Volume 3, Issue 5, 2025

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

PSYCHOSOCIAL FACTORS OF PSYCHOLOGICAL DISTRESS IN PATIENTS WITH GASTROINTESTINAL DISORDERS

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DOI: https://doi.org/10.5281/zenodo.15854693

Keywords
psychological distress, gastrointestinal disorders, illness perception, anxiety, resilience, doctor-patient relationship, dietary habits

Article History
Received on 04 April 2025
Accepted on 25 July 2025
Published on 10 July 2025

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Abstract

Psychological distress, including symptoms of anxiety and depression, is commonly experienced by individuals with gastrointestinal disorders, especially those with irritable bowel syndrome (IBS) and functional dyspepsia. This distress can worsen gastrointestinal symptoms, leading to a cycle of escalating issue. A significant proportion of patients with gastrointestinal disorders report experiencing psychological distress. For example, 70% or more of IBS patients may experience psychological distress. This study focused on the contribution of psychosocial factors (illness perceptions, resilience, anxiety, dietary behavior and doctor patient relationship) in psychological distress experienced by patients with gastrointestinal disorders. It was hypothesized that anxiety mediates the relationship between illness perception and psychological distress. Furthermore, the relative contribution of sociodemographic factors was also explored to find how do individuals with diverse sociodemographics tend to differ in psychological distress. A correlational research was carried out where a sample of (N=....) was recruited using purposive sampling from private and public sector hospitals in Lahore. Assessment measures included demographic and clinical information sheets, The Brief Illness Perception Questionnaire, Brief Resilience Scale, GAD-7, Patient-Doctor Relationship Questionnaire, Adolescent Food Habits Checklist, and Kessler Psychological Distress Scale. The findings revealed that individuals with negative illness perception and higher levels of anxiety reported increased psychological distress. It was found that individuals with higher resilience, healthy doctor-patient relationship, and healthier dietary behaviors tend to report lower levels of psychological distress. It was found that anxiety acted as a mediator between illness perceptions and psychological distress. EXPLAIN HOW abd what does it mean?? The study highlights the relevance of addressing ill-adaptive illness beliefs and adaptive coping strategies to improve psychological wellbeing and improved Quality of life in individuals living with a chronic condition like Gastrointestinal disorders.

INTRODUCTION

Gastrointestinal (GI) disorders comprise a broad variety of diseases and conditions that are associated with the digestive tract, from functional complaints such as irritable bowel syndrome (IBS) to structural conditions including hemorrhoids and colon polyps (Drossman & Hasler, 2016). GI disorders disrupt the body's proper digestion of food and nutrient absorption, hence impacting overall health and quality of life (Bischoff et al., 2020). Functional gastrointestinal

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

disorders, especially, are not identified with any organic etiology but cause chronic symptoms like pain in the abdomen, bloating, and a change in bowel habits (Talley et al., 2017). Out of these, IBS is particularly common, occurring in 3% to 20% of individuals in the general population (Grundmann & Yoon, 2021). The burden of GI disorders is not limited to physical symptoms. Psychological distress (PD), defined as an unpleasant emotional state typically characterized by symptoms of depression and anxiety, is frequently reported among patients with chronic digestive diseases (Horwitz, 2002). This state often manifests with both psychological symptoms such as restlessness, sadness, and hopelessness and somatic complaints like headaches and insomnia, which can further complicate disease management (American Psychiatric Association, 2013). In many cases, psychological distress operates as a transient response to specific life stressors, but in individuals with chronic conditions, it may persist and intensify over time (Horwitz, 2007). Global statistics highlight the shocking occurrence of psychological distress. As of 2017, more than 284 million people were affected globally, putting it among the top causative factors for mental illness and disability (Ritchie & Roser, 2018). Regional research has reported inconsistent prevalence rates of PD, with high rates especially being reported in nations within the Eastern Mediterranean and South Asia, such as Pakistan (Naveed et al., 2020) These findings indicate the need for contextual research that is sensitive to sociocultural context and accessibility to healthcare.

