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Prevalence of IBS among Qassim school teachers and its impact on their performance & quality of life

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Abstract

Background: Irritable bowel syndrome (IBS) is a frequent, costly, and potentially disabling gastrointestinal disorder. School teaching is among the most challenging and the most stressful careers, and this may predispose to high rates of IBS.

Objectives: To determine the prevalence of IBS among school teachers in Qassim region, and its impact on their performance as teachers & quality of life.

Methods: A cross-sectional study was conducted among 300 school teachers selected by multistage stratified random sample method in 2013. A confidential, anonymous, and self-administered questionnaire was used to collect personal and sociodemographic data, teacher performance oriented questions. Rome III Criteria were used to diagnose IBS.

Results: The prevalence of IBS symptoms among teachers in Qassim region of Saudi Arabia is 40.7% with no significant gender predilection. The IBS symptoms significantly affect the work performance of the teachers (61.6%) with high absenteeism rate (46.6%) especially among 51-60y and 21-30y age groups ($p < 0.05$). Significant proportion (45.3%) of IBS criteria +ve teachers find IBS symptoms to be hindrance in their quality of life.

Conclusion: Prevalence of IBS in Qassim school teachers is becoming increasingly an important issue with 40.7% of teachers reporting symptoms suggestive of IBS in a random sample. Majority of teachers having frequent problems of performance as a teacher & quality of life associated with their IBS Symptoms. Significantly, IBS criteria +ve teachers are more likely to have discipline problems compared to healthy teachers.

Keywords: Demonetization, cashless transactions, corruption inflation

Introduction

Irritable bowel syndrome (IBS) is one of the functional gastrointestinal disorders (FGIDs) characterized by gastrointestinal symptoms such as abdominal pain or discomfort, and alteration of bowel habits, despite the absence of organic disease [1]. Irritable bowel syndrome (IBS) affects as many as 5%-20% of individuals worldwide [2-3]. The IBS occurs more often in women than in men, and is more commonly diagnosed in patients younger than 50 years of age [4, 5-6]. IBS symptoms range from diarrhea to constipation, altered bowel habits in the absence of a specific and unique pathology to the intestine (tumor or inflammation) [7-8], or a combination of the two, with abdominal pain or discomfort existing alongside abdominal distension [9]. The exact cause of IBS is unclear but some studies reported that it depends on multiple factors including psychological, social and biological factors [10].

The degree of symptoms varies in different patients from tolerable to severe, and the time pattern and discomfort varies immensely from patient to patient [4, 5-6]. Some patients complain of daily symptoms, while others report intermittent symptoms at intervals of weeks or months. IBS is not reported to cause or progress to serious disease or with excess mortality [12, 13]. However, IBS causes a reduced quality of life with the same degree of impairment as major chronic diseases, such as diabetes, congestive heart failure, renal insufficiency and hepatic cirrhosis [14-15]. Although a minority (10%-50%) of IBS patients seek healthcare, they generate a substantial workload in both primary and secondary care [16-17].

Although IBS prevalence is will establish in western countries, little attention was given to its prevalence in Arab countries, including Saudi Arabia. In addition, information on the prevalence and the associated factors among teachers, especially in general education, has not been reported/evaluated^[18].

The goal of this study was estimating IBS prevalence in Qassim school teachers in general education and its Impact on their Performance & Quality of Life.

Methodology

A cross-sectional study was conducted in Qassim during 2012-2013. The study population included school teachers from the different cities of Al-Qassim region from all three educational levels. A multistage stratified random sample method was used where the total size of the population was sampled. Stratification took into consideration gender and different educational levels. The sample was first stratified into different educational levels with random selection of schools from each level. The second stratification was for male and female schools with a ratio of 1:1, while the third stratification was for selecting teachers from selected schools for male and female with a ratio of 1:1. These steps were done by the use of research randomizer software. The sample size was calculated according to the following established formula for determination of sample size^[19]:

$$n = \frac{Z^2 * (p) * (q)}{c^2}$$

n=the minimum sample size, *z*=constant (1.96). Prevalence of 14% was predicted according to literature^[20]; *p*=0.14 and *q*=1-*p*=0.86. The minimum calculated sample size to achieve a precision of ±4% with a 95% Confidence Interval (CI) was 289. For stratification purposes, the sample size was increased to 300 during the fieldwork for inclusion of all strata as the size of the sample in each stratum was determined by the proportional allocation method.

