

The impact of type D personality on health-related quality of life in patients with symptomatic haemorrhoids

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Abstract

Introduction: Haemorrhoids are one of the most common reasons that patients seek consultation from a colon and rectal surgeon. Health-related quality of life (HrQoL) is a significant factor in describing the burden of illness and the impact of treatment in patients with gastrointestinal disease. Type D (distressed) personality is defined as the co-occurrence of negative affect and social inhibition.

Aim: To assess the prevalence of type D personality in patients with haemorrhoids and to investigate whether the presence of a type D personality would affect HrQoL in patients with haemorrhoids.

Material and methods: One hundred and six outpatients with symptomatic haemorrhoids with no psychiatric comorbidity were consecutively enrolled, along with 96 healthy controls. The Type D Scale (DS14) and the General Health Survey Short Form-36 (SF-36) were used in the collection of data.

Results: Of 106 patients evaluated, 29.2% met criteria for type D personality. Patients with haemorrhoids scored lower on bodily pain and vitality dimensions of SF-36 than did healthy subjects ($p < 0.001$). Patients with a type D personality were found to score lower on bodily pain domain of HrQoL than patients without a type D personality. Linear regression analysis revealed a significant independent association of type D personality with bodily pain dimension of the SF-36 in patients with symptomatic haemorrhoids ($r = -0.315$, $p < 0.01$).

Conclusions: Type D personality was associated with increased perceived bodily pain in patients with haemorrhoids. Consideration of type D personality construct personality traits could improve risk stratification in research and clinical practice in this patient group.

Introduction

Haemorrhoids are highly vascular, submucosal cushions that generally lie along the anal canal. They are one of the most common reasons that patients seek consultation from a colon and rectal surgeon. They are reported to affect millions of people around the world with a prevalence of 4.4% [1]. It is thought that situations that increase intra-abdominal pressure such as pregnancy, constipation, or prolonged straining, as well as weakening of supporting tissue as a result of aging

or genetics, cause dilation and distension of the veins along with weakening of the supporting connective tissue. Patients frequently complain of bleeding with or without defecation, swelling, mild discomfort, or irritation. Other symptoms may include soiling or mucous discharge, pruritus, difficulties with hygiene, and a sense of incomplete evacuation [2].

Type D (distressed) personality is defined as the co-occurrence of negative affect (NA) and social inhibition [3]. The NA refers to the tendency to experience negative emotions, such as hostility, depression, and

anger, at various times and in various situations. Social inhibition connotes the tendency to hold back the expression of these emotions in social interaction due to fears of rejection or disapproval from others [3]. Type D patients are reported to experience decreased levels of social support and to be less likely to engage in positive health-related behaviour [4]. They also fail to consult for increased symptom levels, although they experience more symptoms than non-type D patients [5]. Type D personality has been receiving a lot of attention recently as an important indicator of adverse clinical outcome not only in cardiac patients [6–8], but also in patients with sarcoidosis, idiopathic pulmonary fibrosis [9], chronic pain [10], tinnitus [11], and asthma [12].

Health-related quality of life (HrQoL) is an important, multi-dimensional aspect of health and illness that incorporates a range of variables related to health, such as physical health and functioning, emotional functioning, role limitations, and social functioning. HrQoL is a significant factor in describing the burden of illness and the impact of treatment in patients with gastrointestinal disease [13].

To our knowledge, the HrQoL of patients with haemorrhoids, in comparison with healthy individuals, has been evaluated in only one study [14]. Moreover, the inter-relationship between personality traits and haemorrhoids has not been investigated up until now.

Aim

The first objective of the present study was to assess the prevalence of type D personality in patients with haemorrhoids, in comparison with healthy volunteers. Our second objective was to investigate whether the presence of a type D personality would affect sense of well-being (HRQoL).

Material and methods

Study subjects

One hundred and six outpatients with symptomatic haemorrhoids of Goligher grades I–IV [15], who were treated at the Department of General Surgery of a university hospital in the north-west region of Turkey between April 2012 and June 2012 were included in this study. The medical history of all the patients was carefully studied, and all patients underwent inspection and digital exploration. Internal haemorrhoids that do not prolapse and appear as a bulge into the lumen of the anal canal with or without bleeding are classified as first degree. Second-degree haemorrhoids prolapse and reduce spontaneously. Third-degree haemorrhoids require digital reduction of prolapsed tissue. Fourth-degree haemorrhoids are not reducible. Symptoms related to the presence of haemorrhoids were bleeding, anal

pruritus, burning, moistening, or pain. Patients were additionally screened to rule out organic bowel diseases, other chronic pains, and psychiatric conditions (including fibromyalgia and chronic fatigue syndrome). Additional exclusion criteria required that the patients had not undergone any major surgery in the preceding 3 years and did not have a history of diabetes. Ninety-six healthy controls were also included in the study in order to compare the health-related quality of life and type D personality among groups. All controls were screened for similar exclusion factors, including any history of chronic pain, psychiatric illness, major surgery, and medication. Healthy controls were selected from the community or staff members of the institute, excluding those fulfilling for haemorrhoids on enquiry. The study protocol was approved by the Institutional Ethics Committee. Informed consent was obtained from all the patients and controls.

