Prevalence and impact of Migraine headache among physicians in PHC centers in Makkah City, Saudi Arabia, 2021

Essra Abdulwahab A Tayeb[1], Asrar Mohammed Abdulhameed Attar[2], Sameer Saeed Alhazmi[3], Ahmed Saad Alsharif[4], Meshal Saud Alsaedi[5], Sami Saad Alghamdi[6], Naif Muidh Hameed Alhuzali[7], Abdulaziz Mabrok Alsaadi[8], Rana Abdulmohsen Jamman Al Harbi[9], Latifa Maatouk Al-Duady[10], Saad Thaeb Alluqmani[11], Basim Mohammad Alsulaimani[12], Abdulrahman Ali Al-Shamrani[13], Aisha Homoud Alharthi[14], Ayman Homaidi Alqurashi[14]

[1]Family medicine consultant, Health program management and chronic disease department, Ministry of Health, Makkah Almukarramah, Saudi Arabia.
[2]Health administration specialist, Directorate of Health Affairs in Makkah Al-Mukarramah, Saudi Arabia.
[3]Hospital and health services management specialist, Maternity and children hospital, Makkah, Saudi Arabia.
[4]Staff nurse, King Abdulaziz Hospital, Makkah, Saudi Arabia.
[5]Health Administration Specialist, King Abdulaziz Hospital, Saudi Arabia.
[6]Nurse Technician, Aljmoom health center, Makkah, Saudi Arabia.
[7]Nurse Technician, Iskan health center, Makkah, Saudi Arabia.
[8]Nurse Technician, king Faisal Hospital, Makkah, Saudi Arabia.
[9]Midwifery, Hajla Primary Health Care Center, Makkah, Saudi Arabia.
[10]Nurse Technician, Heglah health center, Makkah, Saudi Arabia.
[11]Nurse Technician, King Abdulaziz Hospital, Makkah, Saudi Arabia.
[12]Nurse Technician, King Abdulaziz Hospital, Makkah, Saudi Arabia.
[13]Health and hospital administration specialist, King Faisal Hospital in Makkah, Saudi Arabia.
14 Nursing technician, Al Sharaia Health Center, Makkah, Saudi Arabia.

Abstract:
Background

Migraine is a chronic unilateral headache associated with nausea and vomiting. According to the World Health Organization, it is listed as the 19th disabling disease. Multiple studies found an inverse relationship between the frequency of the attacks and the low quality of life score. Roughly, one-third of migraine attacks occur during workdays, with a higher incidence of reduced productivity and missed days among chronic patients (>15 headache days per month). Migraine is a common neurological disorder with significant impact on quality of life, affecting 12% Saudi population. migraines impose significant health and financial burdens, headache is a common neurological disorder, which is associated with a significant disease burden, headache affects work, social and leisure activities and has a tremendous impact on a person's life also the migraine is one of the most critical concerns among healthcare providers and other relevant stakeholders in the health sector. **Aim of the study**: To assess the prevalence and impact of Migraine headache among physicians in PHC centers in Makkah City, Saudi Arabia, 2021**. Method** : Across-sectional study among physicians who works in primary health care center in Makkah Al-Mukarramah 2021, the study has been conducted physicians who works in PHC centers in Makkah city KSA. Was

conducted using an online questionnaire designed during August 2021. The questionnaire collected the socio-demographic factors, a migraine screen questionnaire (MS-Q) Migraine Disability Assessment questionnaire (MIDAS), our total participants were (200). **Result** shows that most of the participants (59%) were in the age group(25-50) years follow by the (21.0%)were in the age (<25) years, the majority of them females was higher compared to male(66.0 and 34.0%) , regarding the Nationality most of participants non-Saudi were were(63.0%), regarding   the marital status most of participants married were(56.0%), regarding level of education the majority of participant are specialist were(54.0%) while general practitioner were(23.0%) **Conclusion:** For migraines, our study found a high prevalence of the migraine in among physicians who works in primary health care center. The physicians' awareness of the disease was very low with one-fourth of the physicians resorting to self-medication.

