Gender, Age, Society, Culture, and the Patient's Perspective in the Functional Gastrointestinal Disorders

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Patients with functional gastrointestinal disorders (FGID) often experience emotional distress, a perceived lack of validation, and an unsatisfactory experience with health care providers. A health care provider can provide the patient with a framework in which to understand and legitimize their symptoms, remove self-doubt or blame, and identify factors that contribute to symptoms that the patient can influence or control. This framework can be strengthened with the consideration of various important factors that impact FGID but are often overlooked. These include gender, age, society, culture, and the patient's perspective. There is evidence for sex- and gender-related differences in FGID, particularly irritable bowel syndrome (IBS). Whereas the majority of FGID, including IBS, bloating, constipation, chronic functional abdominal pain, and pelvic floor dysfunction, are more prevalent in women than men, functional esophageal and gastroduodenal disorders do not appear to vary by gender. Limited studies suggest that sex differences in visceral perception, cardioautonomic responses, gastrointestinal motility, and brain activation patterns to visceral stimuli exist in IBS. Gender differences in social factors, psychological symptoms, and response to psychological treatments have not been adequately studied. However, there appears to be a greater clinical response to serotonergic agents developed for IBS in women compared to men. The impact of social and cultural factors on the meaning, expression, and course of FGID are important. The prevalence of IBS appears to be lower in non-Western than Western countries. Although further studies are needed, the existing literature suggests that they are important to consider from both research and clinical perspectives.

This review has been developed to discuss important variables that have been largely overlooked in the study of functional gastrointestinal disorders (FGID), namely gender, age, society, culture, and the patient's perspective. These variables should be included in the design of research protocols to provide a more comprehensive understanding of these disorders from both a theoretical and a methodological perspective. Failure to consider these variables may result in an overly simplistic and incomplete interpretation of research data. The majority of studies that are discussed focus on irritable bowel syndrome (IBS) because it is the most studied of the FGID. We also recognize that knowledge generation and transfer has been traditionally given to the "expert," who is usually a scientist or clinician rather than the individual who has the specific condition under study. For these reasons, this review starts with the patient's perspective.

The Patient's Perspective

The illness experience of persons with FGID, such as IBS, is similar to that of those who live with other chronic conditions of uncertain etiology and ambiguous diagnostic criteria. Chronic illnesses are characterized by long-term courses, unpredictable symptom episodes, and disabling effects that are often accompanied by minimally effective treatments, social stigma, and isolation.[1] Symptoms place demands on families as well as patients, and impair functioning while placing perpetual demands on the individual patient.

Living With IBS

What matters most to patients with chronic illness is how well they are able to function and how they feel about their day-to-day lives. Whether their

Abbreviations used in this paper: FGID, functional gastrointestinal disorder; HRQol, health-related quality of life; IBS-C, constipation-predominant irritable bowel syndrome; IBS-D, diarrhea-predominant irritable bowel syndrome.

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symptoms are mild or severe, persons with IBS repeatedly experience unpredictable symptoms of discomfort or pain and altered bowel habits, accompanied by emotional distress over the lack of control of symptoms. Two IBS patient surveys, one qualitative[2] and the other quantitative,[3] demonstrated that symptoms caused major interferences in daily life. Personal sacrifices were common as individuals struggled to accommodate symptoms. Anticipation and worry over when and where the next symptom episode would occur imposed limitations on planning and daily life. Frustration, isolation, and a perceived lack of validation for the disorder were also considered major problems. Patients reported high health care utilization. Yet less than one third reported satisfaction with the drugs and remedies they were using to treat their symptoms. In another study conducted in IBS patients belonging to a health maintenance organization, overall 57% of patients reported satisfactory relief of their bowel symptoms after 6 months of usual medical care, which included education, dietary and lifestyle advice, and medications. However, only 22% reported that symptom severity was reduced by half.[4]

