

Prevalence and Demographics of IBS Respondents: Results from a Large Web-based Survey

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Abstract

Background: Irritable bowel syndrome (IBS) is the most common disorder seen by gastroenterologists. Recently, attention has focused upon better elucidation of the burden of illness of IBS. An understanding of the burden of illness is fundamental to making an assessment of the risk-benefit relationship for existing therapies, as well as for agents in development.

Objectives: The objective was to determine the prevalence, demographics, burden of illness, and resource use among participants who met the symptom criteria for IBS using a novel, web-based survey in a large U.S. population-based sample.

Methods: A sample of 31,289 participants was drawn from an online, web-based research panel (surveyed December 2001 to February 2002) consisting of over 150,000 household members. Probability sampling techniques and stratified, random-digit dialing were used to recruit the sample. All participants received a screener for symptoms of IBS per the Rome II criteria. For individuals satisfying the Rome II criteria for either diarrhea-predominant (dIBS) or alternating IBS (aIBS), a second questionnaire addressing demographics, prior medical care utilization, and symptoms was administered. Key measures included prevalence rates, demographic characteristics, health care utilization, and quality of life (SF-36).

Results: Of the participants who received the screener, 25,986 (82%) completed it and 1,713 fulfilled the Rome II criteria for IBS; prevalence rate of 6.6% (CI: 6.3,6.9). In total, 901 individuals had dIBS (prevalence 3.5%; CI: 3.3,3.7 – females 4.1%, males 2.7%) and 453 had aIBS (prevalence 2.7%; CI: 1.5,1.9 – females 2.3%, males 1.2%).

Participants with dIBS or aIBS averaged 44 years of age and were more often white, female, and employed with at least some college education. Fifty-one (51%) percent of participants had seen their physicians within the past 12 months for their IBS and most had used a therapeutic agent within the past 12 months for treatment of the symptoms. As compared to U.S. norms, participants' quality of life was markedly affected by IBS.

Conclusions: Data from population-based samples using symptom criteria for IBS can be rapidly collected through web-based surveys. The results of this large, population-based study confirm the high prevalence and burden of illness of IBS. These data are an important component of risk-benefit assessment.

NOTE: For further information on the symptoms and exploratory examination of severity, see "Symptoms of Diarrhea-Predominant or Alternating IBS: An Exploratory Analysis," Poster #664.

Background

Definition and Characteristics of Irritable Bowel Syndrome (IBS)

- Functional bowel disorder, and, therefore, a diagnosis of exclusion.
- Three subtypes
 - Diarrhea predominant (dIBS)
 - Constipation predominant (cIBS)
 - Alternating diarrhea and constipation (aIBS).
- Evolving criteria for defining IBS in research studies:
 - Manning Criteria
 - Rome I Criteria
 - Rome II Criteria.
- Prevalence has varied across studies using different criteria.
- Population burden of IBS is estimated to be high. Only 25–50% of patients are active in the medical system; most seek either prescription, over-the-counter (OTC), or nontraditional remedies.
- Clinic population is not likely to be reflective of the overall IBS population.

Objectives

- Explore the use of a novel, web-based survey in a large, U.S. population-based sample.
- Determine the prevalence, demographics, burden of illness, and resource use among subjects who met the Rome II criteria for dIBS and aIBS in a general population.

Methods

Recruitment

- Source population: web-based research panel
- Over 150,000 household members representative of the U.S. population aged 21–65 recruited through stratified, random-digit dialing (56% response rate)
- Panel members supplied with WebTV Internet service to avoid limiting to current computer or Internet users
- Conducted between December 2001 and February 2002

Questionnaires

- Two tiers of questionnaires were used in this study (see Figure 1):
 - Screening Questionnaire was used to confirm that participants fulfilled Rome II criteria for dIBS and aIBS.
 - Rome II criteria were modified for ease of administration via WebTV.
 - Main Questionnaire covered
 - Symptoms and severity at most recent IBS episode
 - Duration of recurrent symptoms over lifetime
 - Treatment history within 12 months prior to survey
 - Functional status, using SF-36.

Analysis

- Continuous data: mean + standard deviation (sd)
- Categorical data: proportions
- Prevalence rates and 95% confidence intervals: per 100 respondents
- Univariable analyses conducted to compare demographic profiles of dIBS and aIBS respondents
- Group differences:
 - Categorical variables via Chi-square test
 - Continuous variables via two-sample independent t-test
- Mean scores for SF-36 domains were compared between groups by the two-sample independent t-test. Bonferroni correction for the level of significance of $\alpha=0.05/8=0.00625$ was used as a correction for multiple domain scores between groups.
- All analyses were performed using SAS® for Windows® (version 8.2).