<u>**Keywords:**</u> Prevalence, impact, Migraine, headache, physicians, PHC centers, Makkah City,

<u>Introduction</u>

Migraine is one of the commonest disabling chronic neurological diseases in the world (1). Females are more likely to suffer from migraines than men. Migraine attacks are most common between the ages of 30 and 39 in western countries and Turkey (2); while there is no exact prevalence of migraines worldwide, that can vary by race and geography. (3). According to a WHO report, the incidence of migraine in America and Europe in adults was estimated at about 10–15% per year. in the pandemic covid-19, migraine patients will have a difficult time finding optimum care due to access problems, social isolation, and increased stress, also the annual cost of treatment and individuals' being absent due to migraine headaches is about 50 billion dollars(4-5)

Headache is perhaps the most basic worries among medical services suppliers and other important partners in the health sector. It is one of the significant reasons for disability among older patients (aged 50-years and more). Saudi Arabia has had a lot of the medical problem with the always expanding prevalence of migraine in the country.(7) Work-related pressure is viewed as a significant natural reason for migraine(8). Healthcare workers have an upsetting workplace, are often presented to emotional pressure, and are frequently on pivoting work shifts in view of their work requests(9-10). Practically half (45%) of Healthcare workers, especially doctors and nurses, reported highly stressful workdays (11)

According to the World Health Organization (WHO), a big part of the grown-up populace overall is influenced by migraines. These incorporate tension-type headaches, headaches, and

group migraines. Just about one-third of cerebral pain cases in grown-ups are headaches (12). Headache is a neurovascular issue portrayed by relentless migraine going from moderate to serious agony. Regularly, it influences just one side of the head, as a throbbing aggravation, and endures from hours to days. Its assault normally starts suddenly, arrives at its greatest in at least one hours, and endures as long as 12 hours (13) It is also observed to run in families, so it is perceived to have a solid hereditary substrate (14).

Migraines are incredibly common yet disregarded medical issue, and can be characterized as a crippling condition that might bring about a lower personal satisfaction and upset job performance, eventually making a critical economic burden on societies and it is one of the commonest detailed neurological issues found in primary care settings (15). Repeating headache issues are a typical clinical issue, remaining among the top reasons for disability and sufferings. There is an absence of data about its circulation, disease characteristics and related co morbidities in KSA. (16)

Epidemiology of migraine varies considerably dependent on sexual within Saudi Arabia. Females are four times bound to encounter neurological problems when contrasted with their male counterparts. Despite men display health-seeking behaviors, females report expanded instances of extreme migraines. The pervasiveness rate shifts altogether inside the Arabian nations; Saudi Arabia (12%), Qatar (72%), and Oman (83%).(17)

Treatment of migraine falls into two main classes; thwarting the progression and those that prevent the health condition from happening . The utilization of headache related medications during the beginning phases of the assaults is basic in increasing the adequacy of the treatment process.(18)

Literature review

Studies have concluded that though biological factors may explain some of the differences, but the main explanation is presumably gender disparities in work, economy, daily living, social life and expectations between women and men and deeper societal changes are needed to reduce the inequities in pain experiences between women and men.(19) Many researchers agree that the health problem can cause throbbing pain in the affected area, which varies in intensity. More than 70% of the patients diagnosed with the condition report nausea and sensitivity to light as well as sounds.(20) Significant association of headache with other socio-demographic and personal characteristics like job type, working hours, sleeping hours was also revealed. Civil workers, those with more working hours and less sleeping hours

suffered more with migraine than non-migraine headache. Migraine has previously shown to be significantly associated with unemployment in other studies(16)

In the previous literature studies that stated that migraine headache was more prevalent among females (21). High prevalence of migraine among females can be attributed not only to hormonal changes, but also to central cortical excitability (22). (23) reported in their review article stated the Migraine headache was also found to be more prevalent among city habitants than countryside habitants. The stressful life in the city, and the lack of meditation and relaxing country nature can be the reasons behind the high prevalence of migraine among city inhabitants. Migraine was significantly associated with high rates of unemployment.(24) This study about prevalence and impact of Migraine headache among physicians in PHC centers in Makkah City, Saudi Arabia, 2020 some interesting results, unreported on Makkah region in Saudi Arabia before this current study. Ibrahim NK, et al.(2017) reported in their study that migraine, despite having a higher prevalence in young adult Saudi population , is frequently underdiagnosed and undertreated.(25). In the previous studies, prevalence of migraine Aura consisting of visual, sensory, or speech symptoms was reported by two out of five participants reporting migraine.(26)