The Patient–Physician Encounter

The patient–physician encounter in IBS is challenging and often frustrating to both parties. Patients who seek diagnosis and treatment often report an unsatisfactory or unhelpful experience with health care professionals. Physicians share frustration with the patients over the poorly understood nature of IBS as a disease, as well as lack of treatments.[5] To the patient, unsatisfactory explanations may be experienced as a denial of the legitimacy of their reported symptoms, an implication that negative test results imply an absence of cause, and a lack of understanding or belief in their suffering.[6]

The Patient and Physician Working Together

A strong physician–patient relationship is fundamental to successful management. Patients need convincing explanations about the diagnosis and nature of their symptoms that encourages the view of IBS as a legitimate disorder for which a clear pathogenesis has not yet been found.[5–8] They also need information about how it will influence their ongoing daily lives.[7] Physicians can help by eliciting and addressing patient concerns[9]; offering a positive diagnosis; providing clear, understandable, and legitimizing explanations of the disorder; and helping to identify factors within the context of the patient's own illness that they can influence and control. Self-care is integral to coping with chronic IBS in daily life.[5] Empowerment provides the patient with a framework in which to understand and legitimize the symptoms, remove self-doubt or blame, and identify internal or external factors that may contribute to symptoms that the patient can influence or control within the context of his or her own experiences.[6] Although the term *patient–physician* is used, it refers to all health care providers.

Gender

Sex, Gender, and Gender Role

Sex is generally used to refer to a person's biological femaleness or maleness. *Gender* is generally used to refer to the nonbiological aspects of being female or male, in other words, the social or cultural expectations associated with femininity or masculinity.[10] However, we know that most differences between males and females are a function of the interaction between biology and environment. In this review, *gender* is used as a more inclusive term. *Sex* is used for the classification of individuals based on their reproductive organs and functions assigned by chromosomal complement. Gender roles are based on sex stereotypes, which are socially shared beliefs that biological sex determines certain qualities.[10]

Gender and Epidemiology

Symptoms of FGID are quite prevalent in the community. The effects of sex on the prevalences of FGID are summarized in Table 1. The majority of FGID are more prevalent in women than men. Women are more likely to report globus, dysphagia, IBS, bloating, constipation, chronic functional abdominal pain, sphincter of Oddi dysfunction, fecal incontinence (at home), functional anorectal pain, and pelvic floor dysfunction. Additional information on these FGID is provided in the other articles. In one study, the prevalence of IBS in the United States was equal between men and women,[11] whereas the majority reported female-to-male ratios of 2–3:1.[12,13] Increasing evidence from limited studies supports similar prevalence rates for pain-related symptoms in IBS,[14] but a greater female predominance in non–pain-associated symptoms of constipation, bloating, and extraintestinal manifestations.[15–18]

Studies have demonstrated that functional esophageal and gastroduodenal disorders, including functional chest pain, functional heartburn, dyspepsia, and functional vomiting, do not vary by gender.[12,19] However, female gender has also been associated with delayed gastric emptying[20,21] and lower tolerance of the water-loading test in patients with functional dyspepsia.[22]

Table 1. The Effect of Sex and Age on the Prevalence of FGID

FGID	Effect of Sex	Change With Age
Esophageal		
Globus	F>M[12,88]	↓[12,88,89]
Rumination	F=M[12]	↓[12,88,89]
Functional chest pain	F=M[12,88,89]	↓[12,88,89]
Functional heartburn	F=M[88]	=[12]
Dysphagia	F>M[12,88]	↑[12]
Gastroduodenal		
Dyspepsia	F=M[12,19]	↓[90–92]
Aerophagia	M>F[12,20]	↓[12,119]
Functional vomiting	F=M[19,90]	↓[19,90]
Biliary tract	F[12]	↑[12]
Lower GI tract		
IBS	F[11,12]	↓[12,126]
Functional constipation	F[11,12,90,120,121]	↑[35,95,96]
Functional diarrhea	M>F[11,12,90,120,121,122]	↓[90]
Functional bloating	Discordant[12,123]	Discordant[12,123,127]
CFAP	F>M[12]	↓[12]
Fecal incontinence	F>M (at home)[124] M>F (nursing homes)[125]	↑[12,94,98,99]
Functional anorectal pain	F>M[12]	↓[12,100]
Outlet delay	F[100]	

Note. Some of the data in this table are based on single studies or multiple small-scale studies and should be taken with caution.
CFAP, chronic functional abdominal pain; F, female; FGID, functional gastrointestinal disorders; GI, gastrointestinal; IBS, irritable bowel syndrome; M, male.

