

Do patients with irritable bowel syndrome in primary care really differ from outpatients with irritable bowel syndrome?

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Abstract

Background—Little is known about the comparability of outpatients with irritable bowel syndrome (IBS) and patients with IBS in primary care with regard to severity of complaints, perceived limitations, other aspects of the complaints, and sex differences.

Aims—To compare outpatients with IBS with primary care patients with IBS.

Patients—One hundred and nine patients with IBS were recruited from general practices in Amsterdam and 86 patients with IBS were recruited from the outpatient clinic of the Department of Internal Medicine of the University Hospital in Nijmegen.

Methods—Each patient completed a questionnaire on demographic variables, abdominal complaints, related complaints, and attributed causes of their abdominal complaints. The scores of the two groups were compared by univariate and multivariate analysis.

Results—The outpatient group contained significantly more men, reported more severe abdominal pain, more frequent complaints, more interference with daily activities, and a higher degree of avoidance of activities ($p < 0.01$) than the primary care group. When each sex was analysed separately, these differences remained for female ($p < 0.01$) but not for male patients. Outpatients were more likely to attribute their complaints to somatic causes ($p < 0.01$), whereas primary care patients were more likely to attribute their complaints to stress ($p < 0.01$) or their agitated way of life ($p < 0.05$). Multivariate analysis showed that a high severity score, a large number of additional complaints, and a low score on the stress attribution were important determinants for being in the outpatient group.

Conclusions—Female outpatients consider their complaints to be more serious and interfering than do patients with IBS in primary care. Male outpatients were comparable to primary care patients with IBS. More research needs to be done into sex specific differences in IBS and into the factors that influence the decision to refer a patient with IBS.

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Functional abdominal complaints, in particular irritable bowel syndrome (IBS), are very common in the general population. Patients with these complaints regularly consult a general practitioner (GP) and they also constitute a large portion of the patients frequenting a gastroenterologist.¹⁻³ However, most studies of IBS have involved outpatients with IBS; whether the results obtained in these patient groups can be generalised to primary care populations is a question that is still to be answered.

IBS is a chronic condition in which symptom free periods and relapses occur. Many patients suffer from this condition for years after the initial diagnosis has been made.⁴⁻⁶ The relation between severity of complaints and prognosis is unclear. The prognosis of IBS seems to be related to the causes to which patients attribute their complaints. Somatic causes are related to a poor prognosis whereas psychological causes are associated with a more positive outcome.⁷⁻⁹

In some epidemiological surveys an equal male to female ratio was found in the prevalence of IBS in open populations.^{10,11} In other studies females outnumbered males in open populations, male to female ratios varying from 1.0:1.4 to 1.0:2.0.¹²⁻¹⁶ It is not clear how these differences in male to female ratios might be accounted for. Studies carried out among outpatients nearly always reported a female preponderance, and one survey showed a male to female ratio of 1.0:2.4 in the outpatient population.¹⁷ Sex differences have also been found in the applicability of the Manning criteria when diagnosing IBS. The diagnostic value of the Manning criteria was lower in men than in women.^{18,19} In one study among outpatients with IBS it was found that female patients had more severe complaints and were more likely to be diagnosed as having a psychiatric illness than male patients.²⁰

In conclusion, little is known of the similarities and differences between patients with IBS in primary care and outpatients with IBS with regard to severity of complaints and prognosis related factors. In addition, it is not clear whether sex is also of importance in this respect.

Comparison of a primary care population of patients with IBS with a population of outpatients from a clinic could provide insight

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into the extent to which results from studies among outpatient populations are also applicable to primary care patients. These data might also provide more insight into the factors underlying the decision to refer a patient to an outpatient clinic.

The following research question therefore arises: What is the difference, if any, between patients with IBS in primary care and outpatients with IBS with regard to abdominal complaints, related complaints, perceived limitations caused by the complaints, and perceived cause of their complaints. Are these differences sex specific?

Patients and Methods

DESIGN

To answer the above mentioned question, a cross section of the population was studied. The primary care population was recruited from general practices in Amsterdam and the outpatients were recruited from the outpatient clinic of the Department of Internal Medicine, University Hospital in Nijmegen, The Netherlands.

