Self-Reported Use of Pharmaceuticals Among Patients With Irritable Bowel Syndrome in Primary Care

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ABSTRACT

BACKGROUND: Irritable bowel syndrome (IBS) has an estimated 10%-12% prevalence in industrial countries. Studies from the United States have shown that IBS causes notable financial losses for employers. Due to the lack of pathophysiological markers, only a fraction of the pharmacological management of IBS has focused on etiological mechanisms. We hypothesized that there is a high consumption of nonspecific drugs among patients with IBS in their attempts to manage symptoms.

OBJECTIVE: To analyze self-reported use of prescription and over-the-counter (OTC) drugs among patients with IBS in primary care compared with controls from the general population.

METHODS: A population-based case-control design was used for the study. IBS cases were identified from the electronic medical records of 3 Swedish primary health care centers from January 1, 1997, through December 31, 2001. A questionnaire containing specific questions about prescription and OTC drugs was mailed in 2003 to 5,015 working-age (18-64 years) individuals (IBS cases and controls) in the Linköping IBS Population Study, a study of primary care patients with controls selected from the general population.

RESULTS: After 2 reminders, the overall response rate was 63% (3,074 respondents of 4,913 deliverable surveys); 71% responded for the IBS cases (347/486) and 57% (2,509/4,427) responded for the controls. 72.3% of the IBS respondents and 51.9% of the controls were female. Acid-suppressive agents were the most commonly cited drug category for abdominal complaints reported by IBS patients (13.3%) compared with controls (1.6%) (unadjusted odds ratio [OR] = 9.20, 95% confidence interval [CI] = 5.94-14.25). Antidepressants were the most commonly cited drug category for nonabdominal complaints, reported by 13.3% of IBS patients versus 4.5% of controls (OR = 3.27, 95% CI = 2.27-4.70). An unadjusted univariate correlation analysis revealed that prescription acid-suppressive drugs, fiber and bulking laxatives, and antiflatulents and antidiarrhea drugs, as well as motility-regulating and antispasmodics drugs, were significantly more common among IBS cases compared with controls. In addition to the higher use of antidepressants, there were 3 other drug classes for nongastrointestinal complaints with a higher rate of use among IBS patients compared with controls: sedative hypnotics (OR = 2.49, CI = 1.44-4.29), analgesics (OR = 2.86, CI = 1.88-4.33), and thyroid hormones (OR = 2.43, CI = 1.39-4.26).

CONCLUSIONS: There was higher use of antidepressants among patients with IBS compared with controls from the general population. Even though they are not recommended for this patient category, the use of prescription and OTC acid-suppressive drugs is also common among IBS cases in primary care.

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What is already known about this subject

• Due to the lack of pathophysiological markers in IBS, the majority of management practices are based on symptom relief. Use of psychotherapy, particularly cognitive behavioral therapy is well-studied with an estimated number needed to treat (NNT) of 2. However, there are no head-to-head trials of psychotherapy versus pharmacotherapy.

• Traditional medication frequently prescribed for IBS are dominated by the following drug classes: laxatives, gastrointestinal motility agents, antispasmodics, absorbents, and antiflatulents.

• Our previous research on a primary care population of 723 IBS cases based on medical records showed that patients with IBS appear not to be frequent users of health care services (only 37% had a follow-up visit with their primary care physician during a 5-year study period), and that the most commonly prescribed drugs were fiber and bulking laxatives 62.2% and acid-suppressive drugs (23.1%).

What this study adds

• In a mailed survey using a population-based case design with controls from the general population, patients with IBS in primary care were 3 times more likely to report use of antidepressants and 9 times more likely to report use of acid-suppressive drugs.

• 11.5% of IBS patients self-reported visits to physicians for gastrointestinal complaints in the previous 3 months, compared with 1.9% of controls without IBS (P<0.001).