Some studies reveal a high prevalence rate among university students. Numerous factors contribute to the development of the health condition. Some of the most common triggers of migraines include prolonged fasting, sleep disturbance, psychological distress, and hormonal changes, as well as hypoglycemia. Variations in the levels of hormones are associated with the use of oral contraceptive pills, onset of menstruation, and other forms of medications.(27)

Rationale

Migraine disorders deserve more attention, which can be reduced by examining the frequency, and identifying a possible risk factor, frequency of attacks, duration, and severity. On the other hand, following its impact on social life, it can play a crucial role in improving a person's life and the need to present an effective strategy in a stressful hospital environment. the majority of the physicians who works in PHC centers who usually complain of having headache for more than 1 year, migraine effects of the Global Burden Disease (GBD), migraine ranks third among the leading cause of disability globally.

Aim of the Study

To assess the prevalence and impact of Migraine headache among physicians in PHC centers in Makkah City, Saudi Arabia, 2021

Objectives:

➢ To assess the prevalence of migraine among physicians who works in PHC centers by using valid and reliable questionnaire in Makkah city , Saudi Arabia, 2021.

➢ To assess the impact of migraine headache on life.

SUBJECTS AND METHODS

Study design:

A cross sectional study has been carried out among physicians who works in PHC centers in Makkah city, Saudi Arabia, 2021.

Study setting

The study has been carried out among physicians who works in PHC centers in Makkah Al-mukarramh at Saudi Arabia, 2021. Makkah is the holy city of every Muslim in the world. It is the main place of the pilgrims to perform Umrah and Hajj. Makkah is a modern city and there is a continuous working to improve the infrastructure of Makkah for the sake of both Makkah citizens and pilgrims.   Also, it has 85 PHC centers under supervision of Directorate of Health Affairs of Makkah Al-Mukarramah. These centers distributed under 7 health care sectors and each sector contains around 10 – 14 primary health care centers. Three health care sectors inside Makkah Al-Mukarramah city (urban) with 37 primary health care centers underneath and four sectors are outside Makkah (rural) with 48 primary health care centers. The three healthcare sectors inside Makkah Al-Mukarramah are Al-Ka'akya with 11 primary healthcare centers, Al-Adl with 12 primary healthcare centers and Al-Zahir with 14 primary healthcare centers.

study area:

The study has been conducted in all PHC in Makkah, Saudi Arabia in 2021, under supervision of Directorate of Health Affairs. They are distinguished by their environment and the large number of physicians who works in them, which is characterized good environment.

Study population:

The study population has been all physicians who works in PHC centers in Makkah city, Saudi Arabia, 2021, and agreed to fill the questionnaire.

Eligibility Criteria

a. Inclusion criteria:

All Saudi physicians who works in PHC centers available on the duration of the study .

b. Exclusion criteria

Physicians who are not available on the duration of the study .

Study Sample :

The sample size has been calculated by epi Info, http://www.raosoft.com/samplesize.html (The margin of error: 5%, Confidence level: 95%, and the response distribution of the prevalence counted for 50% for the lack of local studies) accordingly the Sample size is (163) of physicians in PHC and adding 10 more to decrease margin of error. After adding 5% oversampling, the minimum calculated sample has been the total population is 280 physicians. Computer generated simple random sampling technique was used to select the study participants.

Sampling technique:

The participants will be randomly chosen by using systematic sampling technique by dividing the total population by sample size 280/163=1.7 , the index case out of 2 will be decided randomly.

Data collection tools and instruments :

Pretested, a questionnaire has been used in data collection. The study questionnaire package has been provided to all participants. The package has been in English language and has been include questions about socio-demographic factors, a migraine screen questionnaire (MS-Q) Migraine Disability Assessment questionnaire (MIDAS)

Migraine screen questionnaire

The migraine screen questionnaire (MS-Q) is a five-item migraine screening questionnaire developed for use in clinical practice and research settings both in the general population and occupational medicine[36]. The questionnaire is based on the international headache society criteria (IHS) on migraine diagnosis 5. Each of the five items in this structured questionnaire has a dichotomous response option of yes/no. A score of 0 is assigned for each "NO" response and of 1 for each "YES" response. The total score is 5, where a cut-off point of ≥4 was used to indicate a case of migraine .

