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Psychometry and Pescatori projective test in coloproctological patients

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Abstract

Background Psychological assessment is not commonly performed nor easily accepted by coloproctological patients. Our aim was to evaluate the psychological component of coloproctological disorders using uncommon tools.

Methods The 21-Item Depression Anxiety and Stress Scale and the Pescatori projective test were applied to coloproctological outpatients of the Gastroenterology Department of our hospital as well as to healthy volunteers.

Results Seventy patients (median age 47 years, 22 male) divided in 4 groups (functional constipation, constipated irritable bowel syndrome, benign anorectal disease and perianal Crohn's disease) and 52 healthy volunteers (age 45 years, 18 male) completed the tests. Proctological patients showed higher scores of depression (P<0.001), anxiety (P<0.001), and stress (P<0.001) compared to healthy participants. Compared to the control group, patients with functional constipation, irritable bowel syndrome and perianal Crohn's disease maintained the highest scores in all subscales (P<0.05), while patients with benign anorectal disease only had higher anxiety and stress (P<0.001) scores. The patients' also showed lower scores in the Pescatori projective test (P=0.012). A weak association between the projective test and the depression subscale was found (P=0.05).

Conclusion Proctological patients had higher scores of depression, anxiety and stress and lower scores in the Pescatori projective test compared to healthy controls.

Keywords Coloproctological disorders, psychometry, anxiety, stress and depression scales, projective test

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Introduction

Benign coloproctological disorders comprise a wide spectrum of diseases: functional constipation (FC), constipated irritable bowel syndrome (IBSc), benign anorectal diseases (BAD) and perianal Crohn's disease (pCD). Although regarded as nonthreatening conditions, these diseases can be highly symptomatic and have an important impact on patients' well-being and quality of life [1-4].

Psychological factors appear to play a relevant role in these conditions [5-13]. Although several psychometric instruments have been used to evaluate gastrointestinal patients, only a few studies applied those tests to coloproctological patients [5,9,14-19]. The 21-Item Depression Anxiety and Stress Scale (DASS-21) is a well-established instrument for measuring depression, anxiety, and stress using 3 psychometric scales [20-22]. Recently, 2 studies evaluated the psychological component of anorectal diseases in an alternative way using projective graphics tests, such as the "Draw a Human Figure" test [19] and the "Draw a Family" test [14,19]. These tests are simple, easy to execute and well accepted by patients, and may reflect psychopathology and altered emotional states [23-25].

We aimed to characterize the psychological component of some coloproctological conditions by comparing patients to a healthy population in order to determine whether psychological evaluation should be performed as routine.

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Patients and methods

We performed a prospective psychological assessment of coloproctological outpatients of the Gastroenterology Department of Braga Hospital between July and December of 2015. Included patients had one of the following diagnoses: 1) FC fulfilling Rome III criteria; 2) IBSc fulfilling Rome III criteria; 3) BAD in the last year (anal fissure, hemorrhoids or anal itching), confirmed by hospital anal examination; and 4) pCD proven by anal ultrasound or pelvic magnetic resonance image. Exclusion criteria were age <18 years, structural constipation and criteria for more than one of the described groups. The control group consisted of healthy volunteers with no psychiatric history or gastrointestinal symptoms, generally other Departments' outpatients or accompanying persons. The socio-demographic characteristics and clinical history of participants were collected through a questionnaire.

We chose 2 innovative instruments of psychological assessment in this area of expertise: the Portuguese version of DASS-21 [22] and the Pescatori projective test (Ppt) based on the "Draw a Human Figure" test [19]. The validated and published Portuguese version of DASS-21 [20,21,24] assigns a score of 0-3 points to each of the 7 sentences in the subscales of depression, anxiety and stress (Annex 1). The Ppt is based on the "Draw a Human Figure" test developed by Goodenough in 1926 [26] and adapted by Machover in 1949 [27] to evaluate personality traits through graphic design interpretation. The experimental scoring model used in this study was developed by Cioli, Gagliardi and Pescatori in 2015 [19]. This model scores graphic design characteristics (Table 1) and it ranges from 0 (worst result) to 10 (normal) [20,21]. The drawings were evaluated and classified by a psychologist who had no access to the patients' data.

The study complied with the standards and recommendations of the Helsinki Declaration. All participants provided informed consent. Anonymity and confidentiality were assured by coding each participant.

Statistical analysis

Data were analyzed with SPSS 22.0. Statistical significance was achieved with P<0.05. Chi-square tests were used when comparing categorical variables. Non-parametric Mann-Whitney and Kruskall-Wallis tests were performed to compare two or more than two groups, respectively, when data were not normally distributed. Correlation was measured with Spearman's correlation coefficient.

