Factors Affecting Irritable Bowel Syndrome in Medical Students

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ABSTRACT

Background: *Irritable bowel syndrome (IBS) is one of the health problems that bring great effects in education, productivity, and socioeconomic life in Indonesia. It accounts for approximately 10.5% of 304 digestive problems in Jakarta, Indonesia. Particular characteristics are known to increase the risk of IBS in individuals, but the study of IBS in Indonesia is still limited in number. The objective of this study is to assess the prevalence and factors affecting IBS in medical students.*

Method: *This study is a cross sectional study on medical students of Pelita Harapan University, Karawaci, Tangerang on January 2018 until March 2018. Data were obtained with the use of questionnaire of demographic data, ROME IV IBS Criteria, GAD DSM-IV, and PSQI as the instruments with random sampling technique, and statistically tested using Chi-square test.*

Results: *A total of 210 samples consist of 54 subjects with IBS (25.7%) with 43 women (79.6%) and 11 men (20.4%). Findings of bivariate analysis are sex (95% CI: 0.751 - 3.346), obesity (95% CI: 0.612 - 2.673), history of drug consumption (95% CI: 1.246 - 6.742), family history of IBS (95% CI: 1.246 - 6.742), anxiety (95% CI:1.419 - 9.709), and sleep disorder (95% CI: 0.514 - 1.785).*

Conclusion: *The prevalence of IBS in medical students in our institution is 25.7% with history of drug consumption, family history of IBS, and anxiety as factors statistically significant in IBS.*

Keywords: *irritable bowel syndrome (IBS), medical students, risk factors*

ABSTRAK

Latar belakang: *Irritable bowel syndrome (IBS) merupakan salah satu masalah kesehatan yang berdampak besar bagi pendidikan, pekerjaan, serta kehidupan sosial dan ekonomi di Indonesia. IBS memiliki prevalensi 10.5% dari 304 kasus gangguan pencernaan di Jakarta, Indonesia. Faktor - faktor tertentu dinilai dapat meningkatkan risiko terjadinya IBS, namun penelitiannya masih terbatas di Indonesia. Studi ini ditujukan untuk mempelajari prevalensi dan faktor – faktor yang berhubungan dengan angka kejadian IBS pada mahasiswa kedokteran.*

Metode: *Penelitian ini menggunakan metode studi potong lintang dengan sampel mahasiswa fakultas kedokteran UPH, Karawaci, Tangerang. Periode pengambilan data adalah bulan Januari 2018 sampai Maret 2018 menggunakan kuesioner data demografik, ROME IV IBS Criteria, GAD DSM-IV, dan PSQI secara random sampling. Kemudian dianalisis secara statistik dengan uji Chi-Square*

Hasil: *Dari 210 responden diperoleh 54 mahasiswa dengan IBS (25.7%) yang terdiri atas 43 wanita (79.6%) dan 11 pria (20.4%). Dalam analisis bivariat diperoleh jenis kelamin (95% CI: 0.751 - 3.346), obesitas (95% CI: 0.612 - 2.673), ri- wayat obat (95% CI: 1.246 - 6.742), riwayat keluarga (95% CI: 1.246 - 6.742), ansietas (95% CI: 1.419 - 9.709), dan gangguan tidur (95% CI: 0.514 - 1.785)*

Simpulan: *Prevalensi IBS pada mahasiswa di institusi kami adalah 25.7% dengan faktor - faktor berupa riwayat obat, riwayat keluarga, dan ansietas yang berhubungan dengan angka kejadian IBS secara bermakna.*

Kata kunci : *irritable bowel syndrome (IBS), mahasiswa, faktor risiko*

INTRODUCTION

Irritable bowel syndrome (IBS) is a very common functional disorder of the digestive tract.[1] With symptoms of abdominal pain, bloating, and change in bowel habits, IBS is able to reduce the quality of life of patients in education, productivity, and socioeconomic life.[1,2]

Some risk factors are considered to play a role in the incidence of IBS, including gender, sleep disorders, anxiety, and obesity. Medical students are identified as having a close relationship with these risk factors so that the population has the potential to have a higher risk of experiencing IBS.[3,4]

However, study is still lacking on assessing the risk factors for IBS in medical students. Therefore, this study was aimed to evaluate the prevalence and factors associated with IBS in medical students representing medical students in Indonesia.

METHOD

This was a cross-sectional study of medical students of Pelita Harapan University in Karawaci, Tangerang between January and March 2018. Subjects were included if they were a medical student in Pelita Harapan University. Subjects with scores of ≤ 3 in English comprehension ability test (Reading Comprehension Sample Questions, TOEFL ITP® Level 1) or did not complete the questionnaire completely were excluded. This study has been approved by ethics committee of Faculty of Medicine, Pelita Harapan University with reference number of 069/K- LKJ/ ETIK/II/2018

Data obtained were respondents' characteristics data including age, gender, obesity status, smoking history, history of drug consumption, family history of IBS, anxiety, and sleep disorder using demographics data questionnaires, ROME IV IBS criteria, GAD DSM -IV, and Pittsburgh sleep quality index (PSQI) by simple random sampling method. Data were presented descriptively. Associations between groups were analyzed using Chi-square, regression analysis, or Fischer's exact test. Statistical analyses were performed using the SPPS software version 17.0.

RESULTS

A total of 210 respondents were included with a mean age of 19.94 ± 1.32 years old. 54 students (25.7%) fulfilled the IBS criteria with more than half (79.6%) were female. In bivariate analysis, three factors were found affecting IBS, which were history of drug consumption (95% CI: 1.246 - 6.742), family history of IBS (95% CI: 1.246 - 6.742), and anxiety (95% CI: 1.419 - 9.709). Anxiety was significantly correlated with IBS with p value less than 0.005.

