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RESEARCH ARTICLE

PREVALENCE OF MIGRAINE AMONG FEMALE STUDENTS AT TAIBAH UNIVERSITY, KINGDOM OF SAUDI ARABIA.

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Manuscript Info

Abstract

Background:- University studentsare routinelycomplaining of triggers, especiallyirregular sleepand stress, which are commonly associated with migraineattacks.
Objectives:- To assess the prevalenceof migraine headache among female students at Taibah University (Saudi Arabia) and to determine the common triggering and palliative factors of migraine headache among female University students.
Methods:- A cross-sectional study was carried out among female university students.Participants who had suffered from two or more headaches in the previous 3 months were subjected to the IDMigraine screening test, then who had at least two positive answers of the screening test were confirmed as a migraineursbased on the diagnostic criteria of the International Headache Society for migraine.
Results:- Migraine was detected among 244 out of 395 students (61.8%).Physical stimulation as (light, loudness, change in weather, certain smells) were the most triggering factors of migraine in 170/244 (69.7%) of migraine students. The most important relieving factors were rest and sleep in 155/244 (63.5%), medication in (33.2%), followed by darkening room in (30.3%), message in (20.1%), and coffee drink in (18%) of migraine students. This study showed significant association between migraine headache and family history of migraine and studying in theoretical colleges.
Conclusions:- The prevalenceof migraine among female students in Taibah University was high in comparison to other studies. The study recommend raising awareness towards migraine among students and teaching them how to deal with such a disabling condition to achieve optimum coping techniques aiming to a better quality of life.

Background:-

Migraine is a global neurological serious health problem due to its frequency and subsequent disability [1]. It is a disabling painful condition that is more prevalent three times amongst women, especially young and middle aged women [2, 3].

The public health effect of migraine is due to its high prevalence and notable temporary disability [4]. Migraine is very common among students of universities and it is linked to the limited daily activities and impaired performance on the academic level [5].

There are few studies concentrating on migraine spread between university students, despite it being numerous within the general population and different professional groups [6, 7, 8, 9].

In Saudi Arabia, the numbers of studies related to the amount of migraine among university students are not much [4, 10].Today,it becomes of considerable interest among university students due to its negative effects on their concentration, performance and quality of life [11, 12].

There are wide forms of external and internal stimuli which can trigger the migraine headaches. Previous researches suggest that migraine could be provoked by hormonal changes especially levels of estrogen, as well as the genetic effect [13, 14]. People with migraine tend to have recurring attacks triggered by a number of different factors such as anxiety ,stress, sleep and dietary substances, exposure to bright, flashing lights, smells, smoke, noise, certain foods, weather changes, or hormonal changes in females due to their menstrual cycle [15].

Migraine sufferers may have recurrent attacks of intolerable headaches that may be associated with prodrome/ aura [16]. Initially, the headache attacks are episodic and increasing in frequency over months or years in some patients, leading tochronic migraine, in which headaches occur at least 15 days per month [17]. However, most of them do not seek medical care [18, 19].

People who experience frequent attacks of migraine headaches (twice or more monthly) have greater disability, are more likely to have other diseases such as depression, arthritis, asthma and are less able to study or work compared to people with less frequent migraines[20]. Thus, the goal of this study is to assess the prevalence of migraine headache among female students at Taibah University, Kingdom of Saudi Arabia and to determine the common triggering and relieving factors of migraine headache among female University students.

Subjects and Methods:-
Study design and setting:-
A cross-sectional study was conducted amongundergraduate female students of Taibhu University in Medinah, Kingdom of Saudi Arabia during the academic year 2013-2014.
Study population and sample size:-
Based on previous studies [7, 4]on university students,thesample size is estimated using expected frequency of migraine in university students 15%, worst expected frequency 12% at 95% confidence interval and power of 80%. The sample size is calculated to be 536 female students, which was selected randomly from different semesters and faculties among students list (34432 female students in total) in academic year 2013-2014.It is calculated by Epi-info software version 6.04.

