire, and to identify the necessary modifications that were carried out accordingly.

A self-administered questionnaire sheet was given by the researchers to all participants after clearly describing the study objectives to them. The questionnaire sheets were collected immediately after being filled.

The Statistical Package for Social Sciences (SPSS, Inc, Chicago, IL, USA for Windows version 25.0) was used for data entry and analysis.

All the necessary official and ethical approval permissions were fully secured before data collection, including the ethical approval [(ECM#2020-134)-(HAPO-06-B-001)]. Collected data were kept strictly confidential and were used only for research purposes. The study did not receive any financial support, and the authors do not have any conflict of interest.

Results

A total of 212 healthcare workers were included in this study. The mean ±SD of their age was 32±7 years. The demographics of the participants and the pattern of migraine are shown in Table 1. The number of males was slightly higher compared to females; (110, 51.9% and 102, 48.1%, respectively. Residents were dominant among participant HCWs, 81 (38.2%). More than ahalf of the HCWs (112, 52.8%) reported experience in PHC of 1-5 years. Less than one-half 95 (44.8%) reported doing shift work. More than one-half of the HCWs reported daily drinking of coffee 129 (60.8%) and were not smokers 135 (63.7%).

The mean±SD of the duration of migraine without using any medication was 4.8±10.2 hours. Regarding patterns of migraine, the number of most prevalent attacks was 1-4 attacks as reported by 92 (43.4%) who reported having 1-7 attacks of migraine during the previous 12 months. More than half of HCWs (125, 59%) reported having family members having migraine. The most common frequency of migraine was reported to be monthly (60.7%), followed by weekly (26.8%), and daily (12.5%). The pulsatile and throbbing pain was the most common type of pain (35.1%), followed by sharp and stabbing pain (23.2%). Half of participants with migraine (50%) reported that it is accompanied by nausea, vomiting, or loss of appetite. The migraine pain was mild in 39.9%, moderate in (37.5%), and severe in 22.6%. The determinants of migraine were working for long hours (41.1%), lack of sleep (89.3%), exposure to sunlight, (23.2%), drinking coffee and tea, (24.4%), exercise (14.3%), working on computers (41.1%), and some medications (79.8%). Almost two thirds (64.4%) consulted a physician for their migraine, 70.2% used medication for management of their migraine, commonly based on self-medication (47.5%), as shown in Table 2.

Figure (1) shows that prevalence of migraine headache among HCWs in Abha City was 20.8%.

The mean ±SD of MIDAS score was 12±10.6. The migraine disability grade of 71 participants (33.5%) was little, that of 45 (21.2%) was mild, that of 50 (23.6%) was moderate, and that of 46 (21.7%) was severe, as shown in Figure (2).

Table 5 shows HRQOL of HCWs. The mean± SD of physical health, psychological health, social relationship, and environment scores were 12.9±2.2, 13.4±2.2, 14.2±2.8, and 14.4 ±2.2, respectively. The mean±SD scores of WHO QOL-BREF was 54.9±7.4. According to the HRQOL grades, 19 (9%) had high HRQOL, 183 (68.3%) had moderate HRQOL, and 10 (4.7%) had poor HRQOL, as shown in Figure (3).

Participants' MIDAS grades according to HCWs personal characteristics are shown in Table 3. There were significant differences according to HCWs' gender (P=0.011), and position (P<0.001).

Table 4 shows MIDAS grades according to migraine characteristics of HCWs. Significant differences in MIDAS grades were present according to the number of migraine attacks during the previous 12 months (P<0.001), family history of migraine (P=0.006), frequency of migraine (P<0.001), type of migraine (P=0.003), and severity of the migraine (P=0.002).

Table 5 shows the HRQOL of HCWs as assessed by the WHO QOL-BREF questionnaire. Table 6 shows that their HQROL differed significantly according to their personal characteristics, such as smoking status (P=0.037). Table 7 shows that their HQROL differed significantly according to their migraine characteristics, such as number of migraine attacks during life (P<0.001), number of attacks during the last 12 months (P<0.001), and accompanying symptoms (P=0.037).

Table 1: Personal characteristics of healthcare workers

Personal characteristics		No.	%
Gender	Female	102	48.1
	Male	110	51.9
Position	Nurse	77	36.3
	Resident	81	38.2
	Specialist	21	9.9
	Consultant	8	3.8
	Pharmacist	12	5.7
	Other	13	6.1
Years of experience in primary healthcare	1-5 years	112	52.8
	6-10 years	60	28.3
	> 10 years	40	18.9
Shift work	No	117	55.2
	Yes	95	44.8
Daily coffeedrinking	No	83	39.2
	Yes	129	60.8
Smoking habits	Nonsmoker	135	63.7
	Smoker	77	36.3

Figure 1:

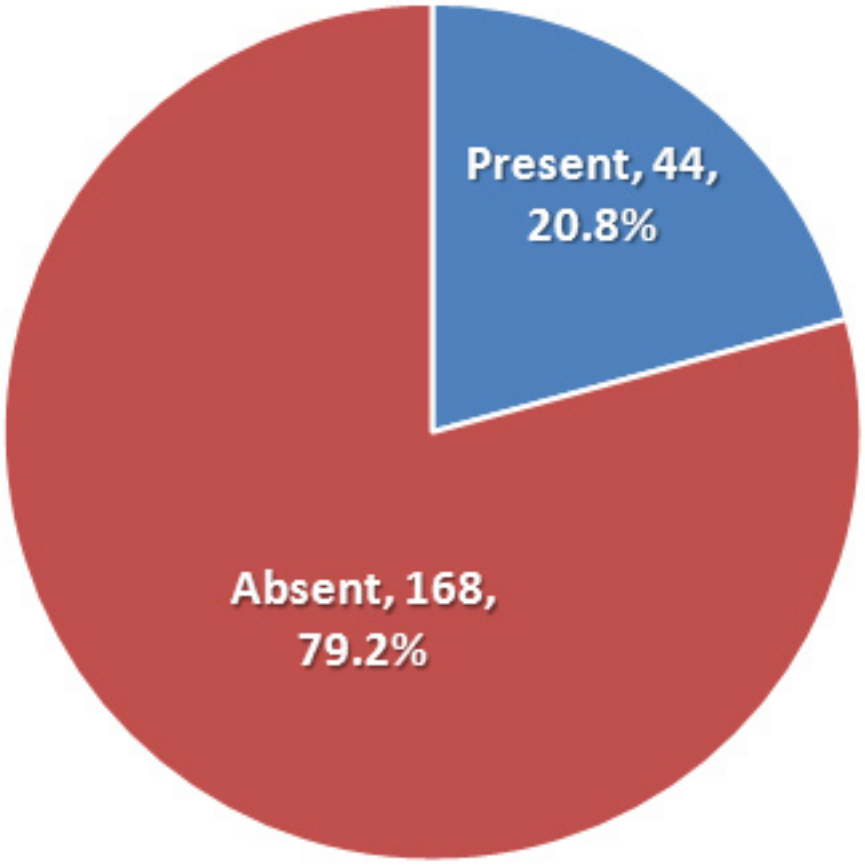

Figure 2: Participants' Migraine Disability Assessment (MIDAS) grades

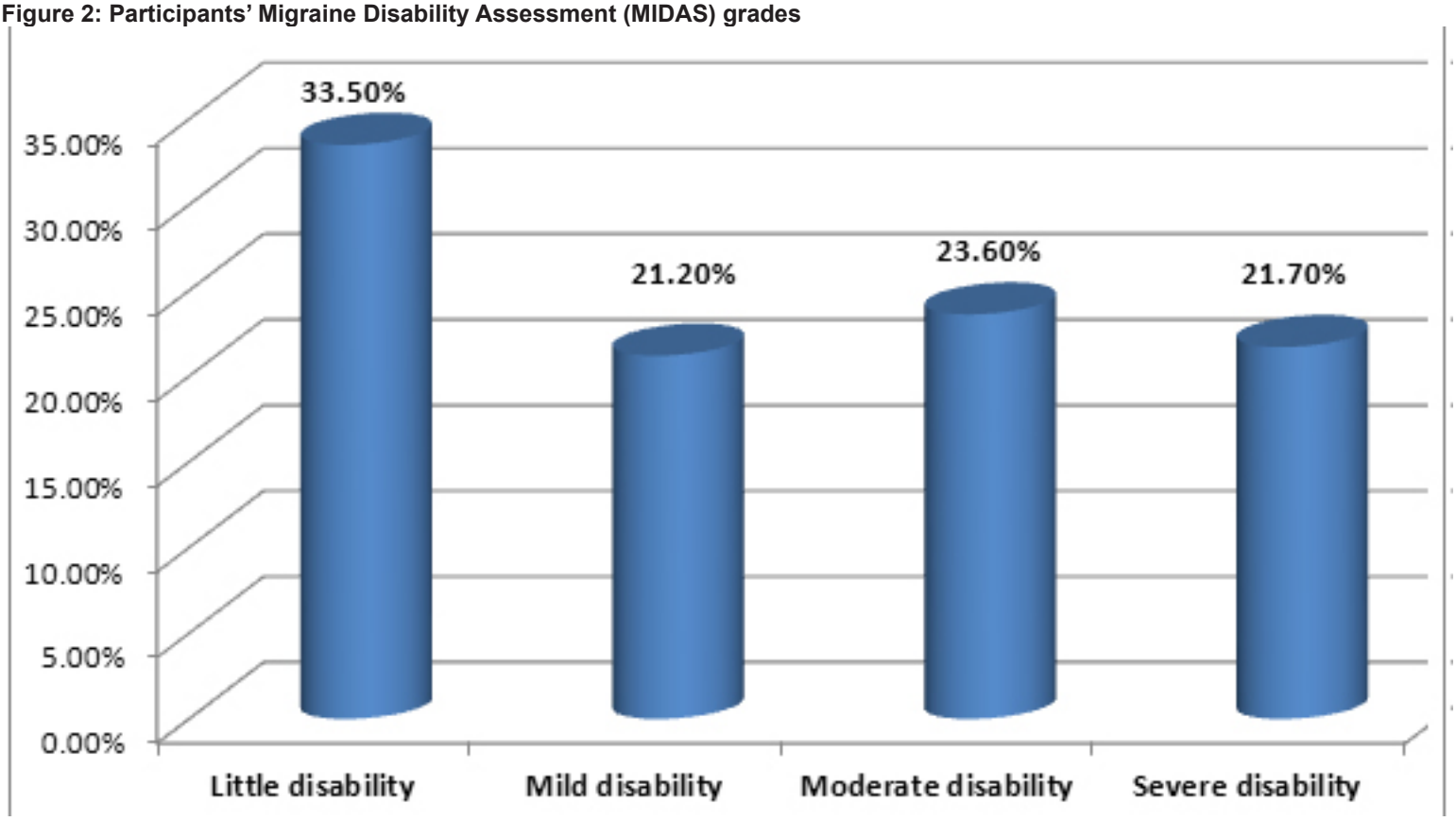

Figure 3: Participants' Health-Related Quality of Life grades

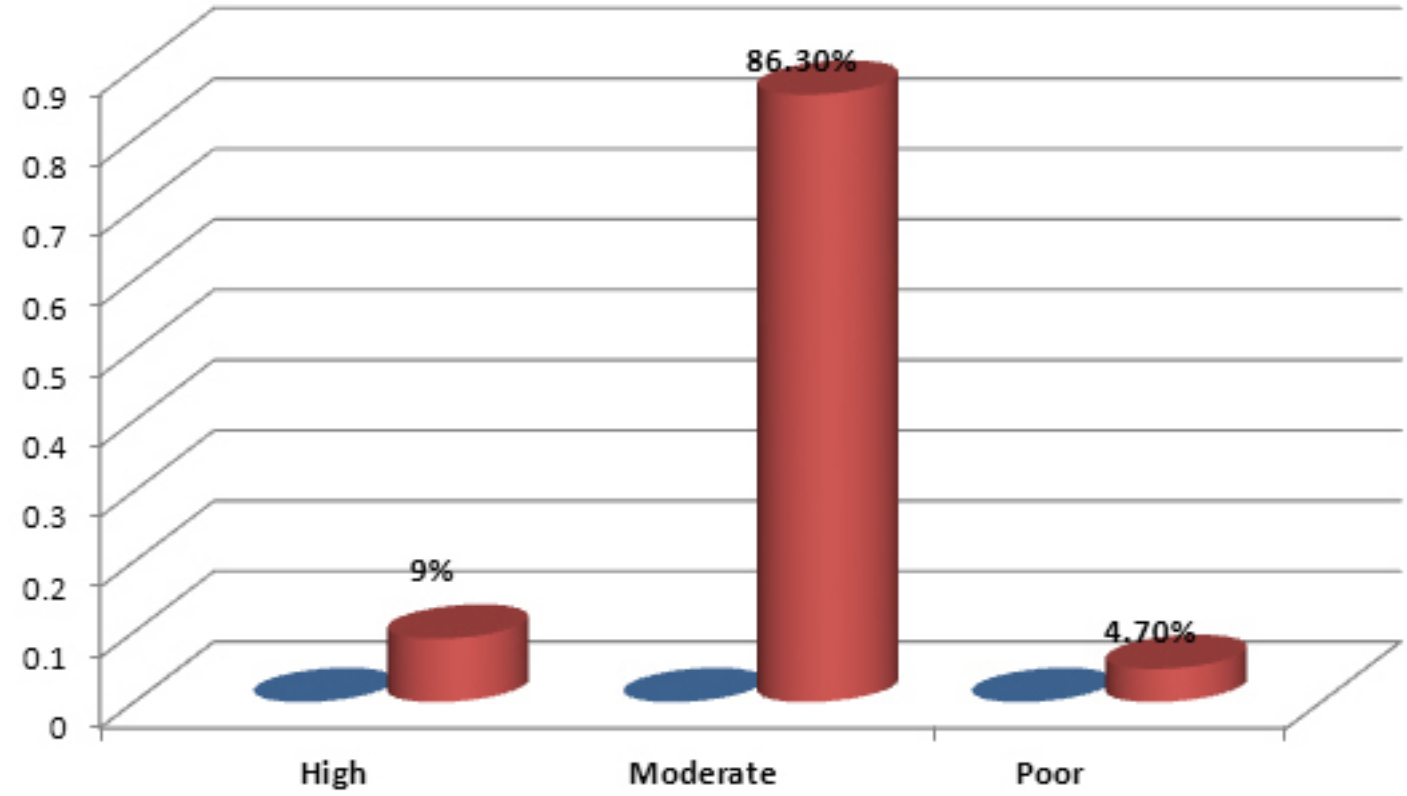

Table 2: Characteristics of migraine among healthcare workers

Personal characteristics		No.	%
How many days during the last 12 months have you suffered from migraine headache?	None	44	20.8
	1-7 days	92	43.4
	8-14 days	46	21.7
	15-31 days	25	11.8
	31-180 days	5	2.4
Are there any family members having migraine?	No	87	41.0
	Yes	125	59.0
Frequency of migraine	Daily	21	12.5
	Weekly	45	26.8
	Monthly	102	60.7
Type of pain	Heavy feeling	31	18.5
	Pulsatile/throbbing	59	35.1
	Sharp/stabbing	39	23.2
	Tightness/pressing	27	16.1
	Other	12	7.1
Is your migraine headache accompanied by nausea, vomiting, or loss of appetite?	No	84	50.0
	Yes	84	50.0
Severity of pain	Mild	67	39.9
	Moderate	63	37.5
	Severe	38	22.6
Triggers of migraine	Lack of sleep	150	89.3
	Exposure to sunlight	39	23.2
	Drinking coffee or tea	41	24.4
	Exercise	24	14.3
	Working on computers	69	41.1
	Long working hours	94	56.0
	Medication	134	79.8
	Others	5	3.0
Consulting a doctor for migraine headache		78	64.4
