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Freiburg personality inventory in inflammatory bowel disease: diagnosis and psychotherapeutic needs

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Título: Inventario de personalidad de Freiburg en la enfermedad inflamatoria intestinal: diagnóstico y necesidades psicoterapéuticas.
Resumen: A pesar de los descubrimientos recientes, los pacientes con enfermedad inflamatoria intestinal (EII) aún enfrentan desafíos para lograr la remisión. Los objetivos del estudio fueron identificar las características de los pacientes con el Inventario de Personalidad de Freiburg y la intensidad de la enfermedad colónica, comorbilidades que podrían estar relacionadas con la personalidad de los sujetos. Los datos se recopilaron en el período 2019-2020 de 46 pacientes y utilizaron métodos no paramétricos. En comparación con el grupo de control, las escalas de Inhibición, Problemas de salud y Emocionalidad tenían puntuaciones brutas significativamente más altas. Las escalas de Orientación Social, Franqueza y Extraversión tuvieron puntajes brutos significativamente más bajos. El estado de salud fue un factor médico que influyó en la escala de Quejas Somáticas, los pacientes que tenían lesiones o comorbilidades tenían puntuaciones brutas significativamente más altas. Los pacientes que tenían comorbilidades además de la EII tenían puntuaciones brutas considerablemente más altas en la escala de Excitabilidad. Se requieren intervenciones psicoterapéuticas de cambio en la percepción de la vida para abordar la descripción del sufrimiento subjetivo relacionado con molestias físicas (escala de quejas somáticas), una fuerte orientación hacia el rendimiento (escala de tensión), cambios de humor, ansiedad y pesimismo (escala de emocionalidad). Otra intervención es la reconsideración y (re)priorización de valores, como la familia, las relaciones íntimas, los amigos, la salud, el crecimiento, el desarrollo, el trabajo equilibrado, todos los cuales pueden promover una sensación de bienestar y equilibrio.
Palabras clave: Inventario de personalidad de Freiburg. Enfermedad inflamatoria intestinal. Inhibición. Enfermedad de Crohn. Colitis ulcerosa. Extraversión. Emocionalidad. Psicoterapia. Preocupaciones de salud.

Abstract: Despite recent discoveries, patients with inflammatory bowel disease (IBD) still face challenges with attainment of remission. The objectives of the study were to identify the characteristics of patients with the Freiburg Personality Inventory and the intensity of the intestinal disease, comorbidities that could be related to the personality of the subjects. Data were collected in the period 2019–2020 from 46 patients and used nonparametric methods. Compared to the normative sample, the *Inhibitedness, Health Concerns*, and *Emotionality* scales had significantly higher raw scores. The *Social Orientation*, *Frankness*, and *Extraversion* scales had significantly lower raw scores. Health status was a medical factor that influenced the *Somatic Complaints* scale, patients who had lesions or comorbidities had significantly higher raw scores. Patients who had comorbidities in addition to IBD had considerably higher raw scores on the *Excitability* scale. Psychotherapeutic change interventions regarding life perception are required to tackle the description of subjective suffering related to physical inconveniences (*Somatic Complaints* scale), a strong orientation toward performance (*Strain* scale), mood swings, anxiety, and pessimism (Emotionality scale). Another intervention is reconsidering values and (re) prioritization, such as family, intimate relationships, friends, health, growth, development, balanced work, all of which can promote a feeling of well-being and balance.
Keywords: Freiburg Personality Inventory. Inflammatory bowel disease. Inhibitedness. Crohn's disease. Ulcerative colitis. Extraversion. Emotionality. Psychotherapy. Health concerns.

Background

Despite recent discoveries in pharmacotherapy, inflammatory bowel disease (IBD), which encompasses two major conditions, ulcerative colitis (UC) and Crohn's disease (CD), still, poses challenges in terms of improvement, remission, and healing. The main classes of drugs used in CD and UC are aminosalicylates, corticosteroids, antibiotics, immunomodulators, and biological agents (infliximab, adalimumab, vedolizumab, ustekinumab). Unique to UC, new nonbiological small molecules, whether approved or under study, represented by Janus kinase (JAK) inhibitors and sphingosine 1-phosphate receptor modulators, are included (Lamb et al., 2019; Park & Im, 2017).

IBD etiology has remained unknown, disease pathogenesis being driven by multiple environmental variables, genetic predispositions, and faulty immunological responses. The unusually strong immunological response to an invading virus or bacteria that targets the digestive tract is thought to play a role. IBD is exacerbated by noncausal aggravating factors such as diet and stress (CCFA, 2014; Khanna, 2020; Torres et al., 2020).

