Impact of Irritable Bowel Syndrome on Quality of Life among Female Patients Attending Internal Medicine Outpatient Clinics in Zagazig University Hospital

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Abstract: Introduction: little is known about the health-related quality of life (HRQOL) of patients with irritable bowel syndrome (IBS). Although it is one of the most common gastrointestinal disorders. The illness is characterized by chronic or recurrent abdominal pain and altered bowel habits. These symptoms can adversely affect HRQOL of people who suffer from IBS. Objectives of this study: to assess QOL of females with irritable bowel syndrome and to find the relationship between severity, duration and types of IBS and QOL. Subjects and methods: a case–control study, 93 female patients suffered from IBS attending internal medicine outpatient clinics of Zagazig University Hospital were included in this study, compared to control group (93 females). Data was collected using 1- structured questionnaire covering some socio-demographic data, 2- Rome11 criteria of IBS diagnostic questionnaire, 3-a generic QOL (SF 36) questionnaire. Results: females with IBS had worse QOL of physical functioning, role limitation due to physical health, role limitation due to emotional problems, vitality, social functioning, pain, emotional wellbeing and general health perception compared to controls p<0.05. Female patients suffered from severe IBS symptoms had a significantly poor QOL of domains (physical functioning, pain and emotional wellbeing) compared to IBS female patients reported moderate symptoms (p<0.05). Diarrheal-type and mixed-type IBS female patients had worse QOL of the three domains (role limitation due to physical health, role limitation due to emotional problem and emotional wellbeing) than constipated-type IBS patients p<0.05. Also there was negative significant correlation between duration of IBS and QOL of IBS female patients in domains of physical functioning, role limitation due to emotional problems, social functioning, pain and vitality (r - 0.4, - 0.24, - 0.33, - 0.39, -0.34) respectively p < 0.05. Conclusion: and recommendation: IBS-symptoms had a great effect on the QOL of female patients so early detection may improve the progress of health problem and decrease the burden of disease on health service. So there is a great need to include QOL as a tool during assessment and evaluation of IBS patient.

Keywords: Irritable bowel syndrome (IBS), quality of life (QOL), short form 36- item health survey(SF 36).

1. Introduction

Irritable bowel syndrome (IBS) is a common functional gastrointestinal disorder Agrawal and Whorwell (2006). IBS is widespread in all societies and socioeconomic groups Thompson et al.(2000) . The average prevalence of (IBS) was 15% -24% in general population (Hungin et al. 2003). It is estimated that only 25%-60% of persons with (IBS) seek medical care(Talley et al.1995). IBS is characterized by chronic or recurrent abdominal pain and altered bowel habit, the diagnosis is based mainly on the identification of symptoms according to Manning, Rome1, Rome11 criteria, it affects females more than males for unexplained pathophysiological reasons. There is increasing in awareness of clinicians and clinical researchers on the impact of (IBS) on quality of life(QOL) (Yacavone et al. 2001).

IBS patients experience emotional distress, feeling of helplessness depression and irritability. Their lifestyle was being restricted by their gastro-intestinal symptoms and they organized their day around toilet accessibility. Also they modify their diet and food consumption (Park et al., 2009). Although most IBS patients do not seek medical help, the disease account for huge costs to patients and health care system and worsens patients quality of life (Rhee, 2006). The considerable prevalence of (IBS) indicate that (IBS) has social impact on the country (Park et al., 2009) and has an impact on (QOL) and resources in countries (Hahn et al., 1999). QOL assessment is becoming increasingly important in the evaluation of the impact of disease and the effect of therapy as there is often a tendency for a chronic clinical course (Li et al., 2003). Quality of life in patients with (IBS) is surprisingly poor, particularly in those seeking medical care, when compared with condition carry a high mortality, such as end stage renal disease, asthma and diabetes mellitus (Frank et al., 2002). The impact of (IBS) on QOL of patients has often

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been underestimated by physicians and researchers, because patients with (IBS) disorder do not face direct threat to their life and are not disabled in obvious ways. Also, friends and family members of individuals with (IBS) may underestimate the impact of IBS on the patients. Now researchers have shown that these disorder have impact on patients (QOL), which is important for anyone interact with IBS patients (Palsson et al., 2002).