Irritable bowel syndrome (IBS) is a common public health problem that affects approximately 12% of adults in the United States and between 10%-12% in other industrial countries.1,2 IBS can be classified according to the predominant bowel symptoms: IBS with constipation-predominant features (IBS-C), IBS with diarrhea-predominant features (IBS-D) and IBS with alternating symptoms of diarrhea and constipation (IBS-A). The condition is characterized by a scarcity of biological markers; thus, diagnostic definitions and classifications have relied to a large extent on symptoms, typically distinguished by persistent or recurrent abdominal pain related to defecation and/or chronic disturbance of bowel habits.3-5

Even though the etiology of IBS is unclear, it has been recognized as a complex condition. Psychological, social, and...
biological factors may all play a role, although the impact of each of these factors on symptom development is likely to differ in patients and may vary over time for the same person.6–10 Because of the lack of pathophysiological markers in IBS, the majority of management practices has been based on symptom control. The interventions range from pharmaceutical treatment (e.g., antispasmodic and motility-regulating agents used alone or in combination with laxatives, antidiarrheal fiber therapy, or tricyclic antidepressants) to nondrug therapies (e.g., hypnoterapy, cognitive behavioral therapy).11 Use of psychotherapy, particularly cognitive behavioral therapy is the best studied psychological treatment of IBS, but there are no head-to-head trials of psychotherapy versus pharmacotherapy.12–15 Patients’ self-assessments of their symptoms have therefore been recognized as important for the effective treatment of IBS.9

Pharmacological interventions have supposedly been directed at the predominant symptoms, yet, to date, no single drug has been shown to have an effect on all of the multiple symptoms of IBS.11,13 Correspondingly, reports confirm that prescriptions for patients with IBS are dominated by 4 drug classes (in addition to laxatives): gastrointestinal motility agents, antispasmodics, absorbents, and antiflatulents. From a patient view, it is important that symptoms experienced are taken seriously so that treatment can be initiated early to avoid unnecessary suffering. The goal of treatment is generally to alleviate the symptoms of abdominal pain, altered bowel transit and any associated symptoms like fecal incontinence or bloating. The treatment approach should also be individualized and depend on the degree of symptoms from the different sub-classes of IBS.14,16 This trend is also seen in self-medication with over-the-counter (OTC) drugs, although the majority of patients with IBS receive prescription medications.3,17–19 While many drugs have been used in the treatment of IBS in the United States, only 2 drugs have been approved by the U.S. Food and Drug Administration specifically for this indication.12 Tegaserod (Zelnorm), a partial serotonin-4 receptor agonist, was voluntarily withdrawn from the U.S. market in March 2007 because of the risk of cardiovascular ischemic events. Since July 2007, tegaserod has been available to licensed health care providers in the United States through an investigational limited-access program within the following treatment protocol: (a) women aged younger than 55 years and (b) diagnosis of IBS with constipation or chronic idiopathic constipation.19

Similarly, use of the serotonin-3-receptor antagonist alosetron (Lotronex) has been restricted because of side effects20 and is indicated only for women with severe diarrhea-predominant IBS who have failed to respond to conventional therapy; in the United States, the patient must read and sign the patient-physician agreement prior to the initial prescription of alosetron. Use of tricyclic antidepressants in relieving IBS-related symptoms is controversial, but some studies suggest that overall global well-being may be improved.2,21

Studies have also shown that approximately 50% of patients with IBS receiving care from primary care and specialist clinics have at least 1 comorbid somatic symptom, and patients with 1 or more comorbid somatic complaints tend to report more severe IBS symptoms, more mental complaints, and more illness-related absenteeism than patients without comorbid disorders.22–26 Comorbidity in other functional gastrointestinal conditions with overlapping symptoms might significantly affect the diagnosis and clinical management of IBS.27 The extent of self-therapy and the high prevalence of comorbid conditions warrant further investigation into the total consumption of pharmaceuticals in patients with IBS. Few studies exist concerning self-reported pharmacological treatment among IBS patients in primary care or in the general population. We therefore conducted a population-based case-control study addressing self-reported pharmacological treatment in patients with IBS. Our study, the Linköping IBS Population Study (LIPS), was conducted in the primary care setting and included a population-based control group.28–30

The aim of our study was to examine self-reported pharmacological treatment with both prescription and OTC drugs among patients with IBS in primary care compared with controls without the disease from the general population, with particular emphasis on identifying the medications commonly used by patients diagnosed with IBS. Our primary hypothesis was that a high consumption of drugs not specifically indicated for use in IBS might occur in attempts by patients to control symptoms.

