The Prevalence of Gastroesophageal Reflux Disease (GERD) and Its Impact on Quality of Life among Taibah University Students

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Abstract— **Objectives** : to estimate the prevalence of GERD among Taibah University students , Al-madinah –KSA and detection of its risk factors and its impaction on the quality of their lives. **Methods** : a cross-sectional descriptive study on 501 students using the Gastroesophageal reflux disease questionnaire (GerdQ) for diagnoses, and GERD impact scale (GIS) questionnaire for risk factors and its overall impact on quality of life .The risk factors assessed included age, obesity (BMI), alcohol and tobacco consumption, bronchial asthma, as well as the presence of other co-morbid diseases such as diabetes mellitus and hypertension. statistical analysis done by SPSS version 22.0 . **Results** : sample included 68.06% females . 13% previously diagnosed with GERD , 3% which diagnosed through endoscopy. with duration extends up to 7 years . most treatment used among these patients were PPIs . 1.6% have persistent symptoms despite treatment .commonest GERD symptoms were heartburn (45.9%), regurgitation (45.7%), epigastric pain (43.3%), nausea and vomiting (41.9%), sleep disturbance (36.3%) food intolerance (28.7%), decreased productivity (24.8%) and last the need for relieving medications (20.2%).in terms of risk factors significant relations were found between Body mass index and heartburn (P.value = 0.039) , Drinking alcohol and GERD (P.value = 0.017) . Type of food and heartburn (P.value = 0.036). **Conclusion** : in our study GERD found to be prevalent in young adults and the presence of Heartburn was significantly associated with obesity .

Index Terms— epigatric pain , Obesity, Quality of life , regurgitation ,reflux , sleep disturbance , heartburn .

1 INTRODUCTION

Gastroesophageal reflux disease (GERD) is a common gastrointestinal disease, it is defined by The American College of Gastroenterology as "symptoms or complications resulting from the reflux of gastric contents into the esophagus or beyond, into the oral cavity (including larynx) or lung . Typical symptoms are heartburn and acid regurgitation. GERD may occur with or without esophageal inflammation (esophagitis). Symptoms may be without erosions on endoscopic examination (non-erosive reflux disease or NERD), or with erosions present (ERD) [1].

An Update epidemiological study in 2014 concluded that GERD is prevalent worldwide. The range of GERD prevalence estimates was 18.1%–27.8% in North America, 8.8%–25.9% in Europe, 2.5%–7.8% in East Asia, 8.7%–33.1% in the Middle East, 11.6% in Australia and 23.0% in South America[2]. A more precise epidemiology of GERD in KSA is done by a Cross-section survey of the western region of KSA using a validated GerdQ questionnaire. Based on it, GERD prevalence estimated to be 23.47%. Obesity & co-morbid diseases such as hypertension & diabetes were associated with the high prevalence [3].

Reflux symptoms and Non-erosive reflux disease affects women more than men. However, men suffer pathologic changes more frequently as : reflux esophagitis, Barrett's esophagus (BE), and esophageal adenocarcinoma (EAC).Incidence of reflux esophagitis increases in women after 50s suggesting a role of estrogen in delaying the onset of BE and EAC [4]. GERD-related complications as erosive esophagitis, Barrett esophagus, and esophageal adenocarcinoma has been steadily increasing for unknown cause, suggestions for this increase included: Changes in diet, prescription medication use, alcohol and tobacco consumption and the declining prevalence of Helicobacter pylori infection [5-8]. The impact of symptoms on daily life is one of the most common reasons for consultation for gastroenterology, and the associated anxiety about serious illness and dissatisfaction with treatment [9].