PATIENTS

After informed consent patients were included in the study if they were diagnosed as having IBS and also met the following criteria: age between 18 and 70 years at the start of the study; reasonable command of the Dutch language; no evidence of specific gastrointestinal pathology (for example, colitis, intestinal carcinoma, polyposis coli, recurrent ulcers in stomach or duodenum, or pancreatitis); and no evidence of severe depression, psychosis, or mental deficiency according to the judgement of the physician.

A diagnosis of IBS was made if complaints lasted for longer than three months and included continuous or intermittent abdominal pain and one or more of the following symptoms: irregular pattern of defecation, flatulence, passage of mucus, or tender colon on palpation; and there was no evidence of the existence of any other disease that could explain the complaints. These criteria were based on the ICHPPC-2-defined.²¹

Patients who gave informed consent were asked to fill in a questionnaire.

Primary care population

The eligible primary care population consisted of patients consulting their GP during the period from February 1992 to November 1994 because of abdominal complaints existing for more than three months. Patients were recruited by 29 GPs to participate in a study among primary care patients with IBS. The GPs followed a diagnostic protocol to include patients in the study. Of 181 patients asked by their GP to participate in the study, 179 gave informed consent. Usable questionnaires were returned by 160 patients; 41 of these had been referred to an outpatient clinic because of their abdominal complaints at some time previous to inclusion in the present study. One hundred and nine patients had never been referred and for 10 patients no specific data were available in

this respect. Only the data on the 109 patients who had never been referred were used to compare the primary care population with the outpatient population. The data on the 41 patients from the primary care population who had been referred before inclusion were used to explore our assumption that the two catchment areas are comparable for our purposes.

Outpatient population

Patients who were referred by their GP and consequently made a first appointment by telephone to attend the outpatient clinic were asked whether abdominal complaints were the reason for their referral. In the period between March 1991 and April 1992, 143 consecutive patients answered affirmatively. After careful assessment by two independent physicians, 120 of the patients appeared to have functional abdominal complaints, 86 of whom met the above mentioned criteria for IBS and were subsequently included in this study.

MEASURING INSTRUMENTS

In both populations the same questionnaire on demographic variables, abdominal complaints, related complaints, perceived limitations, and attributed causes was used. In previous studies the questionnaire had been well accepted and had proved to be easy to administer.^{7, 8} In addition to demographic variables, such as age, sex, and level of education the following variables were included.

Complaints compatible with IBS

Patients were asked to indicate the frequency of flatulence, bloatedness, passage of mucus per rectum, abdominal rumblings, feeling of incomplete evacuation, and pain relieved by defecation. Each item was scored on a three point frequency scale except for the last item which was a "yes or no" question.

Duration of the complaints was measured on a nine point ordinal scale with end points of "between three and six months" and "more than five years". The intensity of the abdominal pain was scored on a five point ordinal scale ranging from "mild" to "unbearable". Frequency of the pain was scored on a six point ordinal scale ranging from "less than once a month" to "every day".

Perceived limitations as a consequence of the complaints

Both limitation of daily activities and avoidance of social or physical activities were measured on a four point ordinal scale ranging from "none at all" to "very much".

Severity score

A summarising score was determined by taking the sum of the reported frequency of the abdominal complaints (0-3), the interference with daily activities (0-3), and the avoidance behaviour as a result of the complaints (0-3).^{7, 8}

Related complaints

Two complaints that could indicate an underlying disease (blood in stools and faecal incontinence) were measured on a three point

TABLE 1 IBS related complaints and problems of the primary care and outpatient populations

Variable (range)	Primary care (n=109)	Outpatient (n=86)	p Value
Duration of complaints (1-9)	6.0 (4.0-9.0)	6.0 (4.0-8.0)	0.22
Intensity of abdominal pain (1-5)	2.0 (2.0-3.0)	2.0 (2.0-3.0)	0.009
Frequency of complaints (1-6)	5.0 (4.0-6.0)	6.0 (5.0-6.0)	0.000
Limitation of daily activities (1-4)	2.0 (2.0-2.0)	2.0 (2.0-3.0)	0.000
Avoidance of social or physical activities (1-4)	1.0 (1.0-2.0)	2.0 (2.0-3.0)	0.000
Severity score (0-9)	3.0 (3.0-4.0)	5.0 (4.0-6.0)	0.000
Number of visits for abdominal complaints to GP during previous 3 months	1.0 (1.0-2.0)	2.0 (1.0-3.0)	0.001
Absenteeism (number of days in previous 3 months) due to abdominal complaints	0.0 (0.0-2.0)	0.0 (0.0-2.25)	0.65

A Mann-Whitney U test was performed for all variables. Median values are presented with interquartile ranges in parentheses.