The aim of current work to explore the problem of IBS through the following objectives:
1. To assess QOL of females with irritable bowel syndrome
2. To find the relationship between the severity, duration and types of IBS with QOL.

2. Subjects and methods

Study design
This study is a case – control study conducted in Zagazig University Hospital among females attending internal medicine outpatient clinic in the period from September 2010 to December 2010

Sample
Estimated sample size was 93 patient and 93 control by EPI info version 6 with confidence interval 95%, power of test 80%, expected favorable QOL in non-ill 80%, expected favorable QOL in ill 60% "estimated by pilot study"
The studied group was selected by simple random sample

Target population
- Females who were diagnosed by internal medicine physician according to Rome11 criteria of IBS (Harris, 2000).
- The control group females who were accompanying others patients and were comparable with cases in age, level of education and residence, apparently healthy also they must be free of chronic diseases.

Tools of this study
Females included in study were interviewed and the data was collected using the following questionnaires:
I-structured questionnaire: covering socio-demographic variables e.g age, level of education and residence.

II - questionnaire for diagnosis of (IBS): included the following four questions of Rome11 criteria, which widely used and are considered valid and have good predictive value for (IBS) diagnoses Drossman et al. (2000) and (Harris, 2000).

IBS was diagnosed if participants answered yes on the following question
- in the last three months did you often have discomfort or pain in your abdomen

Plus answer yes on two of following questions:
1- does your discomfort or pain get better or stop after you have bowel movement.
2- during discomfort or pain, do you have a change in your usual number of bowel movements "either more or fewer".
3- during discomfort or pain, do you have either softer or harder stools than usual.

III - questionnaire to assess severity of (IBS): the severity of IBS could vary from mild and moderate to severe by self- reported symptom severity question (Park et al., 2009).

Severity of IBS:
Discomfort which referred to pain and associated (IBS) symptoms was classified into:
- Mild degree if participants answer the question with "I can ignore it if I do not think about it"
- Moderate degree if the answer "I cannot ignore but it does not affect my life style"
- Severe degree "discomfort usually affects my life style"

According the bowel pattern IBS patients were classified into three types (Thompson et al., 2000)
- Constipation – predominant (IBS) type
- Diarrheal-predominant (IBS) type,
- Mixed (IBS) type

IV- A Generic health related quality of life questionnaire short form -36 (SF-36) was used in its Arabic translated form; (SF-36) is well established and has been used in epidemiological studies (Abdul-Moshin et al., 1998), Sabbah et al., 2003. The SF-36 includes thirty six items, constructed eight multi-item scales that assess the extent to which an individual health limits their physical, emotional and social function: physical function(10 items), role limitations due to physical health (4 items), role limitation due to emotional health problems (3 items), pain (2 items), general health perception (5 items), energy/fatigue (vitality) (4 items), social function (2 items), Emotional wellbeing (5 items) and also include a single item that provides an indication of perceived change in health. All questions asked concerned the previous four weeks

Scoring short form 36- item health survey is in two steps
First, each item is scored on a 0 to 100 range, A high score 100 represent a favorable health state and a low score 0 represent a bad health state
Second, the average of the total items of each scale was calculated
A high score defines a more favorable health state and a low score define a bad health state (Ware and Sherbourne 1992, Hagerty et al., 2001).

**Pilot study:**
A pilot study was conducted during August 2010 to test questionnaire and to estimate sample size. The pilot sample was 20 females which were not included in the study sample.

**Ethical consideration:**
An oral consent was obtained from all participants of present study after explaining its aim to them.