### Methods

#### Study Design

A population-based case-control design was used for the LIPS.28,31 Patients with IBS were recruited from Swedish primary health care centers on the basis of diagnoses stored in computerized medical records. Three primary health care centers were selected in Linköping, a city located in southeast Sweden with 135,000 inhabitants. These 3 health care centers serve a total study population of more than 40,000 inhabitants and are responsible for all primary health care consultations for the population in the area; only a negligible percentage of the population might visit other primary care providers. The control group was randomly selected from the population census register located in the same region as the primary health care centers. Before the investigation started, a pilot study was performed to develop a data collection form at 1 health care center. The medical records of 50 patients with IBS containing the code number K-58-p according to the International Classification of Diseases, Tenth Revision (ICD-10-P) were used for this purpose.

#### Data Collection

All cases with a recorded primary diagnosis of IBS (N=849) determined by the general practitioner were identified retrospectively in the electronic medical records over a 5-year period (January 1, 1997, through December 31, 2001). The ICD-10-P code K-58-p for IBS was used to identify the cases in the medi-
The number of controls was chosen proportionally according to the number of inhabitants living in the service areas of each of the 3 primary health care centers; up to 7 controls per case of IBS general population in the same geographical area as the IBS cases. Therefore, all records were checked 3 years prior to the diagnosis of IBS to exclude those cases with a confirmed diagnosis before the study period. Applying this criterion, 115 prevalent cases were excluded in addition to 11 cases of IBS with nonaccessible medical records, thus resulting in a study group of 723 IBS cases. Diagnoses, date of diagnoses, data on the number of health care visits, referrals, rectoscopy investigations, comorbidities, laboratory tests, and reasons for consulting the general practitioner were available in the medical records, as well as demographic data and data concerning telephone consultations. This information was further scrutinized and extracted by 1 researcher by means of the registration form for each identified patient with IBS.

### Study Population

The LIPS intended to study the impact of IBS on individuals in the working-age group; hence, only new cases of IBS in patients aged 18-64 years identified during the designated 5-year period were selected for this study. This process resulted in 515 cases of IBS identified in the primary care setting. The collection of data in the medical records of the IBS patients has been described elsewhere.29-30 By using the local census population register, 4,500 controls aged 18-64 years were randomly selected from the general population in the same geographical area as the IBS cases. The number of controls was chosen proportionally according to the number of inhabitants living in the service areas of each of the 3 primary health care centers; up to 7 controls per case of IBS were used in this study. The questionnaire was mailed in 2003 to 5,015 potential study participants.

### Questionnaire

We constructed a mail questionnaire based primarily on established and validated instruments measuring quality of life and mental problems. Additionally, we designed specific questions derived from regional and national surveys of welfare and health, life style and standard of living, sleep disturbance, and nutritional habits, as well as exercise regimens and the demands of and degree of control at work.32-33 Development of the questionnaire has been described elsewhere.28,31 Specific questions included self-reported current (2003) use of pharmacological treatment for gastrointestinal complaints, with a focus on drugs prescribed by physicians, OTC drugs, and physician visits within the past 3 months. Respondents were asked to report the name of the drug and whether the drug was prescribed by a physician or obtained OTC. Some prescription drugs (e.g., some nonsteroidal anti-inflammatory drugs [NSAIDs] in low doses [250 mg] and approximately half of the histamine-2 blockers as well as proton pump inhibitors) have become available as OTC agents in recent years in Sweden, as in the United States. Each self-reported medication was classified according to the Anatomical Therapeutic Chemical classification by the Nordic Councils on Medicines 1982 in Uppsala, Sweden, and the Swedish Drug Classification, FASS.36

The mail questionnaire also included demographic data such as gender, civil status, educational level (primary school, secondary school, and upper secondary school classified as low educational level, university college and university classified as high educational level), and occupation. All questions were subsequently dichotomized in the database. Prior to the survey, a pilot study described elsewhere was performed.31