Disclosure

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Presenter

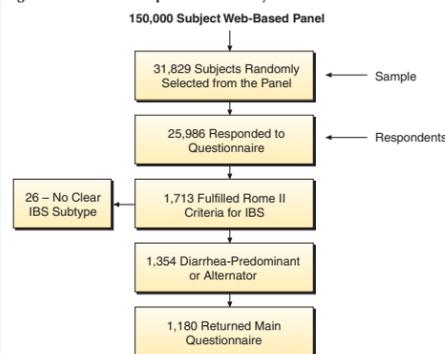
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Results

The Screening Questionnaire was sent to 31,289 participants, of which 25,986 (82%) completed the questionnaire. The flow of participants through the study is shown in Figure 1.

Figure 1. Flow of Participants in the Study



Characteristics of the sample population:

- Reflective of the U.S. population (see Figure 2).
- Notable difference between respondents and U.S. population:
 - Fewer younger individuals (ages 21–29)
 - Fewer individuals reporting lesser amounts of formal education.

Table 1. Panel Representative of U.S. Population

Parameter	U.S. Population* (%)	Sample (n=31,829) (%)	Respondents** (%)
Gender			
Male	48.8	48.8	48.8
Female	51.2	51.2	51.2
Age			
21-29	20.1	14.7	12.8
30-44	39.4	41.4	40.2
45-59	32.5	36.5	37.2
60-65	8.0	7.9	8.9
Race			
White	71.4	76.6	78.3
Black	12.0	10.3	9.5
Hispanic***	11.6	7.8	7.2
Other	5.0	5.3	5.0
Education			
Less than HS	12.8	6.3	5.8
HS	31.7	24.6	24.8
Some college	28.4	39.8	39.8
Bachelor or higher	27.2	29.3	29.7

*U.S. Bureau of the Census (2002). Current Population Survey. <http://ferret.bls.census.gov/cgi-bin/ferret>.

** Respondents are defined as those who returned the questionnaire in a satisfactory manner.

*** Hispanic represents ethnicity not race. Individuals may have answered Hispanic and a race.

Prevalence: Prevalence is presented in Figures 2 and 3. Of note is the similar prevalence rates across gender and race, and the unexpected increase with decreasing income.

Figure 2. Prevalence by Subtype

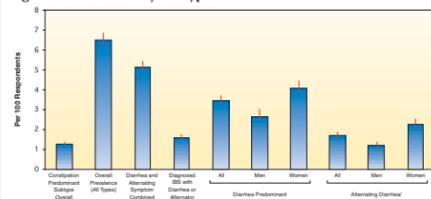
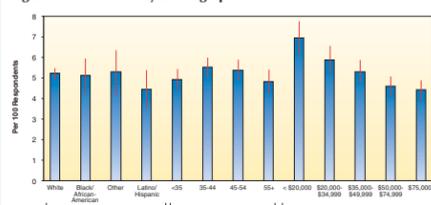


Figure 3. Prevalence by Demographics



The Main Questionnaire was sent to the 1,354 dIBS and aIBS participants, and 1,180 of these (87%) satisfactorily completed the survey.

Demographics: Analysis of the 1,180 participants completing the Main Questionnaire showed that 66% (n=782) had symptoms consistent with dIBS and 34% (n=398) had symptoms consistent with aIBS (see Table 2).

Table 2. Demographic Characteristics

Parameter	dIBS (n=782)	aIBS (n=398)	Overall (n=1,180)
Female (%)	60.5	67.8	63
Mean age (sd)	44.2 (11.0)	43.3 (10.9)	43.9 (11.0)
Race (%)			
White	85.5	78.9	83.3
Black	8.2	13.6	10.0
Hispanic*	5.0	7.5	5.8
Other	6.0	5.8	5.9
Education (%)			
Less than HS	5.2	8.5	6.4
HS	23.7	27.1	24.8
Some college	45.9	41.2	44.3
Bachelor or higher	25.2	23.1	24.5
Married (%)	62.8	54.2	60.2
Currently employed (%)	80.8	77.9	79.8
Head of household (%)	84.0	78.6	82.2
Income (%)			
<\$20,000	14.7	24.4	18.0
\$20,000-34,999	19.4	17.3	18.7
\$35,000-49,999	22.3	20.9	21.8
\$50,000-\$74,999	23.3	19.6	22.0
>\$75,000	20.1	17.6	19.2

*Hispanic represents ethnicity not race. Individuals may have answered Hispanic and a race.