**Statistical analysis:**
Data were collected, coded, entered and were analyzed using (Statistical package for social science). SPSS program version 15. Independent variables were analyzed descriptively by frequency distribution and mean ± standard deviation. Chi square and Chi square of trend were used to test the significance of qualitative variables as appropriate. While independent samples t-test was used to compare the significance of two continuous quantitative variables. p value ≤ 0.05 was considered statistically significant.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Patient(93)</th>
<th>control(93)</th>
<th>Test of Sign</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>age</td>
<td>28.78±8.8</td>
<td>27.72±8.9</td>
<td>* 0.906</td>
<td>0.366</td>
</tr>
<tr>
<td>residence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>25 (26.9%)</td>
<td>36 (38.7%)</td>
<td>** 2.95</td>
<td>0.08</td>
</tr>
<tr>
<td>Rural</td>
<td>68 (73.1%)</td>
<td>57 (61.3%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>12 (12.9%)</td>
<td>7 (7.5%)</td>
<td>*** 4.75</td>
<td>0.191</td>
</tr>
<tr>
<td>Primary</td>
<td>33 (35.5%)</td>
<td>33 (35.5%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>16 (17.2%)</td>
<td>27 (29%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>university</td>
<td>32 (34.4%)</td>
<td>26 (28%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table1: Some Socio demographic characteristic of females with irritable bowel syndrome and control group.

Table (5) illustrated negative significant correlation between duration of IBS and QOL of IBS female patients in domains of physical functioning, role limitation due to emotional problems, social functioning, pain and vitality r (-0.4, -0.24 , -0.33 , -0.39,-0.34) respectively p < 0.05.

Table (4) showed QOL mean score between the different types of IBS, the diarrheal-type of IBS patients and mixed-type IBS had significant low QOL with respect to role limitation due to physical function, role limitation due to emotional problems and emotional wellbeing in comparison to constipated-type (p < 0.00). Social function score better among mixed type IBS patients than the other two types and the difference was statistically significant p<0.05.

**3. Results**
Some socio demographic data of females participated in this study were shown in Table (1). The 186 participants, (93) of them suffer from (IBS) according to Rome11 criteria. Mean age of (IBS) female patients were 28.78±8.8 years. Females enrolled in control group their mean age were 27.72±8.9 years without significant difference with IBS cases (p=0.366). The level of education among IBS female patients were 12.9% illiterate, 35.5% primary educated, 17.2% secondary educated and 34.4% university educated compared to 7.5%, 17.2% primary educated, 17.2% secondary educated and 35.5% of IBS female patients were 12.9% illiterate, 35.5% university educated compared to 7.5%, 17.2% primary educated, 17.2% secondary educated and 35.5% respectively among control groups. Pearson correlation test was used to define association between each two groups. Pearson correlation between duration of IBS and QOL of IBS female patients had severe symptoms and 33.3% of them had moderate symptoms.

The percentage of IBS of diarrheal-predominant type was 62.4%, constipation-predominant type was 24.7% and only 12.9% had mixed-type (figure 2).

Figure (3) showed the duration of IBS disease, 34.4% of IBS female patients suffered from disease for less than two years, 32.2% patients suffered from the disease for two to four years and 33.4% of patients had the disease for more than four years.

Table(2) illustrated QOL for IBS female patients and control measured by SF-36 questionnaire, IBS females patients had a significant lower score in the eight Domains of QOL in compared to control females ( p <0.05.)

As regard to the severity of symptoms, the IBS females suffered from severe symptoms had low QOL in physical function, pain and emotional wellbeing compared to those of moderate symptoms. QOL score of physical function (72.7±12.6 versus 84.3±9.1), of pain (54.5±17.9 versus 74.6±11.7) and of emotional wellbeing (56.6±7.9 versus 63.0±9.3), the result was statistically significant p <0.05. While the others five QOL domains showed no significant difference (p> 0.05).