Within the GI disorders, PD is increasingly understood on a biopsychosocial basis. Psychological distress in such patients may not just be due to biological factors but also social and cognitive stressors, personality, and the patient's own self-perceived illness (Van Oudenhove et al., 2016; Xiong et al., 2018) Common Sense Model of Illness Representation suggests that patients create mental models of their illnesses on the basis of personal experiences, social information, and cultural interpretations, which then influence their emotional and behavioral reactions (Leventhan ,1980). For example, those patients who perceive their disease as unmanageable or dangerous are more susceptible to have increased levels of anxiety and distress (Weinman & Petrie, 2002).

Resilience, or the capacity to bounce back and respond constructively when experiencing adversity, is yet another main variable determining psychological well-being in patients with GI disorders (American Psychological Association, 2020). It is a dynamic process where people sustain or recover from psychological well-being in spite of experiencing stressors. As regards chronic illness, resilience serves as a psychological buffer, allowing the patient to endure the ongoing uncertainty, bodily restraint, and way-of-life disruptions caused by illness (O'Leary, 1998). It has been demonstrated that resilient persons utilize more efficient strategies of coping, have stronger abilities of emotional regulation, and demonstrate lower psychological distress (Bonanno, 2004).

In addition, anxiety, a central symptom of PD, has been commonly seen in patients with GI disorders. Patients with IBS and GERD, for example, frequently complain about excessive worry, restlessness, and lack of concentration, all of which enhance physical symptom severity (Heimberg et al., 2004). The communication between GI symptoms and anxiety is probably mediated by the gut-brain axis, enabling bidirectional communication between the enteric nervous system and the central nervous system (Rief et al.,2001). This intricate communication is the reason why psychological symptoms frequently coexist with GI disturbances and vice versa (Carabotti et al., 2015).

Another essential but sometimes underexamined determinant of the psychological health of GI patients is the quality of the doctor-patient relationship (DPR). Over the past few decades, the classical, hierarchical model of medical consultation has been replaced by a more patient-centered and collaborative model, with an increased focus on mutual respect, empathy, and shared decision-making (Balint, 1969). The quality of DPR has been determined to have a substantial influence on psychological outcomes,

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ISSN: (e) 3007-1607 (p) 3007-1593

particularly in patients with chronic or functional illnesses. Trusting relationships, emotional support, and frank communication between physicians and patients are all needed to build emotional resilience and encourage mental health throughout extended treatment (Chipidza et al., 2015) Additionally, reciprocal knowledge and devotion, the expectation that the physician knows the patient's special circumstances and will be devoted, helps to avert feelings of helplessness and psychological burden (Ridd et al., 2009).

Conversely, Dysfunctional doctor-patient relationships, in which patients are perceived as misunderstood or ignored, are linked with poorer treatment outcomes and increased psychological distress (Roter & Hall, 2006). Empathy and good communication by healthcare professionals have been demonstrated to decrease anxiety and depression in patients with chronic GI disorders (Surchat et al., 2022). Enhancing doctor-patient relationships can indirectly reduce psychological distress by increasing patient cooperation and compliance.

Dietary Habits also play an imperative role in affecting both physical and emotional health in GI disorders. Unhealthy eating, particularly the intake of ultra-processed, high-fat, high-sugar foods, exacerbates GI symptoms and gut health (Lane et al., 2024). These behaviors abrogate gut microbiota and heighten inflammation, perpetuating disease development and distress (Li et al., 2023). In addition, emotional eating related to poor diets may exacerbate anxiety and guilt. Contrary to this, balanced diet enhances both gut and emotional health (Micha et al., 2017).

The two-way interaction between gut and mind in GI patients makes psychological distress more important, as anxiety and depression exacerbate GI symptoms, producing a vicious circle. A multidimensional model incorporating illness perception, resilience, anxiety, eating behavior, and physician-patient relationships offers a comprehensive framework for describing the psychological experience of GI patients (Budavari & Olden, 2003).

