Factors Influencing Satisfaction with Life in Female Nursing College Students with Irritable Bowel Syndrome

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Abstract. We explored the factors influencing satisfaction with life among female nursing college students with irritable bowel syndrome (IBS). One hundred and thirty-five female nursing college students with IBS were recruited from 6 nursing colleges located in D city, South Korea. Satisfaction with life, IBS severity, and visceral sensitivity were assessed using a structured questionnaire. Stepwise multiple regression analysis was used to identify the factors that influenced satisfaction with life. Our results suggest that IBS severity significantly influenced satisfaction with life, with an overall explanatory power of 10.9%. As such, interventions targeting female nursing college students with IBS might benefit from focusing on the severity of IBS symptoms.

Keywords: College students, Irritable bowel syndrome, Satisfaction with life, Nursing, Visceral sensitivity

1 Introduction

1.1. Background

Irritable bowel syndrome (IBS) is a chronic illness causing repetitive abdominal pain (without specific organic causes) and abnormal bowel habits [1]. IBS is one of the most common gastrointestinal diseases, with occurrence rates of 5–12% overseas [2] and 2.2–9.6% domestically [3]. Notably, the IBS occurrence rate among female nursing college students is reported to be remarkably high, at around 33% [4, 5]. Nursing college students often suffer from considerable stress due to their strict curricula, excessive workloads, and psychological burden induced by the national licensing examination, and as a result, are more likely to experience anxiety and depression [6, 7]. Previous studies have reported that these factors also correlate with the high IBS occurrence rate in this population [8, 9].
IBS symptoms are not life threatening; however, their chronicity can have a detrimental impact on daily living by causing limitations in social activities, absence from school, or increased medical expenses [10]. Furthermore, IBS patients’ quality of life appears to be lower than that of health people as well as individuals with other chronic illnesses or health problems, such as hemodialysis patients or diabetic patients [11]. Quality of life can be defined as one’s level of happiness and psychological well-being. It is often expressed and measured as “satisfaction with life” [12].

One potential factor influencing satisfaction with life is IBS severity. More specifically, individuals with severe IBS tend to exhibit more frequent symptoms—thus, when IBS severity is low, IBS patients rarely experience any notable symptoms, and thus tend to have a better quality of life and to not visit hospitals. In contrast, when the severity is high, IBS patients tend to experience symptoms on a continuous basis, which leads to a decrease in quality of life [11]. Another potential factor is visceral sensitivity, which has been shown to influence IBS patients’ quality of life [12]. Previous studies have reported that visceral sensitivity correlates with IBS patients’ daily living functions and quality of life after medical assessments and treatments [13,14].

Although previous studies have confirmed the correlations of quality of life with IBS severity and visceral sensitivity among IBS patients [10,15], none have looked at the relationships of these variables with satisfaction with life among female nursing college students with IBS. Thus, we investigated this relationship among female nursing college students with IBS. We believe that the study results will be fundamental data for the development of nursing interventions targeting satisfaction with life in this population.

1.2. Purposes

- Clarify the differences in satisfaction with life according to the general characteristics of female nursing students with IBS
- Describe the degrees of IBS severity, visceral sensitivity, and satisfaction with life among female nursing students with IBS
- Determine the correlations between IBS severity, visceral sensitivity, and satisfaction with life among female nursing students with IBS
- Determine what factors influence satisfaction with life among female nursing students with IBS

2 Methods

2.1 Study Design

In this cross-sectional descriptive study, we investigated the influencing factors of satisfaction with life among female nursing college students with IBS.
2.2 Participants and Data Collection

Study participants were sophomore students enrolled at the time of the study in the nursing departments of six universities in D city of South Korea. We determined the sample size with a power analysis using G*Power 3.1: the sample size for a stepwise multiple regression analysis with an effect size of .15, a significance level of .05, a test power of .95, and three independent variables was 119 subjects according to our analysis.

Of the 807 students contacted, 225 were considered to have IBS according to the Rome III criteria, while 140 understood the study purpose and provided their written consent for participation. A total of 135 questionnaires were included in the final analysis, after excluding five with insufficient answers. According to our power analysis, our final sample size was sufficient.

2.3. Instruments

2.3.1. Rome III Adult Questionnaire: The Korean version of the Rome III Adult IBS Questionnaire, developed by Drossman et al. [16], was used for the identification of students with IBS. Translation of the questionnaire was provided by the Korean Society of Neurogastroenterology and Motility [17]. The Rome III Questionnaire uses the following questions to determine the severity of IBS symptoms: persistence of symptoms for 2-3 days/month in the previous 3 months (question 1), persistence of symptom over the non-menstrual period (question 2), and persistence of symptoms for ≥6 months (question 3). The criteria in questions 1-3 should be associated with two or more of the following: symptom relief with defecation (question 4); a change in stool frequency (questions 5-6); and change in symptoms accompanying change in the form (appearance) and hardness of stool (questions 7-8).

