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Research Article

ASSOCIATION BETWEEN PSYCHOLOGICAL UPSET AND IRRITABLE BOWEL SYNDROME AMONG NURSING STUDENTS AT KSA

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Abstract: *Irritable bowel syndrome (IBS) is a fairly common disorder that occurs in the general population. IBS is a functional bowel disorder associated with decreased work productivity. The aim of this study is to investigate the relationship between psychological upset and irritable bowel syndrome among nursing students at the Hafr Albatin University king Saudi Arabia. A descriptive cross-sectional research design on 223 student nurses from Hafr Al Batin university. One tool is divided into three main parts; demographic data, student's psychological upset, and irritable bowel syndrome manifestations sheet. According to the results of the study there is a statistically significant correlation between students' psychological stiffness and manifestations of irritable bowel syndrome (p <0.001). Also, there are statistically significant relationships were found between psychological stiffness levels and students' Socio-demographic characteristics in the items related to sleeping hours, and the condition of the colon or manifestations of irritable bowel syndrome during exposure to psychological stress((p <0.001). This study recommends that students need to receive regular; periodic in-service psychological adaptation program that contains methods of coping with study stress, especially during exams period which indirectly added stressor to students' psychological upset. There is an obvious need for designed exam counseling preparation. Further studies are needed to study the factors that influence university students' psychological and physiological well-being during the study & exam period rather than stressors.*

Keywords*: Association, psychological upset, irritable bowel syndrome, nursing students*

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1. Introduction

Irritable bowel syndrome (IBS) is a fairly common disorder that occurs in the general population. IBS is a functional bowel disorder associated with decreased work productivity. Diminished quality of life, and increased healthcare costs [1]. IBS is a chronic biopsychological disorder that is “characterized by altered bowel habits with abdominal discomfort or pain with the absence of organic pathology". Besides the motility defect and distorted visceral perception of sensation, IBS is associated with several gastrointestinal and extra-intestinal manifestations [2].

Patients with IBS suffer disturbances in their social and professional life and feel ashamed of their symptoms. They often change their eating habits and frequently resort to healthcare services in a useless search for effective medical care [3].

Several clinical studies and reports from different researchers have shown that among patients seeking medical attention for IBS, 70-90%may have psychiatric co-morbidity, most commonly mood disorders, anxiety disorders, and somatization disorders [4]. The relationship between IBS and other functional bowel syndromes to psychiatric disorders remains uncertain.

Psychiatric disturbance among persons with IBS might represent a reaction to stress in the form of chronic gastrointestinal illness, but this possibility seems to have been excluded by the findings of lesser rates of psychiatric illness among patients with inflammatory bowel disorder [5]. IBS induces an occupational hazard as it affects the performance of patients at work. This was reported in a study from Canada where IBS became the second leading cause of absenteeism after the common cold. [2,6] conducted studies among medical, science, and engineering students in China reported that medical students had a much higher risk of functional bowel disorders (FBD) than science and engineering students. In 2012 among medical students at the University of Western Ontario, Canada; they found that the prevalence of IBS among preclinical and clerkship students was 19.1% and 22.0%, respectively [7]. According to our best knowledge, no one studied IBS among healthcare workers in our region especially since they were suffering a lot in their job; so that is why this study was done.

It is characterized by abdominal pain or discomfort with changed bowel habits but without any organic damage to the intestine (tumor or inflammation) [8,9]. The etiology of IBS is uncertain, and studies have documented that psychological, social, and biological factors can play a role**.** IBS creates an incredible cost for both patients and the health care system [10,11]. It is one of the commonest disorders diagnosed by gastroenterologists [12]. There is a large part of the population suffering from IBS while only some seek health care in the absence of curative therapy. The prevalence of IBS usually varies significantly between countries and depends on the diagnostic criteria used [13]. A study conducted among secondary school male students in Al-Jouf Province, Saudi Arabia, showed that the prevalence was 8.9 and9.2% according to Manning and Rome II Criteria, respectively.

