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Predictors of medical and mental health care use in patients with irritable bowel syndrome in the United States

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ABSTRACT

Because health care demand among IBS patients imposes a heavy economic burden, identifying high utilizers has potential for improving quality and efficiency of care. Previous research has not identified reliable predictors of utilization of IBS patients. We sought to identify factors predictive of health care utilization among severe IBS patients. 291 IBS patients completed testing whose content mapped onto the Andersen model of health care utilization. 2-stage hurdle models were used to determine predictors of health care use (probability and frequency). Separate analyses were conducted for mental health and medical services. Whether patients used any medical care was predicted by diet and insurance status. Tobacco use, education, and health insurance predicted the probability of using mental health care. The frequency of medical care was associated with alcohol use and physical health status, while frequency of mental health services was associated with marital status, tobacco use, education, distress, stress, and control beliefs over IBS symptoms. For IBS patients, the demand for health care involves a complex decision-making process influenced by many factors. Particularly strong determinants include predisposing characteristics (e.g., dietary pattern, tobacco use) and enabling factors (e.g., insurance coverage) that impede or facilitate demand. Which factors impact use depends on whether the focus is on the decision to use care or how much care is used. Decisions to use medical and mental health care are not simply influenced by symptom-specific factors but by a variety of lifestyle (e.g., dietary pattern, education, smoking) and economic (e.g., insurance coverage) factors.

Irritable bowel syndrome (IBS) is a functional gastrointestinal (GI) disorder characterized by abdominal pain associated with diarrhea and/or constipation. As one of the most common diagnoses seen by gastroenterologists and primary care physicians (Mayer, 2008), IBS exacts substantial economic costs (Spiegel, 2013) estimated at $15 billion annually (Sandler et al., 2002). A significant source of these costs is the demand for health care services which is higher among IBS patients than those with other GI diseases or healthy individuals (Chang, 2004). Given its economic burden, a better understanding of the factors influencing health care use is needed to help identify patients at increased risk for poorer outcomes. Early identification of such patients may facilitate earlier implementation of targeted behaviorally-oriented disease management strategies that improve the quality of care (Longstreth et al., 2003) for symptoms that do not adequately respond to medical treatments.

Previous efforts to explain health care use of IBS patients have presumed that the factors that modify the IBS symptom experience (e.g. abdominal pain intensity, quality of life impairment, bowel type) also influence their decision to use health care resources (Kanazawa et al., 2004; Koloski, Talley, & Boyce, 2001; Talley, Boyce, & Jones, 1997; Talley, Gabriel, Harmsen, Zinsmeister, & Evans, 1995;

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Abbreviations

IBS	Irritable Bowel Syndrome
GI	Gastrointestinal
BFF-S	Block Fruit Fiber Screener
IBS-LOC	IBS-Specific Locus of Control
STAI	State-Trait Anxiety Inventory
ASI	Anxiety Sensitivity Inventory
PSS	Perceived Stress Scale
ISEL	Interpersonal Support Evaluation List
IBS-SSS	Irritable Bowel Syndrome Symptom Severity Scale
PCS	Physical Component Summary
SF-12	Short Form-12
BSI	Brief Symptom Inventory
GSI	Global Severity Index
IBSOS EF	IBS Outcome Study Economic Form
STAI-T	State-Trait Anxiety Inventory Trait anxiety
IRRs	Incident rate ratios
M	Mean
SD	Standard Deviation
ANOVA	Analysis of variance

Williams et al., 2006). A conceptual approach that emphasizes symptom factors has yielded few consistent predictors of health care use (Koloski et al., 2001). The notion that IBS patients seek health care because of the severity of GI symptoms is not well established (Koloski, Talley, Boyce, 2001). Neither the severity (Ringstrom, Abrahamsson, Strid, & Simren, 2007), duration (Lydeard & Jones, 1989), nor nature of GI symptoms (e.g., predominant bowel habit) reliably predicts treatment seeking behavior (Talley, Zinsmeister, & Melton, 1995). Psychological factors provide no more conclusive link to heath care use. Ringstrom et al. (2007) found that psychological factors such as fear of GI symptoms, anxiety, depression, quality of life impairment, and coping style predicted health care use, whereas Talley et al. (1997) found no relationship between health care and psychological factors. This pattern of data prompted Talley et al. to assert "other unknown factors are much more important" (Talley et al., 1997, p. 397) in understanding patterns of health care use among IBS patients.