Although there is little evidence that symptoms of functional dyspepsia are influenced by menstrual cycle phase or menopausal status, evidence supports that IBS symptoms are influenced by menstrual cycle, with an amplification of symptoms during the late luteal and early menses phases.[23–25] Heitkemper et al[25] recently found that GI symptoms tended to be elevated across all cycle phases in women with IBS compared to healthy women, but both groups demonstrated a similar increase in severity immediately prior to or at the onset of menses.

Gender and Biological Factors

FGID are best viewed as biopsychosocial disorders with dysregulation of the brain–gut axis.[26] This results in alterations in visceral pain perception, autonomic function, and central processing of visceral stimuli. Gender differences in these mechanisms have been evaluated primarily in IBS.

Visceral pain perception. Studies in healthy men and women have not supported an enhanced perception to visceral stimuli in women relative to men. Two studies measured esophageal thresholds to balloon distention in healthy men and women,[27] but differences in pressure thresholds to pain were not found.[27] Two other studies have compared colorectal distention in healthy women and men.[28,29] In one study, women appeared to have higher perceptual ratings (ie, increased perception) compared to men, but there were no significant differences before or after a meal.[28] The second study found that healthy women had reduced perceptual responses to rectosigmoid stimuli compared to healthy men.[29] No attempts to control for menstrual cycle were made in these studies.

Although there have been multiple studies that have shown enhanced visceral perception in a subgroup of patients with FGID, including atypical chest pain,[30] functional dyspepsia,[31,32] and IBS,[33–36] relative to healthy control subjects, there are relatively few that have compared visceral perception in men and women with IBS. Two studies have demonstrated enhanced rectal perception (ie, decreased rectal thresholds) in women with IBS compared to men with IBS.[29,37] A third study measured duodenal perceptual thresholds to distention in relatively small patient groups with functional dyspepsia alone, functional dyspepsia and IBS, IBS alone, and healthy controls.[38] Whereas the patient groups had significantly lower thresholds to first perception and then pain (increased perception) compared to the control group, no significant differences between men and women were found.

There appears to be an effect of female sex hormones on rectal sensitivity in women with IBS, but not healthy women. Rectal sensitivity was compared across the 4 phases of the menstrual cycle (menses, follicular phase, luteal phase, and premenstrual phase) in healthy women and women with IBS. In healthy female volunteers, no differences were found in measures of rectal sensitivity, distention-induced rectal motility, and rectal compliance across the different phases of the menstrual cycle.[39] In contrast, perceptual thresholds were lower during menses compared to other menstrual cycle phases in women with IBS.

GI motility. Studies have demonstrated either shorter[40–43] or equivalent[44,45] GI transit times in healthy men compared with healthy women. Two studies compared colonic motility in healthy women and men.[28,46] In one study using standard colonic motility and barostat testing, there were no gender differences in fasting, postprandial frequency of contractions, motility index, or compliance of the left colon.[28] However, the second study utilized ambulatory 24-hour colonic manometry and demonstrated significantly less pressure activity in the colon during daytime hours in women compared to men.[46] There was no attempt to control for phase of