UC and CD are two conditions with a wide range of symptoms, including diarrhea, fatigue, abdominal pain and cramping, bloody stools, decreased appetite, and unintended weight loss (Mayo Clinic, 2020).

Uncontrollable diarrhea associated to severe flare-ups of disease, renders the patient's everyday life ineffective from a professional and relational standpoint, posing limitations in mobility for every affected individual. (De Simone et al., 2021; Jain & Parkhe, 2020). The difficulty in achieving substantial improvements, frequent recurrences, the risk of complications (including fecal incontinence), and the necessity of surgery generate unpleasant feelings.

Some researchers have focused on psychological factors, beliefs, and stress as causes and potential triggers (Araki et

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al., 2020; Sun et al., 2019). Others have been curious about the efficacy of psychotherapeutic interventions for health amelioration, improved disease management, and even healing (Artom et al., 2019; Kemp et al., 2018; Knowles & Mikocka-Walus, 2014). The outcomes of the research on the psychological issues prompted by this condition have not achieved unanimous agreement. The following are a few examples.

The classification of IBD has transitioned from a psychosomatic disease to a condition with multicausal pathology, thus growing beyond the biomedical paradigm to invite research on the social, psychological, and behavioral dimensions of the disease (Engel, 1977).

Helzer et al., (1984) examined 50 patients with CD and 50 control group participants with chronic medical diseases from a university clinic and a private clinic. Compared to the control group, a significantly higher number of patients with CD met the criteria for various psychiatric disorders at some point in their lives and were diagnosed with depression. However, there was no indication of a link between mental disorders and CD, according to the researchers.

Andrews et al. (1987) evaluated depression and anxiety in 162 patients with CD using the Hospital Anxiety and Depression Scale and conducted an even more thorough assessment based on the Diagnostic and Statistical Manual of Mental Disorders, Third Edition. Again, there was no evidence of a connection between CD and mental illness. Nevertheless, according to Tarter et al. (1987), people with CD exhibit significant levels of anxiety, sadness, and panic disorder throughout their lifetimes. No psychiatric disorders were observed in patients with UC before or after the onset of the disease.

Küchenhoff and Manz (1993) found a connection between defense and coping, which they described as a dynamic interaction that evolves as the disease progresses. Küchenhoff et al. (1995) discovered that coping resources in CD patients in remission are major indicators of disease progression. Personality traits were linked to the coping mechanisms of depressed people. Over the course of three years at the Heidelberg University Hospital, Küchenhoff (1995) studied the biological, psychological, and social attributes of CD patients and concluded that personality traits and the ability to cope with psychological issues were substantial factors in the evolution of the disease.

Enck and Schäfer (1996) noticed that patients with CD might have a reduced ability to cope with daily struggles, which is why psychotherapy would be beneficial but would have no effect on the advancement of the disease.

In a review of the literature, Kessler and Von Wietersheim (2005) concluded that there was no specific personality profile of patients with IBD and that psychotherapy did not affect the disease but that psychotherapy could improve the psychological state of patients who experienced high levels of stress, depression, and frequent recurrences. Furthermore, only 11 articles focused on the influence of psychological stress on IBD, according to a literature review by Keefer et al. (2008) and only half of these demonstrated that stress impacted IBD.

Other researchers, however, recognize stressors as having a detrimental impact on IBD patients and also the need for psychotherapy. In three case studies Rada et al. (2017a,b), Rada & Andrei (2020) found that existential family events were viewed by the patients as catastrophic. Perfectionism was evident in the patient's life story, and the Jenkins questionnaire revealed that the patient was punctual, overly active, and reacted immediately under stress.

Given the foregoing, the purpose of this article is to provide additional information regarding specific psychological factors and personality traits such as social orientation, inhibitedness, health concerns, emotionality, somatic complaints and strain (stress) that may be involved in IBD and in the management of this condition.

Materials and methods

Participants and procedures

Between January 2019 and December 2020, a number of 46 patients were selected randomly from hospital records in Romania, Bucharest and Craiova. A total of 28 patients in the hospital answered the questionnaires with the help of the physician whose records they were in or a resident physician. A total of 18 patients chose to complete the questionnaires at home and then bring them to the hospital on their first appointment, which had to be sooner than a month away. The physician in charge of the patient records or a resident physician double-checked the answers for accuracy and completeness. Subsequently, between January and March 2021, when ambiguities (such as some sociodemographic data or omissions) were discovered during data entry in the computerized system, the person responsible for collecting the questionnaires, in collaboration with the expert psychologist, discussed these concerns with the patient via e-mail or telephone.

The study followed the Declaration of Helsinki to grant respect for human rights among all study participants during all phases of the study. The research was approved by the Ethics Commission of "Francisc I. Rainer" Anthropology Institute - Romanian Academy, Bucharest, the approval decision no. 55/23-01-2019. All patients signed written consent for participation and to publish results before enrolment in the study.