Cultural beliefs and health inequities complicate care in Pakistan, the most frequent FGID of which is IBS, diagnosed in 33.2% of the population (Abid et al., 2022). However, investigation into psychological distress and psychosocial factors within this environment has been limited (Abid et al., 2013).

Given the limited research on South Asian populations, particularly Pakistan, the current research aimed to bridge this gap by assessing how illness perception, resilience, anxiety, dietary practices, and doctor-patient relationships are linked to psychological distress among GI patients. It also investigated the mediating role of anxiety between illness perception and distress, providing a culturally specific contribution to psychosomatic literature.

Conceptual Framework

This research explored the association between psychosocial variables and psychological distress among gastrointestinal (GI) disorder patients. Based on the Common-Sense Model of Illness Representations (Diefenbach & Leventhal, 1996), the research hypothesized that illness perception affects psychological distress directly as well as indirectly via anxiety as a mediator.

Besides illness perception and anxiety, the model included other psychosocial factors such as resilience, eating habits, and the doctor–patient relationship, which are predicted to be linked to psychological distress. These variables aimed to give a more thorough depiction of how patients emotionally manage GI disorders. Sociodemographic factors (age, gender, monthly income) and clinical factors (eating limitations, family history) are added as covariates, as they may influence distress. The model highlighted main psychological processes and potential points of intervention, specifically maladaptive illness perceptions and anxiety.

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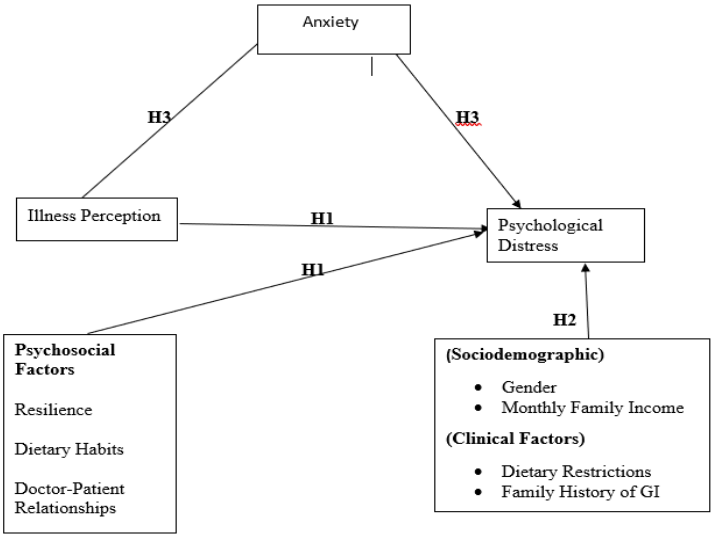
Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593



Objective

The study aimed to investigate the extent to which psychosocial factors (illness perception, resilience, anxiety, dietary habits, and doctor-patient relationships), tend to influence PD in patients with GI disorders.

Hypotheses

- There is likely to be a relationship between psychosocial factors (illness perception, resilience, anxiety, dietary habits, and doctor-patient relationships) and psychological distress in patients with GI disorders.
- Sociodemographic variables are likely to predict psychological distress among participants.
- Anxiety is likely to mediate the relationship between illness perception and psychological distress.

Method

Sample

The study involved 97 patients diagnosed with gastrointestinal (GI) diseases like Inflammatory Bowel Disease, Gastroesophageal Reflux Disease, Irritable Bowel Syndrome, and Celiac Disease. Participants were purposively sampled through gastroenterologist referrals at outpatient visits and social media mobilization in Public and private hospitals in Lahore. The population consisted of male and female patients from different age groups, with a minimum qualification of matriculation, such that they would be able to read and reply to standardized tools. The inclusion criteria involved formal diagnosis by a gastroenterologist, regular use of medication, and the ability to fill in questionnaires, whereas exclusion criteria involved comorbidities such as cancer, stroke, renal failure, dementia, Parkinson's disease, and pregnancy/postpartum states in order to exclude other physiological factors. The design employed was a correlational cross-sectional design to determine the connection between psychosocial variables (illness perception, resilience, anxiety, eating habits, doctor-patient relationships) and psychological distress. Participants were predominantly of middle socioeconomic status, with the exceptions of family structure and employment considered for descriptive purposes as well as for comparison.