Table 2. Studies in FGID Reporting Gender Differences on Psychological Measures

Study	Number (% women)	FGID Criteria	Findings
Corney and Stanton,[17]	42 (74%)	IBS—Abdominal pain and alteration in bowel habit for 6 months	Women reported more psychological distress and were more likely to have psychiatric diagnosis than men
Blewett et al,[54]	76 (66%)	IBS—Manning criteria	No difference in prevalence of psychiatric disorder between men and women
Simren et al,[15]	343 (73%)	IBS—Rome I	Women > men for fatigue, depression, and anxiety, differences more marked for outpatients than primary care
Fock et al,[56]	43 (63%)	IBS—Manning criteria	62% of women had psychiatric diagnoses compared to 17% of women with organic GI illness, but no difference between men with IBS or organic disease
Lee et al,[22]	714 (67%)	IBS—Rome I	No difference in psychological symptoms
Blanchard et al,[55]	341 (70%)	IBS—Rome I (retrospective)	Women were more depressed and showed greater trait anxiety than men. No difference on state anxiety or percent of patients with an Axis I psychiatric disorder
Westbrook et al,[128]	748 (54%)	Dyspepsia—Rome I	Women had poorer physical and mental well-being than men

FGID, functional gastrointestinal disorder; GI, gastrointestinal; IBS, irritable bowel syndrome.

menstrual cycle in both of these studies. There are no published nondrug studies comparing colonic motility in women and men with IBS.

Comparison of anorectal function in 15 healthy men (mean age, 41 ± 3 years) and 20 women (mean age, 43 ± 2 years, 5 nulliparous) was performed by Sun and Read.[47] Healthy men had higher minimum and maximum basal anal sphincter pressures, higher anal pressures during maximum conscious sphincter contraction, lower rectal volumes required to cause an anal relaxation, and higher volumes to induce a desire to defecate. In addition, significantly fewer men experienced pain during a 1-minute 100-mL rectal distention (using syringe inflation) compared to women (13% versus 55%). These results suggest that healthy men have stronger anal sphincter pressures and that women have either lower rectal compliance or increased rectal sensitivity.

Cardioautonomic tone. Heart rate variability, which measures cardioautonomic tone, is becoming an increasingly common noninvasive technique of assessing autonomic function. One study demonstrated that men with IBS have greater cardiosympathetic and lower cardiovagal tone in response to rectosigmoid distention than women with IBS.[48]

Central processing of visceral stimuli. Proposed alterations in central processing of visceral stimuli in FGID have been supported by recent findings in functional neuroimaging studies[49,50]; however, only a few studies have addressed gender differences in health and GI disease. In a functional magnetic resonance imaging study of healthy individuals, Kern et al[51] found that men showed activation in sensory and parieto-occipital areas to rectal distention, and women showed greater activation in the anterior cingulate and insular cortices, both regions associated with greater sensory and affective responses to noxious stimuli.

Only 2 neuroimaging studies have examined gender differences in IBS.[52,53] Naliboff et al[53] found that men and women with IBS had significant differences in brain response to aversive pelvic visceral stimuli. Although both groups of patients showed activation of the expected pain regions, men with IBS showed greater activation of the lateral prefrontal cortex, dorsal anterior cingulate cortex, and dorsal pons/periaqueductal gray, which may be involved in endogenous pain inhibition, relative to women with IBS. In contrast, women with IBS showed greater activation of limbic and paralimbic regions, including the amygdala, anterior cingulate cortex, and infragenual cingulate cortex, which may be part of a pain-facilitation circuit, relative to men with IBS. These findings suggest that men and women with IBS may process aversive information originating from pelvic viscera differently.

Gender and Psychological Factors

Although there are many studies of psychological functioning in FGID, relatively few investigators have examined gender differences. The majority of studies have included a psychological evaluation and have been carried out in the general hospital setting and in GI outpatient clinics. The ratio of women to men in these studies has varied from 1:1 to 4:1 (Table 2), although most have recruited a larger proportion of women than men, and some investigators have chosen to exclusively

study women. Thus, most studies have not been powered to undertake a comparative analysis of gender differences.