Measures

The following areas were covered by an omnibus questionnaire based on sociodemographic data: stressors (family of origin and reproduction), situational life factors (tension-generating stressors), relationships, gender, sex, sexuality, and health (diagnosis, weight, sleep, alcohol consumption, smoking, use of complementary treatments, and other factors). Additionally, patients were asked to

answer a set of psychological questionnaires, namely, Freiburg Personality Inventory - Revised (FPI-R) by Fahrenberg et al., (2001) a tool validated with the Romanian population and used under license, The Depression, Anxiety, and Stress Scale with 21 items (DASS-21) by Lovibond & Lovibond (2011) adapted, standardized, and validated with the Romanian population; and The Young Schema Questionnaire - Short form (YSQ-S3), validated with the Romanian population by Trip (2006). Additionally, 53 items from the COPE Inventory by Carver et al. (1989) validated on the Romanian population by Craşovan & Sava (2013).

The Patient Assessment Sheet (individual and disease parameters) was completed by the physician at the end of this set of questionnaires and mainly included the following: treatment history, comorbidities, medication, disease extension (endoscopic criteria), pattern of evolution, surgical history, biological activity (C Reactive Protein (CRP), Erythrocytes Sedimentation Rate (ESR), and Fecal Calprotectin) clinical activity (Disease Activity Index (CDAI) and the Mayo Score (UCDAI, Ulcerative Colitis Disease Activity Index), and related questions.

This study will analyze the results from the Freiburg Personality Inventory - Revised (FPI-R), some data from the Omnibus questionnaire and medical files. The objectives of the study were to identify the characteristics of patients with IBD by FPI-R and medical factors such as the intensity of the intestinal (small bowel/colonic/both) disease, treatment, comorbidities, and other factors that could be related to the personality of the subjects using the raw scores observed on the 12 FPI-R scales. The questionnaire was chosen because it is of a multiphase type; in the description of each scale, several adjectives correspond, which allows a greater number of behavioral predictions.

The Freiburg Personality Inventory - Revised (FPI-R) (Freiburger Persönlichkeits Inventar), an omnibus assessment tool developed by Fahrenberg et al. (2001) according to the multiphase model, was used to assess adult personality dimensions. The FPI-R test was adapted and validated for Romania in 2007. Based on the answers to 138 items, the test evaluates personality on 12 assessment scales: *Life Satisfaction* (LEB), *Social Orientation* (SOZ), *Achievement Orientation* (LEI), *Inhibitedness* (GEH), *Excitability* (ERR), *Aggressiveness* (AGGR), *Strain* (BEAN), *Somatic Complaints* (KORP), *Health Concerns* (GES), *Frankness* (OFF), *Extraversion* (E), and *Emotionality* (N). The national normative reference sample for Romania included 2,400 participants, 1,200 women and 1,200 men.

Statistical analyses

In this research, the national normative sample was taken as a reference for comparison (like a control group) in terms of mean raw scores on the 12 personality assessment scales using the *t*-test (one-sample *t*-test). SPSS Statistics on IBM (2019) and Cytel StatXact version 12 (2020) were used for data analysis.

When the sample size is small, with strongly related or asymmetric data, as was the case in this research with N = 46 participants, the asymptotic results given by some traditional methods may not be valid. In such situations, the p asymptotic values may differ substantially from the exact p values. Consequently, erroneous inferences can be drawn from asymptotic and other approximate data. To overcome these constraints, StatXact was utilized, as well as Monte Carlo, which allows for reliable inferences. StatXact uses highly efficient numerical algorithms to calculate exact *p* values and confidence intervals on Mehta & Patel (1996).

This research used nonparametric methods, such as the Wilcoxon-Mann–Whitney test, a type of exact method, which does not make distribution assumptions. The test has the advantage that it can be used when the hypothesis of a normal distribution of variables of interest is not reasonable.

The analysis of the raw scores on the 12 scales indicated that only on three scales, ERR, E and N, was the distribution statistically normal ($p > .05$) according to the Kolmogorov–Smirnov asymptotic nonparametric test for normality. After including the exact method or the Monte Carlo method in the Kolmogorov–Smirnov test with 10,000 samples, it was concluded that on all 12 scales, the distribution of raw scores was statistically close to normal ($p > .05$).

The aim of the first analysis was to identify any significant differences between the studied sample and the national normative sample in terms of the average raw scores on the 12 scales of personality assessment using the *t* test (one sample *t* test). For this purpose, the averages observed in the studied sample were compared with the corresponding averages from the national sample published by the authors of the FPI-R validation in Romania. Significant differences were identified on six scales. For reevaluation, the BOOTSTRAP method from SPSS featuring 10,000 samples was used.