TABLE 2 Additional complaints in the primary care and outpatient populations

Variable	Primary care (n=109)	Outpatient (n=86)	p Value
Vomiting	6	27	0.000
Nausea	58	73	0.03
Heartburn	38	55	0.02
Belching	50	59	0.20
Headache	65	66	0.87
Backache	68	74	0.32
Urinary problems	19	26	0.24
Nervousness	48	54	0.46
Fatigue	80	85	0.41
Total number of additional complaints (0-9)*	4.0 (3.0-6.0)	5.5 (4.0-7.0)	0.002

A χ^2 test was used for all but the last variable, where a Mann-Whitney test was applied. Values given as percentages.

*Median values are presented with interquartile ranges in parentheses.

frequency scale. Questions were asked about: the total number of abdominal operations prior to inclusion; the total number of GP consultations for abdominal complaints in the past three months; the number of days of absenteeism caused by abdominal complaints in the past three months; the frequency of use of medication for abdominal complaints; and the frequency of use of laxatives. In addition patients were asked to indicate the presence or absence of nine related complaints (four gastrointestinal complaints—vomiting, nausea, heartburn, and belching; and five non-gastrointestinal complaints—headache, backache, urinary problems, nervous complaints, and fatigue). A total number of related complaints was also computed.

Causes

Patients were asked to score their agreement with the following nine statements about the causes to which they attributed their abdominal pain on a five point ordinal scale, scores ranging from "total disagreement" to "total agreement": pain is related to my agitated and busy life; pain has something to do with my intestines, stomach, gall, or urinary tracts; pain is caused by stress; I'm afraid I might have cancer; pain is a result of not being able to pass stools; pain is caused by eating the wrong things or eating too much; pain is related to aging; pain has something to do with my periods, my ovaries, or my uterus; and pain is due to genetic inheritance.

DATA ANALYSIS

All data were analysed using SPSS software. Student's *t* tests for independent samples were used for comparing group means (for example age). Dichotomous variables were tested using Yates's corrected χ^2 test. For the remainder of the variables which were scored on an ordinal scale, the Mann-Whitney test was used to detect significant differences between the groups. The Spearman rank correlation test was used to detect any associations between complaints, attributed causes, and demographic variables such as age. An explorative multiple logistic regression analysis was performed to discern the variables which best discriminate between the two study groups. Significance level was set at a two sided *p* value equal to or less than 0.05 for all variables.

Results

COMPARABILITY

Mean age and level of education did not differ between the primary care (PC) population and the outpatient (OP) population (PC 38.0 years, 95% confidence interval (CI) 35.8-40.2 years; OP 37.4 years, 95% CI 34.9-39.9 years). However, a significant difference (*p*=0.02) in sex was detected: in the outpatient population the proportion of men was higher (35% males, 95% CI 25-45%) than in the primary care population (20% males, 95% CI 13-28%). All further analyses were therefore also made for men and women separately.

ABDOMINAL COMPLAINTS AND PERCEIVED LIMITATIONS

Table 1 presents the scores with regard to abdominal complaints. The outpatient group had significantly higher scores on the intensity of abdominal pain, frequency of complaints, amount of interference with daily activities, degree of avoidance of social or physical activities as a consequence of the complaints, number of days absent from work, and number of GP consultations during the past three months. Consequently, the severity score was also significantly higher for the outpatient group. Related complaints such as vomiting, nausea, and heartburn were significantly more frequent in the outpatient group. Non-intestinal complaints were frequently mentioned and about equally present in both groups (table 2).