Using medication for management of Migraine	No	50	29.8
	Yes	118	70.2
If yes, which?	Prescribed medication	47	39.8
	Self-medications	56	47.5
	Traditional medication	15	12.7

Table 3: MIDAS grades according to their personal characteristics of health care workers

Characteristics		MIDAS grades of disability								P value
		Little (n=71)		Mild (n=45)		Moderate (n=50)		Severe (n=46)		
		No.	%	No.	%	No.	%	No.	%	
Gender	Female	37	52.1	15	33.3	20	40.0	30	65.2	
	Male	34	47.9	30	66.7	30	60.0	16	34.8	0.011
Position	Nurse	29	40.8	19	42.2	16	32.0	13	28.3	
	Resident	34	47.9	15	33.3	15	30.0	17	37.0	<0.001
	Specialist	0	0.0	4	8.9	12	24.0	5	10.9	
	Consultant	1	1.4	0	0.0	1	2.0	6	13.0	
	Pharmacist	2	2.8	1	2.2	4	8.0	5	10.9	
	Other	5	7.0	6	13.3	2	4.0	0	0.0	
Years of experience in primary healthcare	1-5	37	52.1	26	57.8	25	50.0	24	52.2	
	6-10	18	25.4	16	35.6	15	30.0	11	23.9	0.370
	> 10	16	22.5	3	6.7	10	20.0	11	23.9	
Shift work	No	39	54.9	22	48.9	30	60.0	26	56.5	
	Yes	32	45.1	23	51.1	20	40.0	20	43.5	0.740
Daily coffee drinking	No	27	38.0	21	46.7	20	40.0	15	32.6	
	Yes	44	62.0	24	53.3	30	60.0	31	67.4	0.580
Smoking habits	No	52	73.2	30	66.7	27	54.0	26	56.5	
	Yes	19	26.8	15	33.3	23	46.0	20	43.5	0.110