Assessment Measures To assess psychosocial predictors of psychological distress among patients with gastrointestinal disorders, a battery of standardized, psychometrically valid self-report measures was employed:

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Demographic Information Sheet

A self-constructed demographic sheet was utilized to obtain data regarding participants' , gender, level of education, marital status, work status, monthly household income, family structure (nuclear/joint), and residential area (urban/rural). Data were used to determine potential sociodemographic variations in psychological distress.

Clinical Information Sheet

This section gathered medical history of participants, such as GI disorder type (e.g., IBS, GERD, IBD), existence of any dietary allergies or restrictions, medications, and GI-related illnesses in the family history. Through this, the researcher was able to control the clinical variables relevant during data analysis.

Brief Illness Perception Questionnaire (B-IPQ; Broadbent et al., 2006)

This 9-item scale measures cognitive and emotional representations of illness. Eight items are rated on an 11-point Likert scale (0–10), addressing dimensions including perceived consequences, timeline, control (personal and treatment), identity, concern, emotional response, and coherence. The ninth item is open-ended and allows participants to tell the perceived causes of their illness. The scale provides a brief yet valid assessment of how people cognitively construct their illness experience. A higher score reflects a more threating concept of illness.

Brief Resilience Scale (BRS; Smith et al., 2008)

The BRS is a 6-item self-report questionnaire measuring the capacity to bounce back or recover from stress. Items are rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree), with three positively and three negatively worded items. Scores are averaged to yield overall resilience, with higher scores indicating higher psychological resilience. The BRS has been shown to have excellent internal consistency and construct validity in both clinical and non-clinical populations.

Generalized Anxiety Disorder Scale (GAD-7; Spitzer et al., 2006)

This 7-item questionnaire assesses the severity of past two-week generalized anxiety symptoms. All items are rated on a 4-point scale from 0 (not at all) to 3 (nearly every day), providing a range of total scores from 0 to 21. Scores of 10 or higher reflect clinically significant anxiety. The GAD-7 is commonly used in both medical and community practice because it is highly sensitive and specific.

Adolescent Food Habits Checklist (AFHC; Johnson et al., 2002)

Initially designed for teenagers but modified in this research to evaluate adult eating habits, the AFHC is a 23-item checklist that measures healthy food selection and eating habits. Each healthy habit is rated as 1, and answers are summed to provide a total score. A greater score reflects healthier eating habits. The scale addresses aspects like meal patterns, food choices, and nutritional knowledge.

Procedure

Initially, permission was secured from the departmental authority to carry out the research. Approval to collect data was also sought from the hospital and clinic administrations. Additionally, permission was obtained from the original authors of the assessment measures used in the study.

Participants were approached at the time of their outpatient visit or by social media websites. They were told about the aim of the study and presented with an information sheet. Participants were given a consent form. Involvement was completely voluntary, and they were assured confidentiality, anonymity, and the right to withdraw at any point. Only those participants who provided informed consent were taken into consideration. No reward was given against participation. Once the data were collected, the answers were tabulated and analyzed on SPSS software

Results

This section outlines the statistical findings of the study, aimed at examining how psychosocial and

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sociodemographic factors contribute to psychological distress in individuals with gastrointestinal (GI) disorders. The analyses include descriptive statistics, scale reliabilities, bivariate correlations, hierarchical regression, mediation analysis, and group comparisons via one-way ANOVA and independent samples t-tests.

Descriptive Statistics and Scale Reliabilities

Descriptive statistics and reliability coefficients were calculated for all primary variables. As presented in Table 1, the internal consistency estimates (Cronbach's α) ranged from .69 to .94, indicating acceptable to excellent reliability for all instruments used. Skewness and kurtosis values fell within acceptable ranges (±1), supporting the assumption of normality for parametric testing.