Results (continued)

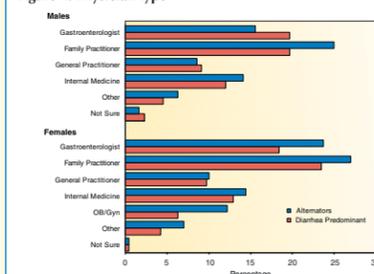
Health Care and Episode Information: Individuals typed to aIBS tended to consult physicians more frequently than those with dIBS (Table 3).

Table 3. Health Care and Episode Information

Information Reported by Participants	Male (%)	Female (%)	Overall
Seeing a doctor about abdominal symptoms in the 12 months prior to the survey	47	54	51%
Diagnosed with IBS			
Any duration of symptoms	21**	43**	35%
Duration of symptoms >10 years	40	65	56%
Duration of symptoms <1 yr	7	21	15%
Experiencing an episode in the last 3 months	66	69	67%
Mean number of medication classes in past 12 months			
Using ≥1 prescription medication class in past 12 months	46	53	46%
Using ≥1 OTC medication class in past 12 months			91%
Antidiarrheal or antacid			60%
Analgesic			50%
Medication used to relieve: Abdominal pain and discomfort	72.3	75.8	74.9%
Urgency	52.1	59.5	56.8%
Frequent bowel movements	53.8	60.5	58.0%
Loose, mushy, or watery stools	58.3	61.3	60.3%
Using dietary changes	80.0	85.9	83.7%
Using stress reduction therapies	34.3	46.4	41.9%
Using herbal remedies	32.4	42.1	38.6%

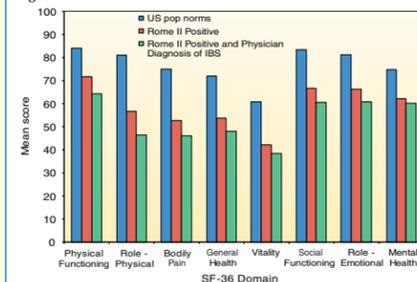
**p<0.0001.

Figure 4. Physician Type



SF-36. Participants reported significant negative impacts on every domain of the SF-36 as compared to U.S. population norms (Figure 5). On most of the domains, women reported a greater negative impact on their quality of life than did men, while for most domains, dIBS and aIBS participants were similarly affected.

Figure 5. SF-36



Discussion

- Prevalence of 6.6% using Rome II Criteria was consistent with some but somewhat lower than other estimates. Rome Criteria are not used in everyday clinical practice. Prevalence estimates for IBS, as determined by the Manning or Rome Criteria, may be minimum estimates.
- Prevalence varied little by race or age.
- Among the participants with IBS symptoms, the "typical" patient was as expected—white, female, age 44.
- Medical Care and Functional Status
 - Two-thirds experienced an acute IBS episode within 3 months prior to being surveyed.
 - More than half visited a physician about IBS symptoms during the previous year.
 - Women were significantly more likely than men to report receiving an IBS diagnosis.
 - Every domain of the SF-36 was negatively affected in persons reporting IBS symptoms. The functional status in women was affected more than in men.
 - Medication use reported in this survey was similar to that reported in other published studies.
- Use of the web-based panel constituted a new, rapid tool for assessment of epidemiologic information.
 - Advantages
 - Speed of data collection (less than 2 months)
 - U.S. population-based sample
 - Participants not restricted to those seeking medical care
 - Patient-reported rather than physician evaluation
 - Disadvantages
 - No clinical confirmation of self-reported clinical information
 - Potential technology bias.

Conclusions

- Use of the web-based technology to conduct a U.S. population-based survey was a useful, effective, and valuable mechanism for studying this disease.
- IBS has a significant impact on individuals and on use of health care resources.
- The prevalence seen in this population-based study of IBS is consistent with other research. Contrary to other research findings, the IBS burden is distributed more evenly across age and gender than the typical patient, and is inversely associated with income. Implications of these observations are that drug development, clinical care, and reimbursement should be responsive to the broader IBS burden, rather than focusing on the typical patient.