

# Prevalence of Irritable Bowel Syndrome among Patients with Mild-Moderate and Severe Chronic Pelvic Pain

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**Objective:** To evaluate the prevalence of irritable bowel syndrome (IBS) in patients with mild-moderate and severe chronic pelvic pain (CPP) compared with controls.

**Material and Method:** The cross-sectional study with age-matched controls was conducted in a university hospital. The study group comprised of consecutive premenopausal women aged 17 to 51 years who had a chief complaint of CPP. Severity of pain was evaluated using a visual analog scale. The diagnosis of IBS was based on the Rome II criteria.

**Results:** The prevalence of IBS in the mild-moderate CPP group was 21 in 104 (20.2%) patients, and in the severe CPP group 25 in 131 (19.1%) patients. The patients in both mild-moderate CPP group ( $p$ -value = 0.028), and severe CPP group ( $p$ -value = 0.036) had higher prevalence of IBS compared to the controls. The prevalence of IBS in the mild-moderate CPP group was not different from that in the severe CPP group.

**Conclusion:** The prevalence of IBS in patients with mild-moderate CPP was similar to that in patients with severe CPP.

**Keywords:** Irritable bowel syndrome, Dysmenorrhea, Pelvic pain, Prevalence

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Chronic pelvic pain (CPP) and irritable bowel syndrome (IBS) are common disorders that may negatively affect health-related quality of life. IBS is the most common functional bowel disorder (FBD)<sup>(1)</sup>. The prevalence of dysmenorrhea, dyspareunia, non-menstrual pain, and irritable bowel syndrome in primary care practices was reported to be 90%, 46%, 39% and 12%, respectively<sup>(2)</sup>.

Williams et al<sup>(3)</sup> defined CPP as pain of an extended duration in the pelvis and demonstrated that 35% of patients with CPP had IBS diagnosed by Rome I criteria. In the study of Crowell et al<sup>(4)</sup> FBD was observed in 61% of patients with dysmenorrhea compared to 20% of those in the control group. Patients with non-menstrual pain have been consistently shown to have an increased prevalence of IBS<sup>(5,6)</sup>. Hence, it is generally accepted that the prevalence of IBS in patients with CPP is higher than in general population. However, to the best of our knowledge, there is no study in English evaluating the relationship between IBS and CPP of different levels of severity,

*i.e.* mild, moderate, and severe pain.

The authors hypothesized that levels of severity of CPP may influence the prevalence of IBS. Thus, the prevalence of IBS in patients with mild-moderate and severe CPP compared with controls were evaluated. The findings might aid in better understanding the relationship between IBS and CPP.

## Material and Method

The cross-sectional study with age-matched controls was approved by the institutional ethics committee, and conducted at the gynecological outpatient clinic in a university hospital between February 2009 and June 2012. The study group comprised of consecutive premenopausal women aged 17 to 51 years who had a chief complaint of CPP. CPP in the study was defined as pain of greater than six months in duration, localized to the anatomic pelvis, and severe enough to cause functional disability or necessitating medical care. The authors categorized CPP into dysmenorrhea, dyspareunia, and non-menstrual pain. Age-matched women with a chief complaint of leukorrhea, abnormal vaginal bleeding, and request for a Papanicolaou smear check-up were invited to participate in the present study as the control group. Patients with suspected malignancy and pregnant women were excluded from the study. All of

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**Table 1.** Patient characteristics

Characteristic	Patients with pain (n = 235)	Controls (n = 235)	p-value
Age, median [interquartile ranges], year	38 [32, 42]	38 [32, 42]	1.000
Parity, median [interquartile ranges]	2 [0, 2]	2 [1, 2]	0.086
Sexually active, numbers (%)	214 (91.1)	220 (93.6)	0.386

the participants gave written informed consent to the present study. The same trained interviewer assessed all of the patients using questionnaires.

The severity of dysmenorrhea, dyspareunia, and non-menstrual pain were evaluated using a 10-cm visual analog scale (VAS) on which zero indicated absence of pain and 10 indicated unbearable pain. Since mean VAS scores of 4.9 and 7.5 were reported to correspond with moderate and severe pain, respectively<sup>(7)</sup>, severe pain was defined as pain with a VAS score of 7 to 10. Severe CPP was defined as severe dysmenorrhea and/or severe dyspareunia and/or severe non-menstrual pain.

The diagnosis of IBS was based on the Rome II criteria<sup>(8)</sup>, *i.e.* at least 12 weeks, which need not be consecutive, in the preceding 12 months of abdominal discomfort or pain that has two of three features: relieved with defecation; onset associated with a change in frequency of stool; onset associated with a change in form (appearance) of stool. This symptom-based diagnosis had to be accompanied with normal abdominal examination. The symptom of pain or diarrhea awakening or interfering with sleep, blood in stool, weight loss of more than 10% in 3 months and fever required consideration of organic gastrointestinal disorders. Any patients with these symptoms were not diagnosed to have IBS and were advised to visit a gastroenterologist.

The sample size was calculated based on the prevalence of IBS in patients with CPP (35%)<sup>(3)</sup> and in the general population (15%)<sup>(9-11)</sup>. A sample size of 73 patients in each group would give the present study an 80% chance to detect the difference of 20% between the two groups at an overall significance level of 5%. Proportional data were evaluated with Chi-squared test or Fisher's exact test and continuous data with Student's t-test or rank-sum test, as appropriate. All statistical tests were two-sided and probability values less than 0.05 were considered significant.