Teachers with red flag symptoms such as (fever, weight loss, family history of colorectal cancer, blood in stool, steatorrhea etc.) were excluded from the sample.

The questionnaire contained the following sections

- Personal and sociodemographic data, such as age, sex, and so on.
- Teachers' school level (primary, Intermediate or secondary).
- Positive IBS history,
- Rome III Criteria^[21, 22];

According to Rome III criteria, IBS was defined as recurrent abdominal pain or discomfort for at least 3 days per month during the past 3 months, associated with two or more of the following features^[23]: (a) improvement with defecation; and/or (b) onset associated with a change in frequency of stool; and/or (c) onset associated with a change in form (appearance) of stool. The criteria were translated to Arabic for facilitatory purposes.

- Absenteeism due to IBS.
- Impact of IBS on teacher's performance.
- Impact of IBS on teacher's Quality of Life.

Statistical analysis

Data were analyzed using Statistical Package for Social Sciences (SPSS) Version 20.0 (SPSS Inc., Chicago, IL) and Epi-Info Statistical Packages.

Descriptive statistics and inferential statistics were carried out. Pearson's Chi-square (*X*²) test was conducted to observe and quantify an association between the categorical outcome and the different variables. Odds ratio (OR) with a 95% CI was calculated using Epi-Info. Stepwise multiple logistic regression analysis was applied to delineate significant predictors of IBS among participants. All calculated *P*-values were two-tailed, with *p*<0.05 considered as statistically significant.

Results

The age of teachers who participated in the study was ranging between 21-60, the majority of them were between 31-40 (54.7%, 164/300), the teachers who were between 41-50 were (25.3%, 76/300), while the teachers between 21-30 & 51-60 were (17%, 51/300) & (3% 9/300) respectively. The male female ratio was 1:1 and they were equally distributed in educational levels (refer to Methodology). In the current analysis, Rome III Criteria identified 122 teachers Suggestive of having IBS; giving an overall IBS prevalence of 40.7% among school teachers. Only 43 (35.2%) were previously diagnosed with IBS.

Table 1 shows that the prevalence of IBS was higher among males (43.3%) compared to females (38%). IBS was also slightly higher among teachers of the age 51-60y (44.4%, not statistically significant due to small sample size of this age group compared to other age groups) & age 31-40y (42.9%) compared to other age groups. Table 1 also illustrates that IBS among teachers who were working in different school levels was almost the same. However, all mentioned sociodemographics had no statistical significant difference (*p*>0.05). (See charts 1, 2 & 3)

Table 2 illustrates that teachers with IBS had more chance to miss their job compared to other teachers. Table 2a shows that 46.6% of teachers with IBS were missing their jobs at least once a month. While only 25% of other teachers does the same. This was statistically significant (*p*>0.05).(see Chart 4)

Table 2 b shows that there was significant difference in absenteeism (*p*<0.05)

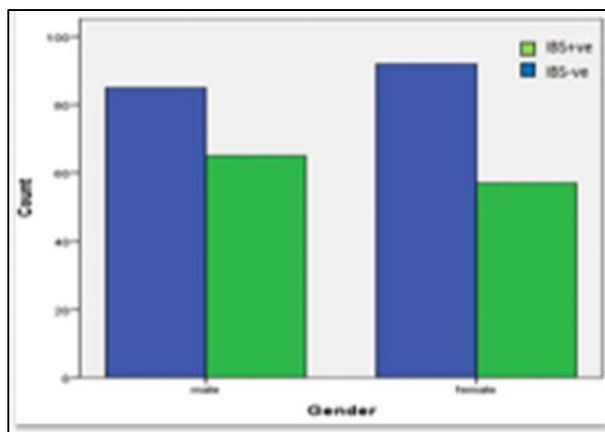


Fig 1: Distribution of IBS regarding gender in Qassim school teachers.