2.3.2 Satisfaction with Life We used the satisfaction with life scale developed by Diener et al. [18] and adapted into Korean by Lee [19] to measure satisfaction with life. This scale comprises 5 questions, each of which is measured on a 5-point Likert scale ranging from 1 (“not at all”) to 5 (“very much so”). Total scores range from 5 to 25, with higher scores indicating a higher satisfaction with life. The internal consistency reliability (Cronbach’s α) of the scale in Diener et al.’s study was .87, whereas that in this study was .80.

2.3.3 Irritable Bowel Symptom Severity IBS severity was measured using the Irritable Bowel Syndrome Severity Scoring system–Korean Version, which was developed by Francis et al. [20]. This scoring system comprises questions on abdominal pain, abdominal distension, bowel habits, and the impact of IBS symptoms
on quality of life. Each section is scored on a scale of 0–100 points, with a total score ranging from 0 to 500. Higher scores indicate more severe symptoms.

2.3.3 Visceral Sensitivity

We used the Visceral Sensitivity Index developed by Labus et al. [13] and adapted into Korean by Jang [21] to measure visceral sensitivity. This scale comprises 15 questions in five areas of anxiety associated with GI disturbances: concern, fear, wariness, sensitivity, and evasion. Each question is measured on a 6-point Likert scale, ranging from 0 (“strongly agree”) to 5 (“strongly disagree”). Total scores range from 0 to 75, and are calculated by reversing the item scores, so that 0 refers to “no visceral sensitivity” associated with GI disturbances and 75 indicates “most severe visceral sensitivity” [13]. In Labus et al.’s study [13], the Cronbach’s α of the scale was .93, while that in the present study was .90.

2.4 Procedure

Data collection was performed in March 2015. The investigators worked collaboratively with the nursing departments and directors of the six universities in D city, South Korea. Self-reported questionnaires were provided to students who met the Rome III criteria for IBS during a non-class time. Completion of the questionnaire required about 15 min, and completed questionnaires were immediately collected by the investigators and two research assistants.

2.5 Ethical Approval

Our study methodology was approved by the institutional review board of Kyungpook National University (2015-0017).

2.6 Data Analyses

The collected data were analyzed using IBM SPSS Statistics 20. The subjects’ general characteristics and variable scores were described using means and standard deviations, and t-tests and one-way ANOVAs were used to verify the differences in satisfaction with life by participants’ general characteristics. The correlations of IBS severity and visceral sensitivity with satisfaction with life were determined using Pearson’s correlation coefficient, and stepwise multiple regression was conducted to confirm the influencing factors of satisfaction with life.
3 Results

Stepwise multiple regression analysis was conducted using IBS severity and visceral sensitivity (which were both correlated with satisfaction with life in the correlational analysis) as independent variables in our investigation of the influencing factors of participants' satisfaction with life.

The assumptions of the regression analysis were tested and were all satisfied. Specifically, in testing the autocorrelation of errors and model validation, we found a Durbin-Watson value of 1.972, which indicated no autocorrelation between independent variables. The variables' tolerance was 1.00 (≥0.1), which indicated that the regression model was appropriate. Variance inflation factor values ranged from 1.00 to 1.550, meaning that all were below the standard value of 10; thus, there was no problem of multicollinearity.

In the regression analysis, participants' satisfaction with life was inversely correlated with IBS severity (β = -.340, p < .001), which explained 10.9% of the variance in satisfaction with life (F = 17.367, p < .001). In other words, IBS severity was confirmed as an influencing factor of the satisfaction with life of female nursing college students with IBS (Table 4).

Table 1. Influencing Factors of Satisfaction with Life (n = 135)

<table>
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<th>Variables</th>
<th>B</th>
<th>β</th>
<th>t</th>
<th>p</th>
<th>R²</th>
<th>Adj.R²</th>
<th>F (p)</th>
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<td>(Constants)</td>
<td>18.747</td>
<td>29.614</td>
<td>&lt;.001</td>
<td>.115</td>
<td>.109</td>
<td>17.367 (&lt;.001)</td>
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<tr>
<td>Irritable bowel syndrome</td>
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<td>-.340</td>
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<td>&lt;.001</td>
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<td>severity</td>
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4 Conclusion

This study confirmed that IBS severity is a negative influencing factor for satisfaction with life of female nursing college students with IBS. Thus, the development and implementation of nursing interventions in consideration of the study results would be needed to improve the satisfaction with life of this population.

References

3. Asian Postgraduate Course on Neurogastroenterology and Motility.: Irritable Bowel Syndrome, Medicine Book, Seoul (2011)