In general, the findings of most studies suggest that patients with FGID who are seen in outpatient GI treatment settings have high rates of a psychiatric disorder and psychological distress (between 40% and 60%). In studies that have examined for gender differences in FGID, or reported on certain aspects of gender, relatively few studies have reported differences in psychological symptom scores between men and women (Table 2). Blewett et al[54] and Lee et al[23] found no difference in psychological symptoms between men and women. Blanchard et al[55] found small differences between men and women in patients seeking psychological treatment for IBS using a psychological self-report measure, but no difference using a diagnostic interview. Two small studies, one from the United Kingdom and one from Singapore, have reported differences between men and women with IBS,[17,56] with women reporting higher rates of psychological distress than men. In the former study, the General Health Questionnaire was used, whereas the study from Singapore used the Eysenck Personality Questionnaire. Another study demonstrated that female hospital outpatients with IBS had a poorer health-related quality of life (HRQoL) and greater psychological distress on some HRQoL measures than female primary care patients, but this difference was not seen in men.[15] Of note, some psychological tests have different norms for men and women, and this could affect the interpretation of these studies.

At present, there are relatively few studies that have examined gender differences in psychological symptoms in FGID, and there is no convincing evidence of any major differences between men and women with FGID. Those differences that have been reported are most likely to reflect the differences between men and women in the general population, in relation to psychological symptom reporting, rather than any specific gut-related phenomenon.

Gender and Social Factors

It is important to acknowledge that health and illness, including FGID, occur within a larger social context. Although there have been many studies evaluating the role of stress and abuse in FGID, there has been relatively little effort to date directed toward identifying other social factors that have been associated with FGID.[57] The few social determinants that have been investigated in FGID include life stressors (including history of sexual, physical, and emotional abuse), early life experiences (including gender role socialization), social support, and social factors that have been assessed by quality-of-life scales.

Life stress. Several studies found that IBS patients report more lifetime and daily stressors compared with medical control groups or healthy controls.[58–64] Stress has been found to be associated with both symptom onset and severity,[62,64–66] and to adversely affect health status and clinical outcome in patients with IBS.[61,65,67] However, there are no studies to date that have assessed gender differences in life stress related to FGID.

History of sexual, physical, and emotional abuse. One form of social stress or oppression that has received increased attention in the past decade in the study of FGID is sexual, physical, or emotional abuse. However, most work in this area has included only women.[57] In the few studies investigating abuse histories that have included men, significant differences are either not statistically reported or quantified owing to insufficient numbers of men in the sample. Two studies reported that sexual abuse was more common in women with FGID,[68,69] but a third study found no gender differences in the history of sexual, physical, emotional, or verbal abuse.[70] Clearly, further research is needed to determine whether there are gender differences in history of abuse in FGID.

Gender role socialization. One important social factor that impacts on health and well-being, which begins in early life and continues throughout, is gender role socialization. The literature suggests that many of the physical and mental health concerns experienced by women are influenced by socialization into the female gender role. Despite postulated links between health problems such as eating disorders, depression, anxiety disorders, and functional somatic disorders (including FGID), there have been few empirical investigations. Toner et al[71] identified several common gender role concerns or themes that have been highly salient and meaningful to women with FGID.

Shame and bodily functions. One central theme is that women with IBS commonly report feelings of shame associated with losing control of bodily functions. Women are taught that bodily functions are something to be kept private and secret as compared to men. One important implication of such teachings is that for women, bowel functioning becomes a source of shame and embarrassment more so than it does for men.[72]

Bloating and physical appearance. Women often score higher on indices of bloating and constipation. Society's focus on how women look, and its perpetuation of thinness as a necessary standard of attractiveness,[62,63] may lead women to experience bloating not only as a

source of physical discomfort, but of psychological distress (eg, worry and shame) as well. The physical and psychological distress that women may experience with abdominal discomfort, coupled with the perception that their pain is being minimized or trivialized by health care professionals, may lead women to respond by becoming more hypervigilant to any sign of pain or discomfort.