Table (4) showed QOL mean score between the different types of IBS, the diarrheal-type of IBS patients and mixed-type IBS had significant low QOL with respect to role limitation due to physical function, role limitation due to emotional problems and emotional wellbeing in comparison to constipated-type ( p< 0.00). Social function score better among mixed type IBS patients than the other two types and the difference was statistically significant p<0.05.

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Figure 1: shows percent of severity of irritable bowel syndrome among female patients

Figure 2: Duration of irritable bowel syndrome among female patients

Figure 3: illustrate types of irritable bowel syndrome among female patients
Table 2: illustrate quality of life among irritable bowel syndrome female patients and control

<table>
<thead>
<tr>
<th>Parameters</th>
<th>IBS patients(93)</th>
<th>Control(93)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical function</td>
<td>76.6 ± 12.8</td>
<td>83.4 ± 18.0</td>
<td>2.981</td>
<td>0.003</td>
</tr>
<tr>
<td>Role limitation due to physical health</td>
<td>68 ± 17.1</td>
<td>74 ± 19.3</td>
<td>2.37</td>
<td>0.0190</td>
</tr>
<tr>
<td>Role Limitation due to emotional problems</td>
<td>60.5 ± 16.4</td>
<td>79.1 ± 19.9</td>
<td>6.9</td>
<td>0.0000</td>
</tr>
<tr>
<td>Social function</td>
<td>63.4 ± 14.9</td>
<td>76.1 ± 21.9</td>
<td>4.6</td>
<td>0.000</td>
</tr>
<tr>
<td>Pain</td>
<td>65.9 ± 22.7</td>
<td>82.96 ± 21.4</td>
<td>5.2</td>
<td>0.000</td>
</tr>
<tr>
<td>Vitality</td>
<td>68.9 ± 17.4</td>
<td>84.1 ± 14.7</td>
<td>6.4</td>
<td>0.000</td>
</tr>
<tr>
<td>Emotional wellbeing</td>
<td>58.8 ± 8.9</td>
<td>69.2 ± 14.8</td>
<td>5.78</td>
<td>0.000</td>
</tr>
<tr>
<td>General health perception</td>
<td>67 ± 15.35</td>
<td>72.8 ± 17.99</td>
<td>2.36</td>
<td>0.019</td>
</tr>
</tbody>
</table>

There is a statistical significant difference in QOL of eight domains between IBS female patients and controls p<0.05

Table 3: Quality of life of females suffering from irritable bowel syndrome as regard its severity

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Moderate(31) Mean ± SD</th>
<th>Severe(62) Mean ± SD</th>
<th>Test of significant</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical functioning,</td>
<td>84.3 ± 9.1</td>
<td>72.7 ± 12.6</td>
<td>4.542</td>
<td>0.0000</td>
</tr>
<tr>
<td>Role Limitation due to Physical health</td>
<td>71.22 ± 11.95</td>
<td>66.53 ± 19.1</td>
<td>1.245</td>
<td>0.216</td>
</tr>
<tr>
<td>Role limitation due to Emotional problems</td>
<td>61.8 ± 15.16</td>
<td>59.9 ± 16.9</td>
<td>0.516</td>
<td>0.607</td>
</tr>
<tr>
<td>Social functioning</td>
<td>65.57 ± 22.33</td>
<td>62.3 ± 9.48</td>
<td>0.987</td>
<td>0.326</td>
</tr>
<tr>
<td>Pain</td>
<td>74.65 ± 11.73</td>
<td>54.52 ± 17.9</td>
<td>3.22</td>
<td>0.000</td>
</tr>
<tr>
<td>Vitality</td>
<td>72 ± 16.88</td>
<td>67 ± 17.7</td>
<td>1.195</td>
<td>0.235</td>
</tr>
<tr>
<td>Emotional wellbeing</td>
<td>63.07 ± 9.37</td>
<td>56.67 ± 7.92</td>
<td>3.454</td>
<td>0.001</td>
</tr>
<tr>
<td>General health perception</td>
<td>71.18 ± 12.52</td>
<td>64.92 ± 16.2</td>
<td>1.88</td>
<td>0.063</td>
</tr>
</tbody>
</table>