Disability Assessment questionnaire MIDAS

Measuring the burden of migraine should be a prelude to effective treatment designed to reduce that burden. The most frequently used disability instrument in migraine research is the MIDAS questionnaire . The MIDAS questionnaire consists of five questions that focus on lost time in three domains: schoolwork or work for pay; household work or chores; and family, social, and leisure activities . All questions ask about either days of missed activity or days where productivity was reduced by at least half. If productivity is decreased to 50% or below, the day is considered missed. The MIDAS score is derived as the sum of missed days due to a headache over a 3-month period in the three domains. Two additional questions on

the MIDAS questionnaire are not included in MIDAS score, assessing frequency and intensity of pain. The four-point grading system for the MIDAS questionnaire is as follows:

- Grade 1 (scores ranging from 0 to 5): little or no disability
- Grade 2 (scores ranging from 6 to 10): mild disability
- Grade 3 (scores ranging from 11 to 20): moderate disability
- Grade 4 (21 or greater): severe disability.(17)

Data analysis :

For the Data entry and statistical analysis, SPSS 20.0 statistical software package was used. Quality control performed at the stages of coding and data entry. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations, medians, and inert-quartile range for quantitative variables. Chi square test and unpaired t test will used at the level of data analysis and association

Ethical concern :

Approval for research data collection of required authorities and institutions has been obtained. These data has been confidential and used just for research purposes.

Budget : Self-funded

Results

Prevalence and impact of Migraine headache among physicians in PHC centers in Makkah City, Saudi Arabia, 2020, total of(200) physicians were in this study participants completed the study for a completion rate of 100%.

Table 1 distribution the Personal Information of the participants

	N	%
Age		
<25	42	21
25-50	118	59
>50	40	20
Nationality		
Saudi	74	37
Non-Saudi	126	63
Gender		
Female	132	66

Male	68	34
Marital status		
Single	24	12
Married.	112	56
Divorced.	44	22
Widow	20	10
level of education		
General practitioner	46	23
Specialist	108	54
Consultant	46	23

Table 1 shows that most of the participants (59%) were in the age group(25-50) years follow by the (21.0%)were in the age (<25) years, the majority of them females was higher compared to male(66.0 and 34.0%) , regarding the Nationality most of participants non-Saudi were were(63.0%), regarding   the marital status most of participants married were(56.0%), regarding level of education the majority of participant are specialist were(54.0%) while general practitioner were(23.0%)

Table 2: Distribution of the migraine screen questionnaire(MS-Q) of the participants

| MS-Q	No		Yes	
	N	**%**	**N**	**%**
Do you have frequent or intense headaches	126	63	74	37
Do your headaches usually last more than 4hours?	144	72	56	28
Do you usually suffer from nausea when you have headache?	132	66	68	34
Dose light or noise bother you when have a headache?	90	45	110	55
Dose headache limit any of your physical or intellectual activities?	106	53	94	47

Table 2 shows regarding the frequent or intense headaches the majority of participants answer No were(63.0%),while Yes were(37.0%), regarding headaches usually for last more than 4hourshours the majority of participants answer No were (66.0%),while Yes were(28.0%), regarding the suffer from nausea when you have headache the majority of participants answer No were(66.29%),while Yes were(34.0%), regarding light or noise bother you when have a headache the majority of participants answer Yes were(55.0%),while No were(45.0%), regarding headache limit any of your physical or intellectual activities the majority of participants answer Yes were(53.0%),while No were(47.0%)

Table 3 : Distribution of the migraine screen (MS-Q) of the participants

	MS-Screen		Chi-square	
	N	%	X^2	P-value
Positive	70	35	17.405	<0.001*
Negative	130	65		
Total	200	100		
Range	1-6.			
Mean±SD	3.057+1.66			

Table 3 shows that the MS-Screen of migraine screen questionnaire (MS-Q) of the participants the mean ±SD was (3.057+1.66) while the data range (1-6) while the most of participants negative score were (65. 0%) while positive were (35.0%), while a significant relation were P-value=<0.001