Potential clues come from the Andersen model (Andersen, 1995) of health care utilization which is a widely accepted conceptual framework for understanding why people access health care services. The model holds that the decision to use health care is influenced by three classes of factors: the predisposition to use services, the ability to use services, and the need for services. Predisposing factors are demographic and socioeconomic characteristics such as age, gender, race/ethnicity, marital status, health beliefs, and education level (Ringstrom et al., 2007). Even if individuals are predisposed to use health care services, certain characteristics must be in place for them to access them. These "enabling" factors represent the logistical aspects of obtaining care and include having health insurance, income, social support, and characteristics of the health care system. Without the ability to access health care, a predisposition to use these services does not necessarily lead to utilization. Last, for an individual to use health care, they must, of course, have a clinically meaningful health problem that registers a need for services. Need variables are often inferred from severity of an illness, its impact on activities of daily living or well-being, or duration. Fig. 1 provides a diagrammatic representation of the Andersen model.

Further, the choice to use health care involves a two-stage decision making process. At the first stage, the individual makes the decision whether or not to contact a health care provider. At the next stage, the individual, working with their provider, determines the amount of treatment services to use. In other words, while the individual initiates the decision to contact a health care provider, the decision regarding intensity of treatment involves both the individual and the provider (Pohlmeier & Ulrich, 1995). Predisposing, enabling and need factors make up the context in which these decisions are made, each of which influences subsequent usage. The specific combination of factors that impact the decision of IBS patients to access health care is unknown.

This study sought to clarify the set of factors that impact health care utilization among patients with more severe IBS. Because of the two-stage nature of the decision-making process, it makes sense to examine these two aspects of health care use (probability of seeking help, frequency of use) which, to our knowledge, have not been simultaneously explored in patients with functional GI disorders. Because symptom factors have not emerged from previous research (Ringstrom et al., 2007; Talley et al., 1997; Williams et al., 2006) as a reliable predictor of health care use among IBS patients, we expected that enabling and predisposing factors may have a more robust impact on health care use as their influence is not disorder specific but cuts across the range of medical or mental health problems for which patients access care. Thus, we predicted that the magnitude of the relationship between health care use and both predisposing and enabling factors would be greater than that with need factors, such as symptoms and related distress.

1. Materials and methods

1.1. Participants

Participants were 291 consecutitvely enrolled IBS patients recruited at two tertiary academic medical centers in Buffalo, NY and Chicago, IL as part of an NIH-funded clinical trial, the details of which can be found elsewhere (Lackner et al., 2012). Patient characteristics are presented in Table 1. Participants were enrolled primarily through local media coverage, community advertising and physician referral. To be eligible for the study, all participants must have met the Rome III diagnostic criteria (Drossman, Corazziari, Talley, Thompson, & Whitehead, 2006) as determined by a board-certified gastroenterologist. Because this study was conducted as part of a clinical trial for moderately to severely affected patients with IBS (Lackner et al., 2012), participants must have also reported IBS symptoms of at least moderate intensity (i.e., symptom frequency of at least twice weekly for a minimum duration of 6 months and causing life interference). Participants with a comorbid organic GI illness that would adequately explain GI symptoms; mental retardation; current or past diagnosis of schizophrenia or other psychotic disorders; current diagnosis of depression with suicidal ideation; current diagnosis of psychoactive substance abuse were excluded. Institutional review board approval (UB, May 19, 2009; NU, December 19, 2008) Signed informed consent for each subject was obtained before s/he enrolled in the study. The study was completed in full compliance with the Declaration of Helsinki.

1.2. Procedure

After a brief telephone interview to determine eligibility, participants underwent a medical examination administered by a board-certified gastroenterologist to confirm diagnosis of IBS based on Rome III criteria (Longstreth et al., 2006) and testing drawn from a battery of psychometrically validated measures detailed below. We categorized the measures into one of three domains of the Andersen model on the basis of prior research.