

# Faecal incontinence—the hidden scourge of irritable bowel syndrome: a cross-sectional study

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**To cite:** Atarodi S, Rafieian S, Whorwell PJ. Faecal incontinence—the hidden scourge of irritable bowel syndrome: a cross-sectional study. *BMJ Open Gastro* 2014;1:e000002. doi:10.1136/bmjgast-2014-000002

Received 8 April 2014  
Revised 5 June 2014  
Accepted 12 June 2014

## ABSTRACT

**Objective:** Faecal incontinence (FI) is a devastating condition which is well recognised in the elderly and those with certain conditions such as inflammatory bowel disease. However, there is surprisingly little information on its prevalence in irritable bowel syndrome (IBS), especially in relation to bowel habit subtype, and this study aimed to answer this question.

**Design:** 500 consecutive new and follow-up secondary care IBS outpatients (399 female, 101 male, age range 15–87, mean age 46) fulfilling Rome III criteria without any significant concomitant disease were studied. They completed a series of questionnaires documenting FI, IBS severity, IBS subtype, non-colonic symptoms, quality of life, anxiety, depression and any other factors that might be associated with FI.

**Results:** 285 patients (57%) reported FI, which was mild in 68 (23.9%), moderate in 99 (34.7%) and severe in 91 (31.9%) and in response to laxatives in 27 (9.5%) with an equal prevalence in males and females. The prevalence of FI in patients classified as having mild, moderate or severe IBS was 62%, 49.5% and 61%, respectively. The prevalence of incontinence was 65.2% in diarrhoea IBS, 63.7% in alternating IBS and, surprisingly, 37.9% in constipation IBS, where it was in response to laxatives in 35.8%. Compared to continent patients, those with FI had a significantly higher prevalence of urinary incontinence, previous abdominal surgery, pregnancy and vaginal as opposed to caesarean delivery. 23.3% had not disclosed their incontinence to anyone and only 50.6% had told their general practitioner. 66% always carried a change of clothes and 30% used incontinence pads on a regular basis.

**Conclusions:** The prevalence of FI in these relatively young patients approached that observed in elderly care homes. Hopefully, recognition of this problem will lead to improved management and reduce the trivialisation that unfortunately still continues to surround this condition.

## INTRODUCTION

Faecal incontinence (FI) is a distressing and disabling condition with many negative, social and psychological consequences such

## Summary box

### What is already known about this subject?

- ▶ There is a paucity of data on the prevalence of faecal incontinence in irritable bowel syndrome (IBS).
- ▶ It is generally assumed that, if it occurs, faecal incontinence is largely confined to patients with the diarrhoea predominant variety of the condition.
- ▶ It is not known to whom IBS patients with faecal incontinence disclose their problem.

### What are the new findings?

- ▶ This study shows that in IBS patients referred to secondary and tertiary care, the prevalence of faecal incontinence equals that observed in care homes for the elderly.
- ▶ There is little difference in the prevalence of faecal incontinence between patients with diarrhoea, constipation and mixed varieties of IBS.
- ▶ Unless specifically asked, many patients with IBS-related faecal incontinence may not admit to this problem.

### How might it impact on clinical practice in the foreseeable future?

- ▶ Future guidelines on the management of IBS need to highlight the fact that faecal incontinence is a major problem in this condition.

as embarrassment, anxiety, social isolation and loss of employment.<sup>1 2</sup> It presents in two main forms which are either the involuntary but recognised passage of gas or liquid or solid stool (urge incontinence), or anal leakage of mucus, fluid or stool (passive incontinence).<sup>3</sup> There is a considerable variation in the reported prevalence of FI in the general population, which is due to a variety of reasons including the reluctance of patients to report this symptom, different working definitions and the inadequacy of data collection methods.<sup>4</sup> Accordingly, the prevalence ranges from 0.4% to 18% in the general population,<sup>1 4–7</sup> although higher

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prevalences have been reported in at-risk populations. For example, it ranges from 5% to 24% in community-dwelling women in the USA,<sup>8</sup> 33–46% in patients with inflammatory bowel disease<sup>9</sup> and 47–54% in residential nursing homes.<sup>10 11</sup> Some diseases are well known to be associated with faecal impaction or FI of which diabetes mellitus, multiple sclerosis and inflammatory bowel disease are examples.<sup>10</sup> However, considering the high prevalence of irritable bowel syndrome (IBS), there is surprisingly little information on the rate of incontinence in this condition.<sup>12</sup>