Pleasing others, assertion, and anger. Women, as compared with men, are socialized to please others, often at the expense of their own needs.[72,73] This may contribute to women's higher rates of doctor visits and multiple consultations, in that patients who believe that their physician does not understand their experience may seek help elsewhere, rather than show displeasure with their current physician. Women who express anger, make demands, or question authority are often given the label "hysteric," have their complaints dismissed, or have their femininity called into question.[72] These potential repercussions for women who express their own wants and needs are often sufficient to keep women silent. One study found that women with IBS score higher on measures of self-silencing than patients with inflammatory bowel disease.[74]

HRQoL. Several studies have found that patients with IBS and functional dyspepsia have impaired HRQoL compared with other chronic conditions. Few studies have investigated whether women and men with FGID differ on HRQoL measures. In a study of referral center and primary care patients, Simren et al[15] found that women with IBS reported a lower HRQoL compared to men with IBS. In another study, Lee et al[23] also found that women with IBS reported lower HRQoL scores; however, after they controlled for gender differences in the general population, most of the gender effects disappeared. The only remaining gender effect was greater bodily pain scores in women with IBS. Dancey et al[75] found that IBS symptom severity exerted a significant impact on quality of life in women. For men, the psychosocial impact of illness intrusiveness was greater in every domain except sexual relations. The authors suggest that these results have implications for how gender socialization shapes sex differences in the wider experience of IBS.

Gender and Treatment Response

Psychological treatment. Psychological treatment studies have not been powered to examine different response patterns between men and women, and many studies have recruited more women than men, reflecting gender differences in health treatment settings. Blanchard et al[55] and Corney[76] reported similar response patterns to cognitive–behavioral treatments for IBS, but the studies were not powered to detect gender differences. Guthrie et al[77] reported advantages for women in response to therapy compared to men, but in a predictor analysis, gender was not selected into the final model.

A recent large evaluation of hypnotherapy, carried out in Manchester, United Kingdom, has reported different response patterns for men and women. The study was not a randomized controlled trial, but a before and after evaluation of 250 patients with IBS (50 men and 200 women). Although most patients had a good treatment response to hypnotherapy, there was greater overall improvement in women compared to men (52% in women and 33% in men, $P < .001$). The poor response with men was largely seen in those with diarrhea-predominant IBS (IBS-D; 20% improvement), whereas men with constipation-predominant IBS (IBS-C) appeared to have a good response to hypnotherapy (78% improvement), but the numbers in this group were very small ($n = 8$). For women, the equivalent response rates were 53% improvement for those with IBS-D and 55% for those with IBS-C. Further work by Gonsalkorale et al[78] has shown that men have a poorer long-term outcome following hypnotherapy than women (42% versus 25%).

Pharmacologic treatment. There is evidence to suggest that gender-related differences may exist with respect to response to pharmacologic therapy, although relatively small numbers of men have been studied compared with women. Alosetron is a 5-HT_3 antagonist currently indicated only for women with severe, chronic IBS-D who have failed conventional therapy. An initial dose-ranging study demonstrated a significant improvement in the multiple symptoms of IBS-D in women, but not men.[79] However, a subsequent male-only study with alosetron showed significant improvement of IBS pain, discomfort, and stool consistency, but not of the other symptoms of IBS.[80]

Cilansetron is a novel 5-HT_3 receptor antagonist that has been shown to be efficacious in treating the symptoms of IBS-D in men and women.[81–83] Analyses by gender demonstrated that although there was an overall marked significant improvement in men, the treatment difference for men was smaller relative to women.

Several studies have suggested that there may also be a preference of the 5-HT_4 agonist, tegaserod, for efficacy in women compared with men with IBS-C.[84–86] Because of the small numbers of men in these studies, it was not possible to make any conclusions concerning the efficacy of tegaserod in men, although there was an up to 10% therapeutic gain noted that was not statistically significant.[86] However, tegaserod has been recently approved by the US Food and Drug Administration for the treat-

ment of chronic constipation in women and men under the age of 65.[87] Although tegaserod was shown to be efficacious in both women and men with chronic constipation, the efficacy in women appeared to be more robust than in men.