Table 4: MIDAS grades according to migraine characteristics of health care workers

Characteristics		MIDAS grades of disability								P value
		Little (n=71)		Mild (n=45)		Moderate (n=50)		Severe (n=46)		
		No.	%	No.	%	No.	%	No.	%	
How many days during the last year have you suffered from migraine headache?	0	24	33.8	12	26.7	5	10.0	3	6.5	<0.001
	1-7	37	52.1	22	48.9	17	34.0	13	28.3	
	8-14	6	8.5	10	22.2	18	36.0	14	30.4	
	15-31	4	5.6	1	2.2	6	12.0	15	32.6	
	31-180	0	0.0	0	0.0	4	8.0	1	2.2	
Are there any family members having migraine?	No	39	54.9	20	44.4	12	24.0	16	34.8	0.006
	Yes	32	45.1	25	55.6	38	76.0	30	65.2	
Frequency of migraine	None	24	33.8	12	26.7	5	10.0	3	6.5	<0.001
	Daily	3	4.2	7	15.6	6	12.0	5	10.9	
	Weekly	7	9.9	10	22.2	14	28.0	14	56.5	
	Monthly	37	52.1	16	35.6	25	50.0	24	32.6	
Type of pain	None	24	33.8	12	26.7	5	10.0	3	6.5	<0.001
	Heavy feeling	8	11.3	8	17.8	10	20.0	5	10.9	
	Pulsatile/throbbing	19	26.8	17	37.8	17	34.0	6	13.0	
	Sharp/stabbing	10	14.1	6	13.3	12	24.0	11	23.9	
	Tightness/pressing	6	8.5	1	2.2	5	10.0	15	32.6	
	Other	4	5.6	1	2.2	1	2.0	6	13.0	
Is your migraine headache accompanied by nausea, vomiting, or loss of appetite?	No migraine	24	33.8	12	26.7	5	10.0	3	6.5	0.410
	No	32	45.1	10	22.2	22	44.0	20	43.5	
	Yes	15	21.1	23	51.1	23	46.0	23	50.0	
Severity of pain	No migraine	24	33.8	12	26.7	5	10.0	3	6.5	0.002
	Mild	22	31.0	16	35.6	19	38.0	10	21.7	
	Moderate	19	26.8	8	17.8	11	22.0	25	54.3	
	Severe	6	8.5	9	20.0	15	30.0	8	17.4	

Table 5: Health related quality of life of healthcare workers as assessed by the WHO QOL-BREF questionnaire

Variables		No.	%
How would you rate your quality of life?	Good	77	36.3
	Neutral	72	34.0
	Poor	5	2.4
	Very good	49	23.1
	Very poor	9	4.2
How satisfied are you with your health?	Dissatisfied	14	6.6
	Neutral	90	42.5
	Satisfied	75	35.4
	Very dissatisfied	14	6.6
	Very satisfied	19	9.0
To what extent do you feel that physical pain prevents you from doing what you need to do?	Not at all	36	17.0
	A little	72	34.0
	A moderate amount	68	32.1
	Very much	28	13.2
	An extreme amount	8	3.8
How much do you need any medical treatment to function in your daily life?	Not at all	38	17.9
	A little	46	21.7
	A moderate amount	59	27.8
	Very much	60	28.3
	An extreme amount	9	4.2
How much do you enjoy life?	Not at all	8	3.8
	A little	38	17.9
	A moderate amount	40	18.9
	Very much	101	47.6
	An extreme amount	25	11.8
To what extent do you feel your life to be meaningful?	Not at all	5	2.4
	A little	34	16.0
	A moderate amount	49	23.1
	Very much	80	37.7
	An extreme amount	44	20.8
How well are you able to concentrate?	A little	40	18.9
	A moderate amount	57	26.9
	Very much	96	45.3
	An extreme amount	19	9.0
How safe do you feel in your daily life?	Not at all	12	5.7
	A little	16	7.5
	A moderate amount	31	14.6
	Very much	90	42.5
	An extreme amount	63	29.7
How healthy is your physical environment?	Not at all	4	1.9
	A little	9	4.2
	A moderate amount	89	42.0
	Very much	78	36.8
	An extreme amount	32	15.1
Do you have enough energy for everyday life?	Not at all	11	5.2
	A little	17	8.0
	Moderately	81	38.2
	Mostly	85	40.1
	Completely	18	8.5

Table 5: Health related quality of life of healthcare workers as assessed by the WHO QOL-BREF questionnaire (continued)