The second analysis aimed to identify possible relationships between FPI-R personality factors and medical factors; the Mann–Whitney U test (the asymptotic method), the exact Wilcoxon-Mann–Whitney test (performed in Cytel Studio with the Monte Carlo method), and the Kendall Statistics tau-b for nonparametric correlations were deployed. To estimate the effect size for the t test used (called d or d Cohen), the mean difference, taken as the absolute value, at the standard deviation reported in SPSS was divided. Thus, the magnitude of the IBD effect on personality was assessed. Rules of the thumb for interpreting effect sizes proposed by Sawilowsky (2009) for *d* Cohen and (Botsch, n.d.) for Kendall tau-b have been used.

Results

Demographic features and the status of IBD

The 46 participants were aged 16 to 76 (mean 41.80; median 37.00, std. deviation 14.95). Between 1978 and 2019, the participants were diagnosed with UC and CD. Table 1

shows the basic structure of the sample, which includes a higher share of men, urban residents, married people, active workers, and UC patients.

Table 1
Basic Structure of the Sample

Sociodemographic data diagnostic	N	%
Gender		
Female	19	41.3
Male	27	58.7
Place of residence		
Urban	40	87
Rural	6	13
Marital status		
Married	27	58.7
Unmarried (single)	9	19.6
Consensual union over 1 year	6	13.0
Divorced	4	8.7
Employment Status		
Active (employee)	28	60.9
Retired	9	19.6
Unemployed	6	13
Student	3	6.5

Table 2, which shows the basic structure of the sample according to the main medical parameters, shows that over 30% had comorbidities, over 39% were in the active phase of the disease and over 70% had lesions.

Two patients who were diagnosed with UC in 2019 and had a biologically active disease with minor lesions under home treatment died at the end of the data collection period. A 31-year-old unemployed female patient, rural resident, presenting various comorbidities, died in intensive care with sepsis because of a severe form of colitis after being operated on twice. In the case of a 48-year-old man, urban resident, active worker, the causes of death remain unknown.

Table 2
The main medical parameters comply with the Patient Assessment Sheet

Diagnosis and medical parameters	N	%
Diagnostic		
Ulcerative Colitis	27	58.7
Crohn's disease	19	41.3
Existence of comorbidities	15	32.6
Surgical history	11	23.9
Active disease		
Biological criteria	18	39.1
Clinical criteria (mild or moderate)	18	39.1
Endoscopic criteria (mild and severe lesions)	33	71.7

Personality traits according to the Freiburg Personality Inventory

For the 12 FPI-R personality measurement scales, *Life Satisfaction* (LEB), Social *Orientation* (SOZ), *Achievement Orientation* (LEI), *Inhibitedness* (GEH), *Excitability* (ERR), *Aggressiveness* (AGGR), *Strain* (BEAN), *Somatic Complaints* (KORP), *Health Concerns* (GES), *Frankness* (OFF), *Extraversion* (E), and *Emotionality* (N), raw scores were calculated using (in accordance with each scale) the sum scores (0 = false or 1 = true), obtained from groups of 12 or 14 items, from the 138 items indicated in the Freiburg Inventory methodology. The means and standard deviations for the raw scores are shown in Table 3.

Table 3
Averages and Standard Deviations for the Raw Scores on the Freiburg Personality Inventory Scales

Scale No.	FPI-R Scales	*N*	Average	Standard Deviation	Minimum	Maximum
1	*Life satisfaction* (LEB)	46	6.87	2.13	1	11
2	*Social Orientation* (SOZ)	46	6.07	2.16	0	10
3	*Achievement Orientation* (LEI)	46	7.72	2.44	2	12
4	*Inhibitedness* (GEH)	46	5.96	2.80	1	11
5	*Excitability* (ERR)	46	4.57	2.78	0	12
6	*Aggressiveness* (AGGR)	46	3.83	2.51	0	10
7	*Strain* (BEAN)	46	6.54	2.97	0	12
8	*Somatic Complaints* (KORP)	46	4.67	3.33	0	12
9	*Health Concerns* (GES)	46	8.13	2.47	1	12
10	*Frankness* (OFF)	46	6.22	2.06	1	10
11	*Extraversion* (E)	46	7.13	2.80	0	14
12	*Emotionality* (N)	46	6.85	3.97	0	14

There was no significant difference between the normative sample and the group of patients with IBD on scales 1, 3, 5, 6, 7, and 8. The *t* test (one sample *t* test) revealed significant differences on six evaluation scales, which were revalidated using the BOOTSTRAP method, as shown in Table 4.