The mail questionnaire was sent to 5,015 individuals in the LIPS population. Despite the checking of addresses prior to mailing, 29 patients with IBS and 73 controls had an unknown address or had died. A total of 4,913 individuals (486 IBS cases and 4,427 controls) remained in the final study group. After 2 reminders, the overall response rate was 64%; 72% (n = 351) responded for the IBS cases and 63% (n = 2,786) responded for the controls. Of these respondents, 59 controls and 4 patients with IBS refused to participate further in the survey. Consequently, remaining in the study were 347 IBS cases and 2,727 controls (Table 1). No difference was found in the severity of disease, defined as the proportion of referrals, between responders and nonresponders among the patients with IBS.

Prior to the analysis, we checked to ensure that individuals in the control group did not have any recorded gastrointestinal diagnosis, including gastrointestinal cancer, 2 years prior to and during the study period because the controls needed to be free from known gastrointestinal diagnoses. After this additional review, we found 218 individuals in the control group who had

<table>
<thead>
<tr>
<th>Criteria</th>
<th>IBS Cases, n</th>
<th>IBS Cases After Exclusion, n</th>
<th>Control Cases, n</th>
<th>Control Cases After Exclusion, n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questionnaire mailed</td>
<td>515</td>
<td>4,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown address or deceased</td>
<td>–29</td>
<td>486</td>
<td>–73</td>
<td>4,427</td>
</tr>
<tr>
<td>Respondents (%)</td>
<td>351 (68.2%)</td>
<td>2,786 (61.9%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refused to participate in study</td>
<td>–4</td>
<td>347</td>
<td>–59</td>
<td>2,727</td>
</tr>
<tr>
<td>Follow-up of possible GI diagnosis among controls after study period ended*</td>
<td>347 (67.4%)</td>
<td>2,509 (55.8%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final total</td>
<td>347 (67.4%)</td>
<td>2,509 (55.8%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Follow-up was conducted to ensure that controls were free from known GI diagnoses. GI = gastrointestinal; IBS = irritable bowel syndrome.
received a gastrointestinal diagnosis during the study period, and these individuals were subsequently excluded from further analysis. This check was made possible through information obtained from a population-based administrative health care database where all visits, including patient diagnoses in both primary and hospital care, are stored. (This database is a unique opportunity for the collection of data that defines medical care and health practices within the region [County Council of Östergötland]). The final study sample comprised 347 cases of IBS and 2,509 controls (Table 1).

Statistical Analysis
All data were stored in an SPSS database and statistically analyzed using the SPSS version 15.0 program (SPSS Inc., Chicago, IL). The significance of differences between the IBS cases and the control group for categorical variables was assessed using the Pearson chi-square test, and P<0.05 was considered statistically significant. Bivariate (unadjusted) odds ratios (ORs) and 95% confidence intervals (CIs) were also calculated. Bivariate correlation analyses were made using Spearman’s correlations.

This study was approved in 2002 and in 2007 by the Ethical Committee at the Faculty of Health Sciences, Linköping University, Sweden.

Results
The majority of patients with IBS in the population studied were women, and more than 50% were under the age of 45 years. No significant differences were found concerning marital status or educational level among IBS cases compared with the control group. Cases with IBS had visited physicians more often in the past 3 months for gastrointestinal complaints than had controls (Table 2).

Unadjusted univariate correlation analyses revealed that prescription acid-suppressive drugs, fiber and bulking laxatives, antiflatulents, and antidiarrhea drugs, as well as motility-regulating and antispasmodic drugs, were significantly more commonly used among cases with IBS compared with controls (Table 3). The difference was not as marked between the 2 groups for use of OTC drugs except for fiber and bulking laxatives, and the use of OTC drugs that were significantly more common among IBS cases also compared with that of the control group (OR=10.31, CI=5.85-18.16).

The self-reported current use of pharmaceuticals for other complaints showed that 4 prescribed drug classes were significantly more common among patients with IBS compared with controls in this study: antidepressants (OR=3.27, CI=2.27-4.70), sedative-hypnotics (OR=2.49, CI=1.44-4.29), analgesics such as paracetamol (acetaminophen) (OR=2.86, CI=1.88-4.33), and thyroid hormones (OR=2.43, CI=1.39-4.26) (Table 3).

