Anxiety and depression as associated agents of irritable bowel syndrome in medical students of the Universidad Nacional de Itapúa, Paraguay 2018.

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ABSTRACT

Objective: To evaluate the association of the prevalence of irritable bowel syndrome with anxiety and depression in medical students at Universidad Nacional de Itapúa. Materials and methods: Transversal study with analytical component in medical students from the first to the fifth year of the Universidad Nacional de Itapúa. A self-applied survey was implemented, based on the instrument “Hospital Anxiety and Depression Scale” for anxiety and depression and the Rome IV criteria for irritable bowel syndrome. Results: 160 students were surveyed, 79% were women, and 21% were men. The average age was 22.8 years. Of the total, 38 subjects (23.75%) matched the Rome IV criteria for irritable bowel syndrome (IBS). The prevalence of anxiety in students with IBS was 71.05% (n=27), and the prevalence of depression was 36.8% (n=14). Conclusion: Anxiety and depression are factors that predispose individuals to develop irritable bowel syndrome. It is important not to ignore this diagnosis due to medical students’ potential negative repercussions to improve their life quality.

Keywords: Anxiety, depression, irritable bowel syndrome

INTRODUCTION

Irritable bowel syndrome (IBS) consists of a functional alteration of the digestive tract without structural, biochemical, or infectious causes that justify the symptoms’ nature. Feelings of pain, bloating, changes in defecation habits, and stool consistency are recurrent features (1,2). It is most common in the female sex in a 2:1 ratio.

The Latin-American consensus on Irritable Bowel Syndrome shows a prevalence between 10% and 18% (2). In Ecuador, a prevalence of IBS of 28% was reported in patients between 20 and 34 years old (3,4). In students at a medical school in Mexico, a prevalence of 24.7% was found, with a 64.8% female and 35.2% male ratio. Although there is little evidence on Africa, the study in a population of Nigerian students, whose prevalence was 26.1%, stands out (5,6).

The Rome criteria were established to accomplish the diagnosis (6,7). The last update was made in 2016 and is the current agreement for IBS diagnosis (8). It is based on the following principles: Abdominal pain for at least one day a week on average during the last 3 months, associated with two or more of the following criteria: a) pain improves or disappears after bowel movements, b) changes in the frequency of bowel movements, c) change in the presentation of bowel movements.

These criteria have 67%-75% of sensitivity and 97% of specificity (9). Four subtypes are described (constipation, normal, diarrhea, and mixed) according to the intestinal behavior according to the characteristics of the evacuations, form, and consistency (Bristol Scale) (12,13). The IBS affects the individuals’ quality of life, so there is a more significant restriction in their daily activities (14,15,16).

Medical students are vulnerable to developing mental health disorders such as anxiety and depression. Anxiety is characterized by physical symptoms of excitement, fear, muscle tension, and dread; and depression is distinguished by the presence of sadness, loss of interest, feelings of guilt or lack of self-esteem, sleep or appetite disorders, and lack of concentration. Both cover a conglomerate of psychosocial problems with a significant impact on current public health. Data from the World Health Organization (WHO) estimate that 18.4% of the world’s population suffers from these problems, while in America, the percentage is 15%. In Paraguay, 5.2% of the population suffers from depression according to the 2015 statistics (18,19,20). The prevalence of anxiety symptoms of 75.60% and depressive symptoms of 65.48% were observed in medical students at a university in Paraguay, with the highest proportion perceived in women (18).
It was proposed to evaluate the relationship between IBS and psychosocial factors in medical students because it could cause a possible alteration in the physical and mental state that could be harmful to the student's daily life. The results will be presented to the community for the exploration of preventive measures and new research lines.

METHODS

A cross-sectional study with an analytical component was carried out at students from the Medical School of Universidad Nacional de Itapúa (UNI), Encarnación, Paraguay. The study period was from August to October 2018. The target population was the students who attended the Medical School of the UNI. From the first to the fifth year, all students who agreed voluntarily were included in the investigation. Participants who filled out the survey incorrectly or incompletely were excluded. The type of sampling was non-probabilistic for convenience. Questionnaires were used for data collection, and the following information was extracted: age in years, sex, course, the guidelines of the Rome IV criteria (abdominal pain, pain associated with a change in stool frequency, pain associated with a change in the evacuation pattern) and the “Hospital Anxiety and Depression Scale” (HADS) for anxiety and depression that evaluates seven items on anxiety and seven on depression. According to the obtained scores, the data is classified as: morbidity absent (0-7 points), doubtful case (8-10 points), probable case (>10 points).

The null hypothesis was: There is no association between anxiety and depression with the irritable bowel syndrome. The alternate hypothesis was: There is an association between anxiety and depression with the irritable bowel syndrome. The chi-square ($\chi^2$) test was used to verify the hypothesis, with a significant value of $p<0.05$, previous data processing in a Microsoft Excel 2016 spreadsheet. The results are expressed in tables, frequencies, percentages, measures of central tendency and dispersion.