IBS is a functional gastrointestinal disorder with a community prevalence which appears to vary in different geographical areas such as 3% in Iran, 12% in the UK and 30% in Nigeria,<sup>13</sup> although this is probably due to different methods of identification. However, the prevalence in the UK appears to be consistently between 10% and 15%. Apart from gastrointestinal symptoms such as abdominal pain, bloating and bowel dysfunction, there are some associated non-gastrointestinal symptoms including lethargy, back pain, urinary symptoms and dyspareunia.<sup>12 14</sup> This complex of different symptoms results in a poor quality of life (QOL) and consequently a high rate of psychological problems such as anxiety and depression.<sup>14 15</sup> It has also been shown that the emotional burden of disease can lead to the development of hopelessness and suicidal ideation.<sup>15</sup> This already distressing condition can be made even worse if a patient has to deal with an embarrassing problem which is difficult to disclose such as FI. Drossman and colleagues surveyed college students and young hospital employees for urgency and faecal soiling. They categorised the participants into three groups consisting of patients with IBS who did and did not visit physicians and patients without IBS. They showed that 20% (13/65) of the patients with IBS who visited a physician and 6.2% (10/162) of the patients who did not visit a doctor reported faecal soiling.<sup>16</sup> However, this study was confined to a young population not representative of patients with IBS in general and did not take into consideration the different bowel habit subtypes of IBS. In another study, Longstreth and Wolde-Tsadik screened members of a health maintenance organisation for IBS symptoms based on Manning criteria and subdivided the patients with IBS into less severe and more severe groups according to the number of abdominal pain episodes. Their results showed that 18.5% of the participants in the less severe IBS symptom group and 22.7% in the more severe group suffered from FI,<sup>17</sup> but again the patients were not divided into the various bowel habit subtypes. Although it is generally accepted that IBS can lead to FI especially when associated with diarrhoea, to the best of our knowledge, this issue has not been systematically investigated in an unselected group of patients particularly in relation to bowel habit subtype. Therefore, the aim of this study was to assess the prevalence of FI and its consequences in a consecutive group of patients with IBS

attending a clinic specialising in the care of this condition.

## METHODS

In this study, consecutive new and follow-up patients with IBS without any significant concomitant disease attending the clinic fulfilling Rome III criteria for IBS were asked to complete a series of questionnaires over a period of 1 year starting January 2012. The following questionnaires were administered: the IBS Symptom Severity Score (IBS-SSS), the non-colonic symptom score, a QOL measure and the Hospital Anxiety Depression (HAD) scale. A further questionnaire was completed detailing bowel habits (diarrhoea, constipation and alternating), FI, urgency, incomplete evacuation, history of previous surgery (appendicectomy, cholecystectomy, hysterectomy, sterilisation and caesarean section), number of pregnancies and urinary incontinence. The FI questionnaire recorded FI as follows: (1) Never, (2) Less than once a year, (3) Once a year, (4) More than once a year, (5) Once a month, (6) Once a week, (7) More than once a week, (8) Nocturnal and (9) In response to a laxative. The severity of FI was subdivided into mild, moderate and severe categories based on its frequency being 'once a year or less', 'once a month or less but more than once a year' and 'once a week or more or nocturnal', respectively. For constipation patients, particular attention was paid to the relationship between any incontinence resulting from the use of laxatives. In addition, coping strategies such as the use of medication, carrying a change of clothes and the use of incontinence pads were recorded. The IBS-SSS is a validated questionnaire consisting of five subscales: pain severity, pain frequency, abdominal bloating, bowel habit dissatisfaction and life interference with a maximum score of 500.<sup>18</sup> Patients are classified as mild, moderate or severe based on a score of 75–175, 175–300 or greater than 300, respectively. The measure of non-colonic symptoms<sup>19</sup> includes nausea/vomiting, early satiety, headache, backache, lethargy, excess wind, heartburn, urinary symptoms, thigh pain and bodily aches with a maximum score of 500. The QOL measure<sup>19</sup> assesses psychological well-being, physical well-being, mood, locus of control and social/relationships with a maximum score of 500. The HAD scale<sup>20</sup> is a validated measure consisting of seven anxiety and seven depression items with a maximum score of 21 for each one. For the purposes of this study, a score of 10 or more was regarded as indicative of significant anxiety or depression.

## Ethical statement

All the questionnaires used in this study have been routinely used in our department for many years to monitor the progress of patients and their response to treatment. All new patients are routinely asked about FI and a more detailed response to this question was

recorded for the purposes of this study. The study was submitted to the NHS Health Research Authority and Medical Research Council decision tool, which concluded that a formal ethical review was not necessary.