GERD lowers the quality of life by causing complications such as esophageal cancer. Recent reviews have highlighted that GERD interferes with physical activity (including manual work and exercise), impairs social functioning, disturbs sleep and reduces productivity at work [10-11]. In a study that highlighted the importance of assessing the treatment burden on those patients revealed that taking medications, making dietary and lifestyle changes could be an important burdens for many patients [12]. A marked impact on HRQoL is seen in nocturnal reflux disease, which is manifested as heartburn during sleep and sleep disturbances. Nocturnal reflux disease shown to be associated with the more severe forms of gastroesophageal reflux disease (GERD), particularly with atypical/extraesophageal manifestations as well as complications of mucosal damage, such as esophagitis, stricture, Barrett's esophagus and esophageal adenocarcinoma thus reducing Quality of life [13].

Many instruments developed to measure quality of life, intensity and frequency of symptoms and the health effects of GERD. Some, such as the GERD Impact Scale (GIS) questionnaire, Gastrointestinal Symptom Rating Scale (GSRS), the Gastroesophageal Reflux Questionnaire (GERQ), the Quality of

Life in Reflux and Dyspepsia (QOLRAD) and the GERD Health Related Quality of Life Scale (GERD-HRQL) [14-16].

We aim in this study to estimate the prevalence of GERD among Taibah University students by using the (GerdQ) questionnaire , detection of its risk factors, and assessment of its impaction on the quality of their lives by using GERD impact scale (GIS) questionnaire.

2 OBJECTIVES

1. To estimate the prevalence of GERD among Taibah University students.
2. To detect its risk factors including age, obesity, alcohol and tobacco consumption, bronchial asthma, and the presence of other co-morbid diseases.
3. To understand how GERD influences the affected students' life upon all aspects.

3 Methods

Study design and participants: This is a cross-sectional descriptive study will be conducted using a structured questionnaire on 1000 of Taibah University students, both gender, aged from 19 to 25 years old in Medina.

Duration of the study : The study will be in 3 months duration, from Jan to Mar, 2017.

Data collection, proposed commencement and analysis:

A questionnaire form, consisted of 4 main sections related to the general demographic data, GERD symptoms for diagnosis by using the (GerdQ) questionnaire, GERD risk factors and its overall impact on quality of life by using GERD impact scale (GIS) questionnaire for the data collection.

The risk factors assessed included age, obesity (BMI), alcohol and tobacco consumption, bronchial asthma, as well as the presence of other co-morbid diseases such as diabetes mellitus and hypertension.

The statistical analysis will be performed using the Statistical Package for the Social Sciences (SPSS), version 22.0 .Chi Square analysis will be applied to compare the differences between the groups included in the study and a P value < 0.05 will be considered statistically significant.

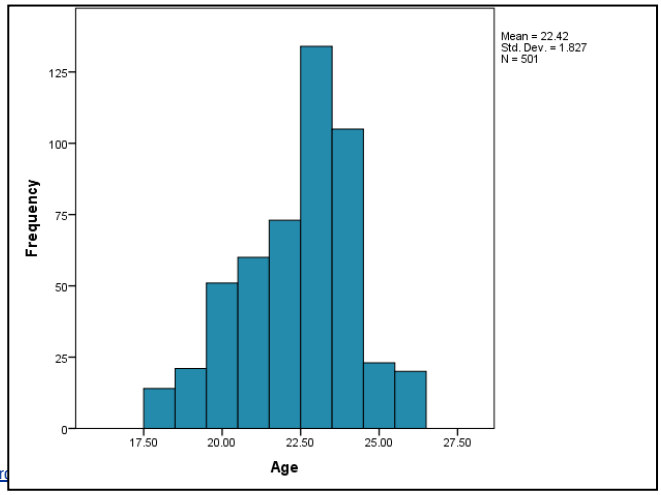
4 Results

501 students from different Taibah University responded to the questionnaire, the mean age of the respondents was 22.42+_1.827 (Figure 1), most of the respondents were females (68.06%). Almost half of the respondents (49.70%) have a normal body mass index (Figure 2), mean body mass index 24.28+_6.678.

Of the total 501 only 65 students were previously diagnosed with GERD, 3% out of which diagnosed through endoscopy. The time of the diagnoses ranges from less than 1 year up to 7 years. PPI was the most frequently used among our respondents as a solo treatment. Only 1.6% have persistent symptoms despite treatment (Table 1).

