Anxiety and Quality of Life in patients with Irritable Bowel Syndrome

Shahnaz Mohammadi, Maryam Izadi-Mazidi and Mahsa Akbarian-Firoozabadi

Irritable Bowel Syndrome (IBS) is a prevalent gastroenterological problem that has no identified pathology. There is evidence to suggest that patients with IBS suffer from mental disorders and impairment in quality of life. The aim of this study was to compare the anxiety and quality of life in Iranian individuals with and without irritable bowel syndrome. A total of 60 patients with Irritable Bowel Syndrome (IBS) and 60 healthy individuals participated in the study. The data was gathered using Cattle anxiety scale, Short Form-36 Health Survey (SF-36), Rome III diagnostic questionnaire and demographic forms and were analyzed through multivariate analyses of variance (MANOVA), Chi-square test and Fisher’s exact test. The results revealed that patients with IBS have more anxiety (F = 287.48, p<0.001) and less quality of life (F = 151.7, p = 0.002) compared to healthy individuals. IBS was significantly more prevalent in females and individuals who was living in urban areas (p<0.05). But, there was no significant difference in prevalence of IBS among individuals with different levels of education (p = 0.53). The IBS is associated with higher rates of anxiety and lower quality of life. This highlights the importance of management of these patients and assessing the impact of psychological interventions.

Key words: Irritable bowel syndrome, Cattle anxiety scale, Rome III criteria, alexithymia, gastrointestinal specific anxiety
INTRODUCTION

Irritable Bowel Syndrome (IBS) is a prevalent gastroenterological problem that causes suffering from abdominal pain, bloating and altered bowel habits (Canavan et al., 2014; Dainty et al., 2014; Roberts et al., 2013).

This chronic and relapsing disorder (Lee et al., 2009) occurs in all age groups (Canavan et al., 2014). Existing estimates indicate that global prevalence of IBS is about 4-30% (Ghoshal and Srivastava, 2014) and patients tend to be young and middle-aged women (Canavan et al., 2014; Lorenzo-Zuniga et al., 2014). Irritable bowel syndrome interfere with the affected individuals’ health related quality of life (Lorenzo-Zuniga et al., 2014; DiBonaventura et al., 2011; Li et al., 2003; Creed et al., 2001; El-Serag et al., 2002), in spite of its benign long term prognosis (Lorenzo-Zuniga et al., 2014). And there is evidence to suggest that the costs of somatic diagnostic procedures and medical treatment attempts on IBS are enormous (Lorenzo-Zuniga et al., 2014; Levy et al., 2001; Nyrop et al., 2007). It has also indirect costs related to deceased productivity and efficacy at work (Lorenzo-Zuniga et al., 2014).

The exact cause of IBS is poorly understood (Mykletun et al., 2010; Folks, 2004). And beside different hypothesis about physical factors such as colonic motility disturbances, gastrointestinal hypersensitivity, gastrointestinal inflammation (Lorenzo-Zuniga et al., 2014; Muscatello et al., 2014; Hauser et al., 2014), abnormalities in the gut flora (Khanna and Tosh, 2014), small intestinal bacterial overgrowth (Olman and Simren, 2010) and disruption of the brain-gut axis (Lin, 2004), psychological conditions have been reported to be an important contributor to production or exacerbation of IBS (Lee et al., 2009; Mykletun et al., 2010; Walker et al., 1995; Osterberg et al., 2000; Gulewitsch et al., 2013; Lackner et al., 2013). More than 90% of patients with IBS experience at least one mental disorder during their lifetime (Liss et al., 1973; Fossey and Lydiard, 1990; Irwin et al., 1996; Lydiard, 2001).

Anxiety disorders (Lee et al., 2009; Yi et al., 2014; Yacob et al., 2013), depression (Lee et al., 2009; Yi et al., 2014; Yacob et al., 2013; Walker et al., 1995), panic disorder (Paras et al., 2009), childhood sexual abuse (Yacob et al., 2013; Van Tilburg et al., 2010; Mahvi-Shirazi et al., 2013) PTSD (Hauser et al., 2014), phobia (Van Tilburg et al., 2010) and somatoform disorders (Surdea-Blaga et al., 2012) are psychological conditions that has been reported to be associated with IBS. And mood disorders, anxiety disorders and somatoform disorders are most prevalent (Surdea-Blaga et al., 2012).

Gastrointestinal Specific Anxiety (GSA) and alexithymia also are two psychological constructs that may contribute to severity of irritable bowel syndrome (Porcelli et al., 2014). In the study conducted by Niesten et al. (2014), a childhood history of non-sexual abuse and a family history of IBS were predictors of IBS diagnosis in women with bipolar disorder (Niesten et al., 2014). Some results however challenge the plausibility of the association between IBS and psychological problems (Talley et al., 2001).

Because of these controversial findings and little knowledge about psychological conditions and health related quality of life of patients with IBS in Iran, the present study aimed to compare anxiety and quality of life in patients with IBS and healthy individuals in Iranian population.

Since poor treatment outcome in patients with IBS may partly due to undetected comorbid psychological disorders (Lee et al., 2009), identifying mental disorders help clients in management of their patients.