No differences were found between the two populations with regard to the frequency of complaints that are typical for IBS, with the exception of abdominal rumblings which were experienced more frequently in the outpatient group (*p*<0.05). The two populations did not differ with respect to the total number of abdominal operations prior to inclusion, nor the frequency of use of medication for abdominal complaints or use of laxatives. Two symptoms that could indicate an underlying disorder (loss of blood with stool and faecal incontinence) were experienced more often in the outpatient group (*p*<0.05) (data not shown). When the sexes were analysed separately, all the differences remained for women, with the exception of absenteeism, which did

TABLE 3 IBS related complaints and problems of female and male patients of primary care and outpatient populations

Variable	Women			Men		
	Primary care (n=87)	Outpatient (n=56)	p Value	Primary care (n=22)	Outpatient (n=30)	p Value
Duration of complaints (1-9)	6.0 (5.0-9.0)	5.5 (4.0-8.0)	0.30	8.0 (2.75-9.0)	6.0 (3.0-9.0)	0.38
Intensity of abdominal pain (1-5)	2.0 (2.0-3.0)	3.0 (2.0-3.0)	0.001	2.0 (1.75-2.25)	2.0 (2.0-3.0)	0.76
Frequency of complaints (1-6)	5.0 (3.0-6.0)	6.0 (5.0-6.0)	0.001	5.0 (5.0-6.0)	6.0 (5.0-6.0)	0.03
Limitation of daily activities (1-4)	2.0 (2.0-2.0)	3.0 (2.0-3.0)	0.000	2.0 (1.75-2.0)	2.0 (2.0-3.0)	0.12
Avoidance of social or physical activities (1-4)	1.0 (1.0-2.0)	2.0 (2.0-3.0)	0.000	1.0 (1.0-2.0)	2.0 (1.0-2.0)	0.61
Severity score (0-9)	3.0 (2.0-4.0)	5.0 (4.0-7.0)	0.000	4.0 (3.0-5.0)	4.5 (3.0-6.0)	0.09
Number of additional complaints (1-9)	4.0 (3.0-6.0)	6.0 (4.0-7.0)	0.000	4.0 (3.0-6.5)	5.0 (4.0-7.0)	0.74
Number of visits for abdominal complaints to GP during previous 3 months	1.0 (1.0-2.0)	2.0 (1.0-3.0)	0.03	1.0 (1.0-2.0)	2.0 (1.0-3.25)	0.03
Absenteeism (number of days in previous 3 months) due to abdominal complaints	0.0 (0.0-2.0)	0.0 (0.0-1.7)	0.92	0.0 (0.0-4.0)	0.0 (0.0-5.0)	0.35

A Mann-Whitney U test was performed for all variables.

Median values are presented with interquartile ranges in parentheses.

not differ between primary care and outpatient women. For men two significant differences were found: male outpatients had complaints more frequently than did primary care patients, and they had visited their GP more often in the previous three months. They also more frequently mentioned vomiting as an additional complaint ($p < 0.05$) (table 3).

We also compared male with female patients within both populations separately. These analyses showed no significant differences on any of the above mentioned variables between male and female patients within the primary care population. Within the outpatient population, however, female patients had a higher severity score ($p < 0.01$), showed more avoidance of activities ($p < 0.05$), and mentioned more related complaints ($p < 0.05$) than their male counterparts.

ATTRIBUTED CAUSES OF COMPLAINTS

Table 4 shows that outpatients were much more likely to attribute their complaints to

something being wrong with their intestines. Primary care patients, however, more frequently attributed their complaints to their agitated way of life, stress, defecation problems, eating habits, or aging. Results were similar when data for men and women were analysed separately.

MULTIVARIATE ANALYSIS RESULTS

In order to explore in more detail the differences between the two populations found in our bivariate analyses we performed a logistic regression analysis in which we entered the variables that might be indicators of referral. Our choice for entering these variables was based on the results of the bivariate analyses and on theoretical relevance. We entered sex, age, intensity of abdominal pain, severity score, number of visits to GP in the previous three months, number of additional complaints, and both a somatic (intestinal cause) and a psychological (stress) attribution in the analysis, using the dichotomy of primary care/outpatient as the dependent variable. Multicollinearity of the independent variables was not present as checked with the Spearman rank correlation test.