Questionnaires

Type D Scale (DS14)

Type D personality was assessed with the DS14 questionnaire [3]. The DS14 is a 14-item questionnaire that measures two stable personality traits: negative affectivity (7 items; e.g. “I often feel unhappy” and “I am often in a bad mood”); and social inhibition (7 items; e.g. “I am a closed kind of person” and “I would rather keep other people at a distance”). Subjects rate these aspects of their personality on a 5-point Likert scale ranging from 0 = false, 1 = rather false, 2 = neutral, 3 = rather true, to 4 = true. The NA and SI scales are then scored as continuous variables (range: 0–28). A cut-off of 10 on both scales was used to classify subjects as type D (NA \geq 10 and SI \geq 10). Emons *et al.* [16] found that the items of the DS14 had the highest measurement precision around this cut-off of 10. The DS14 is an internally consistent (Cronbach's α : NA/SI = 0.88/0.86) and stable (3-month test-retest reliability: NA/SI = 0.72/0.82) measure. For the Turkish version [17], the Cronbach's α coefficients of the NA and SI subscales were 0.82 and 0.81, respectively.

General Health Survey Short Form-36 (SF-36)

Health-related quality of life was measured by SF-36 questionnaire. It is one of the best known scales used to measure the health-related quality of life, which is a subjective concept that is constituted at perception level. SF-36 is a generic measure of health status and quality of life that was developed by the Rand Corporation in the US during the 1970s, and it was subsequently refined and used in the Medical Outcomes Study [18]. The SF-36 consists of 36 questions evaluating the respondent's perception of their performance in terms

of 8 dimensions of daily life: physical functioning, role physical, bodily pain, general health, vitality, social functioning, role emotional, and mental health dimensions. Responses from the SF-36 are summed and then transformed to give eight scores on a 0–100 scale where higher scores indicate better function in that dimension. The SF-36 has been tested and proven to be a reliable, valid, and sensitive measure of health status in the general population in various countries including Turkey [19].

Statistical analysis

Statistical Package for Social Sciences software (SPSS 16, Chicago, IL, USA) was used for analysis. Descriptive parameters are shown as mean \pm standard deviation or in percentages. Variables were checked for normal distribution, and normally distributed variables were compared using the Student *t* test. Abnormally distributed variables were compared using Mann-Whitney *U* test. Pearson's χ^2 test was used to analyse the differences in means and for the proportions between

groups. Multiple linear regression and partial correlation analysis were applied for evaluation of the association of age, gender, grade, and duration of the disease, and SF-36 subscales with type *D* personality. Spearman's or Pearson's correlation tests were used to evaluate the association between negative affectivity and social inhibition and age, duration of the disease, grade, and SF-36 domains. A *p* value < 0.05 was considered significant.

Results

There were no statistically significant differences in the demographic characteristics between the 106 patients with IBS and the 96 healthy volunteers (Table I). Negative affectivity subscale scores were found to be higher in patients with haemorrhoids than they were in controls (< 0.05). Also, patients with haemorrhoids scored lower on bodily pain and vitality dimensions of SF-36 than did healthy subjects ($p < 0.001$). Thirty-one patients with haemorrhoids (29.2%) and 14 controls (14.6%) scored above the cut-off score of the

Table I. Characteristics of the total sample, stratified by haemorrhoids status

Parameter	Control (n = 96)		Haemorrhoids (n = 106)		Value of <i>p</i>	
	Mean	SD	Mean	SD		
Age ^a	34.6	13.3	37.7	14.0	0.647	
Negative affectivity ^a	8.6	3.3	10.2	3.9	0.01	
Social inhibition ^a	8.4	2.4	9.1	2.6	0.124	
Physical function ^a	80.0	16.6	77.8	18.6	0.235	
Physical roles ^b	82.1	13.8	80.0	14.2	0.395	
Bodily pain ^a	85.2	19.3	75.1	13.8	< 0.001	
General health ^b	79.9	13.6	79.3	13.3	0.802	
Vitality ^b	83.3	10.3	75.4	13.5	< 0.001	
Social roles ^b	84.5	9.9	82.0	11.6	0.208	
Emotional roles ^b	83.7	11.5	82.5	10.8	0.510	
Mental health ^b	85.6	10.5	81.9	13.1	0.093	
Gender (n) ^c	Male	41 (85.4%)		88 (83%)		0.816
	Female	7 (14.6%)		18 (17%)		
Marital status (n) ^c	Single	20 (20.8%)		23 (21.7%)		0.637
	Married	74 (77.1%)		80 (75.5%)		
	Widowed	2 (2.1%)		3 (2.8%)		
Education (n) ^c [years]	0–4	33 (34.3%)		41 (38.7%)		0.791
	5	25 (26.0%)		23 (21.7%)		
	8	20 (20.8%)		16 (15.1%)		
	12	13 (13.5%)		20 (18.9%)		
	> 12	5 (5.2%)		6 (5.6%)		
Type D personality (n) ^c	No	82 (85.4%)		75 (70.8%)		0.043
	Yes	14 (14.6%)		31 (29.2%)		