According to theexclusion criteria, 38 students were excluded from the study (include, pregnant students; those with previous history of head/neck injury, nasal allergy or inflammation; headache ofsystemic or secondary neurological disorders; and mixed headaches as cluster-tension headache, and those who participated in the pilot study).Thus, 498 female students were invited to participate in the study. About 395(79.3 %) were included in the studyversus 103(20.6 %) non responders or had incomplete questionnaire or inconsistent responses.
Data collection and measures:-
For this study, self-administered semi structured written questionnaire was used to collect data from the students. The questionnaire consisted of three parts.
The first part was designed to collect personal data (age, college, level, marital state) and whether there had been headache two or more headaches in the last 3 months *(Determination of headache students)*. Those participants who responded with "yes" **(n= 302)** were asked to continue **the second part** of the questionnaire which includes the three items of Identification (ID)Migrainescreening test [21]as an initial evaluation to determine the prevalence of migraine headache *(Determination of probability of migraine type headache)*. At least two positive responses were required to make a test-diagnosis of migraine headache. Then those who had at least two positive answers of three ID screening test **(n= 280)** were asked to complete**the third part**which related to the diagnostic criteria of the International Headache Society (IHS) for migraine [22], which was revised in 2004 [23], *(Determination of migraine headache),*then the migraine sufferers of female students according to the IHS diagnostic criteria **(n=244)** were then asked aboutcommon migrainetriggering (stress, anxiety, noise, exams, menstruation,……etc), [24,25,26]and relieving factors (rest, coffee, medication,….etc) [25].
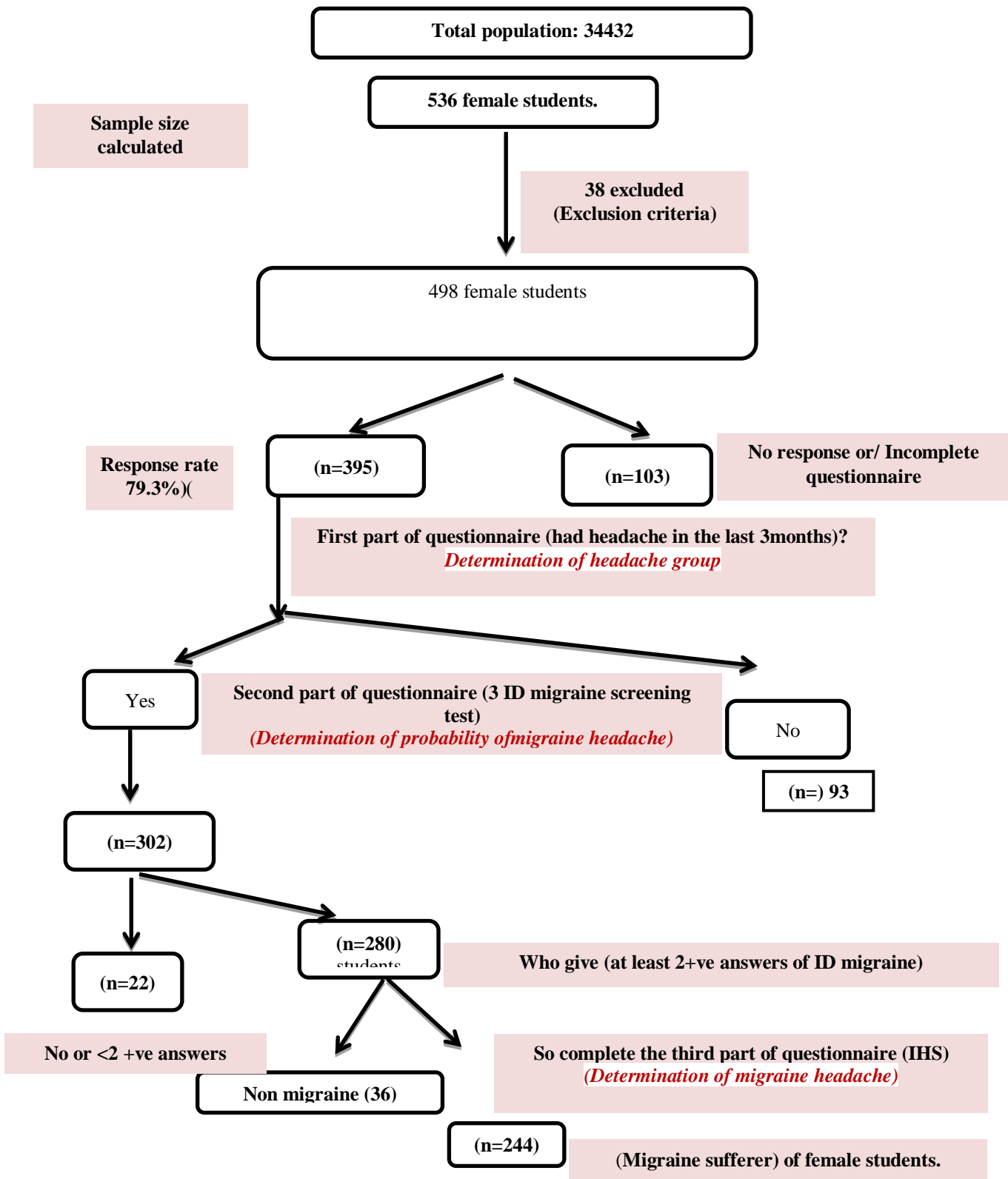### Data management:-
Data was coded and statistically analyzed using Statistical package for the Social Science (SPSS) version **19***(IBM, 2010)*. Descriptive statistics such as frequency, percent, mean, and SD were determined. The threshold of statistical significance was set at *P* value less than 0.05.
Ethical issues:-
Informed consent was obtained from each of the participants after explaining the objective of the study. Ethical permission to carry out the study was obtained from the Research Ethics Committee (REC) of Taibah University, KSA. Confidentiality of the data was ensured for all the students.