MATERIALS AND METHODS

Subjects: Research was conducted over a period of 12 months from 2013-2014. A total of 60 patients with Irritable Bowel Syndrome (IBS) and 60 healthy individuals participated in the study. The patients selected from referral centers in Tehran, Iran. The diagnosis of Irritable Bowel Syndrome (IBS) was performed by gastroenterologist. Healthy individuals were selected from general population and had no history of gastroenterological problem.

After describing the procedures and purposes of the study, written informed consents were obtained. Each subject was asked to complete the Persian version of Cattle anxiety scale, World Health Organization Quality of Life (WHOQOL) and Irritable Bowel Syndrome (IBS) symptom checklist as well as a questionnaire to obtain demographic data about gender, age, level of education and marital status.

Instruments

Cattell’s anxiety scale: The instrument consists of 40 items. The items are divided into 2 sub-scales including state anxiety and trait anxiety. The range of the test-retest reliability coefficient is reported to be from 0.65-0.75, with a 2 month interval between tests. Construct and concurrent validity of the scale has also been performed and supports its validity (Spielberger, 1989; Spielberger et al., 1983). Cattle anxiety scale has been shown to be reliable and valid in an Iranian population (Salarifar and Etemad, 2011).

World Health Organization Quality of Life (WHOQOL): This questionnaire consists of 36 items. It measures eight health subscales including physical functioning, role
limitations because of physical problems, bodily pain, general health perception, vitality, social functioning, role limitations because of emotional problems and mental health.

Physical functioning, role limitations because of physical problems, bodily pain, general health perception grouped in to physical component and vitality, social functioning, role limitations because of emotional problems and mental health are subscales of mental component. Each subscale graded from 0-100. Higher scores are considered better status (Stull et al., 2014).

This scale has been used in many researches in Iran and the questionnaire validity and reliability has been confirmed (Montazeri et al., 2005).

Rome III diagnostic questionnaire: It is a self-report questionnaire that has been developed for the diagnosis of functional gastrointestinal disorders (Wang et al., 2012). According to Rome III diagnostic criteria, IBS is characterized by abdominal pain or discomfort in at least 3 of the previous 6 months, with 2 or more of the following items:

- Pain or discomfort improved after defecation
- Pain or discomfort associated with a change in frequency of stool
- Pain or discomfort associated with a change in the form of stool (Dong et al., 2013)

Statistical tests: Data was analyzed using multivariate analyses of variance (MANOVA), Chi-square test and Fisher exact test. The probability level of 0.05 was accepted as statistically significant. Statistical analyses were carried out using SPSS version 16.

RESULTS

Demographic characteristics (sex, residence and level of education) of both patients and healthy individuals are detailed in Table 1.

The anxiety and quality of life of patients and healthy individuals were compared using multiple univariate analyses of variance (ANOVAs). There were significant differences between patients and healthy individuals in anxiety ($F = 287.48$, $p<0.001$) and quality of life ($F = 151.7$, $p = 0.002$). It means patients with IBS suffering from higher level of anxiety and have lower level of quality of life compared to healthy individuals. A comparison of two variables is shown in Table 2.

Distributions of IBS according to demographic variables are listed in Table 3. The IBS was found in 65% (39 of 60) of female and 35% (21 of 60) of male ($\chi^2 = 5.57$, $p = 0.006$). Twenty four percent of patients had grade school level of education, 35% had 12 years/high school education and 21.6% of patients had university degree ($\chi^2 = 19$, $p = 0.53$). Forty five percent of patients were living in urban areas and 25% of them were from rural areas ($\chi^2 = 7.68$, $p = 0.001$). Hence, there are significant differences between patients and healthy individuals with different gender and education subgroups in prevalence of IBS.

Table 1: Demographic characteristics of the patient and control groups

<table>
<thead>
<tr>
<th>Demographic variables</th>
<th>Patients with IBS</th>
<th>Healthy individuals</th>
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<tbody>
<tr>
<td>Gender</td>
<td></td>
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<tr>
<td>Female</td>
<td>39 65</td>
<td>33 55</td>
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<tr>
<td>Male</td>
<td>21 35</td>
<td>27 45</td>
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<td>Education</td>
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<td>Grade school</td>
<td>24 40</td>
<td>17 28.33</td>
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<td>12 years/high school</td>
<td>21 35</td>
<td>27 45</td>
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<tr>
<td>University degree</td>
<td>13 21.6</td>
<td>16 26.66</td>
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<tr>
<td>Residence</td>
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<tr>
<td>Urban</td>
<td>45 75</td>
<td>52 86.66</td>
</tr>
<tr>
<td>Rural</td>
<td>15 25</td>
<td>8 13.33</td>
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</tbody>
</table>

Table 2: Comparison using multivariate analysis of variance (MANOVA) of anxiety and quality of life of patients and healthy individuals

<table>
<thead>
<tr>
<th>Variables</th>
<th>Patients</th>
<th>Healthy individuals</th>
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<tr>
<td></td>
<td>Mean $\pm$ SD</td>
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</tr>
<tr>
<td>Anxiety</td>
<td>50.25 $\pm$ 7.60</td>
<td>26.76 $\pm$ 7.82</td>
</tr>
<tr>
<td>Quality of life</td>
<td>57.46 $\pm$ 8.12</td>
<td>37.68 $\pm$ 7.95</td>
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Table 3: Prevalence of IBS based on demographic features

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IBS: Irritable bowel syndrome, df: Degree of freedom
DISCUSSION

The present study aimed to compare anxiety and quality of life in patients with Irritable Bowel Syndrome (IBS) and healthy individuals. Our findings showed that patients with IBS suffered from higher level of anxiety and poorer quality of life compared to healthy individuals.