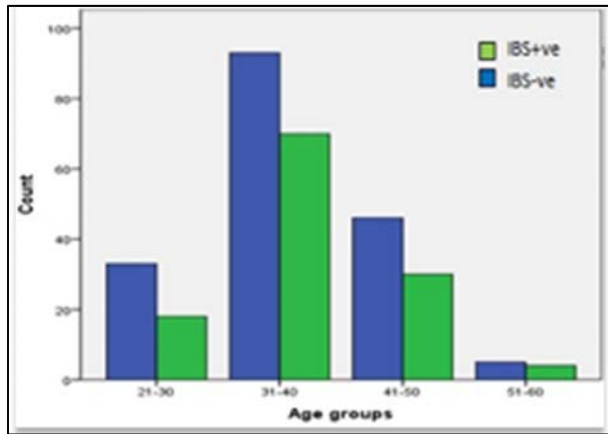


Fig 2: Distribution of IBS regarding gender age groups in Qassim school teachers.

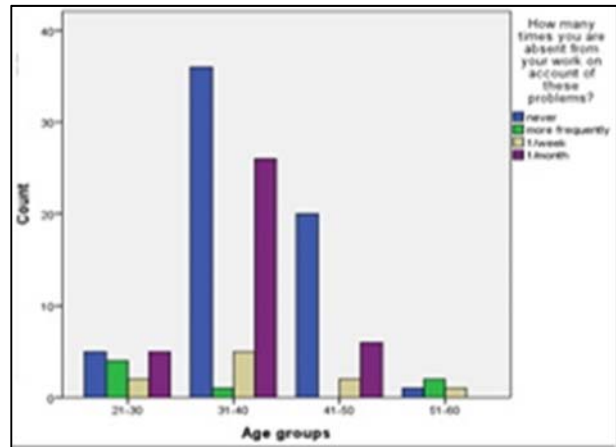


Fig 5: absenteeism in different age groups.

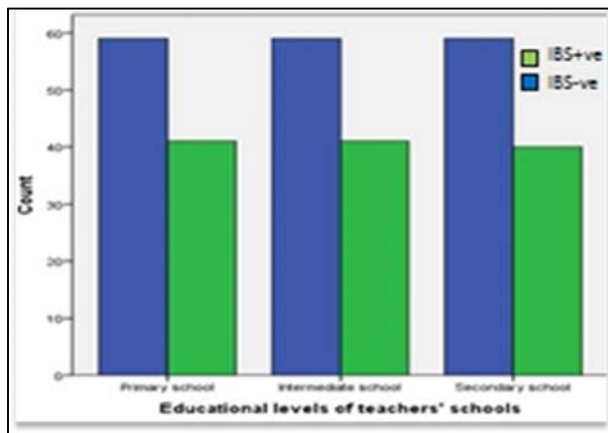


Fig 3: Distribution of IBS regarding school levels in Qassim school teachers.

