The Prevalence of Gastroesophageal Reflux Disease and its association with The Level Of Stress Among a Sample of Medical Students

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Introduction

Gastroesophageal reflux disease (GERD) is a chronic disease caused by reflux of stomach contents into the esophagus. It is accompanied by several unpleasant symptoms and may restrict personal daily activity [1]. GERD is one of the most common gastrointestinal problems worldwide, with negative impacts on quality of life, health and economy. Gastroesophageal reflux occurs when there is retro grade movement of gastric contents in to the esophagus. It occurs mainly after meals and as a part of normal venting process to prevent excessive gastric distension and dyspepsia. It typically presents as troublesome symptoms including heartburn and regurgitation also as atypical symptoms like chest pain , cough and hoarseness of voice.

Pathogeneses of gastroesophageal reflux disease(GERD) is complex and involves changes in reflux exposure, epithelial resistance, and visceral sensitivity. The gastric reflux is a noxious material that injures the esophagus and elicits symptoms. Esophageal exposure to gastric reflux is the primary determinant of disease severity. This exposure arises via compromise of the anti-reflux barrier and reduced ability of the esophagus to clear and buffer the reflux, leading to reflux disease. However, complications and symptoms also occur in the context of normal reflux burden, when there is either poor epithelial resistance or increased visceral sensitivity. Reflux therefore develops via alterations in the balance of aggressive and defensive forces.

Recently, many lines of evidence have suggested that stress, a measure of adverse psychosocial influences in adult life, may play an important role in GERD. It has been shown that subjects who have been exposed to life stressors are more likely to complain of symptoms of GERD. On the other hand, the presence of troublesome GERD symptoms affects one's daily life and can thereby induce stress.

Health-related quality of life in patients with reflux esophagitis is impaired in physical, psychological, and social aspects, and many studies found that patients with GERD report reduced work productivity.

Risk Factors for Acid Reflux and Heartburn

Anyone can experience occasional acid reflux and heartburn. For example any person may experience these symptoms after eating too quickly, after consuming lots of spicy food or high fat treats.

The most important risk factors of GERD may be

1. Overweight or obesity: This may be due to the additional weight causing pressure on the stomach which in turn causes stomach acid and contents to travel back up your esophagus. Maintaining a healthy weight can help reduce the pressure on the stomach and thus the symptoms of GERD.

2. Cigarette Smoke: Smokers, past smokers, and those repeatedly exposed to second-hand smoke are more susceptible to experience Gastroesophageal reflux disease. This is due to nicotine causing the relaxation in the esophagus which allows the acids and content of the stomach to come up. Quitting smoking or avoiding second-hand smoke can prevent development or reduce symptoms of GERD.

3. Medications and Supplements: Certain medications and supplements can also cause GERD by relaxing the lower esophagus or causing inflammation of the esophagus

4. Other Disease or Condition:There are also several diseases and conditions which have been linked to the development of GERD; such as: Diabetes

5. Psychological upset or stress: Psychosocial factors including stress also alter the function of the GI tract and GI symptom perception in patients withGERD. The relationship of stress to GI function is viewed as a direct consequence of bidirectional modulation by the central nervous system, including motor responses, pain modulation, and even immune function [21]. Previous studies have shown that stress can produce altered GI motility and symptoms. In a

Gallup Poll, 64% of individuals with heartburn, the major symptom of GERD, reported that stress increased their symptoms [22]. Stress can exacerbate heartburn symptoms in GERD

Aim

To evaluate the prevalence of GERD among the medical students assess its relation to level of stress of those students according to the results of PSS score

Method:-

The study is a cross sectional study aims to track the prevalence of GERD among medical students and assess student characteristics that make him at higher risk been in such condition In addition to the proportion of those students presented with Stress. The study started with a questionnaire that study the sociodemographic characteristics of the student including age, gender, residence, engagement status and daily pocket money in addition to life style, feeding style in addition to daily activity and playing sport.

Assessment of the GERD symptoms depends on :

The FSSG questionnaire is a validated graphic scale consisting of 12 questions developed specifically to evaluate GERD symptoms and has been widely used in Japan and other countries 1, 2, 3. Each question was rated with a five-point Likert scale from zero (frequency of the symptom was never) to four points (frequency of the symptom was always). Every response to each question of the FSSG questionnaire was visually spaced with equal distance.