Regarding university students, the prevalence of IBS was found to be 5.7% in one of the Korean colleges. Medical students are under constant stress; the duration it takes to complete their studies, numerous exams, difficult shifts, and the responsibility of managing patients may cause much stress. The role of stress can partly justify the high prevalence of IBS seen among medical students [14]. In 2012, Chu et al. conducted a study among medical, science, and engineering students in China. They reported that medical students had a much higher risk of functional bowel disorders (FBD) than science and engineering students. Another study was conducted in 2012 among medical students at the University of Western Ontario, Canada [15]. found that the prevalence of IBS among preclinical and clerkship students was 19.1 and 22.0%, respectively.

The best way to identify IBS is by understanding its criteria [16]. Some causes of IBS are psychological, such as stress, anxiety, and depression and some are physiological, such as dysregulation of the brain-gut axis and gut motility. Stress is an external stimulus that affects the physiological and psychological wellbeing of a person, triggering physiological responses IBS is the most common diagnosis made by gastroenterologists, where 12% of IBS patients visit a primary care unit [17]. Stress can be defined as a condition or feeling that is experienced when an individual feels that what is demanded of them is beyond their ability, or when they feel the situation they are beyond their control [18]. Stress is a typical reaction to external stressors e.g., students facing heavy study.

A high prevalence of IBS prevailed among medical students and interns. Female, anxiety, living in school dormitory, emotional stress, and higher educational level (grade) were the predictors of IBS. Screening of medical students for IBS, and psychological problems, and reducing stress by stress management are recommended [7].

1.1. Aim of the study

This study aims to investigate the relationship between psychological upset and irritable bowel syndrome among nurse students at the Hafr Albatin University king Saudi Arabia

1.2. Research Questions

1.2.1. What are the Irritable Bowel Syndrome manifestations among nursing students at selected KSA University?
1.2.2. What is the Psychological stiffness level among nursing students in selected KSA universities?
1.2.3. Is there a Relation between Irritable Bowel Syndrome, Psychological stiffness, and student socio-demographic characteristics?

1.3. Theoretical framework

According to [19]. findings and other support references suggested a significantly moderated academic stress to test anxiety relationship. As noted in **Figure 1**, a significantly stronger positive relationship existed between academic stress and test anxiety for those reporting a high level of perceived other support compared to those reporting a low level of perceived Other support

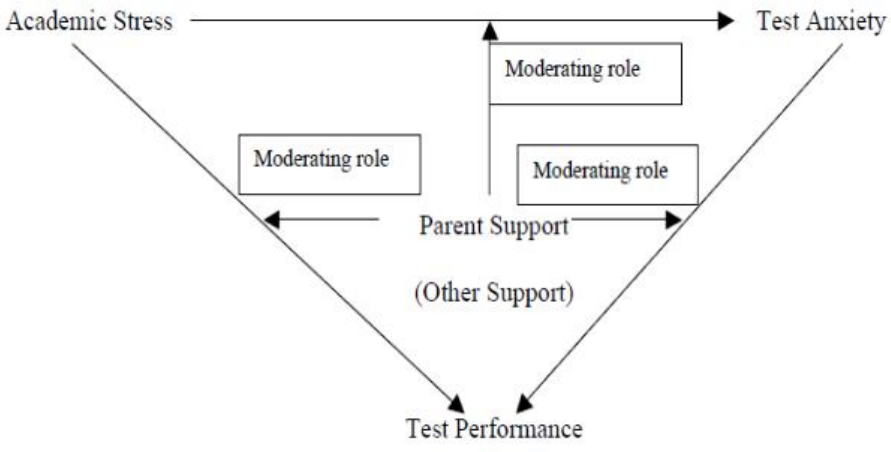

Figure 1. Illustrates academic stress, test anxiety, and performance in high school sample: and the effects of coping strategies and social support [19].

2. Subjects and methods

A descriptive cross-sectional design was utilized in this study at the Nursing Department of Applied Medical Science College, University of Hafr Al-Batin (UHB), KSA on convenience sampling of all available nursing students available during the data collection period (223) students. The inclusion criteria of participants entail their approval to participate in the study.