Are you able to accept your bodily appearance?	Not at all	16	7.5
	A little	63	29.7
	Moderately	41	19.3
	Mostly	68	32.1
	Completely	24	11.3
Have you enough money to meet your needs?	Not at all	3	1.4
	A little	43	20.3
	Moderately	56	26.4
	Mostly	49	23.1
	Completely	61	28.8
How available to you is the information that you need in your day-to-day life?	Not at all	2	0.9
	A little	51	24.1
	Moderately	66	31.1
	Mostly	58	27.4
	Completely	35	16.5
To what extent do you have the opportunity for leisure activities?	A little	32	15.1
	Moderately	82	38.7
	Mostly	40	18.9
	Completely	58	27.4
How well are you able to get around?	Not at all	7	3.3
	A little	53	25.0
	Moderately	62	29.2
	Neutral	1	0.5
	Mostly	45	21.2
	Completely	44	20.8
How satisfied are you with your sleep?	Very dissatisfied	6	2.8
	Dissatisfied	20	9.4
	Neutral	84	39.6
	Satisfied	85	40.1
	Very satisfied	17	8.0
How satisfied are you with your ability to perform your daily living activities?	Very dissatisfied	5	2.4
	A little	1	0.5
	Dissatisfied	20	9.4
	Neutral	66	31.1
	Satisfied	80	37.7
	Very satisfied	40	18.9
How satisfied are you with your capacity for work?	Very dissatisfied	3	1.4
	Dissatisfied	13	6.1
	Neutral	82	38.7
	Satisfied	78	36.8
	Very satisfied	36	17.0
How satisfied are you with yourself?	Very dissatisfied	5	2.4
	Dissatisfied	12	5.7
	Neutral	55	25.9
	Satisfied	84	39.6
	Very satisfied	56	26.4
How satisfied are you with your personal relationships?	Very dissatisfied	8	3.8
	Dissatisfied	24	11.3
	Neutral	71	33.5
	Satisfied	86	40.6
	Very satisfied	23	10.8

Table 5: Health related quality of life of healthcare workers as assessed by the WHO QOL-BREF questionnaire (continued)

How satisfied are you with your sex life?	Very dissatisfied	14	6.6
	Dissatisfied	20	9.4
	Neutral	81	38.2
	Satisfied	66	31.1
	Very satisfied	31	14.6
How satisfied are you with the support you get from your friends?	Very dissatisfied	6	2.8
	Dissatisfied	4	1.9
	Neutral	75	35.4
	Satisfied	62	29.2
	Very satisfied	65	30.7
How satisfied are you with the conditions of your living place?	Very dissatisfied	8	3.8
	Dissatisfied	15	7.1
	Neutral	67	31.6
	Satisfied	82	38.7
	Very satisfied	40	18.9
2 How satisfied are you with your access to health services?	Very dissatisfied	5	2.4
	Dissatisfied	23	10.8
	Neutral	60	28.3
	Satisfied	99	46.7
	Very satisfied	25	11.8
How satisfied are you with your transport?	Very dissatisfied	4	1.9
	Dissatisfied	23	10.8
	Neutral	69	32.5
	Satisfied	62	29.2
	Very satisfied	54	25.5
How often do you have negative feelings such as blue mood, despair, anxiety, depression?	Never	51	24.1
	Seldom	53	25.0
	Quite often	33	15.6
	Very often	52	24.5
	Always	23	10.8

Table 6. HRQOL grades of healthcare workers according to their personal characteristics

Characteristics		WHOQOL-BREF grades						P value
		High (n=19)		Moderate (n=183)		Poor (n=10)		
		No.	%	No.	%	No.	%	
Gender	Female	6	31.6	89	48.6	7	70.0	0.130
	Male	13	68.4	94	51.4	3	30.0	
Position	Nurse	12	63.2	64	35.0	1	10.0	0.190
	Resident	6	31.6	69	37.7	6	60.0	
	Specialist	0	0.0	20	10.9	1	10.0	
	Consultant	0	0.0	7	3.8	1	10.0	
	Pharmacist	1	5.3	10	5.5	1	10.0	
	Other	0	0.0	13	7.1	0	0.0	
Experience years in primary health care	1-5	7	36.8	98	53.6	7	70.0	0.400
	6-10	8	42.1	51	27.9	1	10.0	
	> 10	4	21.1	34	18.6	2	20.0	
Shift work	No	11	57.9	99	54.1	7	70.0	0.590
	Yes	8	42.1	84	45.9	3	30.0	
Daily coffee drinking	No	10	52.6	70	38.3	3	30.0	0.390
	Yes	9	47.4	113	61.7	7	70.0	
Smoking habits	No	17	89.5	113	61.7	5	50.0	0.037
	Yes	2	10.5	70	38.3	5	50.0	

Table 7: HRQOL grades of healthcare workers according to their migraine characteristics

Characteristics		WHOQOL-BREF grades						P Value
		High (n=19)		Moderate (n=183)		Poor (n=10)		
		No.	%	No.	%	No.	%	
How many days during the last12 months have you suffered from a Migraine headache?	0	13	68.4	28	15.3	3	30.0	<0.001
	1-7	5	26.3	85	46.4	3	30.0	
	8-14	0	0.0	43	23.5	3	30.0	
	15-31	3	15.8	20	10.9	2	20.0	
	31-180	0	0.0	4	2.2	1	10.0	
Are there any family members having migraine?	No	10	52.6	72	39.3	5	50.0	0.440
	Yes	9	47.4	111	60.7	5	50.0	
Frequency of Migraine	No migraine	13	68.4	28	15.3	3	30.0	0.180
	Daily	5	26.3	16	8.9	0	0.0	
	Weekly	1	5.3	41	22.8	3	30.0	
	Monthly	0	0.0	98	54.4	4	40.0	
Type of pain	No migraine	13	68.4	28	15.6	3	30.0	0.320
	Heavy	4	21.1	27	15.0	0	0.0	
	Pulsatile/throbbing	2	10.5	55	30.6	2	20.0	
	Sharp/Stabbing	0	0.0	38	21.1	1	10.0	
	Tightness/pressing	0	0.0	25	13.9	2	20.0	
	Other	0	0.0	10	5.6	2	20.0	
Is your migraine headache accompanied by nausea, vomiting or loss of appetite?	No migraine	13	68.4	28	15.6	3	30.0	0.037
	No	5	26.3	76	42.2	3	30.0	
	Yes	1	5.3	79	43.9	4	40.0	
Severity of pain	No migraine	13	68.4	28	15.6	3	30.0	0.380
	Mild	5	26.3	58	32.2	4	40.0	
	Moderate	1	5.3	60	33.3	2	20.0	
	Severe	0	0.0	37	20.6	1	10.0	

Discussion

The mean age of our participants was 32 years, which was close to the findings of the previous Saudi study conducted on migraine patients, where the mean age of patients was 34.21 years [34]. Pradeep et al. reported that migraine was more frequent among young and middle-aged individuals [35].