Table 1. Respondents' characteristics data

Variables	n (%) (n = 210)	IBS (n = 54)	Non-IBS (n = 156)
Mean age ± SD, years	19.94 ± 1.32	20 ± 1.30	19.92 ± 1.33
Year batch, n (%)			
2013	2 (1)	1 (1.85)	1 (0.64)
2014	46 (21.9)	16 (29.6)	30 (19.2)
2015	83 (39)	17 (31.4)	65 (41.6)
2016	40 (19)	11 (20.3)	29 (18.5)
2017	40 (19)	9 (16.6)	31 (19.8)
Gender, n (%)			
male	56 (27)	11 (20.4)	48 (28.8)
female	154 (73)	43 (79.6)	111 (71.2)
Body mass index, kg/m^2	22.51 ± 3.72	22.81 ± 3.75	22.40 ± 3.71
Obesity, n (%)			
Yes	44 (20.9)	13 (24)	31 (19.8)
No	166 (79.1)	41 (75.9)	125 (80.2)
Smoking history, n (%)			
Yes	208 (99)	0	2 (1.28)
No	2 (1)	54 (100)	154 (98.7)
History of drug consumption			
Yes	26 (12.4)	12 (22.2)	14 (8.9)
No	184 (87.6)	42 (77.8)	142 (91.1)
Family history of IBS, n (%)			
Yes	26 (12.4)	12 (22.2)	14 (8.9)
No	184 (87.6)	42 (77.8)	142 (91.1)
Anxiety, n (%)			
Yes	19 (9.1)	10 (18.5)	9 (5.77)
No	191 (90.9)	44 (81.5)	147 (94.23)
Sleep disorder, n (%)			
Yes	95 (45.2)	24 (44.4)	71 (45.5)
No	115 (54.8)	30 (55.6)	85 (54.5)

IBS: irritable bowel syndrome

Table 2. Factors analytic affecting irritable bowel syndrome (IBS)

Variables	Crude OR (95% CI)	Adjusted OR (95% CI)
Gender, female	1.585 (0.751 – 3.346)	
Obesity	1.279 (0.612 – 2.673)	
History of drug consumption	2.898 (1.246 – 6.742)	0.401 (0.166 – 0.971)
Family history of irritable bowel syndrome (IBS)	2.898 (1.246 – 6.742)	0.379 (0.157 – 0.912)
Anxiety	3.712 (1.419 – 9.709)	0.315 (0.116 – 0.859)
Sleep disorder	0.958 (0.514 – 1.785)	

Table 3. Correlation between obesity, anxiety, and sleep disorder and irritable bowel syndrome (IBS)

Correlation	Irritable bowel syndrome (IBS)	
	R (correlation coefficient)	P
Obesity	0.045	0.515
Anxiety	0.194	0.005
Sleep disorder	-0.09	0.892

DISCUSSION

To our knowledge, this is the first study in Indonesia looking at the magnitude of IBS in population of medical students while assessing multiple associated factors. Higher prevalence of IBS in medical students was found in several studies with risk factors of female gender, anxiety, and family history of IBS in Egypt[5] and Saudi Arabia[6,7]; of female gender, sleep disorder in Beijing[8]

From the baseline data, predominantly by female subjects (79.6%) than male, in accordance with the theory that includes female as a risk factor to IBS (OR = 2.89).[5,6,7,8] However, in this study, no significance was found. This might be affected by the existence of various differences in population characteristics and the limited number of respondents in this study.

In multivariate or adjusted analysis, significant results were found in variables history of drug consumption, family history of IBS, and anxiety. These results can be due to factors that are artificially related, due to confounding factors that are not evaluated entirely.

History of drug consumption was considered to increase the risk of IBS by 13%. This can occur through changes in the balance of homeostasis in the digestive system, including the use of non-steroidal anti-inflammatory drugs (NSAIDs) and proton pump inhibitors (PPIs) routinely for at least four weeks.[9,10] Genetic variations of SERT and 5-HT-TLPR were associated with individual susceptibility to psychological distress and the level of pain sensation, this considered to underlie the relationship between family history of IBS with the occurrence of IBS in individuals.[11] Higher prevalence of IBS in individuals with family history of IBS was also found in several studies with odds ratio to 6.917.[5,6,7]

Assessing the relationship between anxiety as a risk factor and IBS in this study, the role of anxiety as a form of psychological disorders associated with IBS were thought through modification of the autonomic nervous system function of the digestive tract, thereby affecting intestinal motility and changes in the path of processing visceral sensations that may cause IBS symptoms.[12,13]

It is supported by a study report that medical students represent a form of heavy lifestyle leading to a unique stress, physically and cognitively focused under the pressure of competing for hours.[14] On the other hand, there is a possibility that the cut off grades used in the generalized anxiety disorder questionnaires (GAD DSM-IV) was not suitable for the population in this study, so additional research is needed to assess the accuracy of evaluation of psychological disorders in the form of anxiety using the GAD DSM-IV questionnaire in Indonesia population.

The limitations of this study are the use of cross-sectional research methods, and the information bias that can be obtained due to the use of digital questionnaires in this study. The history of drug consumption as a variable in this study is not specified by type and amount so that no further study can be done. Further study need to be conducted to be generalized into a larger population. However, this study assesses the population of medical students in Indonesia whose studies are still limited. In addition, this study simultaneously combined different factors that have been studied as having an effect on the incidence of IBS, thus, may assess the communication between factors.

CONCLUSION

The prevalence of IBS in medical students in our institution is 25.7% with history of drug consumption, family history of IBS, and anxiety as factors statistically significant in IBS.

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