Tools

One tool was used after the revised literature was divided into 3 main parts as follows:
Part (I): It includes students' Sociodemographic characteristics of nursing students as (age, sex, marital status, and level).
Part (II): It includes psychological upset indicators: it includes 42 selected items adapted from ***AL-Byirag., 2011*** [20] addressing student's psychological upset

Part (III): It includes an irritable Bowel Syndrome manifestation includes 8 items adapted from Ida et al., 2017[21] ***which*** were used to obtain the predictor manifestations of the Irritable Bowel Syndrome.

Scoring system of the patient satisfaction scale

The questions in the psychological upset tool were scored according to Likert Rating Scale as (usually applicable =4, often applicable =3, sometimes applicable =2, Not applicable =1) and the total score of the tool was classified as levels for both stress questions and quality of life questions as considered when it was Low <50%, Moderate 50–<75%, High ≥75%.

Content validity

Validity was used for the modified tool to assure that it covers the objectives. The phase was developed by a Jury of five experts from the Medical-surgical and Psychiatry & Mental Health nursing staff; two Assistant professors of psychiatry & mental health nursing at the College of Nursing, Qassim University, and three Assistant Professors of Medical-Surgical at Nursing college, Hafr Elbatin University. Reliability of the proposed tool was done using Cronbach's alpha test which revealed high reliability (.950).

A pilot study was done on 20 students to approximate the clarity of the tool and then excluded them from the total sample number. The questionnaire sheet was submitted online and then contact the students via their what's-up media and explain the purpose of the study to them and invited them to participate in the study through an online link also the sheet contains a paragraph explaining the study's aim and assuring them that their participation was voluntary and they have the right to withdraw at any time.

3. Statistical analysis

Data were analyzed using the IMB Statistical software Package of Social Sciences (SPSS) Version 20 (Armonk, NY: IBM Corp). Moreover, Quantitative data were described using range (minimum and maximum), mean, and standard deviation using the Chi-square test for categorical variables, to compare between different groups and Fisher's Exact or Monte Carlo correction for chi-square when more than 20% of the cells have expected count less than 5. P-values with $p< 0.05$ are considered statistically significant.

4. Results

Table 1 illustrates a total of 223 students who participated in the study, a nearly two-third quarter (70.4%) of the students less than 22 years old followed by 33.2% of them in the fourth grade. Additionally, most of them (97.3%) are not smokers, more than half of students (62.8%) have smoking in the family, and (51.1%) have enough income monthly the marital status (87.4%) most of them are single. the highest number of participating students (59.6%) had natural sleep comfort and related to the condition of the colon during exposure to psychological stress (61.4%) more than half had Abdominal pain and cramps, and more than half of students (51.1%) slept 6-8 hours a day according to to suffer from irritable bowel disease less than half not suffering.

Table 2 shows less than half of the studied students (46.2%) haven't thought about leaving the nursing profession and college because of the pressure of studying and related to pressure in the nursing profession more than half have this pressure.

As indicated in Table 3 the total score of irritable bowel syndrome manifestations is 17.20±4.57 while the psychological stiffness scale has 114.51±10.23

Table 4 describes there is a moderate level of irritable bowel syndrome manifestations and a scale of psychological stiffens.

Table 5 shows that there are statistical significant findings in the items related to having a smoker in the family, marital status, the nature of sleep, sleeping hours, the condition of the colon during exposure to psychological stress, and taking colon medications

Table 6 showed that there is a statistically significant relationship between the psychological stiffness Scale and student's socio-demographic characteristics mainly in the items related to sleeping hours, and the condition of the colon during exposure to psychological stress

Table 1. Distribution of the studied nursing students according to their socio-demographic characteristics