SD – standard deviation. ^aMann-Whitney *U* test, ^bStudent's *t* test, ^c χ^2 test

DS14 (< 0.05). Fifty-seven patients (53.8%) had grade 3, 43 (40.6%) had grade 2, 5 (4.7%) had grade 1, and 1 (0.9%) had grade 4 haemorrhoids.

As can be seen in Table II, NA was significantly related to physical function, physical roles, bodily pain, general health, social roles, and mental health. SI was found to be significantly associated with bodily pain and vitality.

Patients were evaluated according to degree of haemorrhoids. Five patients with grade 1 and 1 patient with grade 4 haemorrhoids were excluded from statistical analysis because of the small sample size. We did not find statistically significant differences between the patients with grade 2 and those with grade 3 haemorrhoids with respect to demographic characteristics, duration of the disease, NA, SI, and health-related quality of life dimensions (Table III).

Patients with haemorrhoids were divided into two groups according to the presence of a type D person-

Table II. Correlations among negative affectivity, social inhibition, and SF-36 dimensions in patients with haemorrhoids

Variables	NA	SI
Age	0.014	-0.025
Duration of the disease [weeks]	-0.055	0.076
Physical function	-0.373**	-0.116
Physical roles	-0.304**	-0.068
Bodily pain	-0.294**	-0.238*
General health	-0.200*	-0.074
Vitality	0.096	-0.226*
Social roles	-0.199*	-0.025
Emotional roles	0.001	0.024
Mental health	-0.197*	-0.068

NA – negative affectivity, SI – social inhibition. * $p < 0.05$, ** $p < 0.01$

Table III. Comparison of patients with haemorrhoids according to the degree of haemorrhoids

Variables	Grade 2 (n = 43)		Grade 3 (n = 57)		Value of p
	Mean	SD	Mean	SD	
Age ^a	36.4	13.3	35.6	15.1	0.508
Duration of the disease [weeks] ^a	16.0	34.1	24.6	37.8	0.054
Negative affectivity ^a	10.1	4.3	10.6	3.6	0.525
Social inhibition ^a	9.1	2.8	9.1	2.5	0.707
Physical function ^a	75.7	19.8	78.8	17.8	0.558
Physical roles ^a	78.8	15.1	80.9	13.1	0.608
Bodily pain ^a	74.2	15.1	75.9	12.9	0.617
General health ^a	79.4	13.3	78.5	13.1	0.609
Vitality ^a	73.4	14.3	77.1	12.6	0.160
Social roles ^b	81.2	11.6	81.1	11.7	0.727
Emotional roles ^b	81.9	10.1	81.4	10.8	0.837
Mental health ^b	81.6	13.8	82.1	13.1	0.835
Gender (n) ^c	Male	34 (79.1%)	48 (84.2%)		0.602
	Female	9 (20.9%)	9 (15.8%)		
Marital status (n) ^c	Single	13 (25.6%)	9 (15.8%)		0.127
	Married	30 (71.8%)	46 (80.7%)		
	Widowed	0 (0%)	2 (3.5%)		
Education (n) ^c [years]	0–4	15 (34.9%)	23 (40.3%)		0.612
	5	8 (18.6%)	12 (21.1%)		
	8	6 (14.0%)	10 (17.5%)		
	12	10 (23.3%)	10 (17.5%)		
	> 12	4 (9.3%)	2 (3.5%)		
Type D personality (n) ^c	No	28 (65.1%)	41 (71.9%)		0.517
	Yes	15 (34.9%)	16 (28.1%)		

SD – standard deviation. ^aMann-Whitney U test, ^bStudent's t test, ^c χ^2 test

Table IV. Comparison of patients with haemorrhoids according to the presence of a type D personality