Figure 1 Flow-chart of the study process

Total population: 34432

536 female students.

Sample size calculated

38 excluded (Exclusion criteria)

498 female students

Response rate 79.3%)(

(n=395)

(n=103)

No response or/ Incomplete questionnaire

First part of questionnaire (had headache in the last 3months)?
Determination of headache group

Yes

Second part of questionnaire (3 ID migraine screening test)
(Determination of probability ofmigraine headache)

No

(n=) 93

(n=302)

(n=22)

(n=280) students

Who give (at least 2+ve answers of ID migraine)

No or <2 +ve answers

Non migraine (36)

So complete the third part of questionnaire (IHS)
(Determination of migraine headache)

(n=244)

(Migraine sufferer) of female students.

Results:-

Table 1:- Socio- demographic Characteristics of the study participants.

Socio-demographic data	Female students (N= 395)	
Age (Years): (Mean± SD)	21.14+1.35	
	N	**%**
Age (Years):		
• **18-**	123	31.1%
• **21-**	218	55.2%
• **23-**	54	13.7%
Residence:		
• Outside Medin	26	6.6
• Inside Medina	369	93.4
Marital state:		
• Non married*	334	84.6
• Married	61	15.4
Number of children;		
• No children	371	93.9
• ≤ 3 children	20	5.1
• > 3 children	4	1.0
College:		
• Theoretical college	204	51.6
• Practical college	191	48.4
Family history of migraine:		
• **Yes**	178	45.1
• **No**	217	54.9

non married includes (single-divorced-widow students)

Table(1) shows the socio demographic characteristics of the female students participated in this study. The age of the students ranged from 18 to 25 years with the majority of student in the age group of (21<23years (55.2%) and a mean of 21.14± 1.35 years. About, 93.4% of the participants were living inside Medinah compared to 6.6% living outside it. Majority of them (93.9%) were non married and only 15.4% were married and only minority of them (5.1%) have ≤ 3children,and only 1% have more than 3 children. Two hundred and four student were in theoretical collage, while 191 student were in practical collage. About 45.1% of the students reported that there's a positive family history of migraine.

Figure1:- Prevalence of migraine according to the International Headache Society (IHS) for migraine among university female students.
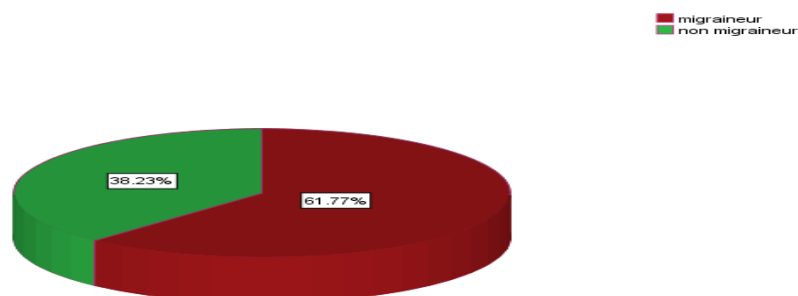
Figure(1) showed that out of 395 students, 244 students had fulfilled the international headache society (IHS) criteria of migraine diagnosis giving overall prevalence rate of 61.77% compared to 38.23% non-migraine sufferer.