Although there is no definitive evidence to suggest that men and women have a differential response to psychological and pharmacologic treatments, women with FGID appear to respond well to psychological treatment and the newer serotonergic agents, such as 5-HT_3 antagonists and 5-HT_4 agonists, but the response in men seems to be less robust than in women. However, most studies have been insufficiently powered to determine whether there are different response patterns for men and women, and further study is required.

Age

In regard to the functional esophageal disorders, the prevalence of most of these disorders decreases with age (Table 1). Specifically, globus, rumination syndrome, and self-reported functional chest pain are all more common in younger people.[12,88,89] The prevalence of heartburn overall is similar among people ages 25–74.[88] The prevalence of dysphagia in one study increased with age, most notably in participants in the 65- to 74-year-old category.[88]

Some studies have suggested that the prevalence of dyspepsia decreases with age.[90–92] The distribution of subtypes of functional dyspepsia (ulcer-like and dysmotility-like) does not vary by age. Young people are slightly more likely to report aerophagia than older people. Vomiting decreases with age.[19,90]

In general, the prevalence of IBS gradually decreases with age.[12,18] However, among the elderly, the prevalence of IBS was found to increase with age from 8% among those 65–74 years old to >12% for those ≥85.[93]

Although the prevalence of chronic constipation has been shown to increase with advancing age,[94–96] one study found that it affects the young and elderly with similar frequency.[97] Functional diarrhea[90] and chronic functional abdominal pain appear to decrease with age.[12] Fecal incontinence has been extensively studied and increases with age.[12,94,98,99] Functional anorectal pain has decreasing rates with age.[12] The prevalence of rectal outlet delay does not vary by age.[100]

Society

In spite of our growing understanding of so-called functional somatic disorders in general, and disorders associated with FGID, the stigma associated with a functional disorder may lead patients to believe that their problems are treated as "not real" and due to a psychological or moral defect or weakness.[101] It is often contrasted with organic disease and thought to be less legitimate or real.

Several societal myths associated with FGID, in particular IBS, persist today: symptoms are trivial or unimportant; symptoms are all in the person's head; IBS is simply caused by stress; IBS is a psychiatric disorder; nothing can help persons with IBS; if pain is severe, there must be an organic cause; patients with IBS may "benefit" from the "sick role"; and people with IBS are difficult patients.[102] Society mistakenly feels that people with IBS are malingerers and hold negative attitudes.[103] Negative social labels[75] can affect self-esteem and self-efficacy (belief in one's own ability to cope with situations)[104] and lead individuals with FGID to hide their condition and restrict life experiences including leisure, travel, diet, employment, social life, and sex life.[105]

In summary, a multitude of social factors may impact the meaning, expression, and course of illnesses. Although some of these factors are evidence based, others are speculations. These factors are applicable not only to FGID, but to functional syndromes in general, and are often overlooked by health care providers. Acknowledging and incorporating them into clinical practice will increase the quality of patient care, patient–physician relationship, and health outcomes.

Culture

Culture is the values, beliefs, norms, and practices of a particular group that are learned and shared and that guide thinking, decisions, and actions in a patterned way.[106] Culture-related factors can affect the type of health care and health outcomes.

The Clinical Perspective

Patients have explanatory models, which are symptom- or disease-related beliefs that affect their concerns, anxieties, and expectations from the health care process.[107,108] Cultural background, socioeconomic status, educational level, and gender interact in the development of explanatory models.[109] It is important to elicit the patient's explanatory model, understand the cultural background in which it developed, and negotiate a culturally appropriate treatment partnership.[110]

Some population subgroups are more likely to receive suboptimal health care than others.[6] Many individuals in cultural subgroups do not have health literacy skills,[111] particularly in a second language, and have difficulty understanding diagnoses, discharge instructions, and treatment recommendations.[112,113]

Cultural competence is the ability of medical staff and health care professionals to function under cross-cultural circumstances. All physician–patient encounters have the potential for cross-cultural misunderstanding including differing attitudes to authority, physical contact, communication style, gender, sexuality, and family.[110]