### Statistical analysis

Power calculation: for an overall sample of 500 patients, the study would be able to estimate the prevalence of FI with the accuracy of  $\pm 5\%$  (ie, the 95% CI for the observed prevalence value would extend 5% to either side of this estimate). For particular subgroups of patients (such as IBS severity) of a size greater than 100, the CIs would not extend more than 10% on either side of the observed prevalence value. Mean values with 95% CI were calculated for HAD scales, QOL domains and non-colonic features. Frequencies, percentages and  $\chi^2$  tests for categorical variables; means, 95% CI's and independent sample t tests for normally distributed continuous data were used to assess the relationship between variables such as different types of IBS, different severities of patients with FI and IBS overall, as well as between new and follow-up patients. All statistical comparisons used the conventional two-sided 5% significance level. SPSS V.20 was used for all calculations.

## RESULTS

### Demographics and clinical characteristics

Five hundred consecutive patients with IBS completed questionnaires. Of these, 198 (40%) were new and 302 (60%) were follow-up patients. The mean age of the whole group was 46.3 (range 15–87) with 399 (80%) being female and 101 (20%) male. In terms of different types of IBS, the number of patients in the diarrhoea, constipation and alternating subgroups was 178 (35.6%), 140 (28%) and 182 (36.4%), respectively. With regard to IBS severity, 42 (8.4%) had mild, 164 (32.8%) moderate and 294 (58.8%) severe IBS (table 1).

### Prevalence and management of FI

Two hundred and eighty-five patients (57%) reported FI; of these, 68 (23.9%) had mild, 99 (34.7%) moderate and 91 (31.9%) severe FI and 27 (9.5%) had FI in response to a laxative (table 2). Patients with FI were significantly older than non-incontinent patients (49.44 vs 42.04,  $p < 0.001$ ), but showed no difference in gender (45.5% female vs 54.5% male,  $p = 0.56$ ). Considering the different

**Table 1** Irritable bowel syndrome (IBS) severity distribution in new and follow-up patients as well as the whole group

IBS severity	New patients	Follow-up patients	Total
Mild IBS	11 (5.6%)	31 (10.3%)	42 (8.4%)
Moderate IBS	54 (27.3%)	110 (36.4%)	164 (32.8%)
Severe IBS	133 (67.2%)	161 (53.3%)	294 (58.8%)

**Table 2** Faecal incontinence (FI) severity distribution in new and follow-up patients as well as the whole group

FI severity	New patients with FI	Follow-up patients with FI	Total
Mild FI	24 (24.2%)	44 (23.7%)	68 (23.9%)
Moderate FI	32 (32.3%)	67 (36.0%)	99 (34.7%)
Severe FI	32 (32.3%)	59 (31.7%)	91 (31.9%)
In response to a laxative	11 (11.1%)	16 (8.6%)	27 (9.5%)

types of IBS, the prevalence of FI was: 116/178 (65.2%) in diarrhoea, 53/140 (37.9%) in constipation and 116/182 (63.7%) in the alternating type. In constipated patients with FI, 35.8% had FI due to laxatives and in the remaining 64.2% it was spontaneous. FI was reported in 62% (26/42) of patients with mild IBS, 49.5% (81/164) of moderately severe patients and 61% (178/294) of severe patients, although it should be noted that the number of patients in the mild group was substantially lower than in the other two groups (table 3). The frequency of FI was 99 (50%) in new patients and 186 (61.6%) in follow-up patients ( $p = 0.01$ ). Twenty-eight per cent of patients with FI used loperamide (imodium) to control their FI, whereas 66% carried a change of clothes and 30% utilised incontinence pads on a regular basis.

During the course of the study it became clear that the prevalence of FI was even more than anticipated. It was therefore decided to add a further question about whether the patient had disclosed the problem to anyone and, if so, to whom it had been revealed. From the total

**Table 3** Comparison of faecal incontinence (FI) severity in patients with mild, moderate and severe irritable bowel syndrome (IBS)

IBS severity groups	FI severity	Number of patients with FI	Percentage
Mild IBS (n=42)	Mild	9	21.5
	Moderate	11	26.2
	Severe	3	7.1
	In response to a laxative	3	7.1
	Total	26	61.9
Moderate IBS (n=164)	Mild	30	18.3
	Moderate	30	18.3
	Severe	14	8.5
	In response to a laxative	7	4.3
	Total	81	49.4
Severe IBS (n=294)	Mild	29	9.9
	Moderate	58	19.7
	Severe	74	25.2
	In response to a laxative	17	5.8
	Total	178	60.6

number of 176 patients, 14 (8%) had disclosed the problem only to their general practitioner (GP), 46 (26.1%) had told only a friend or member of their family, 75 (42.6%) had disclosed the problem to their GP and a member of their family and 41 (23.3%) had told nobody.