Figure 1: Distribution of the migraine screen (MS-Q) of the participants
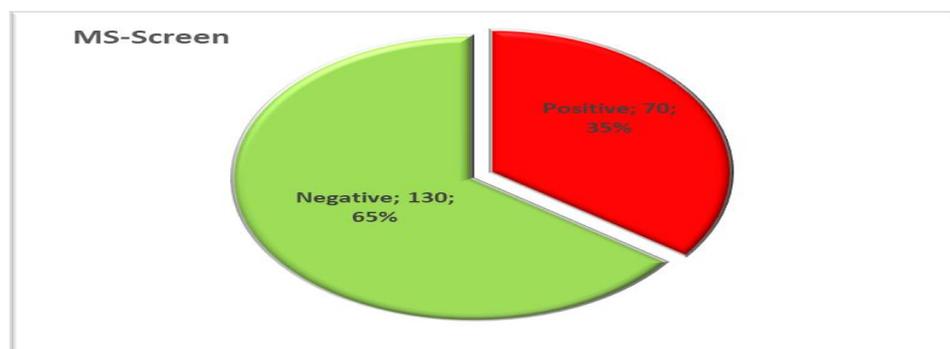
Table (4) Distribution of Participants' Migraine Disability Assessment grades

The Migraine Disability Assessment Test (MIDAS)			
		N	%
Little or No Disability (G I)		52	26
Mild Disability (G II)		96	48
Moderate Disability (III)		30	15
Severe Disability (IV)		22	11
Total		200	100
Chi-square	X^2	66.08	
	P-value	<0.001*	

Table 4 and Figure(2) shows that regarding the Participants' Migraine Disability Assessment grades the majority of participants in the Mild Disability (G II) were (48.0%) followed by Little or No Disability (G I) were (26.0), regarding the Total were(100.0%) while the a significant relation were P-value=<0.001 X^2 were (66.08%) .

Figure 2: Distribution of Participants' Migraine Disability Assessment grades
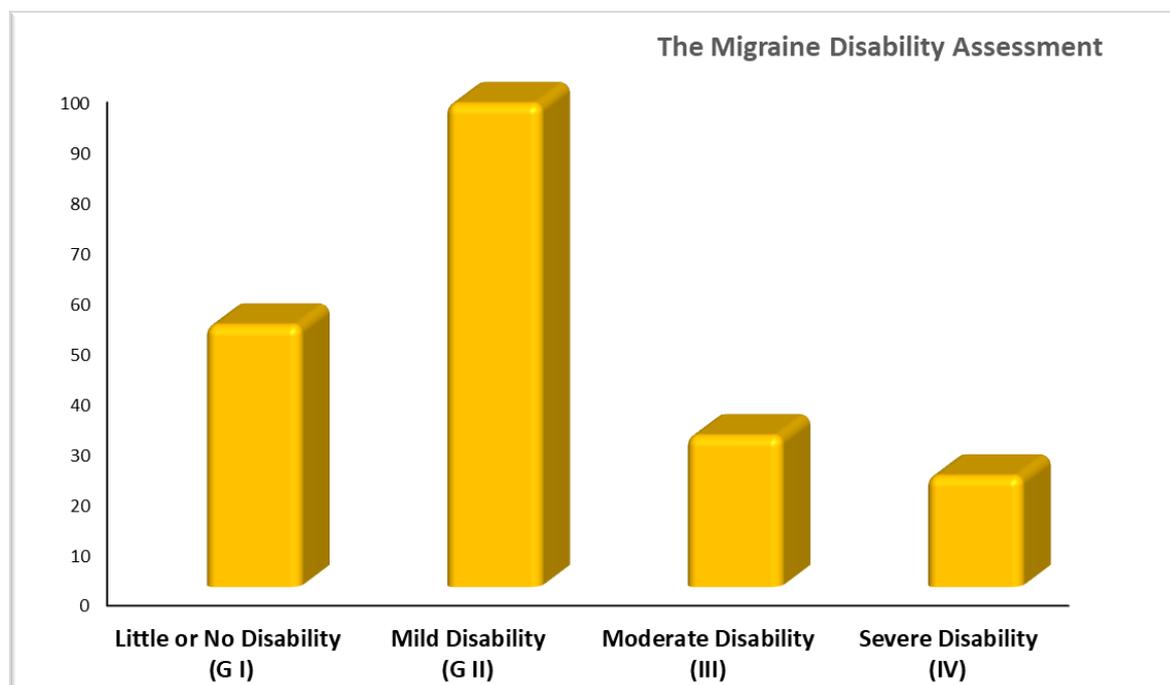
Table (5) Distribution of the correlation between socio-demographic data to Participants (Age, gender, nationality, marital status and level of education) and Migraine Disability Assessment