Table 4
Significant Results on the Freiburg Personality Inventory Scales

Scale	Significant raw score in samples		Bootstrap comparable level of significance and Cohen effect size
	IBD patients	normative	
Social Orientation (SOZ, scale 2)	6.07; **-0.71 lower**, 95% CI [0.07 to 1.36]	6.78 $t(45)=-2.24$, $p = .030$	$p = .049$ **-.467**
Inhibitedness (GEH, scale 4)	5.96; **+0.84 higher**, 95% CI [0.0 to 1.67]	5.12 $t(45)=-2.23$, $p = .049$	$p = .049$ **.421**
Health Concerns (GES, scale 9)	8.13; **+0.98 higher**, 95% CI [0.25 to 1.71]	7.15 $t(45)=2.69$, $p = .010$	$p = .009$ **.560**
Frankness (OFF, scale 10)	6.22; **-0.72 lower**, 95% CI [0.11 la 1.34]	6.94 $t(45) =-2.37$, $p = .022$	$p = .023$ **-.494**
Extraversion (E, scale 11)	7.13; **-1.20 lower**, 95% CI [0.37 la 2.03]	8.33 $t(45)=-2.904$, $p = .006$	$p = .006$ **-.605**
Emotionality (N, scale 12)	6.85; **+1.35 higher**, 95% CI [0.17 to 2.53]	5.50 $t(45)=2.301$, $p = .026$	$p = .026$ **.479**

The results from Table 4 show that the patients in this sample compared to the normative sample tend to be as follows:

- sterner, masculine, confrontational, and aloof, as they value individual responsibility for living conditions over societal duty (Social Orientation, lower);
- cautious, insecure, and favor solitary occupations to social interactions. They prefer to remain in the background, find it unsettling to stand out in front of others, and have difficulty forming deep bonds with their peers (Inhibitedness, higher);
- exceedingly cautious in regard to washing produce, avoiding crowded areas, and other decisions, whether for legitimate or fictitious reasons; they turn to doctors and alternative medicine more often, as well as tight food and lifestyle restrictions (Health Concerns, higher);
- hardly admit that they have minor shortcomings that can occur in anyone's life (e.g., being late for school, making minor exaggerations of facts) in order to render a favorable impression. It may be a low level of self-criticism, or self-idealization (Frankness, lower);
- alone than in the company of others, less communicative, not prepared for competitive behavior dominated in social circumstances (Extraversion, lower);
- sensitive, nervous, gloomy, overwhelmed by events that cause anxiety, with the need of emotional support and with psychosomatic symptoms (Emotionality, higher).

Variability of scores on the Freiburg Personality Inventory scales according to medical factors

The raw scores observed on the 12 FPI-R scales showed no statistically significant difference between the normative sample and the patient sample with IBD on nine scales (Life Satisfaction, Social Orientation, Achievement Orientation, Inhibitedness, Aggressiveness, Health Concerns, Frankness, Extraversion, and Emotionality) in the data analysis on the severity of colonic disease, comorbidities, and treatment, which could potentially be related to the personality of the participants.

Table 5 presents the three scales for which associations were identified between higher scores (Somatic Complaints, Strain, and Excitability) and the presence of lesions, comorbidities and indicators of active disease.

Table 5
Analysis of Significant Medical Factors and Their Effect

Scale	Medical factors Differences based on the Mann–Whitney U Test, asymptotic method	Wilcoxon-Mann–Whitney test results, exact, performed in Cytel Studio with the Monte Carlo method	Kendall tau-b statistical association results for nonparametric correlations (effects)
Somatic Complaints scale (KORP) **Higher scores among those with lesions**	Presence/absence of lesions U = 296 $p = .044$	$p = .046$ 95% CI [.040 to .051]	$\tau b=.259$, $p = .044$
Somatic Complaints scale (KORP) **Higher scores among those with comorbidities**	Presence/absence of comorbidities U = 340 $p = .011$	$p = .012$ 95% CI [0.004 to 0.009]	$\tau b=.327$, $p = .011$. A strong and significant association (over 0.3) between the status of comorbidities and the raw score.
Strain (BEAN) **Higher scores among those with disease in remission**	Active/remission U = 164 p=0.046	$p = .042$ 95% CI [0.036 to 0,046]	$\tau b=-.257$, $p = .046$
Strain (BEAN) **Higher scores among those with CD**	UC/IBD U = 164.5 $p = .041$	$p = .042$ 95% CI [0.037 to 0.047]	$\tau b=-.263$, $p = .041$

Scale	Medical factors Differences based on the Mann–Whitney U Test, asymptotic method	Wilcoxon-Mann–Whitney test results, exact, performed in Cytel Studio with the Monte Carlo method	Kendall tau-b statistical association results for nonparametric correlations (effects)
Excitability (ERR) **Higher scores among those with comorbidities**	Presence/absence of comorbidities U=339 p = .012	p = .010 95% CI [0.008 to 0.013].	τb = .323, p = .012 A strong and significant association (over 0.3) between the status of comorbidities and the raw score.