The Research Perspective

Cross-cultural research competence describes the skill required to conduct research involving subgroups of differing cultural backgrounds, including a culturally appropriate research protocol and culturally suitable study instruments appropriately translated into and validated in other languages.[114,115]

Cross-Cultural Studies of GI Disorders of Function

The majority of published studies on IBS are ethnocentric with predominantly Western, white populations. However, some studies have focused on other populations. Zuckerman et al[111,116] conducted a comparative study of IBS between Hispanic and non-Hispanic whites in Texas. The difference between the 2 groups in IBS prevalence was not statistically significant after the investigators controlled for gender, age, socioeconomic status, diet, and laxative use. Hispanics tended to self-medicate more than non-Hispanic whites, using folk remedies for relief of their bowel problems, and had a poorer perception of their general health condition.[117] The investigators concluded that ethnicity determines, in part, the perception of health and bowel function and affects health care behavior.[111]

A recently published study compared rates of IBS between Israeli Bedouins still living under rural conditions with those who made a stressful transition to permanent towns.[118] The prevalence of IBS among Bedouins who resettled in permanent towns was found to be significantly higher than those still living in traditional rural settings. Although these differences may be related to the stress of the transition, other possible explanations include changes in nutrition and other lifestyle variables.

In summary, recognition and understanding of the association between culture and health are important for patient care and research. To integrate this awareness into clinical practice and research, clinical cultural competence and cross-cultural research competence should be fostered.

Methodologic Issues in FGID

Because of methodologic issues, which have limited interpretation of studies, there remain many unanswered questions concerning gender, age, society, culture, and the patient's perspective in FGID. Because of the female predominance and greater likelihood of women to participate in research studies, there are insufficient numbers of male participants to make meaningful interpretations and adequately assess gender differences in psychological, physiological, and treatment studies. Another major methodologic concern is that most studies have involved a cross-sectional design, which limits the more comprehensive understanding of the pathogenesis, development, course, and impact of these disorders in men and women.

Conclusion and Future Directions

This review examined the literature regarding the relationship between gender, age, society, culture, and FGID. Important factors pertaining to FGID that were emphasized include (1) the importance of the patient's experience and perspective; (2) the influence of society, culture, gender, and age on all aspects of the individual's experience; (3) the influential role of an individual's sex on the biologic and physiologic processes of brain–gut interactions; and (4) the potential of the health care provider in influencing patient outcome.

To advance the field of FGID, the following are suggested.

From a Research Perspective

1. Studies to identify positive aspects of patient–provider interactions that improve outcome should be performed and include recognition of the patient's perspective, cultural and gender sensitivity, and implementation into patient care programs.
2. Studies using quantitative and qualitative methods are needed to better understand the patient's illness experience and his or her views of the health care system.
3. Studies of varied populations around the world should be performed with appropriate tools to measure cultural and societal influences.
4. Studies evaluating sufficient numbers of men with IBS, and also making comparisons between healthy men and women, are needed to determine if gender differences in FGID are disease specific.

From a Clinical Practice Perspective

1. Recognize that FGID patients view their conditions as illnesses associated with uncertainty, stigma, and social isolation. Physicians can help patients to manage their condition by eliciting and addressing patient concerns; offering a positive diagnosis; providing clear, under-

standable, and legitimizing explanations of the disorder; and helping identify factors within the context of the patient's own illness that he or she can influence and control.

2. There are a number of sex- and gender-related factors that may impact the clinical symptoms and response to treatment of IBS and should be considered, for example, gender role, sociocultural differences, hormonal effects such as menstrual cycle variation, and biological differences influencing gut function and treatment response.
3. Both men and women in clinical settings have psychological issues that may need to be addressed and there is a possibility that men may not do as well with psychological treatment as women.
4. Recognition and understanding of the association between culture and health are also important for patient care. It may be helpful to discuss with patients any cultural issues that may impact their clinical presentation or management of their condition. In addition, medical training and continuing medical education should include and emphasize cross-cultural competencies.

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