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Table 1: Psychometric Properties for BIP, GADS, BRS, PDRQ, KPDS, and AFHC(N=97)

Scales	K	M	SD	Range		Cronbach's α	Skewness	Kurtosis
				Actual	Potential			
Brief Illness Perception Questionnaire	8	48.4	11.40	18-69	0-80	.69	-0.52	.027
Generalized Anxiety Disorder Scale	7	11.81	5.31	0-23	0-23	.85	0.08	-.827
Brief Resilience Scale	6	15.21	5.09	6-28	6-30	.80	0.25	-.872
Patient Doctor Relationship questionnaire	9	23.75	8.74	9-43	9-45	.93	0.42	-.936
Kessler's Psychological Distress Scale	10	31.17	9.54	10-50	10-50	.94	0.05	-.761
Adolescents Food Habits Checklist	23	35.16	5.36	24-63	23-69	.83	-0.45	-.879

Note: α= reliability coefficient; k = no. of items in scales and subscales; M= mean;
SD= standard deviation

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Bivariate Correlations

Pearson product–moment correlation was used to analyze the associations between psychosocial variables and psychological distress. The findings are presented in Table 2.

Illness perception was significantly correlated with anxiety (r =.57, p <.01) and psychological distress (r =.21, p <.05), and inversely correlated with resilience (r = –.45, p <.01) and doctor–patient relationship (r = –.39, p <.01). Anxiety was significantly positively correlated with psychological distress (r =.39, p <.01), and resilience was significantly negatively correlated (r = –.30, p <.01). Moreover, doctor–patient relationship was significantly negatively correlated with psychological distress (r = –.27, p <.01) and was positively correlated with dietary habits (r =.22, p <.05). No correlation between age and psychological distress and dietary habits was found.

Table 2: Pearson Correlation Matrix of Study Variables (N = 97)

Variable	1	2	3	4	5	6	7
1. Age	_						
2. Illness Perception	.314**	_					
3. Resilience	-.069	-.453**	_				
4. Anxiety	.110	.571**	-.540**	_			
5. Doctor Patient Relationship	-.013	-.388**	.227*	-.172	_		
6. Dietary Habits	.158	-.058	.171	.100	.216*	_	
7. Psychological Distress	-.045	.215*	-.304**	.390**	-.274**	-.067	_

Note: *p<.05; **p<.01.

Hierarchical Multiple Regression

A hierarchical multiple regression analysis was conducted to determine predictors of psychological distress. In Step 1, demographic variables (work status, occupation, and income) accounted for 15% of the variance, F (3, 93) = 5.51, p <.01. In Step 2, adding psychosocial variables significantly enhanced the model, with an increase in explained variance to 40%, F (8, 88) = 7.33, p <.001.

As indicated from Table 3, anxiety was the most significant positive predictor (β = .49, p < .001), followed by negative predictors such as monthly family income (β = –.42, p < .001), doctor–patient relationship (β = –.22, p < .05), and dietary habits (β = –.21, p < .05). Resilience and illness perception were not statistical predictors in the final model.

Table 3: Hierarchical Regression Predicting Psychological Distress (N = 97)

Variable	B	SE	95% CI		β	R^2	ΔR^2
			LL	UL			
Step 1						.15	.15
Constant	48.87***	5.04	38.85	58.88			
Work Status	-7.92*	3.18	-14.25	-1.59	-.416		
Occupation	-2.02*	1.01	-4.03	-.01	-.334		
Monthly Family Income	-2.86**	.87	-4.59	-1.14	-.316		
Step 2						.40	.24
Constant	63.63***	9.18	45.37	81.89			
Work Status	-7.06**	2.82	-12.68	-1.44	-.370		
Occupation	-1.78	.91	-3.60	.03	-.295		
Monthly Family Income	-3.81***	.80	-5.41	-2.20	-.419		

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ISSN: (e) 3007-1607 (p) 3007-1593