Regarding the activity of the disease and the lesions the results from Table 5 show that the patients in this sample tend to be as follows:

- those with lesions and comorbidities may suffer from insomnia, weather sensitivity, and asthenia or depression because of meteorological fluctuations; headaches, abnormal heart function (arrhythmias), hot flashes, sensitive stomach, nervous tics, suffocation, shaky hands, and other symptoms are common (*Complaints* scale Higher);
- both individuals in remission and those with CD reported feeling overwhelmed, anxious, overworked, and stressed; they were experiencing psychological stress, which might manifest as nervousness, a lack of energy, and fatigue and are typically hard workers who want to save money so that they may spend more time with their families on weekends (*Strain* Higher);
- participants with comorbidities were more likely to be impulsive, agitated, and uncontrollable (*Excitability* Higher).

Discussion

What the Freiburg Personality Inventory indicates about patients with IBD

The scores obtained with a sample of IBD patients were compared to the Romanian national reference standard, and a series of statistically significant differences were discovered. Other findings, both similar and dissimilar, are discussed below. It was assumed that the score level would exhibit some correlation. Consequently, *Extraversion* and *Social Orientation* scores were lower, whereas the *Emotionality* score was higher.

Higher scores on the Inhibitedness scale suggest a predisposition toward repressed feelings, insecurity, and avoidance of social engagement in the investigated group. These traits indicate a type D personality, often known as the "distressed" personality, which is characterized by negative affectivity and social inhibition. Croowel showed that these individuals are at risk for a variety of health issues, including burnout, poor living standards, cardiovascular disease, and gastrointestinal dysfunction (Hansel et al., 2010)

The *Extraversion* scale, which Eysenck conceptualized as a continuum from extraversion to introversion, was used to examine another important aspect of personality. Patients with IBD in this group had lower scores, which were being expected, given that the *Inhibitedness* scale score was higher. They were introverted, reserved, distant, self-controlled, and noncommittal. In a study conducted by Sajadinejad et al. (2012), 58 patients with UC and 59 healthy control participants (selected from their family members) were assessed using the NEO Personality Inventory in Five Factors, the type D personality questionnaire, and the WHO quality of life questionnaire. Patients with UC scored lower on extraversion and higher on neuroticism and had a higher share of type D personality traits than the normative sample. Patients with UC who had a type D personality reported considerably lower average ratings on the Quality of Life Questionnaire than patients without a type D personality.

Within the group of patients with IBD, the highest scores on the *Emotionality* scale, defined as neuroticism by Eysenck and Eysenck (1991) and McCrae and Costa (1987) in the Big Five questionnaire, highlight the fact that they tend to be emotionally unstable and experience more internal conflicts. Their psychological condition was frequently unbalanced, with the patients acting excitable and easily provoked at times and asthenic, low energy, or uncommitted at other times. In terms of neuroticism, the findings were similar not only to those of the aforementioned study but also to those obtained by La Barbera et al. (2017).

The low *Extraversion* and strong *Emotionality* revealed in the Romanian sample were likewise found in other groups who answered various questionnaires to measure similar characteristics. Tkalčić et al. (2009) studied patients with IBD, irritable bowel and healthy people and discovered that neuroticism was a strong predictor of both physical and mental aspects of quality of life.

The lower scores on the *Social Orientation* scale imply that patients with IBD from this study are less eager to care for sick people, are less warm and affective in interpersonal connections and are less supportive of others when compared to the national normative sample. Although no paper that referred to this scale was found, it is possible that patients' lack of social and emotional involvement stemmed from their own need for care and emotional support. That is, this lack could be a protective or energy-saving mechanism.

Higher ratings on the *Health Concerns* scale suggest a fear of illness (infections, accidents), cautious conduct, and even hypochondria in the tested respondents. These people seek medical advice but are dubious of it, frequently seeking a second opinion. This finding is similar to what Witges et al. (2008) found. The researchers employed the Health Anxiety Inventory, which evaluates difficulties related to the magnitude of health problems and discovered that

individuals with IBD had high scores when their symptoms were more severe. Probably symptoms in people without digestive issues, such as bloating, abdominal embarrassment, or soft stools, could be perceived as a symptom of recurrence in patients with IBD and thus be associated with concern and distress. Lebel et al. (2020) discuss health anxiety in the context of the removal of the diagnosis of hypochondria from the Diagnostic and Statistical Manual of Mental Disorders (DSM – 5) and the occurrence of the diagnosis. Somatic symptom disorder is frequently linked to medical conditions and according to the DSM-5, encompasses roughly three-quarters of people previously diagnosed with hypochondria. In the absence of somatic symptoms, a quarter of persons diagnosed with hypochondria had higher levels of health anxiety (American Psychiatric Association, 2016, pp. 309–311). Health concerns in the absence of disease are distinct from health concerns in the presence of disease, particularly chronic diseases such as IBD. Additional research is required in this area, as it is essential to determine how many of these patients with IBD develop anxiety disorder due to a medical condition (American Psychiatric Association, 2016, pp. 230–232).