		Positive		Negative		Total		Chi-square	
		N	%	N	%	N	%	X^2	P-value
Age	<25	34	48.57	8	6.15	42	21	49.348	0.000
	25-50	27	38.57	91	70.00	118	59		
	>50	9	12.86	31	23.85	40	20		
Nationality	Saudi	62	88.57	12	9.23	74	37	122.874	0.000
	Non-Saudi	8	11.43	118	90.77	126	63		
Gender	Female	55	78.57	77	59.23	132	66	7.585	0.006
	Male	15	21.43	53	40.77	68	34		
Marital status	Single	12	17.14	12	9.23	24	12	36.668	0.000
	Married	21	30.00	91	70.00	112	56		
	Divorced	30	42.86	14	10.77	44	22		
	Widow	7	10.00	13	10.00	20	10		
level of education	General practitioner	31	44.29	15	11.54	46	23	31.900	0.000
	Specialist	33	47.14	75	57.69	108	54		
	Consultant	6	8.57	40	30.77	46	23		

Table 5 shows MIDA grades according to migraine characteristics of Participants. Significant relation in MIDA grades were present according to the age were (P=<0.001) and (X2 49.348)with increase in the age 35-50 the majority negative were (70.0%). Regarding the nationality majority of Participants in Saudi in Positive regarding disability were(88.57%) while in the Non-Saudi Negative were(90.77%), also a significant relation in MIDA grades were present according to (P=<0.000) and (X^2 122.874), regarding the MIDA grades were present according to the gender were (P=0.006) and (X^2 7.585) majority in the female positive disability were(78.57%), while significant differences in MIDA grades were present according to the marital status were (P=0.022) and (X^2 36.668)with the majority in the Divorced and positive disability were(42,0%) .Regarding the level of education were (p=<0.000) and (X^2 31.9007) with the majority in the Specialist and negative disability were(57.69%).

Figure 3: Distribution of the correlation between socio-demographic data to Participants (Age, gender, nationality, marital status and level of education) and Migraine Disability Assessment
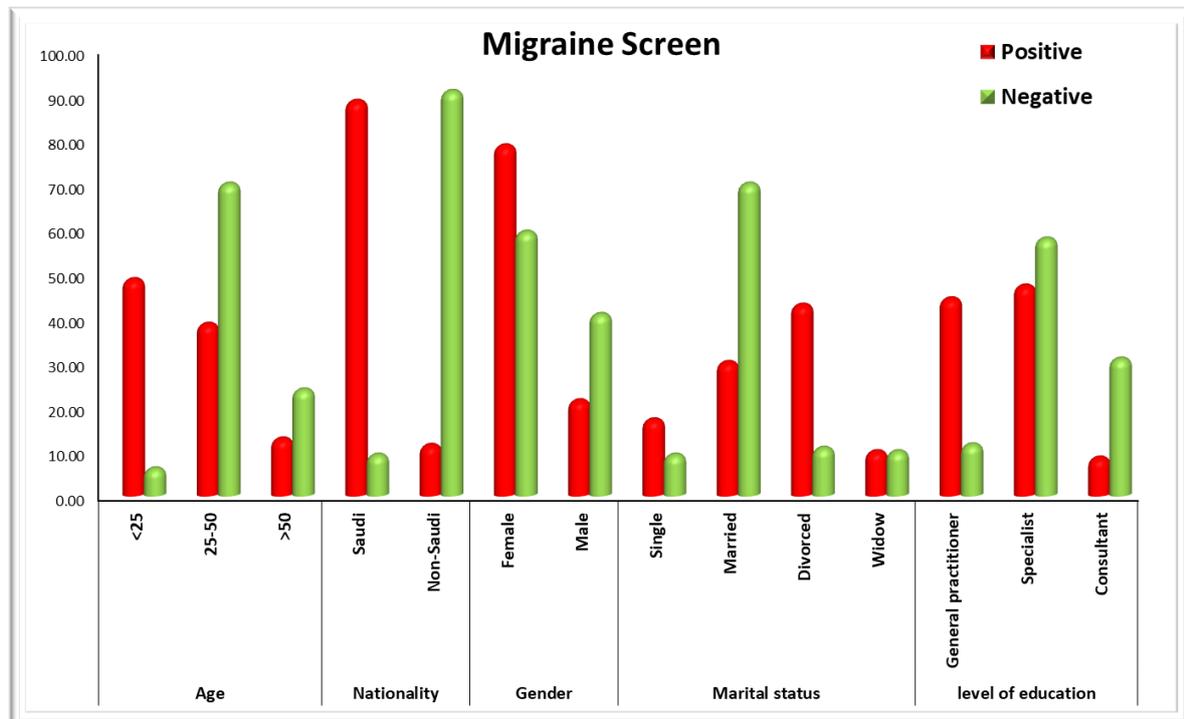
Discussion