Figure 2:- Migraine triggering factors among female students at Taibahu University.
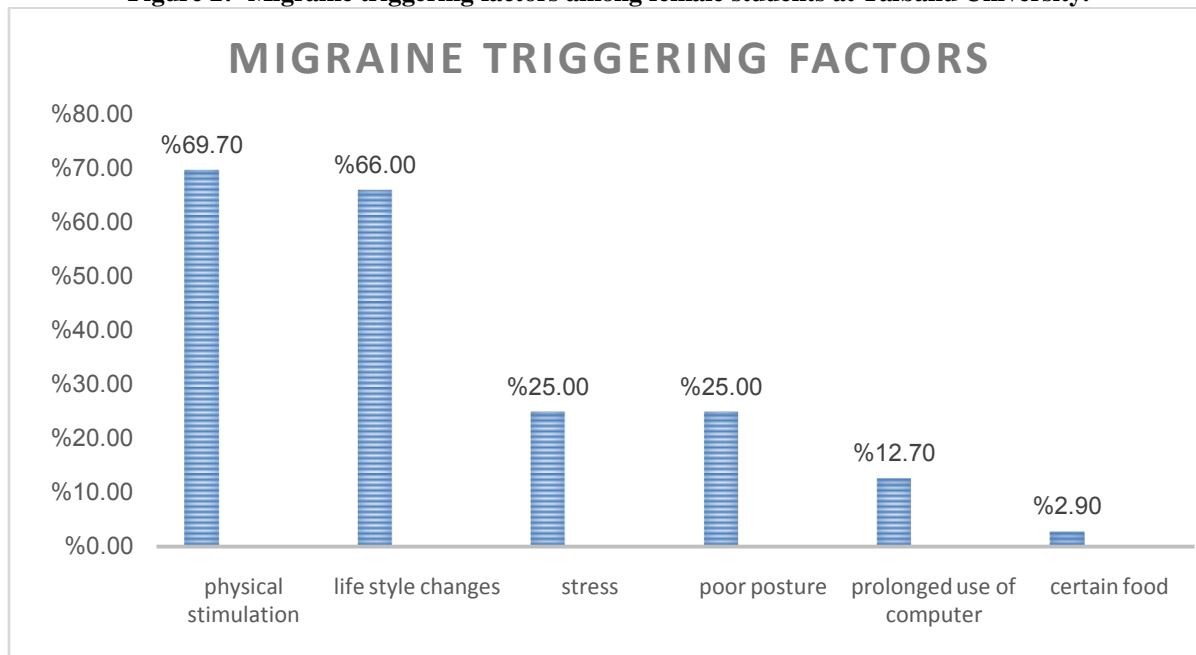
In this figure, physical stimulation as (light, loudness, change in weather, certain smells) were the most triggering factors of migraine in 170/244 (69.7%) of migraine students, followed by life style changes as (change in sleep pattern, skipping meals) in (66.0%) then stress in (56.1%), poor posture, prolonged use of computer, and certain food with frequency (25.0%, 12.7%, 3.3% respectively) among migraineuers.

Table 2:- Relieving factors according to female student migraine sufferers.

Relieving factors	Migraine (N = 244)	
	No	**%**
Rest and sleep	155	63.5
Improve posture	21	8.6
Coffee	48	19.7
Dark room	74	30.3
Massage	49	20.1
Eating	20	8.2
Medication	81	33.2
Cold packs	15	6.1
Spinal adjustment	8	3.3
Nothing	12	4.9
Other*	13	5.3

others (neck stretches & exercises that increase blood flow to the head)

Table (2) showed that the most important relieving factors were rest and sleep in 155/244 (63.5%), medication in (33.2%), followed by darkening room in (30.3%), message in (20.1%), and coffeedrink in (18%) of migraine students.

Table 3:- Migraine and non-migraine prevalence by socio-demographic Characteristics of the female students at Taibah University.

Characteristics	Migraine		Non- migraine		χ2 test	P value
	No	%	No	%		
Age (Years):						
• 18-	82	33.6	41	27.2	2.60	0.272
• 21-	127	52.0	91	60.3		
• 23-	35	14.3	19	12.6		
Marital state:						
• Non married	208	85.2	126	83.4	0.23	0.630
• Married	36	14.8	25	16.6		
College:						
• Theoretical college	136	55.7	68	45.0	4.28	**0.03***
• Practical college	108	44.3	83	55.0		
Family history of migraine:						
• Yes	130	53.3	48	31.8	17.4	**0.000***
• No	114	46.7	103	68.2		
Total (395)	**244**	61.8	**151**	38.2		

Table(3) showed migraine and non-migraine prevalence accordingto the socio-demographic characteristics of the students. Majority frequency of migraine was in the age group 21-<23years and non-marriedfemales but without significant association.The female students in theoretical colleges had higher frequency of migraine 55.7% compared to the students who study in practical fields 44.3% with significant association (p<0.05). Family history has an important role in the prevalence of migraine, because53.3 % of migraineuers had positive family history of migraine with highly significant association (p<0.0001).