Discussion
In this study, we identified prescription and OTC pharmaceuticals used by patients with IBS in the primary care setting. This knowledge can be used both to avoid polypharmacy by adapting general drug therapy recommendations and as input for the determination of etiological mechanisms involved in the syndrome.

Baseline data for this study (from medical records) showed that 6.5% of the IBS cases had documented receipt of antidepressants in their medical records and that all of these IBS patients also had a diagnosis of depression or anxiety documented in their records. However, from the follow-up questionnaire distributed 2 years later, 13.3% of patients with IBS reported use of antidepressants, reflecting an increase in antidepressant use among these patients. This trend in the use of antidepressants is in accordance with findings from other studies. The increased use of antidepressants may reflect a growing interest to use this category of drugs for modulation of gut sensory-motor function and pain in IBS. An alternative explanation is that there is an increased awareness among primary care physicians of the comorbidity of IBS and psychiatric disease. In this context, it can be noted that antidepressants were not included in the common set of pharmaceuticals used for patients with IBS (Table 3). Further studies on antidepressant use among IBS patients are thus warranted, while also taking into consideration the reports stating that the attitudes and practice models of physicians toward this patient.
group differ depending on practice specialty.\textsuperscript{37}

We observed a high use of acid-suppressive drugs, despite the recommended pharmaceutical treatment of IBS involving fiber and bulking laxatives, antidiarrheals, and antiflatulents drugs combined with changes in food habits, depending on the type of IBS symptoms (IBS-C, IBS-D, IBS-A). The use of acid-suppressive drugs by patients with IBS may reflect dissatisfaction with current IBS therapies or the existence of gastrointestinal comorbidity (e.g., dyspepsia or gastroesophageal reflux disease). We did not explore the reasons for use of acid-suppressive drugs among IBS patients.

Use of analgesics, such as acetylsalicylic acid drugs and other NSAIDs, can result in a worsening of IBS symptoms and an increased risk of developing upper gastrointestinal side effects.\textsuperscript{38} The results of the present study reflect the IBS treatment paradigm in use today (i.e., symptom relief). However, nondrug therapies, such as hypnotherapy and cognitive behavioral therapy, are being employed with increasing frequency.\textsuperscript{13,14} Explaining to patients how to cope with IBS and manage everyday life, establish regular bowel habits, and avoid certain foods and stress will remain an important clinical protocol for physicians.\textsuperscript{24} As was also shown by the results of our study, drug therapy can be regarded as more or less helpful for IBS patients.\textsuperscript{30,39,40} Recent pharmacological approaches that exploit the expanding knowledge of the brain-gut axis as well as different neurotransmitters and receptors have revealed numerous new therapeutic targets. For instance, drugs

### Table 3: Self-Reported Use of Pharmaceuticals Among Patients With Irritable Bowel Syndrome in Primary Care

<table>
<thead>
<tr>
<th>Pharmaceuticals for gastrointestinal complaints</th>
<th>IBS Cases</th>
<th>Controls</th>
<th>OR</th>
<th>95% CI</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid-suppressive drugs</td>
<td>13.3 (46)</td>
<td>1.6 (41)</td>
<td>0.221</td>
<td>9.20</td>
<td>5.94-14.25\textsuperscript{b}</td>
<td>1.7 (6)</td>
</tr>
<tr>
<td>Fiber and bulking laxatives</td>
<td>4.9 (17)</td>
<td>0.5 (12)</td>
<td>0.144</td>
<td>10.72</td>
<td>5.07-22.64\textsuperscript{b}</td>
<td>8.4 (29)</td>
</tr>
<tr>
<td>Antidiarrheals</td>
<td>2.9 (10)</td>
<td>0.0 (1)</td>
<td>0.150</td>
<td>74.42</td>
<td>9.49-583.21\textsuperscript{b}</td>
<td>0.6 (2)</td>
</tr>
<tr>
<td>Motility agents/antispasmodics</td>
<td>1.7 (6)</td>
<td>1.2 (2)</td>
<td>0.102</td>
<td>22.06</td>
<td>4.43-119.72\textsuperscript{b}</td>
<td>—</td>
</tr>
<tr>
<td>Antiflatulents</td>
<td>1.4 (5)</td>
<td>0.0 (1)</td>
<td>0.100</td>
<td>36.67</td>
<td>4.27-314.79\textsuperscript{b}</td>
<td>0.3 (1)</td>
</tr>
<tr>
<td>Antacids</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>3.5 (12)</td>
</tr>
<tr>
<td>Alginates</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>0.9 (3)</td>
</tr>
<tr>
<td>IBD drugs\textsuperscript{d}</td>
<td>0.3 (1)</td>
<td>0.1 (3)</td>
<td>—</td>
<td>2.41</td>
<td>0.25-23.27</td>
<td>—</td>
</tr>
</tbody>
</table>