This new questionnaire is useful for the objective evaluation of symptoms in GERD patients(4), which comprises of 12 questions regarding GERD symptoms, to which participants answered correspondingly along with the frequency of symptoms: never=0, occasionally=1, sometimes=2, often=3 or always=4. GERD was considered present if the total FSSG score was

≥8.

8-12 mild

14-20 moderate

>20 severe

FSSG at cut off eight points showed sensitivity of 62%, specificity of 59%, and accuracy of 60% in diagnosing GERD(4).

Stress level assessed using the PSS score (perceived stress score): The Perceived Stress Scale (PSS-10; Cohen, Kamarch, & Mermelstein,1983) is a popular tool for measuring psychological stress. It is a self-reported questionnaire that was designed to measure the degree to which situations in one's life are appraised as stressful. The PSS-10 determines how unpredictable, uncontrollable, and overloaded respondents find their lives. The scale also includes a number of direct queries about current levels of experienced stress. The PSS was designed for use in community samples with at least some high school education. The assessed items are general in nature rather than focusing on specific events or experiences.

Psychometric Properties

There have been three versions of the PSS developed. The original instrument is a 14-item scale (PSS-14) that was developed in English (Cohen et al.,1983), which was subsequently shortened to 10 items (PSS-10) using factor analysis based on data from 2,387 U.S. residents

The criterion validity of PSS-10 was evaluated and it was strongly correlated with the mental component of health status as measured by the Medical Outcomes Study – Short Form 36 (Ware, Snow, Kosinski, & Grandek, 1993). The PSS was either moderately or strongly correlated with the hypothesised emotional variables, such as depression or anxiety, as measured using the Center for Epidemiologic Studies Depression Scale (Radloff, 1977), Inventory to Diagnose Depression (Zimmerman & Coryell, 1987), Beck Depression Inventory (Beck, Steer, & Garbin, 1988), Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983), State-Trait Anxiety Inventory (Spielberger, 1983), General Health Questionnaire (Goldberg & Williams, 1991), Edinburgh Postnatal Depression Scale (Cox, Holden, & Sagovsky,1987), Thai Depression Inventory (Lotrakul & Sukanich, 1999), and Depression Anxiety Stress Scale – 21 (Lyrakos, Arvaniti, Smyrnioti, & Kostopanahiotou, 2011).

A CFA by Taylor (2015) found that a 2 factor model best describes the PSS-10:

- o Perceived helplessness

- o Lack of self-efficacy

There are two subscales in the PSS-10:

Perceived helplessness (items 1, 2, 3, 6, 9, 10) – measuring an individual's feelings of a lack of control over their circumstances or their own emotions or reactions.Lack of self-efficacy (items 4, 5, 7, 8) – measuring an individual's perceived inability to handle problems.

Results

Demographic characteristics :

A total of 194 medical students completed the survey. Of these medical students included in in data analyses, 128(66.1%) were female ,67(33.9%) were male. The percentage of male students who using tobacco was 10.7%. students who have family history with GIT disorders (39.5%).

Data analysis:

After Data analysis for FREQUENCY SCALE FOR THE SYMPTOMS OF GERD, perceived stress scale the results showed 75 person (38.65%) low level of stress and 120 person (61,2%) moderate level of stress and no on had severe of stress.

