

Comparative Study of Psychological Well-being in individuals with Irritable Bowel Syndrome-Constipation (*IBS-C*) and Irritable Bowel Syndrome-Diarrhea (*IBS-D*) compared to Healthy Controls

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Abstract

Aim: The purpose of the research is to compare the psychological health of individuals with IBS-C and IBS-D to that of healthy individuals. It also examines any potential gender differences among the IBS subtypes.

Method: An analytical and comparative study was conducted. A random sample of thirty patients each with IBS-C and IBS-D and thirty healthy controls comprised the statistical population, which included all IBS patients who visited JLN in Srinagar, Kashmir. The research instrument used was Ryff's psychological well-being. The t-test of significance was utilized throughout to assess the acquired data. Significant thresholds were set at 0.05 for all one-tailed tests.

Result: According to the study, the psychological well-being of those with irritable bowel syndrome with diarrhea (IBS-D) and Irritable bowel syndrome with constipation (IBS-C) was considerably lower than that of healthy controls. Furthermore, it was shown that IBS-D patients had worse psychological well-being than IBS-C patients. However, significant variations are discovered on a few subscales, including Environmental Mastery, Personal Growth, Autonomy, and Purpose in Life of PWB.

Conclusion: In conclusion, our comparative analysis underscores the intricate interplay between Irritable Bowel Syndrome (IBS) subtypes and psychological well-being. By explaining the distinct emotional challenges faced by individuals with IBS-C and IBS-D compared to healthy controls, we provide valuable insights for tailored intervention strategies. Acknowledging these differences is crucial for implementing effective support systems that address the specific needs of IBS sufferers, ultimately fostering improved psychological resilience and quality of life.

Key words: IBS, IBS-C, IBS-D, Psychological Well-being, functional Gastrointestinal order, psychosomatic disorder.

Introduction:

The persistent functional gastrointestinal disorder known as irritable bowel syndrome (IBS) is characterized by recurrent and inexplicable symptoms such as localized stomach pain, altered or urgent bowel motions, bloating, constipation, diarrhea, or both (Corney, 1990; Chey WD, 2015). IBS sufferers vary greatly in the severity of their symptoms as well as in the frequency and length of their flare-ups. Some people report having symptoms every day, while others only experience episodes sometimes spaced a few weeks or months apart. While some patients describe their symptoms as completely incapacitating, others report mild to severe symptoms (Canavan C, 2014; Longstreth, 2006; El-Salhy M., 2012). According to a study conducted in Kashmir by Shameem Iqbal et al. (2018), there has been a noticeable rise in the prevalence of gastrointestinal symptoms in the valley since the start of unrest in 1990. The overall prevalence of IBS (using Manning Criteria) in the valley was reported to be 24.9%. Since there is little knowledge about IBS and how it affects people's daily lives, this study is geared toward raising awareness of IBS as an increasing concern in the general population of Kashmir. This will also help to develop specific therapies for IBS patients and improve patient care. Additionally, this research will aid in policy decisions and knowledge development about the psychological aspects of IBS. The overall global prevalence of IBS is estimated to be 11.2%, with regional prevalence estimates ranging from 1.1 to 45% [Lovell RM]. IBS is a condition of gut-brain interaction, a communication and feedback circuit between two systems (Ford, A. C., 2020). The illness puts a heavy burden on the healthcare system and accounts for a large percentage of referrals to gastrointestinal clinics. (Fielding J. F. 1977; Canavan C., 2014; Corsetti, M., & Whorwell, P. 2017)

There is still much to learn about how IBS starts. There are a number of possible pathophysiological factors that could lead to the development of this illness, such as altered brain-gut axis function, psychological distress, decreased gut

motility, and inflammation following an infection. (Quigley E. M, 2006; Tanaka, Y.,2016; Sykes, M. A, 2003). According to the Rome IV criteria, there are four subtypes of IBS: IBS with diarrhea (IBS-D), IBS with constipation (IBS-C), IBS with mixed symptoms of constipation and diarrhea (IBS-M), and IBS unclassifiable (IBS-U). The patients' reports of the proportion of time they have hard or lumpy stools as opposed to loose or watery stools form the basis for this classification.