Socio-demographic characteristics	**(n = 223)**	**%**
Age (years)		
Less than 22 years	157	70.4
More than 22 years	66	29.6
Grade		
First	43	19.3
Second	34	15.2
Third	72	32.3
Fourth	74	33.2
Smoking		
Yes	6	2.7
No	217	97.3
Do you have a smoker in the family?		
Yes	140	62.8
No	83	37.2
Monthly income		
Enough	114	51.1
Not enough	25	11.2
Sometimes	84	37.7
Marital status		
Married	28	12.6
Single	195	87.4
The nature of sleep		
Intermittent	133	59.6
I sleep comfortably	52	23.3
I suffer from insomnia	38	17.0
Sleeping hours		
I sleep less than 6 hours a day	64	28.7
I sleep 6-8 hours a day	114	51.1
I sleep more than 8 hours a day	37	16.6
I suffer from insomnia and the inability to sleep for days	8	3.6
The condition of the colon during exposure to psychological stress		
Persistent diarrhea	30	13.5
Constant constipation	34	15.2
Abdominal pain and cramps	137	61.4
Vomiting and nausea	22	9.9
Do you suffer from irritable bowel disease		
Yes	63	28.3
No	103	46.2
Sometimes	57	25.6
If the answer is yes, how long?		
I do not suffer	103	46.2
Less than one year	23	10.3
1 –3 years	45	20.2
More than 3 years	52	23.3
Are you taking colon medications?		
Yes	8	3.6
No	184	82.5
Sometimes	31	13.9

Table 2. Distribution of the studied nursing students according to their Irritable Bowel Syndrome manifestations (n = 223)

Irritable Bowel Syndrome Scale	N	%
Have you thought about leaving the nursing profession and college because of the pressure of studying?		
Yes	65	29.1
No	103	46.2
Sometimes	55	24.7
Have you ever been under pressure because of the nursing profession?		
Yes	124	55.6
No	52	23.3
Sometimes	47	21.1

Table 3. Distribution of total & Mean scores for IBS manifestations & Psychological stiffness Scale

	Total score	Mean score	% score
Irritable Bowel Syndrome Scale			
Min. – Max.	6.0 – 24.0	1.0 – 4.0	0.0 – 100.0
Mean ± SD.	17.20±4.57	2.87±0.76	62.23±25.38
Psychological stiffness Scale			
Min. – Max.	80.0 – 140.0	1.90 – 3.33	30.16 – 77.78
Mean ± SD.	114.51±10.23	2.73±0.24	57.55±8.12

Table 4. Distribution of the nursing students according to their levels of IBS Manifestations and Psychological Stiffness Scale (n = 223)

	Low <50%		Moderate 50%–75%		High ≥75%	
	N	%	N	%	N	%
Irritable Bowel Syndrome Manifestations	63	28.3	91	40.8	69	30.9
Psychological stiffness Scale	31	13.9	189	84.8	3	1.3

Table 5. Relationship between Irritable Bowel Syndrome Manifestations and student's Socio-demographic characteristics

Sociodemographic characteristics	Irritable Bowel Syndrome Scale						χ^2	p
	Low <50% (n = 63)		Moderate 50%–75% (n = 91)		High≥75% (n = 69)			
	N	%	N	%	N	%		
Age (years)								
Less than 22 years	41	65.1	66	72.5	50	72.5	1.195	0.550
More than 22 years	22	34.9	25	27.5	19	27.5		
Grade								
First	14	22.2	19	20.9	10	14.5	10.941	0.090
Second	12	19.0	11	12.1	11	15.9		
Third	11	17.5	32	35.2	29	42.0		
Fourth	26	41.3	29	31.9	19	27.5		
Smoking								
Yes	0	0.0	5	5.5	1	1.4	3.942 (MC)	0.110
No	63	100.0	86	94.5	68	98.6		
Do you have in smoker in your family?								
Yes	26	41.3	68	74.7	46	66.7	18.478	<0.001*
No	37	58.7	23	25.3	23	33.3		
Monthly income								
Enough	38	60.3	46	50.5	30	43.5	7.753	0.101
Not enough	4	6.3	8	8.8	13	18.8		
Sometimes	21	33.3	37	40.7	26	37.7		

Table 5. Continued.

