Psychosocial Factors Linked and Associated to Irritable Bowel Syndrome

TO THE EDITOR: Irritable Bowel Syndrome (IBS) is a diagnosis of exclusion, which means that doctors diagnose this issue after eliminating all the other possibilities such as problems from celiac, organic, alcoholic, endocrinal, cardiac, pharmacological sources, etc. Then, doctors evaluate patient's symptoms whether they interacted with the multi-factors such as diet, psychiatric, microbiologic, autonomic, etc, since IBS patients have normal bloodwork and other tests. It seems that, in addition to the Rome criteria, psychosocial factors evidently exposed to subjects can be clinically important.

A study of "Psychosocial factors associated with irritable bowel syndrome development in Chinese college freshmen" published recently is the first comprehensive investigation focusing on the psychosocial factors of IBS in subjectively representing a population of Chinese college students.¹ The research group led by Dr Tao Bai and Dr Xiaohua Hou randomly selected 2449 freshmen with questionnaires to which there were responded by 2053.¹ The data of the demographics and psychosocial risks were analyzed by ordinal and multiple logistic regression, the characteristics being classified in comparing among 3 groups of non-discomfort, chronic abdominal discomfort, and IBS. They revealed a high likelihood of IBS associated with experience of abuse and suicidal intention, and chronic abdominal discomfort associated with depression (Table 1).¹ This finding is consistent with other studies.² What was commonly thought of IBS as a civilized issue with respect to the residency did not show significant difference in China. Unexpectedly, another characteristic factor among students as "not only one child" was not significantly different to the "only one child" in which more information is probably needed, or probably those populations who were not "only one child" might be stressed differently under the policy of "only one child" at that time in China. Similarly, ANOVA did

not show the difference between "Yes" and "No" in terms of "single parent." It is necessary to know that a "single parent" occurred at what age of the child because the "hurt" is drastically different upon when the parent was deprived of the child according to animal model studies.³ It may be necessary in future studies to compare among the groups of infant and toddler (< 3 years), preschool (3-7 years), a school-age (7-12 years), and an adolescent (12-18 years) at the time of parental divorce, to reveal the correlation between parental divorce and development of IBS in children. In addition, children of divorced parents were divided into groups according to living with a father or a mother, to analyze the possible risk factors for IBS related with a single parent, and the conditions associated with developing IBS in children.

In ordinal logistic regression analysis with risk factors for IBS development (Table 2), authors observed IBS distributions in sex, the experience of abuse, and suicidal intention that are consistent with ANOVA analysis as in Table 1, and consistent to the observations performed by other groups.^{4,5} What relatively harmful intertwined influence hidden in ANOVA is our interest to see if possibly discerned by logistic regression analysis. Here, *P*-value and odds ratio (OR) "not consistent" with each other could be seen in Education as an example, in which *P* was 0.012 in ANOVA (Engineering > Medicine > Art to IBS), but OR was closer or no association on either of project study to IBS. An OR of 1 in this study would mean no association between the factor and IBS. When the 95% CI of the OR does not include 1, we conclude it is a significant association. Thus, in this context ORs < 1 are protective, > 1 are harmful. Thus an OR of 1.39 in Single parent seems signifying a *P*-value 0.197 in "Yes" vs "No" group, this expresses the harm of "Yes" vs to "No," which is more intuitive to interpret: the odds of

Table 1. General Characteristics of Participants According to Irritable Bowel Syndrome Development (Adapted From Jiang et al¹)

Characteristics	Non-discomfort group	Abdominal discomfort group	IBS group	P-value
Sex				< 0.001
Females	574 (32.0)	108 (61.4)	49 (59.8)	
Males	1221 (68.0)	68 (38.6)	33 (40.2)	
Education				0.012
Engineering	1175 (65.5)	103 (58.5)	42 (51.2)	
Liberal arts	125 (7.0)	17 (9.7)	12 (14.6)	
Medicine	495 (27.5)	56 (31.8)	28 (34.1)	
Residence				0.655
City	827 (46.1)	84 (47.7)	43 (52.4)	
Rural area	567 (31.6)	58 (33.0)	21 (25.6)	
Town	401 (22.3)	34 (19.3)	18 (22.0)	
Only child				0.594
Yes	1060 (59.1)	103 (58.5)	53 (64.6)	
No	735 (40.9)	73 (41.5)	29 (35.4)	
Single parent				0.235
No	1693 (94.4)	161 (91.5)	76 (92.7)	
Yes	100 (5.6)	15 (8.5)	6 (7.3)	
Anxiety				0.007
No	1752 (97.6)	171 (97.2)	75 (91.5)	
Yes	43 (2.4)	5 (2.8)	7 (8.5)	
Depression				< 0.001
No	1727 (96.2)	172 (97.7)	69 (84.1)	
Yes	68 (3.8)	4 (2.3)	13 (15.9)	
Experience of abuse				0.001
No	1767 (98.4)	174 (98.9)	75 (91.5)	
Yes	28 (1.6)	2 (1.1)	7 (8.5)	
Suicidal intention				0.001
No	1747 (97.3)	169 (96.0)	75 (91.5)	
Yes	48 (2.7)	7 (4.0)	7 (8.5)	

IBS, irritable bowel syndrome.
Values were expressed as n (%).

Table 2. Ordinal Logistic Regression Analysis With Risk Factors for Irritable Bowel Syndrome Development (Adapted from Jiang et al¹)

Characteristics	Estimate	SE	WALS	P-value	OR (95% CI)
Education					
Engineering	-0.0	0.1	0.0	0.948	0.99 (0.73-1.34)
Liberal arts	0.1	0.2	0.4	0.540	1.15 (0.72-1.86)
Medicine					1
Single parent					
No					1
Yes	0.3	0.2	1.7	0.197	1.39 (0.84-2.32)

WALS, weighted-average least squares.

those on Single parent “Yes” having IBS is a slightly greater than that of “No.”

Most of our IBS patients are with more psychosocial stress than the general population. It is possible to be either an independent variable because they are stressed people, or dependent on variables because another variable such as inflammation activates the stress pathway causing physiological stress. Therefore, IBS characteristic factors from psychosocial stress remain a complicated mystery beyond the descriptions of *P*-value and OR.

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