### Clinical associations

In terms of the main IBS symptoms of pain and bloating, there was no significant association between these two features and FI (97.2% vs 95.1%,  $p=0.231$  and 93% vs 90.2%,  $p=0.261$ , respectively). FI was significantly associated with urgency (table 4,  $p<0.001$ ) but not with incomplete evacuation (table 4,  $p=0.824$ ) and was much more likely to be associated with urinary incontinence (table 4,  $p<0.001$ ). The prevalence of previous abdominal surgery in patients with FI was significantly higher than that observed in those without FI (66% vs 45%,  $p<0.001$ ), and this difference reached significance for appendectomy, cholecystectomy and hysterectomy ( $p=0.014$ , 0.001 and 0.003, respectively). Type of delivery and number of pregnancies were significantly associated with the prevalence of FI, meaning that the higher the number of pregnancies, the higher the risk of FI ( $p=0.024$ ). Vaginal delivery was more likely to be associated with FI than caesarean section (63.1% vs 3.4%,  $p=0.004$ ). Also, a history of forceps delivery was significantly higher in females with FI (70.2% vs 29.8%,  $p=0.039$ ).

### HAD scores

The mean score for anxiety in new patients with FI was significantly higher than that in those who were not incontinent (10.63 vs 9.18,  $p=0.041$ ). In the follow-up group, the mean anxiety score was higher in patients with FI than in those without FI (10.73 vs 10.42), but this did not reach significance. The mean depression score in new and follow-up patients with FI was significantly higher than that in those without FI but did not reach the cut-off for being clinically significant (8.26 vs 5.91,  $p<0.001$ ; 7.96 vs 6.40,  $p=0.002$ , table 5).

**Table 4** Frequency of different symptoms and previous surgery in patients with and without faecal incontinence (FI)

	Patients with FI (285/500)	Patients without FI (215/500)	p Value
Urgency	277 (97.5%)	167 (77.7%)	<0.001
Incomplete evacuation	242 (84.9%)	181 (84.3%)	0.824
Urinary incontinence	98 (34.4%)	29 (13.6%)	<0.001
Appendectomy	55 (19.3%)	24 (11.2%)	0.014
Cholecystectomy	38 (13.3%)	9 (4.2%)	0.001
Hysterectomy (in females)	69 (30.3%)	29 (17.2%)	0.003
Sterilisation	27 (9.5%)	15 (7.0%)	0.319

**Table 5** Psychological, quality of life and non-colonic scores in new and follow-up patients with and without faecal incontinence (FI)

	New patients with FI (99/500)	New patients without FI (99/500)	p Value	Follow-up patients with FI (186/500)	Follow-up patients without FI (116/500)	p Value
Anxiety, mean scores (95% CI)	10.63 (9.61 to 11.64)	9.18 (8.23 to 10.13)	0.041	10.73 (10.01 to 11.44)	10.42 (9.52 to 11.32)	0.603
Depression, mean scores (95% CI)	8.26 (7.33 to 9.19)	5.91 (5.08 to 6.74)	<0.001	7.96 (7.25 to 8.66)	6.40 (5.68 to 7.11)	0.002
Quality of life, mean scores (95% CI)	252.54 (231.83 to 273.24)	220.42 (200.76 to 240.07)	0.027	252.68 (238.35 to 267)	223.43 (208.34 to 238.52)	0.006
Non-colonic features, mean scores (95% CI)	239.54 (219.31 to 259.77)	210.32 (193.70 to 226.95)	0.028	249.31 (235.54 to 263.08)	209.22 (193.80 to 224.63)	<0.001

### Quality of life

The QOL of new and follow-up patients who were suffering from FI was significantly worse than that of those without FI ( $p=0.027$ ,  $p=0.006$ , table 5).

### Non-colonic features

Both new and follow-up patients with FI reported more severe non-colonic features of IBS than did those without FI, with the difference between their total scores being statistically significant ( $p=0.028$ ,  $p<0.001$ , table 5).