Ethical aspects: this study's protocol was approved by the tutor, evaluation team, scientific committee, ethics committee, and dean's office of the School of Medicine of Universidad Nacional de Itapúa. For its execution, the instrument for collecting data, a self-applied survey, was designed, based on the “Hospital Anxiety and Depression Scale” and the Rome IV criteria. The survey was presented in the classroom with a brief explanation to the students, emphasizing its purpose, the importance of real data, and the survey's anonymous nature.

In this research, the principles of Justice, Beneficence, Non-Maleficence, and Autonomy were maintained without the authors presenting any conflict of interest; and anonymity being respected at every moment.

RESULTS

A total of 160 surveys were used for data analysis, of which the proportion of medical students with irritable bowel syndrome (IBS) according to the Rome IV Criteria was 38, corresponding to 23.75%. The number of surveys that did not meet the Rome IV Criteria was 122. In terms of sex, IBS predominated in 78.9% (n=30) of women. The average age was 22.8 years, with a minimum age of 18 and a maximum age of 27. On the other hand, it was detected in 21.05% (n=8) of men, the minimum age in them was 19 and the maximum of 25 years with an average of 23.8 years. Figure 1 shows a detailed description of the proportion of students with IBS according to the Rome IV criteria per course.

![Figure 1. Students with IBS per course. N:38.](image-url)
Based on the Bristol scale, the IBS subtypes are reflected in Figure 2.

Among the students classified with IBS according to the Rome IV criteria, 71.05% (n=27) showed anxiety and 36.8% (n=14) depression.

In Table 1, the statistical analysis between irritable bowel syndrome and anxiety is expressed through the x2 test, which shows a p = 0.05. Value of p = 0.002.

<table>
<thead>
<tr>
<th>Irritable Bowel Syndrome</th>
<th>Present</th>
<th>Absent</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>27</td>
<td>11</td>
<td>38</td>
</tr>
<tr>
<td>Absent</td>
<td>50</td>
<td>72</td>
<td>122</td>
</tr>
<tr>
<td>Total</td>
<td>77</td>
<td>83</td>
<td>160</td>
</tr>
</tbody>
</table>

In Table 2, the statistical analysis between irritable bowel syndrome and depression is expressed through the x2 test, which shows a p = 0.05. Value of p = 0.023.

<table>
<thead>
<tr>
<th>Irritable Bowel Syndrome</th>
<th>Present</th>
<th>Absent</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present</td>
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<tr>
<td>Absent</td>
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<td>98</td>
<td>122</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
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<td>160</td>
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DISCUSSION

Anxiety and depression increasingly affect the health of the general population, as in medical students. In this study, the proportion of students with irritable bowel syndrome was 23.75% based on the Rome IV criteria. It is a higher value concerning research in medical students from a university in Saudi Arabia in which they reported 15.6% (23) and the Latin American consensus of IBS (3) but similar to studies conducted in Ecuador, Mexico, Guatemala, Nigeria, and Africa (4,5,6). In a study carried out in Family Medicine residents in a hospital in Mexico, a prevalence of 50% was found, higher than our study (13). No data were found at the national level. However, the average frequency of the syndrome in medical students in Latin America was 25% (8), like that found in our study.

The syndrome predominated in women (79%), while in men was 21%. These values align with Kopcynska et al. In this study, patients aged 18 to 69 years in Poland were reported 20.69% in men, while 79.31% in women (24). In other studies, it was also found more frequently in the female sex. However, they were based on the Rome III criteria (5,10,13).

We reported that the prevalence of anxiety and depression in participants with irritable bowel syndrome was 71% and 36.8%, respectively. The investigation of Mazariegos et al. in medical students and nursing staff of a Guatemalan Hospital showed lower rates of anxiety (65%) and higher rates of depression (49.8%) (10) compared to those found in the present, while in a study conducted in Colombia found anxiety prevalence of 73.49% and depression of 71.48% (15). These psychosocial factors were more frequently seen in the female sex (18,19,20).
The statistical analyses between irritable bowel syndrome with anxiety and depression showed a value of p 0.05 being statistically significant.

Our study did not explore the various risk factors associated with IBS, so it would be essential to conduct research that evaluates them.

Irritable bowel syndrome shows a different behavior between men and women, and a higher prevalence is observed in the latter. It is also highlighted that the syndrome occurs in a more significant proportion of medical students of higher courses.

Anxiety (p=0.002) and depression (p=0.023) are factors that predispose to the development of irritable bowel syndrome. It is important not to ignore their diagnosis due to the possible negative repercussions on medical students to improve their quality of life.

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REFERENCES

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