Sociodemographic characteristics	Irritable Bowel Syndrome Scale						χ^2	p
	Low <50% (n = 63)		Moderate 50%–75% (n = 91)		High≥75% (n = 69)			
	N	%	N	%	N	%		
Marital status								
Married	16	25.4	5	5.5	7	10.1	13.959	0.001**
Single	47	74.6	86	94.5	62	89.9		
The nature of sleep								
Intermittent	39	61.9	55	60.4	39	56.5	21.329	0.001**
I sleep comfortably	22	34.9	21	23.1	9	13.0		
I suffer from insomnia	2	3.2	15	16.5	21	30.4		
Sleeping hours								
I sleep less than 6 hours a day	18	28.6	30	33.0	16	23.2	12.240 (MC)	0.047*
I sleep 6-8 hours a day	38	60.3	45	49.5	31	44.9		
I sleep more than 8 hours a day	7	11.1	14	15.4	16	23.2		
I suffer from insomnia and the inability to sleep for days	0	0.0	2	2.2	6	8.7		
The condition of the colon during exposure to psychological stress								
Persistent diarrhea	15	23.8	8	8.8	7	10.1	37.685	0.001**
Constant constipation	5	7.9	16	17.6	13	18.8		
Abdominal pain and cramps	39	61.9	66	72.5	32	46.4		
Vomiting and nausea	4	6.3	1	1.1	17	24.6		
Do you suffer from irritable bowel disease?								
Yes	10	15.9	32	35.2	21	30.4	17.182	0.002**
No	38	60.3	43	47.3	22	31.9		
Sometimes	15	23.8	16	17.6	26	37.7		
If the answer is yes, how long?								
I do not suffer	38	60.3	43	47.3	22	31.9	18.874	0.004**
Less than one year	10	15.9	6	6.6	7	10.1		
1 –3 years	9	14.3	18	19.8	18	26.1		
More than 3 years	6	9.5	24	26.4	22	31.9		
Are you taking colon medications?								
Yes	1	1.6	4	4.4	3	4.3	9.718 (MC)	0.034*
No	58	92.1	67	73.6	59	85.5		
Sometimes	4	6.3	20	22.0	7	10.1		

χ^2: Chi-square test; MC: Monte Carlo; *:p<0.05; **:p<0.001

Table 6. Relation between Psychological Stiffness Scale and Socio-demographic characteristics

Socio-demographic characteristics	Psychological stiffness Scale						χ^2	p
	Low <50% (n =31)		Moderate 50%–75% (n = 189)		High≥75% (n = 3)			
	N	%	N	%	N	%		
Age (years)								
Less than 22 year	23	74.2	131	69.3	3	100.0	1.023	0.631
More than 22 year	8	25.8	58	30.7	0	0.0		
Grade								
First	7	22.6	36	19.0	0	0.0	3.662	0.741
Second	5	16.1	28	14.8	1	33.3		
Third	10	32.3	60	31.7	2	66.7		
Fourth	9	29.0	65	34.4	0	0.0		
Smoking								
Yes	0	0.0	5	2.6	1	33.3	5.901	0.120
No	31	100.0	184	97.4	2	66.7		

Table 6. Continued.

Socio-demographic characteristics	Psychological stiffness Scale						χ^2	p
	Low <50% (n =31)		Moderate 50%–75% (n = 189)		High≥75% (n = 3)			
	N	%	N	%	N	%		
Are you have family smokers?								
Yes	19	61.3	120	63.5	1	33.3	1.300	0.620
No	12	38.7	69	36.5	2	66.7		
Monthly income								
Enough	18	58.1	93	49.2	3	100.0	6.946	0.103
Not enough	6	19.4	19	10.1	0	.0		
Sometimes	7	22.6	77	40.7	0	.0		
Marital status								
Married	6	19.4	22	11.6	0	0.0	1.688	0.50
Single	25	80.6	167	88.4	3	100.0		
The nature of sleep								
Intermittent	14	45.2	116	61.4	3	100.0	4.533	0.279
I sleep comfortably	11	35.5	41	21.7	0	0.0		
I suffer from insomnia	6	19.4	32	16.9	0	0.0		
Sleeping hours								
I sleep less than 6 hours a day	8	25.8	56	29.6	0	0.0	19.807	0.001**
I sleep 6-8 hours a day	18	58.1	96	50.8	0	0.0		
I sleep more than 8 hours a day	1	3.2	33	17.5	3	100.0		
I suffer from insomnia and the inability to sleep for days	4	12.9	4	2.1	0	0.0		
The condition of the colon during exposure to psychological stress								
Persistent diarrhea	6	19.4	24	12.7	0	0.0	15.091	0.009**
Constant constipation	3	9.7	28	14.8	3	100.0		
Abdominal pain and cramps	22	71.0	115	60.8	0	0.0		
Vomiting and nausea	0	0.0	22	11.6	0	0.0		
Do you suffer from irritable bowel disease?								
Yes	8	25.8	54	28.6	1	33.3	2.718	0.635
No	12	38.7	89	47.1	2	66.7		
Sometimes	11	35.5	46	24.3	0	0.0		
If the answer is yes, how long?								
I do not suffer	12	38.7	89	47.1	2	66.7	9.701	0.083
Less than one year	3	9.7	19	10.1	1	33.3		
1 –3 years	3	9.7	42	22.2	0	0.0		
More than 3 years	13	41.9	39	20.6	0	0.0		
Are you taking colon medications?								
Yes	0	0.0	7	3.7	1	33.3	5.339	0.248
No	27	87.1	155	82.0	2	66.7		
Sometimes	4	12.9	27	14.3	0	0.0		