There are several definitions of psychological well-being, but generally speaking, it refers to the optimistic attitudes and sentiments that people use to assess their life positively (Boehm, J. K., 2012). Psychological well-being has been characterized using two different theoretical frameworks: Aristotle's eudaimonic approach defines well-being as the capacity to recognize worthwhile life goals and the will to always strive for excellence. According to the eudaimonic perspective, prosperity is more than just feeling happy. Instead of simply fulfilling wishes, well-being is always absolutely utilitarian. The hedonic approach defines well-being as pursuing and obtaining pleasure and contentment. (Waterman A. S.,2007; Keyes, C. L.,2002)

The preponderance of western research is obvious in the literature on IBS and related psychosocial problems. Very little research on these related illnesses has been conducted in this region of the world. Because these psychosomatic illnesses manifest differently in different communities, it would be impossible to draw meaningful conclusions from research conducted in the West and applying it to other settings. In order to develop a personalized therapy regimen, it was felt that more research in this area would be necessary given the variations in psychological and physical symptoms, cultural backgrounds, and psychological well-being among IBS subtypes. As a result, the purpose of this study was to: 1) compare the degree of psychological well-being between IBS-C and IBS-D patients. (2) compare the level of psychological well-being between healthy controls and IBS-C subtype (3) compare the level of psychological well-being between healthy controls and IBS-D subtype (4) compare the level of psychological well-being in IBS-C and IBS-D subtypes with respect to gender.

Method

Sampling and Research design:

This was a cross-sectional study, undertaken in the J.L.N.M hospital, Srinagar, Kashmir in Northern India. The entire period lasted 3 months. The study comprised consecutive individuals with IBS who attended the Gastroenterology OPD, were over the age of 20, and gave their permission. To gather socio-demographic data such as age, gender, residence, education, marital status and occupation, a predesigned, pretested, semi-structured schedule was employed. Random sampling was employed to select 60 IBS patients (30 female, 30 male) and 30 healthy controls. The primary diagnosis initiating referral was established on routine clinical grounds, i.e. the presenting symptoms, clinical examination, and proper further investigation by a gastroenterologist. Further, patients having any evidence or symptom of structural gastrointestinal illness were excluded from participating in the trial. This study explored independent variables such as IBS subtype with regard to gender, while dependent variables include psychological well-being scores. Data analysis employed quantitative methods such as t-tests.

Tools Used:

Ryff's psychological well-being

Psychological well-being is theoretically defined as determined for perfection that indicates the realization of one's true potential (Ryff, 1995). Summarized version of the scale has been utilised. It consists of 18 items. It is a six point likert scale ranging from 1 = Strongly Disagree, 2 = Disagree Somewhat, 3 = Disagree Slightly, 4 = Agree Slightly 5 = Agree Somewhat to 6 = Strongly Agree. Possible score range is 42-252. It has six sub scales that are Autonomy (3 items), Environmental Mastery (3 items), Personal Growth (3 items), Positive Relations (3 items), Purpose in Life (3 items) and Self-Acceptance (3 items) High scores indicated high level of psychological well-being and low scores reflected low level of psychological well-being.

Procedure:

In order to conduct the present research examiner have contacted the hospital authorities with the consent letter. After getting consent, subjects were contacted independently and they were informed about the research in detail, then they were requested to fill the questionnaire.

Data analysis:

Incompetently filled out questionnaires were excluded from analysis. All data analyses were carried out with SPSS-25. Descriptive analysis was performed to characterize the sample and the variables under study. The assumption of normality was met with all variables. To test this assumption, we used the Shapiro-wilk test along with Skewness and Kurtosis. The results of all calculations were found to be within the range, so parametric tests were utilized throughout. One way ANOVA was used for comparison of Psychological Well-being scores between IBS-C, IBS-D and healthy controls followed by Post Hoc test and Independent variable t-test were used for comparison of

Psychological Well-being scores between IBS-C and IBS-D subtype with respect to gender. Significance levels were set at 0.05

Result:

Thirty (30) healthy controls and sixty (60) IBS patients participated in this study. The participants having IBS-C, IBS-D and healthy controls had mean ages of 39.83, 45.23 and 41.16 respectively.