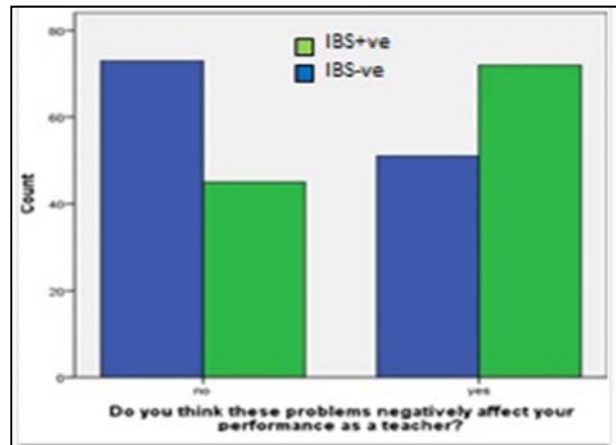


Fig 6: IBS & teachers performance

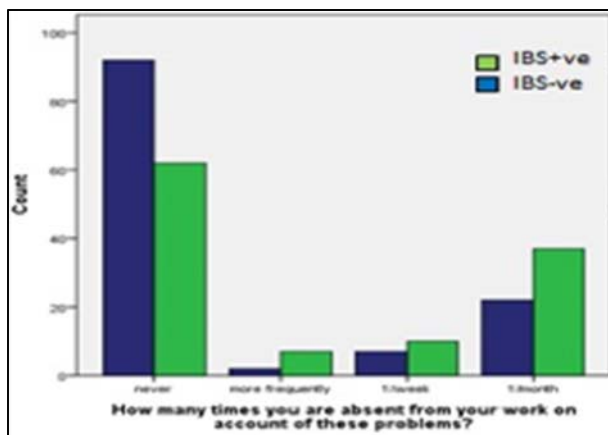


Fig 4: Absenteeism among healthy & IBS+ve teacher's teachers.

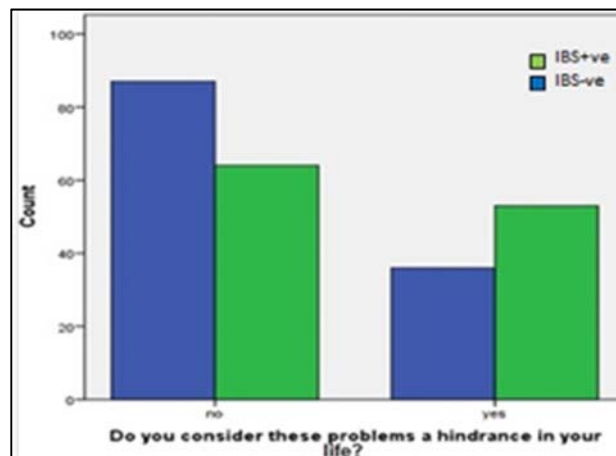


Fig 7: Impact of IBS on quality of life

Table 1: relationship between irritable bowel syndrome and personal, sociodemographic characteristics of school teachers in Qassim.

Sociodemographic Data		IBS Criteria test		Total	p
		-ve	+ve		
Gender	male	85 (56.7%)	65 (43.3%)	150	.372
	female	93 (62%)	57 (38%)	150	
Total		178 (59.3%)	122 (40.7%)	300	
Age groups	21-30	34	18 (34.6%)	52	.788
	31-40	93	70 (42.9%)	163	
	41-50	46	30 (39.6%)	76	
	51-60	5	4 (44.4%)	9	
Total		178	122	300	
Educational levels of teachers' schools	Primary school	59	41	100	.995
	Intermediate school	59	41	100	
	Secondary school	60	40	100	
Total		178	122	300	

Table 2a: relation between IBS & absenteeism among school teachers in Qassim.

		IBS Criteria test		Total	P
		-ve	+ve		
How many times you are absent from your work on account of (abdominal discomfort or pain)?	never	92	62	154	0.02
	more frequently	2	7	9	
	1/week	7	10	17	
	1/month	22	37	59	
Total		123	116	239	

Table 2b: Relation between age & absenteeism among IBS + ve school teachers in Qassim.

