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## Prevalence and clinical characteristics of irritable bowel syndrome in Taiwan: an update

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### INTRODUCTION

Irritable bowel syndrome (IBS) is a relapsing functional bowel disorder defined by symptom-based criteria, including recurrent abdominal pain, change of bowel habits, and symptomatic relief after bowel movement. The chronic and relapsing nature of IBS has a high impact on patient's quality of life, resulting in frequent hospital visits and consumption of medical resources. The prevalence of IBS has been reported to be high in Taiwan, 22.1% and 17.5% as defined by the Rome II and I criteria, respectively, according to the 2003 survey of a population receiving physical check-ups at a medical center. However, the prevalence of IBS based on a later nation-wide survey in Taiwan during 2005-2008 was 4.4% using the Rome III criteria. The difference may be explained by the stricter criteria of Rome III criteria on the frequency of abdominal symptoms. Therefore, we conducted a study to investigate the updated prevalence and clinical characteristics of IBS in the Taiwanese population.

### AIM

We aimed to evaluate the updated prevalence and clinical characteristics of irritable bowel syndrome in Taiwan by using Rome III criteria.

### METHOD

From August 2019 to December 2019, subjects who received health examination at Health Management Center in National Taiwan University Hospital were enrolled. The clinical characteristics of irritable bowel syndrome was evaluated by using Rome III questionnaire. Five-item Brief Symptom Rating Scale and Athens Insomnia Scale were applied to evaluate the psychiatric and sleeping conditions

### RESULTS

From August 2019 to December 2019, we recruited 501 subjects (mean age 50.8 ± 10.5, male 55.1%) receiving health examinations in National Taiwan University Hospital, and found a 6% prevalence of IBS according to the Rome III criteria. The most common subtype is mixed-type irritable bowel syndrome (IBS-M, 73.3%), followed by IBS-D (diarrhea-predominant, 20%) and IBS-C (constipation-predominant, 6.7%). There was no difference in sex, mean age, BMI, waist, between the IBS and control group. As for other systemic diseases, there was no significant difference between achalasia and control group. For social habitus, more coffee intake but less smoking was noted in the IBS group. Compared to the control group, the IBS group had higher scores on Brief Symptom Rating Scale (BSRS-5) (4.83±3.41 vs. 2.80 ±2.82, p<0.001), suggesting a higher psychosocial stress. There was also a higher prevalence of psychiatric morbidity (10% vs. 2.5%, P=0.020), as defined by the total BSRS-5 scores ≥6. The insomnia symptoms base on the Athens Insomnia Scale were also higher in the IBS group (7.35±4.32 vs. 4.39±3.72, p<0.001). The severity of psychiatric and insomnia symptoms was positively correlated with the frequency of abdominal pain. This study suggests the pivotal role of psychiatric stress and sleep disturbance on the rising prevalence of IBS in Taiwan.

### CONCLUSIONS

Irritable bowel syndrome is common in Taiwanese population. It causes large social and medical burdens. Our study suggests the pivotal role of psychiatric stress and sleep disturbance on the rising prevalence of IBS, and multidisciplinary intervention with psychiatric consultation is necessary for IBS patient care.

Table 1. Comparison of demographic characteristics between IBS patients and healthy controls

Characteristics	IBS patients	Healthy controls	P-value
n	30	471	
Age, yr	48.2 ± 11.6	50.8 ± 10.4	0.184
Gender (male) (%)	16(53.3)	257(54.6)	0.856
Weight, kg	65.2 ± 13.3	66.7 ± 13.2	0.540
Height, cm	166.5 ± 7.9	169.9 ± 74.9	0.805
BMI, kg/m <sup>2</sup>	23.3 ± 3.5	23.9 ± 3.6	0.619
Waist circumference, cm	82.4 ± 10.2	83.7 ± 9.7	0.465
Hypertension (%)	5 (16.7)	84 (17.8)	0.942
Diabetes mellitus (%)	1 (3.3)	14 (3)	0.934
Hyperlipidemia (%)	4 (13.3)	77 (16.3)	0.610
Coronary artery disease (%)	1 (3.3)	18 (3.8)	0.868
Cirrhosis (%)	0 (0)	4 (8)	0.606
End stage renal disease (%)	0 (0)	1 (2)	0.798
Smoking (%)	6 (20)	34 (7.2)	0.014
Alcohol (%)	16	178	0.108
Coffee (%)	17 (56.7)	356 (75.6)	0.011
Tea (%)	21(70)	317(67.3)	0.874
Exercise (%)	23(76.7)	384(81.5)	0.365
Constipation-predominant, IBS-C	2 (6.7)	-	
Diarrhea-predominant, IBS-D	6 (20)	-	
Mixed type, IBS-M	22 (73.3)	-	

Data are presented as mean ± standard deviation or number (percentage).  
Abbreviation: BMI, body mass index; IBS, irritable bowel syndrome

Table 2. Comparison of sleep and psychiatric conditions based on Athens Insomnia Scale and Brief Symptom Rating Scale between IBS patients and healthy controls

Symptom questionnaire	IBS patients	Healthy controls	p-value
n	30	471	
<b>Athens insomnia scale</b>			
Sleep induction	0.69 ± 0.93	0.52 ± 0.73	0.349
Awakenings during the night	1.11 ± 1.10	0.80 ± 0.74	0.039
Final awakening	0.79 ± 0.86	0.59 ± 0.74	0.149
Total sleep duration	1.11 ± 0.79	0.73 ± 0.73	0.008
Sleep quality	1.07 ± 0.88	0.69 ± 0.75	0.009
Well-being during the day	0.89 ± 0.79	0.37 ± 0.57	<0.01
Functioning capacity during the day	0.62 ± 0.73	0.30 ± 0.53	0.026
Sleepiness during the day	0.76 ± 0.51	0.45 ± 0.57	0.004
Total scores	7.35 ± 4.32	4.39 ± 3.72	<0.001
Total scores ≥6, n (%)	16 (53.3)	148 (31.4)	0.003
<b>BSRS-5</b>			
Feeling nervous	1.10 ± 0.77	0.64 ± 0.68	<0.001
Feeling easily annoyed or irritated	1.07 ± 0.88	0.65 ± 0.74	0.004
Feeling depressed	0.86 ± 0.92	0.51 ± 0.71	0.012
Feeling inferior to others	0.48 ± 0.51	0.30 ± 0.61	0.122
Sleep difficulty	1.31 ± 1.17	0.72 ± 0.92	0.001
Total scores	4.83 ± 3.41	2.80 ± 2.82	<0.001
Total scores ≥10, n (%)	3(10)	12 (2.5)	0.020

Abbreviation: BSRS-5, Brief Symptom Rating Scale  
\*P<0.05 indicates statistical significance.

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