This table demonstrates that QOL among females suffer from severe IBS symptoms is significantly lower than QOL of females with moderate IBS symptoms as regards physical functioning, pain and emotional wellbeing p<0.05

Table 4: Quality of life of female patients complaining from irritable bowel syndrome (IBS) as regards to its type

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Diarrheal type No (58) Mean ± SD</th>
<th>Constipation No (23) Mean ± SD</th>
<th>Mixed type No (12) Mean ± SD</th>
<th>F test</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical functioning</td>
<td>76.97 ± 11.25</td>
<td>76.42 ± 15.87</td>
<td>75.29 ± 14.47</td>
<td>0.09</td>
<td>0.918</td>
</tr>
<tr>
<td>Role Limitation due to Physical health</td>
<td>62.71 ± 14.27</td>
<td>84 ± 14.31</td>
<td>63.54 ± 17.23</td>
<td>18.07</td>
<td>0.0000</td>
</tr>
<tr>
<td>Role limitation due to Emotional function</td>
<td>56 ± 13.49</td>
<td>74.6 ± 17.32</td>
<td>55.55 ± 12.96</td>
<td>14.4</td>
<td>0.0000</td>
</tr>
<tr>
<td>Social functioning</td>
<td>60.6 ± 13.84</td>
<td>63.72 ± 15.6</td>
<td>76.34 ± 13.24</td>
<td>6.09</td>
<td>0.003</td>
</tr>
<tr>
<td>Pain</td>
<td>63.16 ± 19.94</td>
<td>75.3 ± 20.63</td>
<td>61 ± 34.34</td>
<td>2.75</td>
<td>0.06</td>
</tr>
<tr>
<td>Vitality</td>
<td>67.77 ± 19.7</td>
<td>74.58 ± 8.52</td>
<td>63.88 ± 17.15</td>
<td>1.8</td>
<td>0.16</td>
</tr>
<tr>
<td>Emotional wellbeing</td>
<td>57 ± 8.35</td>
<td>64.45 ± 7.1</td>
<td>56.65 ± 10.62</td>
<td>6.96</td>
<td>0.001</td>
</tr>
<tr>
<td>General health perception</td>
<td>66.48 ± 11.15</td>
<td>70.5 ± 24.85</td>
<td>62.98 ± 6.75</td>
<td>1.04</td>
<td>0.356</td>
</tr>
</tbody>
</table>

Post hoc test shows that QOL was significantly affected among females complaining from diarrheal type and mixed type of IBS than constipated type of IBS as regards to role limitation due to physical health, role limitation due to emotional problems and emotional wellbeing (p<0.05)

Constipated type and diarrheal types of IBS female patients affected socially more than mixed type IBS female patients (p<0.05)
4. Discussion

Although IBS is not a life threatening condition but it has a serious impact on patients daily activities. In the present study, QOL of IBS female patients was significantly impaired in all dimensions compared with controls, this is consistent with the results of many studies such as those of United- states and United kingdom by Hahn et al. (1999), Gralnek et al. 2000) in Crete Faresjo et al. (2006) in China survey by Huang et al. (2007), and also in Korea by Park et al. 2009 found that IBS cases had worse quality of life.

Whitehead et al. (1996) reported that QOL scales score of general health perception, social function, physical functioning, bodily pain were more significantly lower in IBS patients who asked medical help as the severity of IBS expected to be increased among this group.