The present study revealed that prevalence of migraine headache among HCWs in Abha City was 20.8%, with significantly higher grades of severity among females and residents. Moreover, 44.8% of participant HCWs reported shift work, and most of them (89.3%) suffered lack of sleep.

These findings are in accordance with those reported by several studies. El-Metwally et al. reported that prevalence of migraine among the general population of the Arab countries ranged between 2.6% and 32%. The prevalence rates ranged from 12.2% to 27.9% among medical students, and ranged from 7.1% to 13.7% among school children. Females were more susceptible to migraine compared to males [36].

These results indicate that migraine prevalence may be affected by the work or the position of the individual. Hospital workers are exposed to work for several shifts in the hospital, which renders them at an increased risk for headache due to the frequent changes in their work times with sleepless nights [37].

The present study showed that almost half of HCWs reported attacks of 1-7 during their previous year. The highest frequency of migraine was reported as monthly with pulsatile and throbbing pain, followed by sharp and stabbing pain. The largest percentages of the HCWs reported mild pain, followed by moderate pain. Half of HCWs stated that their headache is associated with nausea and vomiting, while more than half of participants had a positive family history of migraine

Similarly, one Saudi study that enrolled hospital staff [38] reported that more than half of emergency department staff had weekly headaches, while nausea and vomiting were mostly associated with headache. Moreover, migraine was found to run in families [39]. It was observed that when both parents have migraine attacks, the risk of descendant disorder ranges from 60% to 90%, whereas when the mother only suffers migraine attacks, the risk of migraine is 72%. However, the risk falls to 30% if the father only suffers migraine attacks [40]. Moreover, if someone is suffering migraine, the mother has four-folds probability for having a migraine history than the father [41]. All these findings enhance the suggestion that migraine may be attributed to genetic factors.

Regarding determinants of migraine, our participants reported lack of sleep as the major trigger of migraine, followed by medications, working for long hours, working on computers, drinking coffee and tea, and exposure to sunlight, while smoking was significantly associated with poor HRQOL. Alzahrani et al. [38] found that 57.4% of migraine patients reported performing physical activity. Moreover, Zivadinov et al. suggested that physical activity is one of the commonest triggers of headache [42].

Taylor [43]; Ibrahim et al. [44] and Lopez-Mesonero et al. [45] reported that smoking is a common triggering factor among migraine sufferers. In addition, several studies reported that lack of sleep is a major trigger for migraine [44,46-47].

The present study showed that the largest proportion of HCWs had little disability, followed by those with moderate disability, severe disability, and finally those with mild disability. The grades of disability were affected by several factors, including duration of migraine, gender, position, the number of migraine attacks, family history, frequency of migraine, type of pain, and severity of pain. Males tended to experience mild and moderate disability, whereas females tended to be affected by little and severe disability. Nurses were more prone to suffer mild and moderate disability. Increasing the number of attacks was associated with higher grades of disability among HCWs. Having family members with migraine was significantly associated with higher grades of disability. Weekly migraine attacks were also associated with severe disability, whereas the monthly attacks were associated with lower grades of disability. Moreover, mild pain was associated with lower grades of disability, whereas moderate pain was associated with severe disability. In addition, tightness and pressing feeling of pain were associated with severe disability.

It has been reported that migraine disabilities have an acute impact on the performance of the job and outcome, as 31% of migraine patients lost one workday in a period of three months and absented an average of 10.7 days per year [23,48-49].

In Malaysia, severe disability was reported among 73% of migraine patients, which was higher than that shown by our study. In accordance with our study, severe disability was significantly associated with increasing duration of migraine [18].

Alzahrani et al. found that headache had a severe effect on the job performance and the life of emergency department staff [38]. Moreover, HRQOL and psychological conditions were found to be lower with migraine [50].

Our study revealed that the majority of the HCWs (86.3%) had moderate HRQOL. The main negative impact of migraine was on HCWs' physical health, but it was the least on the environment domain. The main factors that affected HCWs' HRQOL were smoking, experiencing migraine attacks, and experiencing no accompanying symptoms, which were significantly associated with high and moderate HRQOL. This indicates that more attacks of migraine are associated with poorer HRQOL, which confirms the negative impact of migraine on the HRQOL.

Similar results were reported by AlHarbi et al. [34], where the HRQOL was significantly associated with frequent migraine attacks. In Malaysia, migraine patients showed a significantly lower score of WHO QOL-BREF, physical and psychological health domains, compared to non-migraine individuals [18]. Lower total QOL was also reported among migraine patients in the USA [51] and among the Dutch population [52], with lower social functioning, physical health [51], diminished functioning, and well-being [52]. Similarly, the total HRQOL, psychological and physiological health were found to be significantly low in France [53], the US [54], India [55], and Italy [56].

Conclusions

Frequency of migraine attacks varies between HCWs with variations in triggers of migraine. Migraine attacks affect the grade of disability and health-related quality of life of the HCWs. Higher number of migraine attacks are associated with severe disability and poorer quality of life among HCWs.