Table 1: Demographics

Characteristics		IBS subjects (N= 60)				Healthy Controls (n=30)		Total sample	
		IBS-C (n=30)		IBS-D (n=30)		n	%	n	%
		N	%	N	%				
Gender	<i>Male</i>	15	50	15	50	15	50	45	50
	<i>Female</i>	15	50	15	50	15	50	45	50
Residence	<i>Urban</i>	24	80	25	83.33	19	63.33	68	75.5
	<i>Rural</i>	6	20	5	16.67	11	36.67	22	24.5
Marital Status	<i>Unmarried</i>	9	30	5	6.67	6	20	20	22.23
	<i>Married</i>	18	60	23	76.67	24	80	65	72.22
	<i>Widowed</i>	3	10	2	6.67	0	0	5	5.5
Occupation	<i>Employed</i>	1	3.34	7	23.33	8	26.67	16	17.76
	<i>Unemployed</i>	13	43.3	8	26.66	11	36.67	32	35.55
	<i>Self-employed</i>	12	40.0	12	40	11	36.67	35	38.89
	<i>Student</i>	4	13.3	3	10	0	0	7	7.77

Note: N=90 and n= 30 for each group. Participants age on an average= 42 years old (SD=10.256)

Table 2: Comparison of Psychological Well-being Scores between IBS-C, IBS-D and healthy controls using One way ANOVA.

Variables		Sum of squares	df	Mean Square	F	Sig.
Autonomy	Between Groups	402.48	2	201.244	34.522	0.00**
	Within Groups	507.16	87	5.830		
	Total	909.65	89			
Environmental Mastery	Between Groups	402.48	2	201.244	34.522	0.00**
	Within Groups	507.16	87	5.830		
	Total	909.65	89			
Personal Growth	Between Groups	524.68	2	262.344	21.193	0.00**
	Within Groups	1076.96	87	12.379		
	Total	1601.65	89			
Positive Relationships	Between Groups	619.26	2	309.633	26.368	0.00**
	Within Groups	1021.63	87	11.743		
	Total	1640.90	89			
Purpose in Life	Between Groups	877.48	2	438.744	57.345	0.00**
	Within Groups	665.63	87	7.651		

Self-Acceptance	Total	1543.12	89			
	Between Groups	470.02	2	235.011	20.643	0.00 **
	Within Groups	990.46	87	11.385		
	Total	1460.48	89			

(** $p \leq 0.05$ level)

As is evident from the Table 2, significant differences were found among the groups studied in each dimension. The significance levels (Sig.) of 0.00 across all dimensions strongly suggest that these differences are statistically significant. To identify the groups who differ significantly post hoc test was administered.

Table 3: Post Hoc Test Summary of *Psychological Well-being Scores between IBS-C, IBS-D and healthy controls.*

Dependent Variable	(I) GROUPS	(J) GROUPS	(I-J) Mean Difference	Sig.
AUTONOMY	HEALTHY CONTROLS	IBS C	3.46667*	.000
		IBS D	5.06667*	.000
	IBS-C	HEALTHY CONTROLS	-3.46667*	.000
		IBS D	1.60000*	.032
	IBS-D	HEALTHY CONTROLS	-5.06667*	.000
		IBS C	-1.60000*	.032
ENVIRONMENTAL MASTERY	HEALTHY CONTROLS	IBS C	3.46667*	.000
		IBS D	5.06667*	.000
	IBS-C	HEALTHY CONTROLS	-3.46667*	.000
		IBS D	1.60000*	.032
	IBS-D	HEALTHY CONTROLS	-5.06667*	.000
		IBS C	-1.60000*	.032
PERSONAL GROWTH	HEALTHY CONTROLS	IBS C	1.36667	.294
		IBS D	5.66667*	.000
	IBS-C	HEALTHY CONTROLS	-1.36667	.294
		IBS D	4.30000*	.000
	IBS-D	HEALTHY CONTROLS	-5.66667*	.000
		IBS C	-4.30000*	.000
POSITIVE RELATIONSHIPS	HEALTHY CONTROLS	IBS C	2.43333*	.020
		IBS D	6.36667*	.000
	IBS-C	HEALTHY CONTROLS	-2.43333*	.020
		IBS D	3.93333*	.000
	IBS-D	HEALTHY CONTROLS	-6.36667*	.000
		IBS C	-3.93333*	.000
PURPOSE IN LIFE	HEALTHY CONTROLS	IBS C	3.40000*	.000
		IBS D	7.63333*	.000
	IBS-C	HEALTHY CONTROLS	-3.40000*	.000
		IBS D	4.23333*	.000
	IBS-D	HEALTHY CONTROLS	-7.63333*	.000
		IBS C	-4.23333*	.000
SELF	HEALTHY	IBS C	2.03333	.056