Results

Seventy patients (13 FC, 18 IBSc, 19 BAD, 20 pCD) and 52 healthy individuals were included. There was no significant difference between patients and controls regarding age (P=0.12), sex (P=0.71), marital status (P=0.93), or education (P=0.17). Significant differences were found when comparing the prevalence of a previous psychiatric evaluation (P<0.001) (Table 2).

Table 1 Pescatori projective test score

Parameters	Score
Head in proportion to body	1
Presence of all the facial features	1
Presence of open eyes	1
Presence of neck	1
Presence of arms	1
Presence of hands	1
Presence of legs	1
Presence of feet	1
Proportion of the body	1
Proportion of all parts of the figure	1

When DASS-21 results were compared, coloproctological patients had higher scores than healthy individuals in the three subscales: depression, anxiety, and stress (P<0.001) (Table 3).

All 4 subgroups had significantly higher scores than controls in all subscales of DASS-21, except for the subscale of depression, in which BAD patients and controls had similar scores (Table 4). There were no significant differences between the subgroups as regards depression (P=0.19), stress (P=0.09) or anxiety (P=0.38).

Regarding the Ppt, 2 patients from the FC group were excluded because they refused to draw. Globally, coloproctological patients had lower scores (mean=7.03, SD=2.07) than healthy individuals (median=7.96, SD=2.01) (P=0.01). However, in a subgroup analysis, only FC and IBSc patients had significantly lower scores than controls (P=0.04 for both). There were no significant differences between subgroups (P=0.32).

There was an inverse correlation between the Ppt and the depression subscale (r=-0.24, P=0.05) in coloproctological patients.

Discussion

Considering the recognizable psychological component of coloproctological disorders, our question is whether it would be relevant to request a psychological/psychiatric evaluation of these patients at some point during their follow up.

In our study, IBSc and FC patients showed higher scores of depression, anxiety and stress. These results are consistent with the current pathophysiological knowledge of these functional disorders, although most of the research in this area focuses predominantly on IBS [5,6,8,10,28,29].

The BAD patients presented higher levels of anxiety and stress, as described by Smith *et al* [11]. Anxiety and stress activate the sympathetic nervous system, increasing the internal

Table 2 Demographic data of patients and controls

	Controls	Patients	Patients			
			BAD	FC	pCD	IBSc
Age M (SD)	44.98 (16.30)	47.26 (15.73)	52.74 (14.11)	57.85 (10.57)	33.60 (10.57)	50.06 (15.94)
Sex (%)						
Male	18 (34.6)	22 (31.4)	10 (52.6)	1 (7.7)	11 (55.0)	0 (0%)
Female	34 (65.4)	48 (68.6)	9 (47.4)	12 (92.3)	9 (45.0)	18 (200)
Civil state (%)						
Single	17 (32.7)	19 (27.1)	1 (5.6)	0 (0)	14 (70.0)	4 (22.2)
Married	26 (50.0)	39 (55.7)	13 (72.2)	10 (76.9)	4 (20.0)	12 (66.7)
Other	8 (15.3)	11 (15.7)	4 (22.3)	3 (23.1)	2 (10.0)	2 (11.1)
No response	1 (1.9)	1 (1.4)	-	-	-	-
Education (%)						
Elementary (<10 years)	11 (21.2)	20 (29.0)	8 (44.4)	6 (46.2)	1 (5.0)	5 (27.8)
Middle (10-12 years)	6 (11.5)	10 (14.5)	1 (5.6)	4 (30.8)	1 (5.0)	4 (22.2)
Junior High (12-15 years)	10 (19.2)	12 (17.4)	3 (16.7)	1 (7.7)	6 (30.0)	2 (11.1)
Senior High (15-18 years)	11 (21.2)	20 (29.0)	5 (27.8)	2 (15.4)	8 (40.0)	5 (27.8)
Graduate	14 (26.9)	7 (10.1)	1 (5.6)	0 (0)	4 (20.0)	2 (11.1)
Psychiatric evaluation	0 (0)	27 (39.1)	5 (27.8)	3 (23.1)	5 (25.0)	14 (77.8)

M, mean; SD, standard deviation; BAD, benign anorectal disorders; FC, functional constipation; IBSc, constipated irritable bowel syndrome; pCD, perianal Crohn's disease

Table 3 Comparison of DASS-21 between patients and controls

	Control (n=52)	Patients (n=70)	Mann–Whitney test
DASS – Subscale depression	4.08 (3.87)	11.74 (11.52)	P<0.001
DASS – Subscale anxiety	3.21 (3.21)	12.20 (9.12)	P<0.001
DASS – Subscale stress	5.35 (4.88)	15.26 (10.00)	P<0.001