Illness Perception	-.12	.09	-.30	.05	-.148
Anxiety	.88***	.20	.47	1.29	.491
Resilience	.07	.20	-.32	.47	.041
Doctor Patient Relationship	-.23*	.10	-.44	-.03	-.218
Dietary Habits	-.38*	.16	-.71	-.04	-.215

Note: *p<.05, **p<.01, ***<.001; B = Unstandardized coefficients; SE = Standard Error; CI = Confidence interval; LL = Lower Limit; UL = Upper Limit

Mediation Analysis

To assess the mediating effect of anxiety on the path between illness perception and psychological distress, PROCESS macro (Model 4; Hayes, 2018) was used. As seen in Table 4, the indirect effect was significant (B = .18, 95% CI [.07, .31]), but the direct effect became non-significant (B = –.00, p = .92), suggesting a full mediation model. These findings imply that threatening illness perceptions cause psychological distress mainly by elevating anxiety levels.

Table 4: Mediation Analysis of Anxiety in the Relationship Between Illness Perception and Psychological Distress (N = 97)

Variable	Outcome Variable	B	p	95%CI	
				LL	UL
Illness Perception Total Effect					
Illness Perception	Psychological Distress	.17	.034	.01	.34
Direct Effect					
Illness Perception	Psychological Distress	-.00	.921	-.20	.18
Illness Perception	Anxiety	.26	<.001	.18	.34
Anxiety	Psychological Distress	.71	<.001	.29	1.12
Indirect Effect					
Illness Perception	Psychological Distress through Anxiety	.18	<.001	.07	.31

Note. B= Unstandardized Coefficient; CI= Confidence Interval; UL= Upper Limit; LL= Lower Limit; WBRS= Weight Based Rejection Sensitivity

Group Differences: One-Way ANOVA

Group differences in key psychological variables were also explored using one-way ANOVAs across educational attainment and levels of monthly family income. Table 5 indicates group differences in anxiety, F (2, 94) = 9.51, p < .001, and resilience, F (2, 94) = 6.16, p < .01, where higher educational levels were associated with anxiety and resilience values.

Similarly, monthly income had a considerable impact on psychological distress F (2, 96) = 5.89, p <.01) and eating habits F (2, 96) = 4.15, p <.05). Tukey HSD post hoc tests revealed that those with incomes greater than 100,000 PKR scored significantly higher in both outcomes than those with lower incomes.

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ISSN: (e) 3007-1607 (p) 3007-1593

Table 5: One-Way ANOVA and Post Hoc Comparisons for Education and Income Groups(N=97)

Variable	Factor	Group	M (SD)	F(df)	P	η^2	Significant Post Hoc Comparisons	MD [95% CI]
Anxiety	Education	Undergrad	14.56 (4.85)	9.51(2,94)	< .001	.16	UG > Grad	4.62*** [1.92, 7.31]
		Graduation	9.94 (5.23)				UG > PG	4.14** [1.10, 7.29]
		Postgrad	10.49 (4.32)				Grad vs. PG	−0.46 [−3.58, 2.66]
Resilience	Education	Undergrad	13.43 (4.76)	6.16(2,94)	.003	.12	PG > UG	−4.56* [−7.67, −1.46]
		Graduation	15.34 (4.86)				PG vs. Grad	−2.65 [−5.74, 0.42]
		Postgrad	18.00 (4.91)				Grad vs. UG	−1.90 [−4.57, 0.75]
Psychological Distress	Income	< 50,000	36.87 (9.15)	5.89(2,96)	.004	.11	<50k > >100k	8.59* [2.33, 14.86]
		50k–100k	32.50 (9.40)				50k–100k vs. >100k	4.37 [−2.18, 10.93]
		> 100,000	28.27 (8.83)				<50k vs. >100k	4.22 [−0.64, 9.09]
Dietary Habits	Income	< 50,000	37.90 (3.69)	4.15(2,96)	.019	.08	>100k > <50k	4.13* [0.54, 7.71]
		50k–100k	35.79 (5.08)				50k–100k vs. >100k	2.11 [−1.63, 5.87]
		> 100,000	33.77 (5.66)				<50k vs. >100k	2.01 [−0.77, 4.79]

Note: UG = Undergraduate; PG = Postgraduate. Significance levels: *p < .05, **p < .01, ***p < .001.