		How many times you are absent from your work on account of (abdominal discomfort or pain)?				Total	P
		Never	more frequently	1/week	1/month		
Age groups	21-30	5	4	2	5	16	<0.01
	31-40	36	1	5	26	68	
	41-50	20	0	2	6	28	
	51-60	1	2	1	0	4	
Total		62	7	10	37	116	

Table 3: IBS effects on teacher's performance in Qassim

		IBS Criteria test		Total	P
		-ve	+ve		
Do you think that (abdominal discomfort or pain) negatively affects your performance as a teacher?	no	73	45	118	0.02
	yes	51 (41.1%)	72 (61.6%)	123	
Total		124	117	241	

Table 4: IBS effects on quality of life school teachers in Qassim

		IBS Critirea test.		Total	P
		-ve	+ve		
Do you consider these problems a hindrance in your life?	no	87	64	151	0.015
	yes	36 (29.3%)	53 (45.3%)	89	
Total		123	117	240	

Discussion

The reported prevalence of IBS varies greatly. The reported value of IBS prevalence in the western countries population was between 15%–24% [24]. Hungin *et al.* (2003) performed a universal study with 41,984 participant from eight European countries which reported that prevalence of IBS was 11.5% [25]. IBS prevalence among school teachers demonstrate a higher value (40.7%) in the present study. According to the variation between the present study and the European study, a real difference between countries might be suggested. A future attempt to relate this variation to tradition and food habits in different countries could be interesting [24]. Diagnostic criteria, sample size, and age group used may play a role in this variation.

In Saudi Arabia, a study conducted among students and interns of King Abdul-Aziz University Medical College, Jeddah illustrates a prevalence of IBS (31.8%) among students and interns of medical college [26]. The discrepancy between it and the current study suggests that the nature of work may have a role in determining the presence of disease.

Regarding gender, many studies found that females are more commonly affected with IBS than males. In Saudi Arabia, a study was conducted among students and interns of King Abdul-Aziz University Medical College, Jeddah [26] that showed the prevalence of IBS to be significantly higher among females (41.8%) as compared to the males (22%). Another research that studied the prevalence of irritable bowel syndrome in Chinese college and university students [24] found that it is higher in females (8.9%) compared to males (6.5%). However, our study shows the prevalence of IBS among males to be 43.3% and in females to be 38% and the difference is not statistically significant. This is similar to the finding in Iran by Hoseini and others [29]. On the other hand, Indian and Kenyan investigators [30] reported male preponderance.

Absenteeism in employees was estimated to be 3.27 absences greater for persons with IBS per six months, which is increased by 69% than healthy employees. This is according to study conducted to measure absenteeism among employees with irritable bowel syndrome [27]. Another study about the ability to produce a valid and accurate work outcome and perform regular activities among IBS patients [28] found that inability to perform regular activities due to IBS was 2.9–4.3% for work time missed. The present study illustrates that 46.6% of teachers with IBS are missing their jobs at least once a month. While only 25% of other teachers do the same.

Regarding IBS impact on performance & quality of life, the same previous study [28] found that inability to perform regular activities due to IBS was 2.9–4.3% for work time missed and 22–32% for impairment at work, which equal to 9.7–14 h lost work outcome per week. Activity impairment was 24–41%. The present study indicates that 61.6% of IBS criteria +ve teachers say that abdominal discomfort –or pain- negatively affects their performance and 45.3% of IBS criteria +ve teachers are considering their abdominal problems a hindrance in their life.

Recommendations

Given the results we have viewed, we suggest that campaigns should be started to increase national awareness about this upcoming problem and its burden and possible effects on the society. Follow up studies need to be conducted to assess the health care load of IBS patients on the PHCs in the region. Additionally, a health care program may be implemented to tackle the problem among the teachers, in order to improve their work performance and reduce the loss of working hours. Patients in high risk groups like older age groups may be advised further evaluation of their symptoms with stool analysis and colonoscopy.

Conclusion

Prevalence of IBS in Qassim school teachers is becoming increasingly an important issue with 40.7% of teachers reporting symptoms suggestive of IBS in a random sample. Majority of teachers having frequent problems of performance as a teacher & quality of life associated with their IBS Symptoms. Significantly, IBS criteria +ve teachers are more likely to have discipline problems compared to healthy teachers.

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