Migraine headache is a common neurological disorder affecting Saudi population, was found to be higher than prevalence reported in different studies. For instance, headache was reported in 53.2% of individuals studied in Brazil in 2005 (28), 33.8% in Nairobi(29), and 27.9% in Kuwait (30). The mean age of our participants was 35 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. Pradeep et al. reported that migraine was more frequent among young and middle-aged individuals (31)

The present study revealed that prevalence of migraine headache among physicians in PHC centers Makkah City , table 1 shows that most of the participants (59%) were in the age group(25-50) years follow by the (21.0%)were in the age (<25) years, the majority of them females was higher compared to male(66.0 and 34.0%) , regarding the Nationality most of participants non-Saudi were were(63.0%), regarding the marital status most of participants married were(56.0%), regarding level of education the majority of participant are specialist were(54.0%) while general practitioner were(23.0%)(See table 1)

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 (3)

Show that the score of migraine screen questionnaire (MS-Q) of the participants the shows that the MS-Screen of migraine screen questionnaire (MS-Q) of the participants the mean ±SD was (3.057+1.66) while the data range (1-6) while the most of participants negative score were (65. 0%) while positive were (35.0%), while a significant relation were P-value=<0.001 ,

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 (32

similar study shown In accordance with our study 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(33), Moreover, Zivadinov et al. suggested that physical activity is one of the commonest triggers of headache [46] shows that regarding the Participants' Migraine Disability Assessment grades the majority of participants in the Mild Disability (G II) were (48.0%) followed by Little or No Disability (G I) were (26.0), regarding the Total were(100.0%) while the a significant relation were P-value=<0.001 X2were (66.08%) .(See table4,5)

also our study similar the recent studies on populations living in high altitude regions has shown a high prevalence of headache, particularly migraine.(34) This high prevalence of migraine's headache is also similar to that reported in a previous study from Taif, which is another city in the Sarawat mountain ranges of Saudi Arabia.(35) Another recently published study from Riyadh, the capital of Saudi Arabia reported a prevalence of 84%.(23) These results are in contrast with the studies from the past decade and thus pose interesting questions. A review published in 2010 that focused on the epidemiology of headache in the Arab region included two community-based studies with large sample size from Saudi Arabia.(36) This review had reported the prevalence of headache to be much lower at 8-12% than that reported in the current study and some recent studies from the region.(34) This is an interesting observation as it suggests an extraordinary increase in headache prevalence in the Kingdom. Though these differences could be purely due to methodological reasons, different

populations and different area, however the increased use of digital gadgets, especially handheld device like smartphones, warrants further studies to understand this phenomena.(33)

Conclusion:

Our study confirmed the results reported in previous studies that migraine has a negative impact on the quality of life of the patients and their ability to work. An awareness program should be conducted to increase the awareness of the importance of the early diagnosis of migraine. Therefore, awareness programs should be conducted to increase the awareness of the importance of the early diagnosis of migraine. Migraine is prevalent at Saudi Arabia. It is recommended that awareness related to knowledge of symptoms and triggers of migraine among general Saudi population be raised by print and electronic media as well as printed brochures should be placed in every health care center.

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