Patients with IBD in this sample were firmly oriented in their conduct according to social norms and conventional rules of behavior and coexistence, as evidenced by their low score on the *Frankness* scale. They were interested in actively managing their impact on individuals around them to make a positive impression. This scale, which was not designed as a binary truth-lie mechanism, does not examine the willingness to notice modest behavioral flaws at the edge of social desirability, such as being late for school, making awful remarks about others, finding joy in other people's misery, and expressing opinions having the necessary expertise.

Presenting a positive self-image to the public to make a positive impression is a common human phenomenon with both positive consequences (e.g., growth, modeling, self-identity, relationships, personal branding) and negative consequences (e.g., manipulation) (Forster-Heinzer et al., 2009). To cope, people with IBD may exhibit sensitivity to how they are regarded by others and a fixation on value aspects, such as the need to fit into desirable groups. Additional research is required to fully understand this issue.

The Freiburg Personality Inventory based on medical factors in patients with IBD

The current study found that the activity of the disease and comorbidities influenced several psychological aspects, including the patient's quality of life, an aspect that has also been confirmed by other studies.

Patients with lesions and comorbidities scored higher on the *Somatic Complaints* scale, as expected. Patients with comorbidities also had higher scores on the *Excitability* scale. Patients with IBD who had lesions and comorbidities exhibited physical symptoms and were asthenic, anxious about how they would cope with problems and generally pessimistic. Roy et al. (2010) wanted to see how optimism and pessimism were linked to a variety of medical markers, such as interleukin-6, C-reactive protein, fibrinogen, and homocysteine, and discovered that pessimism was associated with greater levels of inflammatory markers. The high scores on the *Somatic Complaints* scale indicated pessimism in Romanian patients with IBD who participated in this study, suggesting the need for psychotherapy, personal development (for a more positive outlook), and trust that the generated chemical processes could reduce inflammation.

Many studies have focused on fatigue in individuals with IBD, disease that has been shown to have severe effects on the quality of life and professional activity like Nocerino et al. (2020). Additionally, the role of bidirectional communication between the intestine and the central nervous system was explored (the bowel-brain axis) in mediating fatigue (Borren et al., 2019).

High scores on the *Somatic Complaints* scale revealed asthenia, or fatigue, in patients with IBD in this study, reflecting both the need for enhanced attention to treat anemia, monitoring of how they feed, and the utility of psychological interventions to manage fatigue. Furthermore, psychological and antidepressant therapy could help IBD patients with disrupted brain-intestinal activity. Additional research is required in this area (Gracie et al., 2019)

The *Excitability* scale scores were higher in patients with IBD who also had comorbidities, indicating that they had reactive behavior, poor self-control, prolonged bouts of anger, and overly emotional reactions to life situations. It should be highlighted that the scores were greater only in patients with comorbidities, not in the national normative sample. However, Rada et al., (2017a,b), Rada and Andrei (2020), in addition to using questionnaires and anamneses, employed in-depth interviews in the form of a "life story" or "personal biography notes" and found that patients with IBD tend to hyperbolize unpleasant life events. Given that no higher score was detected on the *Aggressiveness* scale compared to the normative sample, which would have suggested aggressive imposition of one's own beliefs and a level of hostility toward others, it is plausible that this feature was rather internal. Certainly, in addition to the features specific to IBD, the presence of comorbidities that include suffering and therapies could explain this loss of patience and emotional self-control. In the present study, there were inconsistencies between patients in remission and those in relapse on some psychological parameters. Mancina et al. (2020) in a cross-sectional study on 109 IBD patients in clinical and endoscopic remission, found that the patient's quality of life was influenced by gastrointestinal symptoms.

Over the course of two years, Osborn (1999) separated CD patients into several categories based on standardized questionnaires, clinical interviews, and thorough disease progression data. The variability of the factors of gender, education level, and marital status was found to be minimal, whereas the activity status of the disease showed fairly large variability depending on the duration and severity of the

disease. Similarly, in this study of Romanian patients, no significant difference was detected based on sociodemographic variables, but the disease activity status revealed disparities on the *Somatic Complaints* and *Excitability* scales. This finding must be considered because Regev et al. (2021) found that somatization was the only predictor of disease activity beyond depression and anxiety.