ACCEPTANCE	CONTROLS	IBS D	5.53333*	.000	
		HEALTHY	-2.03333	.056	
	IBS-D	CONTROLS	IBS D	3.50000*	.000
		HEALTHY	-5.53333*	.000	
		CONTROLS	IBS C	-3.50000*	.000
		IBS C			

The above table indicates that Healthy Controls on subscales Autonomy, Environmental Mastery, Positive Relationship and Purpose in Life Healthy Controls report significantly higher levels compared to both IBS-C and IBS-D groups, with mean differences indicating stronger effects when compared to IBS-D. IBS-C participants show significantly lower values than Healthy Controls but are higher on these dimensions compared to IBS-D, with the differences being statistically significant.

Moving forward Personal Growth and Self-Acceptance shows that difference between Healthy Controls and IBS-C is not statistically significant, suggesting similar levels of personal growth. Both Healthy Controls and IBS-C report significantly lower personal growth when compared to IBS-D, indicating that IBS-D participants experience higher personal growth. However, Healthy Controls and IBS-C both report significantly higher self-acceptance compared to IBS-D, with IBS-D participants showing the lowest levels of self-acceptance among the groups.

Table 6: Comparison of Psychological Well-being Scores among IBS-D patients with respect to Gender

Variables	Gender	N	Mean	SD	t (58)	Sig
Autonomy	Male	15	9.86	2.09	1.85	.074
	Female	15	8.33	2.41		
Environmental mastery	Male	15	8.86	2.09	1.85	.074
	Female	15	7.33	2.41		
Personal growth	Male	15	8.80	3.18	1.96	.059
	Female	15	6.80	2.30		
Positive relationships)	Male	15	7.60	3.24	1.26	.216
	Female	15	6.26	2.46		
Purpose in life	Male	15	7.86	2.79	1.87	.071
	Female	15	5.93	2.84		
Self-acceptance	Male	15	8.26	3.23	1.57	.127
	Female	15	6.73	1.94		

*Significant at $P \leq 0.05$

The above table indicates that the calculated t-value of Autonomy ($t = 1.85$), Environmental mastery ($t = 2.31$), Personal Growth ($t = 1.96$), Positive relationships ($t = 1.26$), Purpose in Life ($t = 1.87$), and Self-acceptance ($t = 1.57$) are statistically insignificant at (0.05) suggesting that male and female patients of IBS-D does not differs significantly in Personal growth, Positive relationships, Purpose in Life and Self-acceptance.

Although the results seem insignificant but still the results have revealed that males score higher in every subscale i.e Autonomy (9.86), Environmental mastery (8.66), Personal Growth (8.80), Positive relationships (7.60), Purpose in Life (7.86) and Self-acceptance (8.26) than females with corresponding values as Autonomy (8.33), Environmental mastery (7.33), Personal Growth (6.80), Positive relationships (6.26), Purpose in Life (5.93) and Self-acceptance (6.73).

The above table indicates that on all the subscales of psychological well-being like Autonomy, Environmental Mastery, Personal Growth, and Purpose in Life show in-significant variations by gender.