The FREQUENCY SCALE FOR THE SYMPTOMS OF GERD showed results 11 person (5.67%) mild ,55 person (28.3%) moderate, 128 person (65.97%) assessments in this scale.
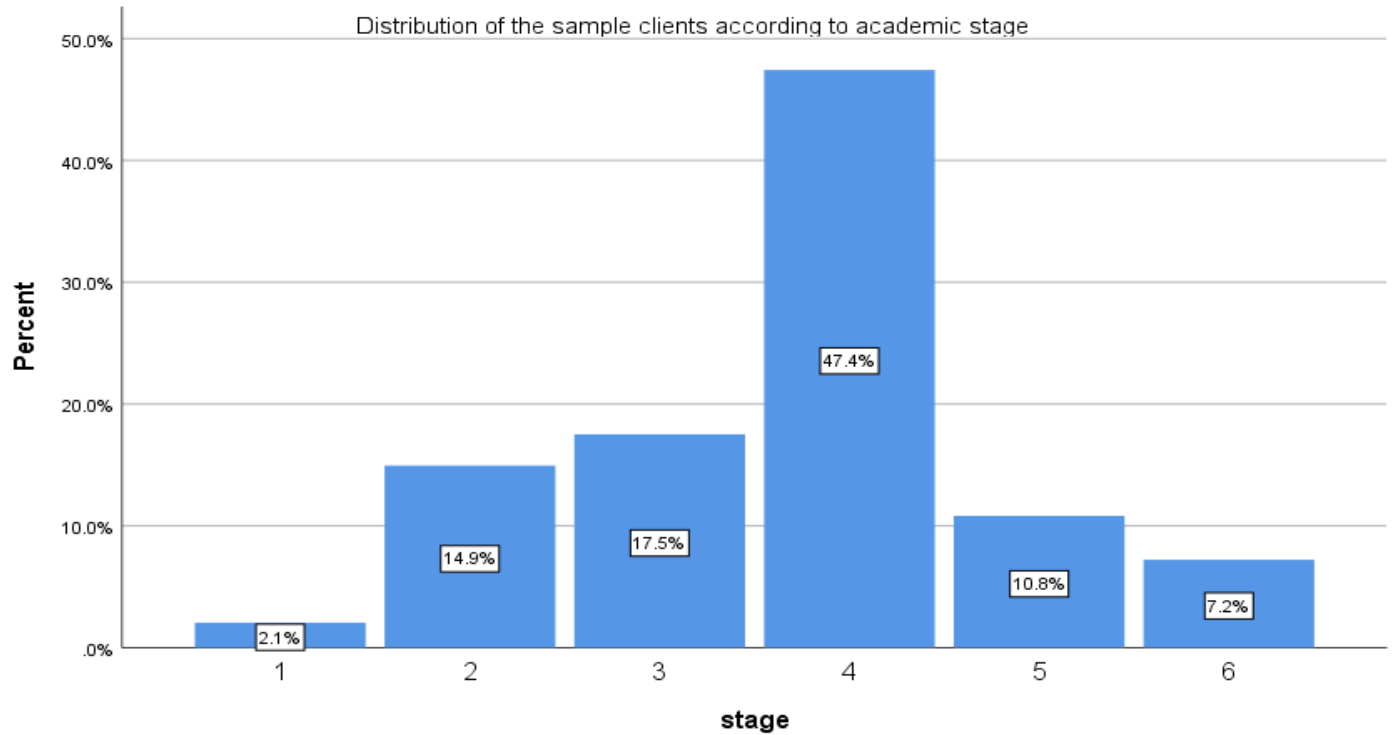
Figure(1): **The distribution of samples between stages of years studies**

The proportion of female in the study reach about 65% as presented in figure2
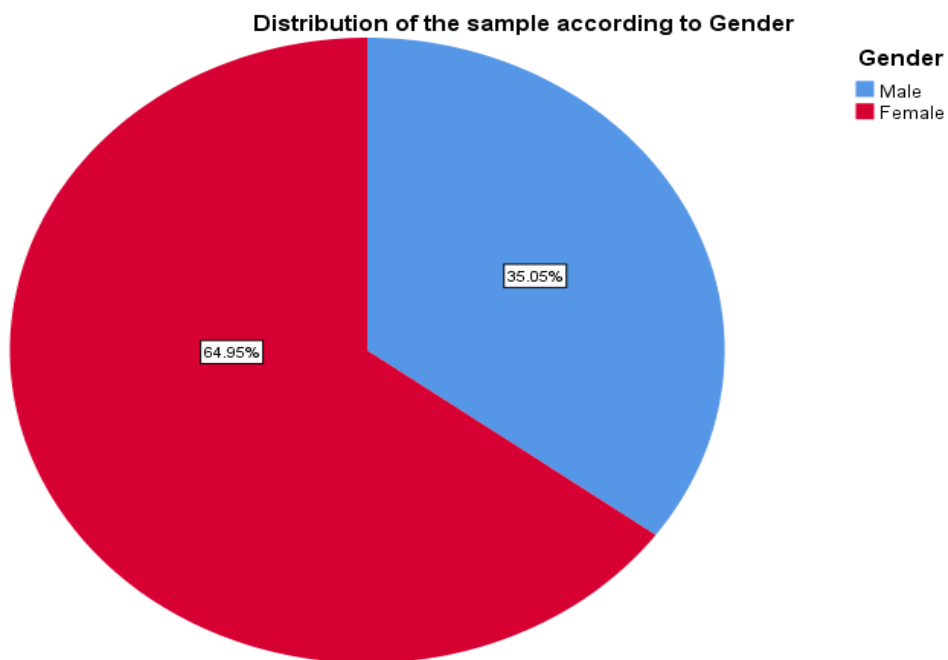
Figure(2): **The distribution of the sample according to Gender**