Table 5 shows that a high severity score, a high number of additional complaints, and a low stress attribution score were important determinants for being in the outpatient group. When adjusted for the above mentioned variables sex was not an important determinant, although male patients were more likely to belong to the outpatient group. However, the interaction between sex and severity introduced in the logistic regression analysis was highly significant, females having a much higher severity score than men ($p = 0.000$). The same was found for the interaction between the number of additional complaints and being female ($p = 0.001$). In addition, we performed the same analysis within the female and male subgroups separately. In the female subgroup the analysis yielded the same pattern of results as found in the total group, with the addition of a high score on the intestinal attribution ($p = 0.04$) contributing to the risk of becoming an outpatient. In the male subgroup only a low score with regard to the stress attribution was positively associated with being an outpatient ($p = 0.001$).

TABLE 4 Attributions of primary care and outpatients regarding the cause of their abdominal pain

Attribution (range 1-5)	Primary care (n=109)	Outpatient (n=86)	p Value
Pain related to agitated life	3.0 (2.0-4.0)	2.0 (1.0-3.0)	0.02
Pain due to something wrong with intestines	3.0 (3.0-4.0)	4.0 (3.0-5.0)	0.000
Pain caused by stress	3.0 (2.0-4.0)	2.0 (1.0-3.0)	0.000
Fear of cancer	2.0 (1.0-3.0)	2.0 (1.0-3.0)	0.87
Pain due to defecation problems	2.0 (2.0-3.0)	2.0 (1.0-2.0)	0.007
Pain caused by eating habits	2.0 (2.0-3.0)	2.0 (1.0-3.0)	0.003
Pain related to aging	1.0 (1.0-2.0)	1.0 (1.0-2.0)	0.04
Pain related to periods, ovaries or uterus	2.0 (1.0-3.0)*	3.0 (1.0-3.0)*	0.06
Pain due to genetic inheritance	2.0 (1.0-3.0)	2.0 (1.0-3.0)	0.46

*Only women (primary care n=87; outpatients n=56).

A Mann-Whitney U test was performed for all variables.

Median values are presented with interquartile ranges in parentheses.

TABLE 5 Determinants of referral (multivariate analysis). All patients (n=195)

Determinant	β regression coefficient	Standard error	p Value
Age (years)	-0.0014	0.0173	0.934
Sex (male=0; female=1)	0.7510	0.4806	0.118
Intensity of abdominal pain (1-5)	-0.0051	0.2496	0.983
Severity score (0-9)	0.5672	0.1472	0.000
Number of additional complaints	0.2862	0.1217	0.018
Number of visits to GP in previous 3 months	0.1995	0.1617	0.217
"Intestinal" attribution (1-5)	0.4093	0.2519	0.104
"Stress" attribution (1-5)	-0.9768	0.2298	0.000

Dependent variable coded as primary care=0; outpatient=1.

Variables are adjusted for all other variables mentioned in this table.

In order to find some support for our assumption that the differences detected between the Amsterdam and the Nijmegen populations are true differences and not simply a result of the fact that both study populations came from a different catchment area, an additional comparison was made between the outpatient population and 41 patients from the same general practices in Amsterdam who had been referred prior to their inclusion in the primary care study. The 41 referred patients were comparable with the 86 patients from the outpatient population with regard to abdominal complaints and attributed causes. The female patients of the referred group were comparable to the female patients from the outpatient population and the same comparability was found for the male patients. These results must be interpreted with some caution as the referred primary care group was relatively small and these patients were not recruited in the same way as the outpatient group from Nijmegen.

Discussion

Outpatients with IBS report their complaints to be more serious than do primary care patients with IBS; they also experience more limitations as a consequence of their complaints and have more somatic attributed causes of their complaints. In our study, related intestinal complaints such as nausea, vomiting, and heartburn were also more common in the outpatient group. However, the prevalence of non-colonic complaints such as backache and headache was similar in the two populations. Our findings that these non-colonic complaints are frequently present in patients with IBS are in accordance with earlier studies which also found a high prevalence of non-colonic symptoms in patients with IBS.^{22, 23} Interestingly, the differences we found seem to exist only in female patients. Comparable sex differences have been found in earlier studies, but mainly in connection with the applicability of the Manning criteria.^{18, 19} Corney and Stanton however also found that female outpatients were more severely affected by their physical complaints and showed more avoidance behaviour than their male counterparts.²⁰