The association between age and heartburn was not significant as all the respondents approximately lie in the same age range (P.value = 0.166). In term of gender female reported episodes of heartburn more than males did with no statistically significant difference (P.value = 0.308).98 females had at least 1 episode of heartburn 1 day per week , 44 had episodes from 2-3 days per week and 14 have episodes from 4-7 days per week. Body mass index was strongly associated with heartburn (P.value = 0.039). Regarding the asthma was not strongly associate with heartburn among our sample (P.value = 0.069), neither the time of diagnosis of it whether before or after GERD (P.value = 0.438). Heartburn wasn't affected by smoking among the respondents (P.value = 0.976) nor the duration of smoking (P.value = 0.780) or the number of packs per day (P.value = 0.628). Drinking alcohol was associated with GERD with statistically significant P.value = 0.017. Duration of alcohol (P.value = 0.263) wasn't significantly relevant to GERD nor did the amount (P.value = 0.290). Hypertension wasn't prevalent in our sample only 5 students diagnosed with it and it wasn't significantly associated with heartburn (P.value = 0.391) nor the duration of it (P.value = 0.378). Twenty students used aspirin with no statically significant P.value = 0.181. Ten students from the respondents are diabetic with no association with heartburn (P.value = 0.823). Metformin wasn't associated with heartburn (P.value = 0.368). Type of food was strongly associated with heartburn (P.value = 0.036). (Table 2)

Regarding the frequency of symptoms of GERD, heartburn was the most common (45.9%), followed by regurgitation (45.7%), after that epigastric pain (43.3%), then nausea and vomiting (41.9%), then sleep disturbance (36.3%), followed by food intolerance (28.7%), then decreased productivity (24.8%) and last the need for relieving medications (20.2%). (Table 3)