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Group Differences: Independent Samples t-Tests

Independent samples t-tests were used for gender, family background (rural vs. urban), and family history of GI disorders. As shown in Table 6, there were no differences by gender on any variable.

However, urban participants gave considerably higher illness perception scores than their rural counterparts ($t(95) = 4.27$, $p < .001$). In addition, participants with family history of GI disorders scored significantly higher in anxiety ($t(95) = -2.36$, $p = .020$), lower in resilience ($t(95) = 2.39$, $p = .019$), and higher in psychological distress ($t(95) = 2.23$, $p = .028$) compared to participants with no such history.

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Table 6: Independent Samples t-Test Results for Gender, Family Background, and Family History(N=97)

Variable	Factor	Group 1 (n)	M (SD)	Group 2 (n)	M (SD)	t(df)	P	Cohen's d	Significance
Illness Perception	Gender	Men (50)	48.66 (12.58)	Women (47)	48.21 (10.13)	0.19	.848	0.03	.848
Anxiety	Gender	Men (50)	11.74 (5.24)	Women (47)	11.89 (5.44)	−0.14	.888	0.02	.888
Resilience	Gender	Men (50)	15.04 (5.19)	Women (47)	15.40 (5.03)	−0.35	.727	0.07	.727
Doctor–Patient Relationship	Gender	Men (50)	24.32 (9.17)	Women (47)	23.14 (8.30)	0.66	.512	0.13	.512
Psychological Distress	Gender	Men (50)	29.94 (9.39)	Women (47)	32.48 (9.62)	−1.32	.190	0.26	.190
Dietary Habits	Gender	Men (50)	35.00 (5.80)	Women (47)	35.33 (4.90)	−0.29	.767	0.06	.767
Illness Perception	Family Background	Urban (81)	50.46 (10.52)	Rural (16)	38.18 (10.32)	4.27	<.001	1.17	<.001
Anxiety	Family Background	Urban (81)	12.14 (5.46)	Rural (16)	10.12 (4.22)	1.39	.165	0.46	.165
Resilience	Family Background	Urban (81)	14.77 (5.15)	Rural (16)	17.43 (4.21)	−1.93	.056	0.56	.056
Doctor–Patient Relationship	Family Background	Urban (81)	23.67 (8.66)	Rural (16)	24.12 (9.39)	−0.19	.853	0.04	.853
Psychological Distress	Family Background	Urban (81)	31.49 (9.86)	Rural (16)	29.56 (7.78)	0.74	.462	0.21	.462
Dietary Habits	Family Background	Urban (81)	35.05 (5.21)	Rural (16)	35.72 (6.22)	−0.45	.651	0.11	.651
Illness Perception	Family History	No (56)	47.62 (11.86)	Yes (41)	49.56 (10.78)	−0.82	.412	0.17	.412
Anxiety	Family History	No (56)	10.75 (4.78)	Yes (41)	13.26 (5.70)	−2.36	.020	0.47	.020
Resilience	Family History	No (56)	16.25 (4.91)	Yes (41)	13.80 (5.05)	2.39	.019	0.49	.019
Doctor–Patient Relationship	Family History	No (56)	24.78 (8.56)	Yes (41)	22.34 (8.87)	1.36	.175	0.28	.175
Psychological Distress	Family History	No (56)	29.35 (9.51)	Yes (41)	33.65 (9.11)	2.23	.028	0.46	.028
Dietary Habits	Family History	No (56)	34.85 (5.66)	Yes (41)	35.58 (4.96)	−0.66	.510	0.13	.510

Note: Group 1 and Group 2 = categorical variables gender (men, women), family background (urban, rural), and family history (no, yes). $p < .05$. *$p < .01$.