References

1. World Health Organization. ATLAS of headache disorders and resources in the world 2011. Available at: https://www.who.int/mental_ health/ management/ who_ atlas_headache_disorders.pdf
2. Association of British Neurologist (ABN). Local adult neurology services for the next decade. Report of the working party. www.abn.org (2011, accessed June 2012).
3. Headache Classification Committee of the International Headache Society (IHS). The International Classification of Headache Disorders, 3rd edition (beta version). Cephalalgia. 2013 Jul;33(9):629-808.
4. Ray BK, Paul N, Hazra A, Das S, Ghosal MK, Misra AK, et al. Prevalence, burden, and risk factors of migraine: A community-based study from Eastern India. Neurology India 2017;65(6): 1280-1288
5. Stovner LJ, Andree C. Prevalence of headache in Europe: a review for the Eurolight project. J Headache Pain. 2010 Aug; 11(4): 289–299.
6. Özge A. Chronic daily headache in the elderly. Curr Pain Headache Rep. 2013 Dec;17(12):382.
7. Stovner LJ, Hagen K, Jensen R, Katsarava Z, Lipton R, Scher A, et al. The global burden of headache: a documentation of headache prevalence and disability worldwide. Cephalalgia. 2007 Mar;27(3):193-210.
8. Bigal ME, Liberman JN, Lipton RB. Age-dependent prevalence and clinical features of migraine. Neurology. 2006;67(2):246-51.
9. Piovesan EJ, Kowacs PA, Lange MC, Pacheco C, Piovesan LR, Werneck LC. [Prevalence and semiologic aspects of the idiopathic stabbing headache in a migraine population]. Arquivos de neuro-psiquiatria. 2001;59(2-A):201- 5.
10. Lusic I. Population variation in migraine prevalence - the unsolved problem. Collegium antropologicum. 2001;25(2):695-701.
11. Lucchetti G, Peres MF. The prevalence of migraine and probable migraine in a Brazilian favela: results of a community survey. Headache 2011;51(6):971-9.
12. Steiner TJ, Birbeck GL, Jensen RH, Katsarava Z, Stovner LJ, Martelletti P. Headache disorders are third cause of disability worldwide. J Headache Pain 2015;16:58
13. Kobak KA, Katzelnick DJ, Sands G, King M, Greist JJ, Dominski M. Prevalence and burden of illness of migraine in managed care patients. J Manag Care Pharm 2005;11:124–136.
14. Selekler MH, Gökmen G, Steiner TJ. Productivity impact of headache on a heavy-manufacturing workforce in Turkey. J Headache Pain 2013;14:88.
15. Lipton RB, Bigal ME, Diamond M, Freitag F, Reed ML, Stewart WF. Migraine prevalence, disease burden, and the need for preventive therapy. Neurology 2007;68:34334-34339
16. Koehler PJ, van deWiel TWM. Aretaeus on migraine and headache. Journal of the History of the Neurosciences 2001;10(3):253-261.
17. Tulen JHM, Stronks DL, Bussmann JBJ, Pepplinkhuizen L, Passchier J. Towards an objective quantitative assessment of daily functioning in migraine: a feasibility study. Pain 2000; 86(1-2): 139-149
18. Shaik MM, Hassan NB, Tan HL, Gan SH. Quality of life and migraine disability among female migraine patients in a tertiary hospital in Malaysia. BioMed Research International 2015; Volume 2015 Article ID 523717: 9 pages.
19. Wilkins K, Beaudet MP. Work stress and health. Health Rep 1998;10:47–62.
20. Ndejjo R, Musinguzi G, Yu X, Buregyeya E, Musoke D, Wang JS, et al. Occupational health hazards among healthcare workers in Kampala, Uganda. J Environ Public Health 2015:913741.
21. Lin YW, Chang YW, Tsai CC. Job strain and health-related quality of life of hospital employees: case of a medical center in Taichung. Taiwan J Pub Health 23:108–120
22. Wilkins K. Work stress among health care providers. Health Rep 2007; 18:33-36
23. Lin KC, Huang CC, Wu CC. Association between stress at work and primary headache among nursing staff in Taiwan. Headache 2007;47:576– 584
24. Wang Y, Xie J, Yang F, Wu S, Wang H, Zhang X, et al. The prevalence of primary headache disorders and their associated factors among nursing staff in North China. J Headache Pain 2015; 16:4
25. Bjorvatn B, Pallesen S, Moen BE, Waage S, Kristoffersen ES. Migraine, tension-type headache and medication overuse headache in a large population of shift working nurses: a cross-sectional study in Norway. BMJ Open 2018;8:e022403.
26. Online Raosoft sample size calculator. cited at: http://www.raosoft.com/samplesize.html
27. Stewart WF, Lipton RB, Dowson AJ, Sawyer J. Development and testing of the Migraine Disability Assessment (MIDAS) Questionnaire to assess headache-related disability. Neurology. 2001;56(6 Suppl 1):S20-8.
28. Bonomi AE, Patrick DL, Bushnell DM, Martin M. Validation of the United States' version of the World Health Organization Quality of Life (WHOQOL) instrument. J Clin Epidemiol [Internet]. 2000 Jan;53(1):1–12. Available from: http://www.ncbi.nlm.nih.gov/pubmed/10693897