Variables	Non-type D (n = 75)		Type D (n = 31)		Value of p
	Mean	SD	Mean	SD	
Age ^a	37.2	14.7	33.2	13.0	0.242
Duration of the disease [weeks] ^a	20.7	37.2	21.1	34.8	0.624
Physical function ^a	80.5	15.7	70.6	22.7	0.277
Physical roles ^a	81.6	14.0	76.3	13.2	0.056
Bodily pain ^a	78.2	11.0	68.3	17.0	0.004
General health ^a	80.0	12.9	76.5	13.5	0.172
Vitality ^a	75.5	12.9	75.6	14.7	0.753
Social roles ^a	81.8	10.0	81.6	14.7	0.937
Emotional roles ^b	81.1	10.6	82.9	10.1	0.414
Mental health ^a	82.6	12.3	80.4	15.5	0.874
Gender (n) ^c	Male	62 (82.6%)	26 (84.2%)		0.492
	Female	13 (17.4%)	5 (15.8%)		
Marital status (n) ^c	Single	14 (18.6%)	9 (15.8%)		0.288
	Married	58 (77.3%)	22 (80.7%)		
	Widowed	3 (4.1%)	0 (0%)		
Education (n) ^c [years]	0–4	29 (38.6%)	12 (38.7%)		0.856
	5	17 (22.7%)	6 (19.4%)		
	8	12 (16.0%)	4 (12.9%)		
	12	12 (16.0%)	8 (25.8%)		
	> 12	5 (6.7%)	1 (3.2%)		

SD – standard deviation, ^aMann-Whitney U test, ^bStudent's t test, ^c χ^2 test

ality (Table IV). Patients with a type D personality were found to score higher on bodily pain dimension of SF-36 than patients without a type D personality ($p < 0.01$).

Multiple linear regression analysis revealed that the presence of a type D personality was significantly associated with decreased bodily pain scores independent of age, sex, grade, and duration of the disease in patients with symptomatic haemorrhoids (partial correlation coefficient: -0.315 ; $p = 0.001$).

Discussion

In the present study, we investigated the prevalence and the effect on HrQoL of type D personality in patients with haemorrhoids. Patients with haemorrhoids were found to score lower on bodily pain and vitality dimensions of SF-36 than healthy subjects. Approximately one-third the patients were found to have a type D personality; this prevalence was significantly higher than that (14.6%) found in healthy controls. Moreover, the bodily pain dimension of the HrQoL was significantly different (i.e. worse) in patients with a type D personality when compared to patients without a type D personality.

Although few studies have shown an improvement in HrQoL after treatment [20–22], at the time of writing, only one study was conducted about the HrQoL of patients with haemorrhoids comparing with individuals without haemorrhoids. In the recent study by Riss *et al.* [14], participants were those who attended for colorectal cancer screening. The authors used the Short Form12 Health Survey [23] (a shorter alternative to the SF-36) to assess the quality of life and found that HrQoL did not differ between individuals with and without haemorrhoids. However, they included not only symptomatic but also asymptomatic patients with haemorrhoids when comparing with individuals without haemorrhoids, which may have led to underestimating the effect of symptomatic haemorrhoids on HrQoL. In the present study, we enrolled symptomatic patients with haemorrhoids, as well as healthy individuals as controls. We found that patients with haemorrhoids had increased bodily pain and diminished vitality when compared with healthy controls. Thus, symptomatic haemorrhoids were shown to influence HrQoL negatively.

Type D personality was found in around one-sixth of the general population [24, 25], and the prevalence

of type D personality in cardiac patients varied widely from 5.3% [26] to 53% [3]. In the present study, a similar prevalence (29.2%) of type D personality was found among patients with haemorrhoids. The current study has shown that type D personality construct is moderately prevalent among patients with haemorrhoids.

Several factors must be considered in the interpretation of the results of this study. First, the study sample was too small to draw definite conclusions. Second, other personality traits such as neuroticism, extroversion, openness, conscientiousness, and agreeableness were not evaluated. Third, psychological distress was not assessed in this study because our aim was to evaluate personality traits that have been shown to be stable over time. Additional studies are needed to evaluate the interactions among type D personality structure, symptom severity, HrQoL, and psychological states.

Conclusions

To our knowledge, this study is the first to investigate the impact of type D personality on HrQoL in patients with haemorrhoids. Type D patients were more likely to have worse bodily pain when compared with non-type D subjects. Also, NA was significantly related to physical function, physical roles, bodily pain, general health, social roles, and mental health, and SI was found to be significantly associated with bodily pain and vitality. When controlling for the influence of age, gender, grade, and duration of the disease by regression analysis, type D personality remained an independent predictor of increased bodily pain. To conclude, personality in general, and type D personality in particular, may be important determinants of individual differences in HrQoL in haemorrhoids. Type D personality should be an important consideration in the management of patients with haemorrhoids. Consideration of personality traits may allow for improved risk stratification in research and clinical practice in this patient group. Further studies are needed to evaluate whether patients with haemorrhoids exhibiting type D personality trait show greater dissatisfaction with medical interventions, are less compliant with medical therapy, and have inferior therapeutic outcomes.

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