Results presented as mean

SD, standard deviation; DASS, depression anxiety and stress scale

anal sphincter pressure and potentially causing hemorrhoidal disease and anal fissures [30-32]. Some studies point to stress as the trigger to hypothalamus–pituitary–adrenal axis suppression and consequent chronic pruritus [33]. The BAD patients and healthy volunteers had similar levels of depression. As these are usually more transitory conditions, they have only a minor impact on long-term quality of life and prospects for the future, in contrast to chronic conditions [4,11]. It would be interesting to see if, in cases of long term BAD, this dimension would be affected.

The pCD patients had higher levels of anxiety, stress and depression, in accordance with the literature [12,13,34,35]. Stress and depression may be associated with immunological changes (infiltration of T and B cells, impaired healing, altered levels of defensins) as well as microbiological and genetic factors, all described in the genesis of perianal fistulas [36-38].

No significant differences between subgroups were observed. Likewise, Mikocka-Walus *et al* evaluated anxiety and stress levels among patients with IBD, IBS and chronic hepatitis C and found no differences between groups [18]. These results suggest that the psychological component in functional and organic coloproctological conditions has an equivalent effect, although a bigger sample might reveal differences between the subgroups.

Coloproctological patients showed significantly lower results in the Ppt compared to healthy individuals, a difference that only achieved significance in the subgroups of FC and IBSc patients. It is probable that, in these functional conditions, the presence of altered personality traits is more evident and more easily detected by the test. Comparably to the DASS-21 results, there were no significant differences between subgroups, something that a larger sample might have altered.

There was a significant inverse correlation only between the subscale of depression and the Ppt, a phenomenon that can be explained by the illustrative/expressive capacity of this projective test, which possibly reflects more the intrapsychic conflict and not the response to external pressure [22].

The present study has several limitations. The Ppt is an experimental test, a fact that adds uncertainty to our conclusions. It may be influenced by age, education, sex, work and even lack of interest/effort in the test. Another limitation was the small number of patients, which did not allow us to see differences between the pathological conditions.

Table 4 Comparison of DASS-21 between patient subgroups and controls

	Controls (n=52)	BAD (n=19) vs. control		FC (n=13) vs. control		pCD (n=20) vs. control		IBSc (n=18) vs. control	
Depression	4.08 (3.87)	8.63 (8.43)	P=0.07	12.46 (13.30)	P=0.03	9.20 (10.00)	P=0.02	17.33 (13.21)	P<0.001
Anxiety	3.21 (3.21)	9.47 (5.45)	P<0.001	12.62 (8.96)	P<0.001	10.20 (9.15)	P<0.001	17.00 (10.90)	P<0.001
Stress	5.35 (4.88)	12.42 (7.07)	P<0.001	14.92 (12.24)	P=0.003	15.00 (9.21)	P<0.001	18.78 (11.40)	P<0.001

Results presented as mean

SD, standard deviation; BAD, benign anorectal disorders; FC, functional constipation; IBSc, constipated irritable bowel syndrome; Pcd, perianal Crohn's disease; DASS, depression anxiety and stress scale

Although the aim of this work was not to discriminate the role of psychological factors as a cause or consequence of coloproctological diseases, our study demonstrates the existence of a clear association. Based on our results, an initial psychological or psychiatric evaluation was proposed to 2 BAD, 8 FC, 1 pCD, and 3 IBSc patients. From our point of view, it seems that the implementation of an early evaluation, with brief, subtle and well-accepted tools that allow the prompt management of the psychological component, could be a pertinent part of care in these patients. This paradigm attitude shift could change the recurrent nature and chronic course of these conditions. The use of preventive strategies could even change the epidemiology and the treatment algorithm of these diseases.

In conclusion, proctological patients had higher scores of depression, anxiety and stress and lower scores in the Ppt. DASS-21 is a ready-to-use instrument helpful in the proctological outpatient setting. Ppt may become a valuable tool that needs further validation. The early diagnosis of the psychological component of the coloproctological functional and organic diseases should be of concern to the physician.

Summary Box

What is already known:

- Benign coloproctological disorders can be highly symptomatic and have an important impact on patients' well-being and quality of life
- Psychological factors may play a relevant role in the described conditions

What the new findings are:

- Patients with functional as well as organic coloproctological diseases had higher scores of depression, anxiety, and stress
- Benign anorectal conditions (hemorrhoids and anal fissure) had no association with depression
- Coloproctological patients had lower scores in the Pescatori projective test

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