## DISCUSSION

This study has shown that FI is extremely common in this population of patients with IBS and is nearly as prevalent as it is in the elderly in residential care. It might be anticipated that FI would be largely confined to the diarrhoea predominant variety of the condition, but this was not the case with over a third of the patients with constipation experiencing this problem, which was not expected. In 35.8% of constipated patients with FI, this was due to laxatives but in the remaining 64.2% it was spontaneous, and this latter observation is particularly important as it could have an impact on how laxatives are prescribed. The surprisingly high incontinence rate in the constipated group might at least be partly explained by pelvic floor damage. We have previously shown that patients with long-standing constipation can develop a similar level of pelvic floor damage as women who have given birth vaginally, presumably as a result of repetitive straining over many years.<sup>21</sup> Managing bowel dysfunction in patients with an alternating bowel habit is always challenging as there is a dilemma of whether to advise laxatives, antidiarrhoeals or to avoid such medications completely. The fact that this group has an FI rate approximately the same as in those with diarrhoea emphasises how difficult it is to manage this problem. Consequently, it is important to ascertain whether an apparent alternating bowel habit is actually of a constipated patient with laxative-induced diarrhoea or an antidiarrhoeal-induced constipation in a diarrhoea predominant patient. From the management point of view, knowledge of the problem of FI and careful enquiry about the nature of the bowel dysfunction are critically important as they can affect the choice of medication as well as enable the physician to offer advice, especially as incontinence products are becoming increasingly available.

The prevalence of incontinence in the follow-up patients was somewhat higher than that in the new patients and this is likely to be explained by the fact that patients who improve are discharged from the clinic, whereas those who continue to struggle with symptoms such as incontinence will remain under follow-up.

It might be argued that mild incontinence, defined in this study as one episode a year or less, is trivial and not worth worrying about, although the sufferers would

probably dispute this view given the nature and unpredictability of the problem. However, even if this figure is excluded, the prevalence of incontinence continues to be extremely high and its distribution between the different bowel habit subgroups remains similar. Most patients find it difficult to talk about FI and when asked the additional question about whether they had disclosed the problem to anyone, it is noteworthy that only half (50.6%) had disclosed the problem to their GP, 68.7% had told a friend or a member of their family and 23.3% had not told anybody. This is clearly a worrisome trend indicating that many of these individuals are failing to get any help or support with this issue.

It has been previously shown that bladder symptoms are very common in IBS, especially frequency, urgency and urge incontinence.<sup>22-23</sup> Therefore, it is possibly not surprising that urinary incontinence was relatively common in patients with FI. Consequently, the burden that these two problems have on social functioning as well as the sex lives of these sufferers must be overwhelming and probably contributes to the high rates of sexual dysfunction<sup>24</sup> and suicidal ideation that have previously been reported in these patients.<sup>15</sup>

It is now well described that when compared to the general population, patients with IBS undergo an excess of abdominal operations such as appendicectomy, cholecystectomy and hysterectomy.<sup>25</sup> Not only are they unnecessary in some instances but also there is a strong clinical impression that they can make symptoms such as pain worse and more difficult to manage. It is therefore noteworthy that in this study a history of abdominal surgery was more common in patients with FI than in those without and that this reached significance for appendicectomy, cholecystectomy and hysterectomy.

Loperamide is probably the most commonly recommended medication in patients with diarrhoea, urgency and FI, although it has little or no effect on pain and can actually make it worse. There are also claims that it can improve anal tone.<sup>26</sup> Consequently, it was somewhat surprising that only 29% of faecally incontinent patients found this drug helpful, although the majority of users were in the diarrhoea group, which is possibly what might be anticipated. It is also worrying to think that 30% of these patients were having to wear incontinence pads on a regular basis and that their mean age was only 54.

An obvious weakness of this study is that it was undertaken in a specialist IBS clinic where patients are unlikely to reflect the IBS population as a whole. However, a whole population study might be a difficult task as a definitive diagnosis of IBS, especially with respect to bowel habit subclassification, is most commonly only established in secondary care, with primary care physicians often preferring to make a symptom diagnosis such as constipation, diarrhoea or abdominal pain. One way of adjusting for this would be to exclude patients with severe symptom scores and even after this exercise, the prevalence of FI in this study was still

51.7% in moderate and mild patients who are more likely to reflect the general population of this condition.

## CONCLUSION

The results of this study indicate that FI is a major problem in IBS and that patients are not necessarily going to disclose it without being specifically asked. If this issue is raised, they will at least realise that they are not alone in suffering from this problem, which can be specifically targeted with a variety of management strategies that could help the situation considerably.

**Contributors** SA, SR and PJW conceived and designed the study. They drafted the article and also approved the final version. SA and SR collected the data and performed the statistical analysis. PJW is the guarantor.

**Funding** This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

**Competing interests** In the past 5 years, PJW has received research grants or honoraria from Danone, Almirall, Shire, Abbott and Norgine who may in any way gain financial support from the publication of this manuscript either now or in the future.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data sharing statement** No additional data are available.

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