The study showed that stress level is not associated with the academic stage of study as it was expected, result presented in table 1

Table (1): the association between the academic stage and the perceived level of stress

			Stress score		Total	P value
			Mild	Moderate		
stage	1	Count	2	2	4	0.963
		%	50.0%	50.0%	100.0%	
	2	Count	10	19	29	
		%	34.5%	65.5%	100.0%	
	3	Count	13	21	34	
		%	38.2%	61.8%	100.0%	
	4	Count	38	54	92	
		%	41.3%	58.7%	100.0%	
	5	Count	7	14	21	
		%	33.3%	66.7%	100.0%	
	6	Count	5	9	14	
		%	35.7%	64.3%	100.0%	
Total		Count	75	119	194	
		%	38.7%	61.3%	100.0%	

On the other hand the presence and severity of GERD been significantly associated with level of stress as presented in table 2

GERD score * Stress score						P value
			Stress score		Total	
			Mild	Moderate		
GERD score	Moderate	Count	28	27	55	0.03*
		%	50.9%	49.1%	100.0%	
	Severe	Count	41	87	128	
		%	32.0%	68.0%	100.0%	
	mild	Count	6	5	11	
		%	54.5%	45.5%	100.0%	
Total		Count	75	119	194	
		%	38.7%	61.3%	100.0%	

The distribution of level of preserved stress and association with gender the table show increase prevalence of moderate level of stress between female students with p-value(0.03)

TABLE(3)

			Stress score		Total	P value
			Mild	Moderate		
Gender	Male	Count	33	35	68	0.03
		%	48.5%	51.5%	100.0%	
	Female	Count	42	84	126	
		%	33.3%	66.7%	100.0%	
Total		Count	75	119	194	
		%	38.7%	61.3%	100.0%	

The association between GERD and stress between samples of study the figure show that 68% of students who have moderate stress have severe symptoms of GERD with significant p-value (0.03)

Discussion

Our study shows apostve association between stress and reflux esophagitis [8,13] exposure to stress increases the secretion of gastric acid , shows and delays the gastric emptying , and cause the reflux [8] . moreover ,the questionnaire reported that most of patients with Gerd suffered exaggerated symptoms when faced stressful events

We found the perceived stress level measured by a standardized, well - established instrument to be higher in individual with reflux esophagitis . The present study clearly suggests that psychological stress might have a significant relationship with reflux esophagitis and may have a potential role in symptoms presentation and natural history
 By comparison our study with study that done in king Khalid university the results show as
354 in the resarach
Their age group (18-36) 52% of female have gerd and 48% of male
In Babylon university medical college 194 age group (18-24)
67% female have gerd and 33% male .
The percentage of male using tobacco in king Khalid university 9.9%
and in Babylon university the percentage is 10.7%.

Conclusion

a) This cross sectional study revealed that GERD is prevalent problem among undergraduate medical students in Babylon,Iraq.
b) It affect more than one third of them which consider high prevalence of GERD.
c) The daily stressful missions had high impact on the students
d) The frequent consumption of tea,coffee ,soft drink and eating quickly also had high risk for GERD

Recommendations:

1. **Strengthen the psychological supportive programs for college students especially those in the college of medicine.**
2. Female gender as expected been more sensitive and require more care
3. GERD symptoms could one of the manifestations of hidden stress and need to be treated as a cause

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