Surprisingly, patients in remission scored higher on the *Strain* scale. Being in remission and thus in reasonable health, it was expected that they would not feel overworked, tense, or as if they were being burdened by demanding requests. It is likely that people in remission seek to reclaim the time when they were in the midst of an active disease and could not keep up with the responsibilities of work or family life. To understand this issue, additional research, particularly qualitative research, is required.

In this study with a Romanian sample, patients with CD scored higher on the *Strain* scale than those with UC. This finding suggests that although the two conditions have similar symptoms and require similar pharmacological treatment, they should also be treated psychologically to some extent because, in contrast to patients with UC, social adjustment in patients with CD was more dependent on disease activity and was lower when stools and abdominal pain were more common. Differences between patients with CD and UC in a state of active disease regarding the impact of psychosocial variables were also found by Sarid et al. (2018) which suggests the need for a relatively specific psychotherapeutic approach to the two conditions.

The d Cohen coefficient was below the reference value of .5 for all scales exhibiting significant differences, with a maximum of 0.43 on the OFF scale. This result suggests that IBD has a minor impact on personality. This result lends credence to the hypothesis that personality traits remain stable in adulthood and are difficult to change, even in the face of adversity. Disorders of vegetative functions (autonomic/sympathetic/parasympathetic/digestive nervous system) tend to be correlated with emotional states rather than personality traits. La Barbera et al. (2017), however, argued for the existence of a distinct psychological functional aspect as a potential predictor in IBD patients.

Raw scores on the *Inhibitedness, Health Concerns, and Emotionality* scales were all significantly higher in the IBD sample than the normative sample. Raw scores on the *Social Orientation, Frankness, and Extraversion* scales were all significantly lower in the IBD sample than the normative sample. Rada et al. (2022) obtained similar trends by using The Young Schema Questionnaire-Short form, namely: high and very high scores on social isolation/estrangement, negativity/pessimism, emotional inhibition and vulnerability to harm and illness

Conclusions

Regarding personality traits according to the Freiburg Personality Inventory the study concludes that psychotherapeutic change interventions regarding life perception are required to tackle the description of subjective suffering related to physical inconveniences (*Somatic Complaints* scale), a strong orientation toward performance (*Strain* scale), and mood swings, anxiety, and pessimism (*Emotionality* scale).

Another area of intervention is the fear of illness, which leads patients to seek exaggerated answers on alternative medical treatments. It is vital to monitor patients with IBD to ensure that they do not develop anxiety disorder because of their medical condition. Additionally, modifying negative automatic beliefs, such as exaggerating when faced with minor digestive problems, is beneficial.

Regarding variability of scores on the Freiburg Personality Inventory scales according to medical factors this study shows that the patients with comorbidities in addition to IBD had considerably higher raw scores on the *Excitability* scale. This problem is serious and requires further study because it is possible that these high scores are predictors of IBD onset or recurrence. Moreover, although patients in remission are more psychologically balanced, it is still necessary to assess gastrointestinal symptoms because they could highlight hidden psychological imbalances.

IBD is a disabling condition that can take the patient out of the normal rhythm of work. The feeling of overwork or even real stress identified in this study in patients in remission requires a double vision of the trend toward high performance. On the one hand, it can be a mediating factor, and on the other hand, it may highlight the tendency to try to recover time that they could allocate to professional goals. Additional attention should be given in this regard, for this perspective may mean that patients with CD raise more problems than those with UC in terms of the experience of demands.

Additional research is required to determine whether a person's psychological traits or personality factors can influence how they adapt to the disease and whether these can act as mediators of disease onset or outbreaks.

Certainly, a patient's life may change as a result of being diagnosed with a chronic condition in general and inflammatory bowel disease in particular. Gastrointestinal issues in IBD that disturb emotions cause the patient to crave support from a close friend, as well as the desire to receive affection and assistance. This finding is yet another reason to value doctor-patient and psychotherapist-patient (or client) relationships.

Personality is expressed through traits, as well as unique adaptations at the dynamic-energetic (temperament), relational-value, and self-regulation levels (character). Temperament is more biological, stable, and intrinsic. Consequently, it is indeed crucial to remember that structure and behaviors are guided by values or what a person considers to be significant in life, as these become goals. Consequently, in patients with IBD, another line of intervention is reconsidering values and (re)prioritization, such as family, intimate relationships, friends, health, growth,

development, and balanced work, all of which can promote a feeling of well-being and balance.

Abbreviations

IBD: inflammatory bowel disease
UC: ulcerative colitis
CD: Crohn's disease
DSM – 5: Diagnostic and Statistical Manual of Mental Disorders.

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