Severity of IBS was associated with poor QOL, in the current study 66.7% of IBS females suffered from severe symptoms while 33.3% had moderate symptoms this finding is higher than that found by Coffin et al. (2004) who found that 8.3%, 41.3% and 50.4% of IBS patients had mild, moderate and severe symptoms respectively, the discrepancy due to difference in the level of tolerance and acceptance of abdominal pain in different countries.

Severe IBS female patients showed significant poorer QOL score of physical functioning, pain and emotional wellbeing than IBS females who reported moderate symptoms (p<0.05), while QOL scale score of vitality, limitation due to physical health, role limitation due to emotional problems, social function, general health perception statistically insignificant p>0.05. This agree with study carried by Coffin et al., (2004) and study in Korea done by Park et al. (2009) who reported a negative impact of IBS on QOL.

In present study the percentages of diarrhea-predominant type of IBS, constipation predominant type and mixed type were 62.4% 24.7% and 12.9% respectively compared to 32% 41.3% and 26.7% in France at a study conducted by Coffin et al. (2004), the difference in IBS subtypes may be due to the difference in climate and type of food consumption.

QOL among IBS female patients as regards IBS subtypes (constipation IBS, diarrheal IBS and mixed IBS) was tested and it was poor among diarrheal and mixed types as regard to QOL of three domains; role limitations due to physical health, role limitations due to emotional problems and emotional wellbeing in compared to constipation type of IBS patients p<0.05. Social function was bad among diarrheal IBS and constipated IBS female patients compared to mixed IBS patients p<0.05, this result differ from that of Korea study by Park et al. (2009) that showed no significant difference in QOL score among patients with the three subtypes of IBS. Also in other study IBS Patients with constipation –predominant, diarrhea- predominant and mixed bowel patterns had a similar degrees of QOL (El- Serag et al.2002), this difference can be explained by difference in culture and present of facility in public places.

The current study, illustrated that there was negative significant correlation between duration of IBS disease and five of QOL domains; physical functioning, role limitation due to emotional problems, social functioning, pain and vitality. This result differ with Coffin et al., (2004) who found that no correlation between duration of IBS disease and QOL. This can be explained by the difference in case management, treatment and the effectiveness of health service in both countries.

Conclusion and Recommendations:

IBS- symptoms had a great effect on the eight domains of QOL of female patients, patients suffered from diarrheal type and mixed type of IBS had poorer QOL than constipated IBS type. Long duration of IBS was associated with worse QOL domains. So early detection may improve the progress of health problem and decrease the burden of disease on health service. So there is a great need to include QOL as a tool during assessment and evaluation of IBS patient. Furthers researches to find the best methods for IBS patients to alleviate their

Table (5): correlation between quality of life dimensions and duration of IBS among IBS female patients

<table>
<thead>
<tr>
<th>Parameter</th>
<th>r</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical functioning</td>
<td>−0.4</td>
<td>0.001</td>
</tr>
<tr>
<td>Role limitation due to Physical function</td>
<td>−0.14</td>
<td>0.17</td>
</tr>
<tr>
<td>Role limitation due to emotional problems</td>
<td>−0.24</td>
<td>0.018</td>
</tr>
<tr>
<td>Social functioning</td>
<td>−0.33</td>
<td>0.001</td>
</tr>
<tr>
<td>Pain</td>
<td>−0.39</td>
<td>0.000</td>
</tr>
<tr>
<td>Vitality</td>
<td>−0.34</td>
<td>0.001</td>
</tr>
<tr>
<td>Emotional wellbeing</td>
<td>−0.18</td>
<td>0.078</td>
</tr>
<tr>
<td>General health perception</td>
<td>−0.19</td>
<td>0.06</td>
</tr>
</tbody>
</table>

There was negative significant association between duration of IBS complaint and QOL domains (physical functioning, role limitation due to emotional problems, social functioning, pain and vitality) p<0.05.
suffer and improve QOL domains.

Acknowledgement:
The team of work directed their acknowledgment to all participants in this study who facilitate our work to be done.

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10/24/2011