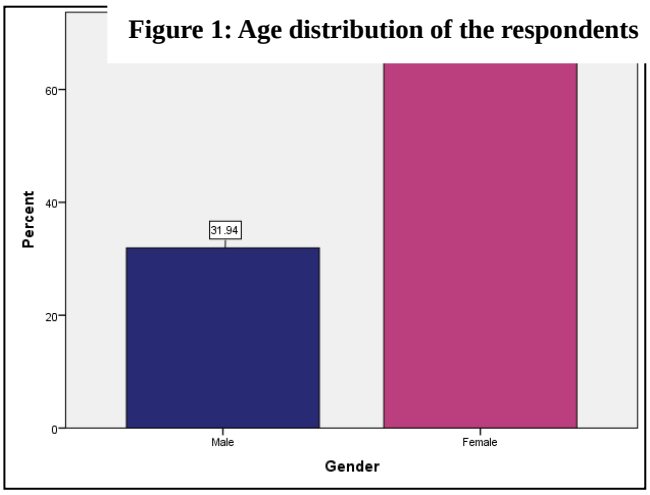


Figure 1: Age distribution of the respondents

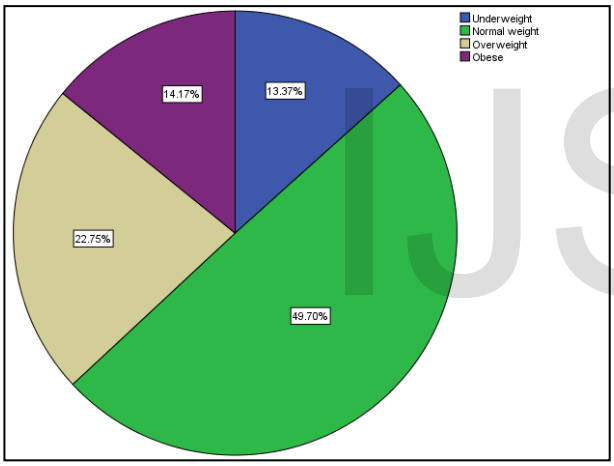


Figure 2: Gender distribution of the respondents

Figure 3: BMI distribution of the respondents

Time of diagnosis		
Less than 1 year	3	0.6%
2 years ago	1	0.2%
3 years ago	4	0.8%
4 years ago	2	0.4%
5 years ago	1	0.2%
7 years ago	1	0.2%
Treatment		
Antacid	4	0.8%
PPI	7	1.4%
H2 blockers	2	0.4%
PPI+H2 blockers	1	0.2%
Diet & lifestyle modification	3	0.6%
Diet +antiemetic + Diet & life-style modification	1	0.2%
PPI + Diet & lifestyle modifica-tion	2	0.4%
Unknown medications	6	1.2%
No treatment	3	0.6%
Persistent symptoms despite treatment		
Yes	8	1.6%
No	21	4.2%

Table 1: History of the respondents diagnosed with GERD

	Frequency	**Percentage**
Diagnosed with GERD		
Yes	65	13%
No	436	87%
Diagnosed through endoscopy		
Yes	15	3%
No	46	9.2%

5 Discussion

GERD is a constellation of symptoms resulting from the reflux of stomach contents which causes symptoms and complications , usually the patients will have manifestations related to esophageal only or an extraesophageal symptoms .[17] There is difficulty in distinguishing between GERD and functional dyspepsia as recent data suggesting .[18,19]

In the Gulf region the prevalence of GERD is not well characterized and there is lack of data.In Kuwait there is a research shows 200 Kuwaiti dyspeptic patients referred for endoscopy, just 7% were found to have esophagitis.[20] And in a retrospective study at southern part of Saudi Arabia (Gizan) for individuals who underwent an upper gastrointestinal endoscopy Barrett's esophagus was identified in 0.003%.[21] Another study in the Eastern part of Saudi Arabia showed a worse health-related quality of life (HRQOL) scores in that patients suffering from GERD and non-ulcer dyspepsia when compared to those without these disorders.[22] The incidence and prevalence of GERD appears to be changing like that of other gastrointestinal disorders. These differences might be due to better medical facilities , advanced diagnostic technology, and heightened awareness of the disease between a region and another .[23]

In our study , the prevalence of GERD (13%) was similar to what reported in the literature. In a recent systematic review, the range of GERD prevalence was found to be 8.7-33.1% in the Middle East, 2.5-7.8% in East Asia, 11.6% in Australia, 8.8-25.9% in Europe,18.1-27.8% in North America, and 23.0% in South America.[24] We need to note that these ranges are based on variable assessment tools and this should be taken into account when directly comparing these ranges .

In our study, GERD was found to be more prevalent in young adult individuals as they were the majority in our university students population . Some population-based studies have found an association between GERD and age,[25,26] while some studies have not found any correlation between age and GERD .[1,13] This variation in results might be explained by the various methods in which age was categorized as some studies used arbitrary cutoff values and compared groups to each other.[27,26,28] while others examined age as a continuous variable[25] .

In our study we found that the presence of Heartburn was significantly associated with an increased BMI P-value 0.039 in keeping with the findings of a recent research where obesity was associated with GERD . [29] There is no association between GERD and smoking in our study but in other studies it shows an association which it did not reach statistical significance. [27,30,25]

In the students of Taibah University we did not find an association between GERD and the presence of asthma. This is going with a study on children in primary care practice in the United Kingdom.[31]

6 Conclusion

In our study, the prevalence of GERD in the students of Taibah University was assessed, rather than in a symptomatic population presenting to hospitals or health care facilities . However, it does have some limitations; recall bias is one of these, which is unfortunately common in studies of this nature. The findings and interpretation of our results rest on the validity of our questionnaire and point out the need for validation of this instrument. Nonetheless, the results of this study shed some light on the prevalence of GERD in the region and further studies are needed to validate these results and to explore these results, as the public health implications of such a disease are great and affect the well-being of a large segment of the community. we recommend further researches to evaluate the impact of diet and physical activity thus decreasing BMI on GERD management .

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