### Pharmaceuticals for other complaints

| Antidepressants | 13.3 (46) | 4.5 (112) | 0.126 | 3.27 | 2.27-4.70\textsuperscript{b} | — | — | — | — | — |
| Analgesics      | 9.5 (33) | 3.5 (89) | 0.096 | 2.86 | 1.88-4.33\textsuperscript{b} | 9.8 (34) | 8.6 (217) | 0.013 | 1.15 | 0.78-1.67 |
| Antiallergy/asthma drugs | 9.5 (33) | 7.6 (191) | 0.023 | 1.28 | 0.86-1.87 | 4.0 (14) | 2.9 (73) | 0.021 | 1.40 | 0.78-2.51 |
| Antihypertensive drugs\textsuperscript{e} | 8.6 (30) | 8.4 (210) | 0.003 | 1.04 | 0.69-1.55 | — | — | — | — | — |
| NSAIDs          | 5.2 (18) | 3.7 (93) | 0.025 | 1.42 | 0.84-2.38 | 0.0 (0) | 0.7 (18) | 0.001 | 0.030 | — | — |
| Sedative hypnotics | 5.2 (18) | 2.2 (54) | 0.063 | 2.49 | 1.44-4.29| — | — | — | — | — |
| Thyroid hormones | 4.9 (17) | 2.1 (52) | 0.060 | 2.43 | 1.39-4.26\textsuperscript{b} | — | — | — | — | — |
| Lipid-lowering drugs | 4.0 (14) | 3.3 (84) | 0.012 | 1.21 | 0.68-2.16 | — | — | — | — | — |
| Anticoagulants  | 3.2 (11) | 3.3 (84) | — | 0.95 | 0.49-1.79 | — | — | — | — | — |
| Diabetes mellitus drugs | 1.7 (6) | 1.5 (38) | 0.006 | 1.14 | 0.48-2.72 | — | — | — | — | — |
| Antibiotics     | 1.2 (4) | 1.0 (25) | 0.005 | 1.16 | 0.40-3.34 | — | — | — | — | — |
| Cardiovascular drugs | 0.6 (2) | 0.6 (14) | 0.001 | 1.03 | 0.23-4.56 | — | — | — | — | — |
| Other drugs\textsuperscript{d} | 19.6 (68) | 12.3 (308) | 0.071 | 1.74 | 1.30-2.33\textsuperscript{b} | — | — | — | — | — |

\textsuperscript{a}P<0.05 calculated by the Pearson chi-square test.

\textsuperscript{b}P<0.001 calculated by the Pearson chi-square test.

\textsuperscript{c}Examples of anaclides and alginates include Novumalcol, Rennie, Lim and Gaviscon.

\textsuperscript{d}Examples of IBD drugs include meselamine delayed-release (Asacol), sulfasalazine (Azulfidine, Salazopyrin), meselamine (Pentasa, Mesacol), and balsalazide (Colazal, Colazid).

\textsuperscript{e}Examples of antihypertensive drugs include angiotensin-converting enzyme inhibitors, beta-blockers, and diuretics.

\textsuperscript{f}Examples of other drugs include contraceptives and vitamins.