χ^2: Chi-square test; MC: Monte Carlo; *:p<0.05; **:p<0.001

5. Discussion

Irritable bowel syndrome (IBS) is a functional gastrointestinal disorder associated with stress, which may emerge by an educational circumstance, given that students are exposed to requirements in the academic atmosphere during their education progression that may lead to extending diseases [22]. University students are subject to stress due to academic pressure, empowerment and changeover from adolescence to adulthood stage. This young population may have a higher risk of purposeful disorders such as eating disorders (ED) and irritable bowel syndrome (IBS) these disorders co-existing with ED and IBS are related to multiple mental health warning signs, which could lead to negative academic outcomes [23].

Additionally, [24] stressed that The COVID-19 pandemic negatively affected Irritable bowel syndrome (IBS) as the mainly significant self-determining factor correlated with worsening in gastrointestinal indicators which patients suffered from (IBS) require to take extra care in the post-COVID period.

Concerning students' sociodemographic characteristics, the present study exposed that more than half of the students were less than 22 years old followed by more than one-quarter of them in the fourth grade. Additionally, most of them are not smokers, more than half of the students have smoked in family and have enough income monthly while most of them are single, and half of participating students have natural sleep comfort. More than half of them suffered manifestations related to the colon during exposure to exams psychological stress as abdominal pain and cramps, in addition, more than half of students sleep 6-8 hours a day according to suffer from irritable bowel disease less than half not suffering. Finally, less than half of studied students no thought about leaving the nursing profession and college because of the pressure of studying and related to pressure in the nursing profession more than half having pressure in their job. These findings go in the same line with [25] who revealed that IBS is a widespread disorder among a university-based population aged 18-30 years and has a significant impact on their quality of life. In Taiwan, IBS is considered a chronic functional gastrointestinal disorder. The incidence of IBS among female university students was 10.1%, which is similar to that in Western countries [26]**.**

According to [27], the occurrence of (IBS) is varied based on geographical region, age, gender, occupation, and IBS diagnostic criteria and was higher among women than men. The frequency of sleep disorders was higher among students suffering (from IBS) compared to healthy students and may be linked with the pathogenesis of IBS. Also, recommended the needed to examine the possible causal relationship between sleep disorder and IBS. In addition, [28] concluded in their study that adjustment or adaptation to stressors among the U.S. population which Low adjustment negatively affects symptom severity of (IBS) and mental health.

As regards, the relation between Irritable Bowel Syndrome manifestations and student's Socio-demographic characteristics, the present study revealed that there are statistically significant relationships were found in the items related to the presence of a smoker in their family, marital status, the nature of sleep, sleeping hours, the condition of the colon during exposure to psychological stress, and taking colon medications. These findings go in the same line with [2] who highlighted that Irritable Bowel Syndrome (IBS) is considered one of the more highly widespread and costly gastrointestinal disorders. Despite its risk factors as stress and academic load, are well linked with the occurrence of Irritable Bowel Syndrome which medical students account for as a high rate of IBS resulting from stressful and challenging environments.