Table 6: Comparison of Psychological Well-being Scores among IBS-C patients with respect to Gender

Variables	Gender	N	Mean	SD	t (58)	Sig
Autonomy	Male	15	11.66	2.05	2.31	.028
	Female	15	9.73	2.49		
Environmental mastery	Male	15	10.66	2.05	2.31	.028
	Female	15	8.73	2.49		

Personal growth	Male	15	13.26	2.40	1.80	.08
	Female	15	10.93	4.38		
Positive relationships	Male	15	11.00	4.01	0.19	.84
	Female	15	10.73	3.55		
Purpose in life	Male	15	12.00	2.59	1.75	.09
	Female	15	10.26	2.81		
Self-acceptance	Male	15	11.46	3.92	.743	.46
	Female	15	10.53	2.87		

The above table indicates that the calculated t-value of Autonomy ($t=2.31$), and Environmental mastery ($t=2.31$) are found to be statistically significant at (0.05), suggesting that male and female patients of IBS-C significantly differs in Autonomy and Environmental Mastery. However, the calculated t-value of Personal Growth ($t=1.80$), Positive relationships ($t=0.19$), Purpose in Life ($t=1.75$), and Self-acceptance ($t=0.743$) are statistically insignificant at (0.05) suggesting that male and female patients of IBS-C does not differs significantly in Personal growth, Positive relationships, Purpose in Life and Self-acceptance. It is further revealed in results that males score higher in every subscale i.e Autonomy (11.66), Environmental mastery (10.66), Personal Growth (13.26), Positive relationships (11), Purpose in Life (12) and Self-acceptance (11.46) than females with corresponding values as Autonomy (9.73), Environmental mastery (8.73), Personal Growth (10.93), Positive relationships (10.73), Purpose in Life (10.26) and Self-acceptance (10.53).

Discussion

It's becoming increasingly clear that most people with chronic illnesses are primarily worried about their capacity to function. Thus, it's crucial to understand how IBS impacts patients' functional abilities and overall well-being. This study, which studied healthy controls and IBS patients and who visited a tertiary care clinic, showed that IBS-C and IBS-D patients had considerably lower psychological well-being than healthy controls. Furthermore, we discovered that IBS-D patients have worse psychological well-being than IBS-C patients. Although the difference is not as big as the difference between healthy controls and IBS-D patients, it is possible that IBS-C and IBS-D share a common edge of disease, resulting in variance. Furthermore, a few psychological well-being subscales comparing males and females have demonstrated any variance. As far as our understanding goes, this information is uncommon; however, it does demonstrate variations in psychological well-being among subtypes of a specific population. Research indicates that individuals with IBS-D and IBS-C have markedly reduced psychological well-being in comparison to healthy controls (Jian-Min Si; R. Addante; B.A. Hahn; W. E. Whitehead; H. B. El-Serag). Bodil Roth and Prashant Singh provide sufficient evidence to support our study's findings that IBS-D sufferers had lower psychological wellbeing than IBS-C sufferers. Nevertheless, some studies contradict this finding, arguing that there is no difference in psychological wellbeing between the IBS-C and IBS-D groups (R. Jamali, 2015). While a good number of researchers indicate that there is a gender variance in the psychological well-being of individuals with IBS-C and IBS-D, our study does not find any such gender variation because the majority of research on IBS and related mental health issues has been done in the western world. Since there hasn't been much research on these related illnesses in this part of the world, it won't be helpful to generalize the results of studies conducted in the West because there are large sociocultural differences in how these psychosomatic illnesses manifest.

Conclusion

In conclusion, the current investigation has highlighted that psychological well-being were much lower in IBS-C and IBS-D patients than in healthy subjects. Furthermore, it was also clear that IBS-C and IBS-D came out to have a significant difference on psychological well-being; implying IBS-C and IBS-D have a big negative effect on PWB which leads to a marked drop of the patients feeling of wellbeing and satisfaction of life that demonstrates their complexity. These findings can be used by the medical experts for the designing personalized treatment plans specifically for the IBS-D patients that will include the distinct problems faced by them which will influence the psychological and emotional facets of the diseases in addition to the symptoms.

A comprehensive treatment of IBS could be achieved by integrating the psychological services and interventions in the normative treatment.

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