

SYSTEMATIC REVIEWS AND META-ANALYSES

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Global Prevalence of and Risk Factors for Irritable Bowel Syndrome: A Meta-analysis

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BACKGROUND & AIMS: Many cross-sectional surveys have reported the prevalence of irritable bowel syndrome (IBS), but there have been no recent systematic review of data from all studies to determine its global prevalence and risk factors. **METHODS:** MEDLINE, EMBASE, and EMBASE Classic were searched (until October 2011) to identify population-based studies that reported the prevalence of IBS in adults (≥ 15 years old); IBS was defined by using specific symptom-based criteria or questionnaires. The prevalence of IBS was extracted for all studies and based on the criteria used to define it. Pooled prevalence, according to study location and certain other characteristics, odds ratios (ORs), and 95% confidence intervals (CIs) were calculated. **RESULTS:** Of the 390 citations evaluated, 81 reported the prevalence of IBS in 80 separate study populations containing 260,960 subjects. Pooled prevalence in all studies was 11.2% (95% CI, 9.8%–12.8%). The prevalence varied according to country (from 1.1% to 45.0%) and criteria used to define IBS. The greatest prevalence values were calculated when ≥ 3 Manning criteria were used (14%; 95% CI, 10.0%–17.0%); by using the Rome I and Rome II criteria, prevalence values were 8.8% (95% CI, 6.8%–11.2%) and 9.4% (95% CI, 7.8%–11.1%), respectively. The prevalence was higher for women than men (OR, 1.67; 95% CI, 1.53–1.82) and lower for individuals older than 50 years, compared with those younger than 50 (OR, 0.75; 95% CI, 0.62–0.92). There was no effect of socioeconomic status, but only 4 studies reported these data. **CONCLUSIONS:** **The prevalence of IBS varies among countries, as well as criteria used to define its presence. Women are at slightly higher risk for IBS than men. The effects of socioeconomic status have not been well described.**

Keywords: Abdominal Pain; Bloating; Incidence; Rate.

Irritable bowel syndrome (IBS) is a disorder of the gastrointestinal (GI) tract that is characterized by abdominal pain or discomfort associated with a change in stool form or frequency.¹ The natural history of IBS is one of relapsing and remitting symptoms,^{2–4} and the chronic nature of the condition means that it represents a considerable economic burden because of the costs of consultations,^{5,6} investigations,⁷ prescribed and over-the-counter pharmacologic therapies,⁸ and sickness absence from work.⁹

There is no demonstrable structural abnormality to explain the symptoms that IBS sufferers report, and the condition is therefore classified as one of the functional GI disorders. Proposed mechanisms for IBS include visceral hypersensitivity,^{10,11}

abnormal GI motility,^{12,13} abnormalities of intestinal flora,¹⁴ low-grade mucosal inflammation,^{15–17} and altered central nervous system perception of pain.¹⁸ Despite its functional nature, patients with IBS exhibit similar degrees of impairment of quality of life to those reported by sufferers of organic GI diseases such as ulcerative colitis or Crohn's disease.¹⁹

There have been numerous cross-sectional surveys conducted that report the prevalence of IBS in the community.^{2,20–23} Despite this, the prevalence of IBS according to geographic location has not been well-reported, and no single study has synthesized data concerning potential risk factors for its presence. Systematic analysis of studies that report these types of data is important to allow physicians consulting with sufferers to provide more precise estimates of the prevalence and risk factors for the condition as well as to identify areas where further research is needed. We have therefore conducted a systematic review and meta-analysis of the prevalence of IBS in the community to examine these issues.

Methods

Search Strategy and Study Selection

A literature search was performed by using EMBASE Classic and EMBASE (1947 to October 2011) and MEDLINE (1948 to October 2011) to identify only cross-sectional surveys published in full that reported the prevalence of IBS in adults (aged 15 years and older). Studies were required to recruit participants from the general population or community. Those that reported the prevalence of IBS in convenience samples such as university students, employees at an institution, or those attending screening clinic health check-ups were not eligible for inclusion. To be eligible, studies also had to recruit at least 50 participants and define IBS according to 1 or more of the following: the Manning,²⁴ Rome I,²⁵ Rome II,²⁶ Rome III criteria,¹ or according to a questionnaire. These eligibility criteria, which were defined prospectively, are provided in Table 1.

The medical literature was searched by using the following terms: *irritable bowel syndrome*, *IBS*, *spastic colon*, *irritable colon*, and

Abbreviations used in this paper: CI, confidence interval; GI, gastrointestinal; IBS, irritable bowel syndrome; IBS-C, constipation-predominant irritable bowel syndrome; IBS-D, diarrhea-predominant irritable bowel syndrome; IBS-M, mixed stool pattern irritable bowel syndrome; IBS-U, unclassifiable irritable bowel syndrome; OR, odds ratio.

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