In contrast, Taiwan [29] mentioned that Irritable Bowel Syndrome (IBS) is prevalent among Young Taiwanese female nursing students which generally reveals both physical and psychological health problems resulting from academic stress with no effect on IBS symptoms.

In Lebanon, [30] concluded that IBS proportionately affected women more than men, as well as health behavioral factors, have significant influences on the presence and progression of IBS. Consequently, multifaceted interventions should be searched for strategies to reduce manifestations of IBS such as nutritional education and promoting proper ways to change lifestyles in order to control stress.

As regard distributions of the student level of psychological stiffen scale and irritable bowel syndrome manifestations, the present study revealed that most students have a moderate level of psychological stiffens scale with the presence of irritable bowel syndrome manifestations. Also, the total manifestations scores in irritable bowel syndrome are 17.20±4.57 and the psychological stiffness scale has 114.51±10.23. These findings were supported by Alaqeel et al.,2017 [31] In KSA who revealed that

the incidence of IBS was 21% and higher among females than males but was highest among fifth-year students for both genders. More than 50% of students had moderate or high levels of anxiety for both genders. The prevalence of IBS was highest among students in 5th fifth year. The study provides evidence that medical students in the higher year of their under graduation were having a higher level of anxiety which leads to IBS.

In China, [27] revealed results from logistic regression test that challenge to go down weight and anxiety were both combined with increasing odds of IBS, while exercise was not linked with IBS in either male or female students. In female students, snack consumption and depression were also both correlated with increased odds of IBS. Considering the high prevalence of IBS among students can get better for individual, students when there are sufficient education and counseling to progress their mental health and lifestyle, especially for female students in higher grades.

In Taiwan, [26] reported that there are some burden manifestations such as dysmenorrheal, food avoidance, class absenteeism, and the physical health domain of quality of life which are considered responsible factors for the occurrence of IBS among female university students and recommended construct more awareness and research for university students in northern Taiwan as well as male and female university students regarding understanding the position of gender in IBS.

In KSA, one of the most highly widespread and costly gastrointestinal disorders is IBS. It is an outcome of emotional arguments and stress. As a result, medical and intern students have a high percentage of IBS Moreover, female students have emotional tension in the past 6 months and family history of IBS which they considered the main prophet of IBS [32]**.**

Finally, there is an obvious need to implement educational programs aiming at self-care as well as gaining knowledge about academic stress-related study factors and the physical responses that may result in repercussions with stern outcomes for student life such as pain, illness, and dropping out of educating [22]**.** In this regard, [30,2] stressed the importance of engaging in healthy behaviors such as physical activity to minimize manifestations of Irritable Bowel Syndrome (IBS) and improve their quality of life. Additionally, determining the exact prevalence of stress among medical students which needed to investigate its impact on students' quality of life in order to diminish risk factors and implementing preventive strategies are essential to control the Irritable Bowel Syndrome (IBS) and reduce its adverse effects.

6. Conclusion and recommendations

Based on study findings we can conclude that there is a statistically significant correlation between students' psychological stiffness and manifestations of irritable bowel syndrome. Also, there is a statistically significant relationship was found between psychological stiffness levels and students' Socio-demographic characteristics in the items related to sleeping hours, and the condition of the colon or manifestations of Irritable Bowel Syndrome during exposure to psychological stress. From the foregoing conclusion, students need to receive regular; periodic in-service psychological adaptation program that contains methods of coping with study stress, especially during exams period which indirectly added stressor to students' psychological upset. There is evident necessitate for designed exams counseling preparation. Further studies are needed to study the factors that influence university students' psychological and physiological well-being during the study & exam period rather than stressors.

Ethical statement

The study was approved by the Applied Medical Sciences College administrative authority. Additionally, the participants were informed of the research purpose and their answers would be kept confidential and the answers do not affect or interfere with their evaluation. The study work does not involve chemicals, procedures, or equipment that have any unusual hazards.

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There are no conflicts of interest

Authors' Contributions:
S.M: conceptualized; written introduction; methodology; organized reference and reviewed the manuscript. (%50)
Q. S, Designed tool; conduct analysis follow-up and interpretation; written discussion; conclusion; recommendations and reviewed the manuscript (%50)
All authors read and approved the final manuscript.

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