The prevalence and impact of abdominal pain, bloating, and diarrhea in the adult US population are largely unknown. We conducted a national, cross-sectional, telephone survey of US households to provide estimates of the frequency, duration, severity, and impact of specific digestive symptoms during the previous month. A total of 2510 subjects completed interviews (70.7% response rate). Among the respondents, 1017 (40.5%) reported one or more digestive symptoms within the month before the interview, including abdominal pain or discomfort 21.8%, bloating or distension 15.9%, and diarrhea or loose stools 26.9%. Women were more likely than men to report abdominal pain or discomfort (24.4% vs 17.5%) and bloating or distension (19.2% vs 10.5%), but not diarrhea or loose stools (27.1% vs 26.7%). Symptoms were less common among those ≥60 years of age. More than 65% of respondents rated symptoms as moderate or severe in intensity, and the majority reported limitations in daily activities. We conclude that digestive symptoms are more common than previously recognized and have a significant impact.

KEY WORDS: abdominal pain; diarrhea; signs and symptoms; digestion.

Although digestive symptoms, including abdominal discomfort, bloating, and diarrhea are common, their prevalence and impact in the adult US population are largely unknown. Prevalence estimates could highlight the individual and public health importance of these symptoms, thereby helping to set research agendas and funding priorities. Such estimates could also provide a context for interpreting the significance of reports of illnesses or digestive symptoms following ingestion of certain foods or drugs.

Only limited information has been published on the frequency of these complaints, and previous reports do not provide information on the impact of these symptoms on daily activities, physician visits, or medication use. We therefore conducted a large survey of the US population to provide information on the prevalence and impact of several common digestive complaints.

MATERIALS AND METHODS

Sample. The research was conducted as a cross-sectional household telephone survey of adults in the United States. Individuals were eligible to participate if they were 18–75 years of age, a permanent resident of the household telephoned, able to converse in English, and mentally competent to be interviewed.

The Genesys Sampling System (Fort Washington, Penn-

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sylvania) was used to generate a random sample of phone numbers. The sampling frame was the 48 contiguous states and Washington, DC. Phone numbers were called in order until a disposition was reached. When a household was reached, the first eligible permanent resident was interviewed in detail. At the conclusion of the interview, a household census was conducted to enumerate the number, age, and sex of household members. One member of the household was then selected at random. If the randomly selected member was the one already interviewed, the household was complete. If another household member was selected at random, arrangements were made to interview those persons later for a sample of the households. For reasons of efficiency, a random household member was not selected for each household. Only the interview on the randomly selected household member was retained for the analysis if more than one interview per household was completed.

A total of 4908 households were contacted between August 11 and October 6, 1997. Of the households contacted, 788 (16%) were ineligible, primarily due to age (9.2%) and language barrier (4.7%). From eligible households, 2684 (70.7%) individuals agreed to participate (ie, gave either a partial or complete interview), and 2510 (93.5%) completed the entire interview and provided the data used in this report. Of these, 434 (17%) were the randomly selected household member. The demographic characteristics of subjects selected at random were similar to the other subjects.

**Interview.** The survey was pilot tested in 454 adults in the Indianapolis Standard Metropolitan Statistical Area, and ambiguous, problematic, and redundant questions were modified or eliminated. Following a series of introductory questions, respondents were asked whether they had had lower abdominal pain or discomfort, bloating or distension, and loose stools or diarrhea during the month prior to the interview. The terms were not otherwise defined or explained. Women were instructed to exclude bloating or discomfort associated with a menstrual period. Respondents who indicated that they had experienced one or more of the symptoms were asked questions about the frequency and duration of their symptoms and to rate the severity of their symptoms using a 10-point anchored scale. For example, for abdominal pain they were asked to rate their pain on a scale from 0 to 10 with 0 being no pain and 10 being the worst pain that they had ever experienced. Severity was arbitrarily defined as follows: mild (score from 0 to 3), moderate (score from 4 to 6), severe (score from 7 to 10). Respondents were also asked to indicate how much the symptom reduced their usual activities on a scale from 0% (not reduced at all) to 100% (unable to do anything). Respondents were asked whether they had visited a physician or used medications because of their symptoms. To evaluate possible recall bias, we asked study participants about the characteristics of their most recent digestive symptom in the month.

The reliability with which symptoms were reported was assessed by retesting a random sample of 155 subjects 10–25 days after the initial interview. The participation rate for the reliability study was 88.1%.

**Analysis.** Continuous variables were categorized based on the observed distribution of responses. The reliability with which symptoms were reported was assessed by calculating the percent agreement and by the kappa statistic. Percent agreement was defined as the percentage of respondents who reported the symptom present both at the initial interview (time 1) and the later reinterview (time 2) plus the percentage of respondents reporting the symptom absent both at time 1 and time 2. Correlations between responses were evaluated using nonparametric (Spearman’s) correlation coefficients.

All data management and analysis tasks were performed using SAS statistical software for Windows (version 6.12) (SAS Institute, Cary, North Carolina).

**RESULTS**

The descriptive characteristics of the study sample are shown in Table 1 by sex. Women comprised 62% of the sample. Nearly 80% of the respondents were white, and 56% were married. The majority had more than a high school education. The median reported household income was between $30,000 and $39,999, similar to that of the United States.

Among the 2510 respondents, 1017 (40.5%) reported that one or more digestive symptoms had occurred at least once during the month before the survey. Abdominal pain or discomfort was reported by 21.8%, bloating or distension by 15.9%, and loose