Discussion:-

This is the first registered study that evaluates the spread of migraine among female students in different faculties of TaibahUniversity, Medina in KSA. There are few studies focusing on migraine among university students in Arab Gulf Countries showing noticeable differences in prevalence[4]A reported migraine prevalence of 25.7% among 400 students at king Saud University in Riyadh, whereas in Kuwait University, [27] reported 27.9% among 621 medical students.Other prevalence reported 12.2% in Oman [6], 7.9% in Qatar [28].

In the present study, a screening test for the identification of migrainetype headaches (ID Migraine)has been used, then migraine headache was confirmed by IHS criteria for migraine [22]. Our study results has showed that the migraine prevalence is higher (61.8%) in our area, compared to many other international studies in the world. For example, in Africa, different studies reported migraine prevalence range from 6.4% to 33.8% [7, 29, 8, 30]. Whereas it was reported to be 6.4% in a studycarried out inNigeriaamong 376 undergraduates[9].

The difference between our results and others in the prevalence of migraine could be explained by the fact that all the participant students of our study were females, the timeline estimation of prevalence, also may begenetic characteristics, the cultural aspects, the triggering factors and study method. In addition, if the study were to be conducted during a stressful timeasmid-term or finalexaminations, it would probably reveal a more of a widespread to migraine headaches since the screening test analyses the presence of headache in the previous three months as in this study. Moreover, environmental, racial, climate, different socioeconomic status or nutritional habits could also play a role in the differentiation whereasbe contributing factors for migraine in these different countries [31].

Nevertheless, the reasons for lower rates in other studies is that the diagnosis was based on the questionnaire followed by physical examination, while in this study it was based only on aself-administered questionnaire without physical examination.

Regarding the triggering factors, our results showed that physical stimulation as (light, loudness, change in weather, certain smells) were the most triggering factors of migraine (69.7%) among university students, followed by life style changes as (change in sleep pattern, skipping meals) in (66.0%) and stress in (56.1%). Whereas irregular sleep was reported in 80.6%, stress in 83.5% of migraineursand in 84% of migraineuersin previous studies [4, 32].

In accordance, our results are relatively congruent with the study conducted in North-Eastern Nigeria [33]whichestablished that exams, hunger, sleep deprivation,diet, physical and emotionalstress can easily trigger migraine.

Concerning migraine relieving factors, our study showed that most important relieving factors were rest and sleep in (63.5%), using medication in (33.2%), followed by darkening room in (30.3%), message in (20.1%), and coffee drink in (18%) of migraine students. Similarly there is study conductedat king Saud University [4]reported thatquiet and sleep were the most important relieving factors respectively in 78.6%, 76.7% of the students.

In addition,other studies [34, 4] reportedthat (48%, 32% respectively) were using medications for their headache. On the other hand, only five students with migraine in a study carried out in Turkey searched medication for their headache relieving.

Furthermore, darkness (47.6%) and massage (38.8%) were also reported as one of the ways to get the symptoms relieve [4].

The present study showed prevalence rate of migraine among females with a mean age of 21 is 55.2%. Similarly, Al-Hashel et al, 2014 found a high prevalence rate of migraine 31.1% among females with a mean age of 20.18.

In the current study, positive history of a family member who complains of headacheswasremarkably associated with migraine (p<**0.001**). In accordance, other researches [4, 35] found positive family history of migraine headache among migraineuers which support the role of genetic factors and occurrence of migraine.

Surprisingly, migraine prevalence was significantly higher (p<0.05) among theoretical collage in comparison to practical collage. This finding could be assigned to the fact that most female students in theoretical college get engaged or married earlier than that in practical college with more burden of their emotional stress as a provoking factor of migraine.

Limitation of the study:-
Our study included only young females. Also, the migraine students were not interviewed by neurologist for confirmation of migraine diagnosis.

Conclusions:-
The study reveal that theprevalence of migraine among female students in Taibah University was high (61.8%), compared to other studies. Physical stimulation, irregular sleep, and change in life style were the most common triggering factors. Sleeping and relaxing were the most helpful relieving factors followed by the use of medications.

Recommendations:-
Since migraine prevalence was higher than expected compared to other studies. So we recommend raising awareness of migraine among students and teaching them how to deal with such a disabling condition to achieve optimum coping techniques aiming to a better quality of life.

Competing interests:-
The authors of this research clarify that there are no competing benefits and it was financed by the authors of this study.

Acknowledgements:-

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