The findings replicate the results of studies conducted by Lee et al. (2009), Mykletun et al. (2010), Porcelli et al. (2014) and Yi et al. (2014) that showed IBS was significantly related to anxiety. Our finding also is congruent with result of Lackner et al. (2013), who reported anxiety sensitivity and perceived stress as some of predictors of fatigue in patients with IBS (Lackner et al., 2013).

These findings indicate that psychological factors, including anxiety, may collaborate to physical factors to trigger or intensify functional gastrointestinal disorders. Enteric nervous system is very sensitive to the emotional states so that negative emotions such as stress, change in bowel movement activities and can cause bowel symptoms such as IBS (Hauser et al., 2014). Patients with IBS have more often reported themselves as experiencing stressful and major life events before the onset of illness (Surdea-Blaga et al., 2012).

The relationship between psychosocial factors and symptom onset might also be explained, in part, by specific biological mechanisms. The main stress-response axis of the body i.e., hypothalamic-pituitary-adrenal axis has been reported to be related to chronic widespread pain. This axis may also be involved in functional gastrointestinal disorders including IBS (Nicholl et al., 2008).

It is also suggested that excess of corticotropin releasing hormone may be related to both anxiety and IBS-like symptoms (Lee et al., 2009). Other comments stated that psychological problems in patients with IBS may be reaction to stress of the chronic illness (Whitehead et al., 1988). But lower rate of mental disorders in patients with other gastrointestinal diseases such as inflammatory bowel disease, rejected the idea (Walker et al., 1995).

Some studies have reported that psychological distress is unrelated to irritable bowel syndrome but influence on medical care-seeking (Whitehead et al., 1988). But some investigators didn’t find difference in mental health status between healthcare seekers and healthcare non-seekers (Mykletun et al., 2010; Tang et al., 2008) and even community sample with IBS symptoms report stress and poorer mental health (Gralnek et al., 2000).

However, the study of young adults from New Zealand reported that IBS was not significantly associated with psychiatric disorder including anxiety disorders (Talley et al., 2001). This gap might be somewhat due to features of subjects, methodological differences in assessment of psychological factors or cultural differences in somatic presentations of psychological problem.

In the present study we found that patients with IBS suffered from poor quality of life compared to healthy individuals. Similarly Creed et al. (2001) reported that, both abdominal pain and psychological symptoms were associated with impaired health-related quality of life in patients with severe IBS. And results of the study conducted by DiBonaventura et al. (2011) indicated that constipation predominant IBS was related to poorer HRQOL, less work productivity and high direct health care costs. Li et al. (2003) also found that people with IBS experience substantial impairment in health related quality of life. Persistent abdominal pain, other physical problems, fatigue (Monnikes, 2011) and psychological problems (Tkalcic et al., 2014) that are often associated with IBS cause impairment in patient’s quality of life.

For instance Lackner et al. (2013) found that generalized anxiety, agoraphobia, tension headache, insomnia, depression and back pain were related to greater illness and poorer quality of life.

With respect to gender, our results showed that IBS were significantly more prevalent in women than in men. We replicate the findings of the study conducted by Canavan et al. (2014). By contrast Lee et al. (2009) didn’t find significant different between the genders in the prevalence of IBS (Lee et al., 2009).

Williams et al. (2006) showed that doctors are more likely to diagnose IBS in women than in men, even when men meet criteria for IBS (Tang et al., 2008). And several studies (Williams et al., 2006) reported that the Rome criteria are more sensitive in diagnosing IBS women than in men (Tang et al., 2008).

We also found more prevalence of IBS in patients from urban areas compared to those of from rural areas. This maybe because complications and multiple stressors in urban areas make people prepared to different dieases. Consistent with Mykletun et al. (2010), no difference was found in prevalence of IBS infection between patients with different Levels of education.

In conclusion, patients with IBS are more likely to suffer from anxiety and burdens of illness on quality of life. Our results have implications for clinicians who dealing with patients with IBS. And support the claim of the need for psychological interventions in management of patients with IBS.

The strength of the present study is that diagnosis of IBS was made by gastroenterologist in addition to completing Rome III questionnaire. While in some previous studies the diagnosis was based on the participant’s report of their condition. Some limitations should, however, be taken into account. The participants selected from referral centers, which means the findings should be generalized to patients who are not in care medical centers, with caution. Moreover, the study was cross sectional and could not demonstrate the causal relationship between variables.
REFERENCES