29. Skevington SM, Lotfy M, O'Connell KA. The World Health Organization's WHOQOL-BREF quality of life assessment: Psychometric properties and results of the international field trial. A Report from the WHOQOL Group. Qual Life Res [Internet]. 2004;13(2):299–310. Available from: http://link.springer.com/10.1023/B:QURE.0000018486.91360.00.
30. Al Sayah F, Ishaque S, Lau D, Johnson JA. Health related quality of life measures in Arabic speaking populations: A systematic review on cross-cultural adaptation and measurement properties. Qual Life Res [Internet]. 2013 Feb 18;22(1):213–29. Available from: http://link.springer.com/10. 1007/s11136-012-0129-3
31. Ohaeri J, Awadalla A. The reliability and validity of the short version of the WHO quality of life instrument in an Arab general population. Ann Saudi Med [Internet]. 2009;29(2):98. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2813624/
32. Zimet GD, Dahlem NW, Zimet SG, Farley GK. The Multidimensional Scale of Perceived Social Support. J Pers Assess [Internet]. 1988 Mar;52(1):30–41. Available from: http://www.tandfonline.com/doi/abs/10.1207/s15327752jpa5201_2
33. Headache Classification Committee of the International Headache Society (IHS). The International Classification of Headache Disorders, 3rd edition (beta version). Cephalalgia 2013;33:629–808.
34. AlHarbi FG, AlAteeq MA. Quality of life of migraine patients followed in neurology clinics in Riyadh, Saudi Arabia. Journal of family & community medicine. 2020 Jan;27(1):37.
35. Pradeep R, Nemichandra SC, Harsha S, Radhika K. Migraine Disability, Quality of Life, and Its Predictors. Annals of Neurosciences. 2020 Jan;27(1):18.
36. El-Metwally A, Toivola P, AlAhmary K, Bahkali S, AlKhathaami A, Al Ammar SA, Altamimi IM, Alosaimi SM, Jawed M, Almustanyir S. The Epidemiology of Migraine Headache in Arab Countries: A Systematic Review. The Scientific World Journal. 2020 Jun 30;2020.
37. Bartolini M, Viticchi G, Falsetti L, Ulissi A, Baldassari M, Medori A, Mattioli S, Lombardi F, Provinciali L, Silvestrini M. Migraine in health workers: working in a hospital can be considered an advantage?. Neurological Sciences. 2014 May;35(1):27-9.
38. Alzahrani A, Al-Shehri L, Alshamrani A, Alharthi R, Alomairi N. Prevalence and impact on job performance of primary headache among medical and paramedical staff in the emergency department. J Neurol Res. 2017;7(1-2):5-12
39. Ferrari MD, Klever RR, Terwindt GM, Ayata C, van den Maagdenberg AM. Migraine pathophysiology: lessons from mouse models and human genetics. The Lancet Neurology. 2015 Jan 1;14(1):65-80.
40. Al-Rajeh S, Bademosi O, Ismail H, Awada A. Headache syndromes in the eastern province of Saudi Arabia. Headache: The Journal of Head and Face Pain. 1990 May;30(6):359-62.
41. Bener A, Swadi H, Qassimi EM, Uduman S. Prevalence of headache and migraine in schoolchildren in the United Arab Emirates. Annals of Saudi medicine. 1998 Nov;18(6):522-4.
42. Zivadinov R, Willheim K, Sepic-Grahovac D, Jurjevic A, Bucuk M, Brnabic-Razmilic O, Relja G, Zorzon M. Migraine and tension-type headache in Croatia: a population-based survey of precipitating factors. Cephalalgia. 2003 Jun;23(5):336-43.
43. Taylor FR. Tobacco, nicotine, and headache. Headache: The Journal of Head and Face Pain. 2015 Jul;55(7):1028-44.
44. Ibrahim NK, Alotaibi AK, Alhazmi AM, Alshehri RZ, Saimaldaher RN, Murad MA. Prevalence, predictors and triggers of migraine headache among medical students and interns in King Abdulaziz University, Jeddah, Saudi Arabia. Pakistan journal of medical sciences. 2017 Mar;33(2):270.
45. López-Mesonero L, Márquez S, Parra P, Gámez-Leyva G, Munoz P, Pascual J. Smoking as a precipitating factor for migraine: a survey in medical students. The journal of headache and pain. 2009 Apr;10(2):101-3.
46. Menon B, Kinnera N. Prevalence and characteristics of migraine in medical students and its impact on their daily activities. Annals of Indian Academy of Neurology. 2013 Apr;16(2):221.
47. Al-Hashel JY, Ahmed SF, Alroughani R, Goadsby PJ. Migraine among medical students in Kuwait University. The journal of headache and pain. 2014 Dec;15(1):1-6.
48. Kessler RC, Shahly V, Stang PE, Lane MC. The associations of migraines and other headaches with work performance: results from the National Comorbidity Survey Replication (NCS-R). Cephalalgia. 2010 Jun;30(6):722-34.
49. Lipton RB, Stewart WF, Diamond S, Diamond ML, Reed M. Prevalence and burden of migraine in the United States: data from the American Migraine Study II. Headache: The Journal of Head and Face Pain. 2001 Jul 12;41(7):646-57.
50. Buse DC, Rupnow MF, Lipton RB. Assessing and managing all aspects of migraine: migraine attacks, migraine-related functional impairment, common comorbidities, and quality of life. InMayo Clinic Proceedings 2009 May 1 (Vol. 84, No. 5, pp. 422-435). Elsevier.
51. Osterhaus JT, Townsend RJ, Gandek B, Ware Jr JE. Measuring the functional status and well-being of patients with migraine headache. Headache: The Journal of Head and Face Pain. 1994 Jun;34(6):337-43.
52. Terwindt GM, Ferrari MD, Tijhuis M, Groenen SM, Picavet HS, Launer LJ. The impact of migraine on quality of life in the general population: the GEM study. Neurology. 2000 Sep 12;55(5):624-9.
53. Michel P, Dartigues JF, Lindoulsi A, Henry P. Loss of productivity and quality of life in migraine sufferers among French workers: results from the GAZEL cohort. Headache: The Journal of Head and Face Pain. 1997 Feb;37(2):71-8.
54. Iigaya M, Sakai F, Kolodner KB, Lipton RB, Stewart WF. Reliability and validity of the Japanese migraine disability assessment (MIDAS) questionnaire. Headache: The Journal of Head and Face Pain. 2003 Apr;43(4):343-52.
55. Sharma K, Remanan R, Singh S. Quality of life and psychiatric co morbidity in Indian migraine patients: A headache clinic sample. Neurology India. 2013 Jul 1;61(4):355.