## Results

There were 235 patients in the present study group as well as in the control group. Patient characteristics are shown in Table 1. Parity and the

**Table 2.** Visual analog scale scores of all patients

n = 235	Numbers of patients (%)	Pain score (mean ± SD)
Dysmenorrhea	182 (77.4)	6.7 ± 2.6
Dyspareunia	89 (37.9)	5.2 ± 2.5
Non-menstrual pain	135 (57.4)	6.0 ± 2.4

proportion of patients who were sexually active in the two groups were similar.

Table 2 demonstrates the percentages of patients who reported dysmenorrhea, dyspareunia, and non-menstrual pain and the corresponding VAS scores of each type of CPP. A diagnosis of IBS was made in 46 (19.6%) subjects in the present study group and 25 (10.6%) subjects in the control group. The prevalence of IBS was statistically significantly higher in the CPP group than in the control group (p-value = 0.010). Mild-moderate CPP was observed in 104 (44.3%) patients and severe CPP in 131 (55.7%) patients. The prevalence of IBS in the mild-moderate CPP group was 21 in 104 (20.2%) patients and in the severe CPP group 25 in 131 (19.1%) patients. The patients in both mild-moderate CPP group (p-value = 0.028) and severe CPP group (p-value = 0.036) had higher prevalence of IBS compared to the controls. The prevalence of IBS in the mild-moderate CPP group was not different from that in the severe CPP group (p-value = 0.962). No patients were referred to a gastroenterologist.

## Discussion

Both the prevalence of IBS in the mild-moderate CPP group and in the severe CPP group was statistically higher than that in the control group. However, the prevalence of IBS in the mild-moderate CPP group was not different from that in the severe CPP group. The levels of severity of CPP were not shown to have an effect on the prevalence of the IBS. Pain symptom caused by IBS seems to have a wide variation in intensity. The differential diagnosis of IBS should always be kept in mind when patients come with a chief complaint of mild, moderate, or severe CPP.

A drawback of the present study was the use of provisional diagnosis of IBS. A definite diagnosis of IBS is a more reliable measurement outcome. However, a definite diagnosis of IBS needs costly and invasive gastrointestinal investigations. Another drawback was the selection of controls. The presented subjects in the control group were not considered to be representative of the general population in community.

Many researchers have tried to explain why patients with CPP have an increased prevalence of IBS. There are at least three explanations. First, women with CPP as well as women with IBS experience lower abdominal pain. Some women with IBS choose to visit their gynecologists and some of these patients are diagnosed to have CPP. Second, it was reported that after a definite diagnosis of endometriosis, women were two and a half times more likely to receive a new diagnosis of IBS when compared with the controls<sup>(12)</sup>. Since endometriosis is a common benign gynecologic disease<sup>(13)</sup>, the coexistence of endometriosis with IBS may be another explanation for the increase in prevalence of IBS in patients with CPP. Third, there is a hypothesis that IBS and CPP are one rather than two different entities because both conditions are similar concerning prevalence, the coexistence of mental and somatoform disorders, a common history of sexual and physical abuse in the past and their health care utilization<sup>(6)</sup>. The authors' findings do not seem to contradict any of these explanations. Further studies aiming to understand the origin of association between IBS and CPP are warranted.

In conclusion, the prevalence of IBS in patients with mild-moderate CPP was similar to that in patients with severe CPP.

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#### **Potential conflict of interest**

The authors have no conflicts of interest to disclose.

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## ความชุกของโรคลำไส้แปรปรวนในผู้ป่วยที่มีอาการปวดท้องน้อยเรื้อรังระดับน้อยถึงปานกลางกับระดับรุนแรง

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**วัตถุประสงค์:** เพื่อประเมินความชุกของโรคลำไส้แปรปรวนในผู้ป่วยที่มีอาการปวดท้องน้อยเรื้อรังระดับน้อยถึงปานกลางกับระดับรุนแรง เปรียบเทียบกับกลุ่มควบคุม

**วัสดุและวิธีการ:** ผู้นิพนธ์ศึกษาแบบตัดขวางในโรงพยาบาลมหาวิทยาลัยแห่งหนึ่ง กลุ่มศึกษาประกอบด้วยผู้หญิงก่อนวัยหมดระดูอายุ 17 ถึง 51 ปี ที่มีอาการปวดท้องน้อยเรื้อรัง กลุ่มควบคุมมีอายุเท่ากับกลุ่มศึกษา การประเมินความรุนแรงของอาการปวด ใช้ *visual analog scale* การวินิจฉัยโรคลำไส้แปรปรวนใช้เกณฑ์ *Rome II*

**ผลการศึกษา:** ความชุกของโรคลำไส้แปรปรวนเท่ากับร้อยละ 20.2 (21 รายใน 104 ราย) ในผู้ป่วยที่มีอาการปวดท้องน้อยระดับน้อยถึงปานกลาง และร้อยละ 19.1 (25 รายใน 131 ราย) ในผู้ป่วยที่มีอาการปวดท้องน้อยรุนแรง ทั้งกลุ่มที่มีอาการปวดท้องน้อยระดับน้อยถึงปานกลาง กับกลุ่มที่มีอาการปวดท้องน้อยรุนแรง พบโรคลำไส้แปรปรวนมากกว่ากลุ่มควบคุมอย่างมีนัยสำคัญ (*p-value* เท่ากับ 0.028 และ 0.036) ความชุกของโรคลำไส้แปรปรวนไม่แตกต่างกันระหว่างกลุ่มผู้ป่วยปวดท้องน้อยระดับน้อยถึงปานกลาง กับกลุ่มปวดท้องน้อยรุนแรง

**สรุป:** ความชุกของโรคลำไส้แปรปรวนในผู้ป่วยที่มีอาการปวดท้องน้อยเรื้อรังระดับน้อยถึงปานกลางใกล้เคียงกับผู้ป่วยที่มีอาการปวดท้องน้อยรุนแรง

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