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ISSN: (e) 3007-1607 (p) 3007-1593

Discussion

The present study intended to examine the degree to which psychosocial variables such as illness perception, resilience, anxiety, eating habits, and doctor–patient relationships predict psychological distress in patients with gastrointestinal (GI) disorders. It also sought to investigate the mediating effect of anxiety on the relationship between illness perception and psychological distress, as well as the impact of sociodemographic factors.

Results of Pearson correlation analysis corroborated that psychosocial construct were strongly linked with psychological distress. Specifically, illness perception correlated strongly and positively with psychological distress, suggesting that patients who experienced their illness as more threatening were also those with higher levels of distress. Resilience was inversely associated with distress, consonant with earlier research indicating that higher psychological resilience is linked to fewer negative emotional consequences (Smith et al., 2008; Kobasa, 1979). Anxiety was correlated with psychological distress, confirming its key position as an emotional response to illness. The same trend was observed regarding doctor–patient relationships, in which more robust, empathetic communication was correlated with reduced distress, consistent with the results of Olden (2008), Häuser et al. (2013), and Campbell and McGauley (2005).

Regression analysis also identified that illness perception, anxiety, resilience, eating habits, and doctor–patient relationships together acted as important predictors of psychological distress. These findings are consistent with earlier research showing that negative illness perceptions and maladaptive coping styles enhance emotional distress (Stapersma et al., 2019; Hagger & Orbell, 2003). Eating habits also had a significant contribution, consistent with findings by Malik and Hassan (2023) that healthier eating habits are associated with better psychological well-being.

Another strong contribution of the present research was the mediation analysis, which indeed validated that anxiety completely mediated between illness perception and psychological distress. This implies that threatening illness perceptions do not induce distress per se; instead, they augment anxiety, which further adds to psychological deterioration. This is in agreement with Marcil et al. (2023), who also established that threatening illness perceptions give rise to avoidant coping styles, which augment anxiety and psychological strain.

Group differences were also investigated with independent samples t-tests and one-way ANOVA. Gender did not come out as a significant factor, but urban participants reported significantly higher threatening illness perceptions compared to rural participants. Also, participants who had a family history of GI disorders reported more anxiety, less resilience, and more psychological distress compared to participants without such a history. These findings replicate previous findings indicating that family susceptibility to chronic disease might exacerbate emotional difficulties (Deek et al., 2016).

Individuals with greater levels of education were shown to have lower anxiety and higher resilience, while individuals with greater income levels showed lower psychological distress and healthier eating habits. These results support the idea that socioeconomic status has a strong impact on both mental health outcomes and health-related behaviors (WHO, 2014).

Limitations and Suggestions

The cross-sectional design restricts causal inferences, therefore longitudinal or experimental studies are necessary to determine temporal and causal relationships. Self-report measures could have brought forward recall or social desirability biases. The non-probability sampling method is problematic in terms of selection bias and restricts generalizability. Future research must overcome these limitations using random sampling, mixed methods, and multi-site studies to have a more diverse and valid sample.

Implications of the Study

The study's outcome supports the Self-Regulatory Model of illness behavior by demonstrating that illness perception determines emotional and behavioral responses, and that anxiety mediates that association. Clinically, the research indicates that interventions addressing maladaptive illness beliefs and resilience are able to decrease psychological distress among GI patients. In addition, improving how doctors and patients communicate and provide

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both psychological and nutritional counseling can help improve mental health outcomes. Interventions should be modified to match patients' understanding. Moreover, getting information about a patient's income and family background helps doctors give personalized and effective medical advice.

Conclusion

The study points out that illness perception, resilience, anxiety, eating habits and the way patients communicate with their doctors are crucial in causing GI patients' psychological distress. Anxiety, illness perception and resilience were significant factors and anxiety played the role of a mediator between illness perception and distress. The findings contend that psychological interventions are important to fix maladaptive views and build coping strength. Moreover, income and education had an impact on psychological health, as having more education led to less anxiety and stronger resilience and a higher income meant a healthier diet and lower distress. Although there were equal distress levels among males and females, those with a family background of GI disorders tended to experience more distress. Such results highlight that patient treatment for GI disorders should account for psychosocial and demographic factors.

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