One could argue that our study results show that outpatients with IBS do not really differ from patients with IBS in primary care with regard to their complaints and that the differences we found between the two populations are mainly caused by a different referral pattern for female patients compared with male patients. Our data on sex differences, combined with the fact that the outpatient population had significantly more men than the primary care population, might indicate that GPs refer male patients with IBS more readily than female patients with IBS. Female patients, as a group, must have more incapacitating complaints before they are referred, while the referral of male patients does not seem to be guided by this principle. The fact that different referral patterns exist for women and men has emerged before on several occasions and with different disorders.^{24, 25} An explanation for these

differences is that GPs are more likely to attribute women's complaints to psychosocial causes. Women probably have to complain more persistently in order to be referred. In some cases this reluctance of GPs to refer women can be a serious disadvantage for women, for example, in cardiovascular diseases.^{24, 25}

Whether this late or reluctant referral of women is a disadvantage in the case of IBS remains to be seen. There are indications that a referral and the resulting extensive diagnostic procedures can confirm the patients' beliefs in a more or less serious somatic origin of their complaints.²⁶ As mentioned earlier, Bleijenberg and Fennis found that patients with somatic attributions of their complaints have an unfavourable prognosis compared with patients with non-somatic attributions.⁷ The somatic attribution of outpatients found in our study could be the reason for or the result of being referred because of their complaints.²⁷ If the latter is the case it is a strong argument against referral if there are no suspicions of an underlying disorder. If the somatic attribution is already present, it will be reinforced by the investigations, which are aimed at the exclusion of pathological disorders. If so, men may be at a disadvantage by being referred earlier than women.

A referral is the result of the interaction between patient and physician: both contribute to the decision to refer. From our results it seems that severity or duration of complaints are not the only reasons for referral for all patients with IBS. More research is needed into the factors, due both to patient and physician, that influence referral. The determinants of a successful referral should also be investigated.

One might argue that our findings only have relevance for patients with broadly defined IBS. However, analysis post hoc showed that patients who met at least two of the more restricted Manning criteria (92% of the study population) were not different in any respect from patients who only met our criteria.

One of the limitations of our study is that the two populations came from different catchment areas. However, as the two cities are only 150 kilometres apart, we assume that both populations are comparable with regard to climatological, occupational, and dietary factors. Moreover, there is no evidence that physicians in either part of the country differ considerably in the criteria they use for referral. Our assumption that the catchment area is not a confounding factor in our study seems to be supported by the fact that the 41 patients referred from general practices in Amsterdam were comparable with the outpatient population from Nijmegen, although one could argue that the sample size of the referred primary care population is small, and patients were not recruited in the same way.

In the primary care population a sampling bias might have occurred, as according to our estimations based on data on incidence and prevalence of IBS in primary care, only one fifth of the eligible patients were included in the study. However, we regularly asked the GPs to

report how many patients with abdominal complaints had not been asked to participate in the study and to state the reason for not asking them. As was to be expected, according to the GPs, a substantial number of eligible patients were not asked to participate. However, selective exclusion of patients by GPs does not seem to have occurred: lack of time was the main reason given for not asking a patient to participate in the study. Our findings in this respect are in accordance with the results of a study by Peto *et al*, who assessed the completeness of recruitment by GPs in a study concerning menorrhagia. They also found that only 20% of eligible patients were recruited due to time pressure and forgetfulness.²⁸

Another limitation is the small number of men in both groups: this could result in the fact that a true difference in severity of complaints or other variables between the male patients of both populations remains undetected. However, the differences between outpatient and primary care populations that have emerged in our study merit further investigation. Combined with the fact that in both ours and Corney's study, female outpatients had more severe complaints than their male counterparts, these results suggest that sex differences must be taken into account when considering IBS.²⁰ If the results from our study are confirmed in other studies, data on male patients can be generalised from an outpatient to a primary care population and vice versa, but the same does not apply for data on female patients. Doctors are therefore currently advised to be extra careful in their decision to refer a patient with IBS to a specialist for further examination. They should consider whether the necessity of referral is determined by the patient's sex, by the presumed seriousness of the complaints, or by the suspicion of other pathology requiring a specialist's viewpoint.

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