CI=confidence interval; IBD=inflammatory bowel disease; IBS=irritable bowel syndrome; NSAIDs=nonsteroidal anti-inflammatory drugs; OR=odds ratio; OTC=over-the-counter; r=Spearman's correlation coefficient.
in current development include new serotonergic agents and antidepressants, various central, peripheral, and autonomic neural receptor ligands, and gut immune modulators.41,42 Also, probiotics that are based on lactobacilli and bifidobacteria, for example, seem to offer an option for alleviating IBS symptoms.43-45 Probiotics work by restoring both qualitative and quantitative alterations in the intestinal flora. This insight promises further progress in the treatment of IBS, hopefully in the primary care setting where the majority of IBS cases are diagnosed.

Recently published studies of the IBS population of the LIPS (all ages) concerning the drug prescription patterns of general practitioners have shown that fiber and bulking laxatives, along with acid-suppressive drugs, were the most frequently prescribed (62.2% and 23.1% respectively) drug categories.30 These data contrast somewhat with data from other studies that reported antispasmodic, motility-regulating, anti-diarrhea, and antitflatulent drugs as the most frequently prescribed medications to patients with IBS in primary care.11,14 By using data obtained from questions concerning the current actually used pharmaceuticals, our study confirms this to some extent by demonstrating that 13.3% of patients with IBS actually use fiber and bulking laxatives, whether prescribed (4.9%) or OTC (8.4%), while 15.0% use either prescribed (13.3%) or OTC (1.7%) acid-suppressive drugs.

Among the drug classes used for abdominal complaints, all except the prescription IBD drugs (e.g., sulphasalazine) and OTC antacids were more commonly used by IBS patients compared with controls. However, the absolute counts of patients reporting use of most categories of drugs for abdominal complaints are small (e.g., only 6 patients [1.7%] reported use of motility/antispasmodic agents). Description antitflatulents and anti-diarrheals, as well as motility-regulating and antispasmodic drugs, were significantly more commonly used among IBS cases compared with controls, possibly because diarrhea and cramps (pain/spasms) are common features of IBS. However, these same drugs (antitflatulents, anti-diarrheals, motility-regulating and antispasmodic drugs) were self-reported by relatively few IBS survey respondents, thus making these particular results more uncertain. General recommendations for the use of drugs in IBS is directed toward the most troublesome symptoms.13,14 Because the theoretical aim of pharmaceutical therapy is to modulate supposed physiological mechanisms and eradicate symptoms,13 the pharmaceutical treatment patterns identified in our survey research suggest that the scope of symptom relief is wide in patients with IBS.

Limitations
Our results concerning the use of OTC drugs must be evaluated in light of their availability, which may vary between countries. Although strong restrictions have been placed on OTC drug distribution in Sweden in the past, recent years have witnessed an increase in the number of available OTC drugs.36

Although we surveyed patients with IBS and controls regarding their current (2003) use of prescription and OTC drugs, our survey was conducted among patients with diagnoses that were recorded up to 6 years previously (in 1997). Therefore, some patients in the IBS group might not have had IBS symptoms at the time that our survey was conducted.

The diagnosis of IBS was based on medical records from general practitioners. Because general practitioners might not be considered to be experts in the diagnostic criteria for IBS, it is possible that some IBS patients were given false-positive diagnoses. However, studies have shown that general practitioners rarely misdiagnose IBS,46-49 in fact, there may be a tendency to underdiagnosis IBS in primary care. However, the potential for a false-negative diagnosis of IBS is not directly relevant to this study because it was not our primary purpose to determine the prevalence of IBS. Finally, we did not categorize the use of antidepressants by type (i.e., tricyclic antidepressants, selective serotonin-reuptake inhibitors, or serotonin-norepinephrine reuptake inhibitors). This additional descriptive information might have informed the question about specific antidepressant use among patients with IBS.

Conclusions
Use of antidepressants is higher among patients with IBS in primary care compared with controls from the general population. Although not recommended for the treatment of IBS symptoms, use of prescription and OTC acid-suppressive drugs is also common. Further studies of IBS medication patterns in the primary care setting are warranted.

Authors
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