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ORIGINAL ARTICLE

Attachment and quality of life in patients with inflammatory bowel disease

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Abstract
Purpose Inflammatory bowel diseases (IBD) are chronic disorders affecting psychological well-being, quality of life (QOL), social interactions, and close interpersonal relationships of patients affected. The attachment theory provides a theoretical framework to evaluate the quality of close interpersonal relationships in the context of chronic disorders. The aims of this study were to compare the attachment dimensions between IBD patients and healthy controls and to evaluate the impact of these dimensions on QOL in IBD patients.
Methods One hundred three consecutive IBD outpatients (70 with Crohn's disease and 33 with ulcerative colitis) were recruited in the IBD Unit of the University of Bologna. They were clinically evaluated and filled out the questionnaire Short Form health survey-36 (SF-36), assessing QOL, and the attachment style questionnaire (ASQ), assessing attachment dimensions. One hundred three matched healthy subjects filled out the same questionnaires and represented the control group.
Results IBD patients exhibited worst scores in the QOL measures (both physical and mental health) and in the attachment dimensions Relationships as secondary and Preoccupation with relationships. In IBD, the significant predictors of physical health were disease activity and disease type, while the significant predictors of mental health were disease activity and type, surgery, and the attachment dimensions Confidence and Preoccupation with relationships.
Conclusions Compared to controls, in IBD patients, the close interpersonal relationships are characterized by attachment insecurity that, in turn, is a significant predictor of QOL. These findings suggest plausible insights for psychological interventions in IBD patients with deterioration in QOL.

Keywords Inflammatory bowel disease · Quality of life · Attachment

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Introduction

Crohn's disease (CD) and ulcerative colitis (UC), collectively labeled as inflammatory bowel diseases (IBD), are chronic disorders affecting psychological well-being and quality of life (QOL) of patients affected [1–3]. In particular, IBD have a considerable impact on social interactions and close interpersonal relationships [4, 5].

The attachment theory provides a theoretical framework to evaluate the quality of close interpersonal relationships in the context of chronic disorders. This developmental theory states that infants, through the interactions with caregivers, develop cognitive schemas of interpersonal relationships named attachment styles that guide affects and behavior during the life span [6, 7].

If infants experience their caregivers as reliably available and responsive, a secure attachment style develops, characterized by a sense of safety and effective regulation of affects. In contrast, if the caregivers are inconsistently responsive, unavailable, or abusing, an insecure attachment style develops characterized by two fundamental dimensions: (i) anxiety over relationships and (ii) avoidance or discomfort with closeness [8]. Anxiously attached individuals tend to hyperactivate the attachment system. They experience constant worry about being abandoned, resulting in hypervigilance, seeking proximity, and dysfunctional stress and affect regulation. On the

other hand, avoidant individuals are inclining to deny attachment needs in the attempt to deactivate the attachment system and suppress emotions [9, 10].

The attachment style is believed to be a quite stable personality trait under conditions of relative stability. Indeed, longitudinal studies not only have shown continuity of patterns of attachment from infancy to adulthood in the general population but also found changes in the adult attachment style in response to significant adversity [11, 12]. Chronic illnesses are believed to be adverse conditions capable of determining a shift towards attachment insecurity in patients affected [13–15]. Indeed, compared to healthy controls, attachment insecurity, mainly characterized by attachment avoidance, has been found in a variety of health conditions including IBD [5, 14, 16–19].

Although psycho-social factors and health-related QOL have been widely evaluated in IBD patients [1–3, 20–24], the relationships between attachment and QOL still need to be investigated. In the present study, the attachment dimensions and QOL were assessed in a group of IBD outpatients. The attachment dimensions were compared between IBD patients and a group of matched healthy controls, and furthermore, the impact of these dimensions on QOL was assessed in the IBD group.

Methods

This cross-sectional study was conducted in the IBD Unit of St. Orsola-Malpighi University Hospital in Bologna. The local ethics committee approved the study and all participants signed an informed consent. Fully trained physicians of the IBD Unit clinically evaluated patients, while trained psychologists of the Department of Psychology of the University of Bologna interviewed the participants and administered the psychometric questionnaires.

Population

IBD patients

Eligible consecutive outpatients were recruited when they met the inclusion and exclusion criteria. During the routinely control visits, patients were invited to participate in the study and, after acceptance, were instructed by the psychologists to fill out the questionnaires.

Inclusion criteria The inclusion criteria were age >18 years, IBD diagnosis, and IBD diagnosed from at least 1 year.

Exclusion criteria In order to avoid potential confounders for the measures of attachment dimensions, patients with psychiatric disorders were excluded. A semistructured interview based on DSM IV was used. Furthermore, patients with surgery in the previous 18 months or with definitive ileostomy were excluded.

At recruitment were collected data on age, sex, education, marital status, disease duration, disease activity [Crohn's disease activity index (CDAI) [25] and colitis activity index (CAI) [26] were used], previous extraintestinal manifestations, previous surgery, previous use of biologics, and current treatments.

Healthy controls

A group of healthy subjects were recruited with advisement and interviewed by the psychologists.

Inclusion criterion The inclusion criterion was age >18.

Exclusion criteria The exclusion criteria were presence of acute or chronic health disorders, current treatment with drugs, and presence of psychiatric disorders.

Psychometric questionnaires

General QOL

SF-36 The Short Form health survey-36 (SF-36) [27] is a standard health assessment instrument designed to measure QOL in two main domains: physical health [SF-36 physical component summary score (PCS)] and mental health [SF-36 mental health component summary score (MCS)]. This instrument has been extensively used in a wide variety of health disorders including IBD [27]. In the context of IBD patients, SF-36 is believed to be a reliable measure of QOL [24]. Indeed, SF-36 scores highly correlated with scores obtained by disease-specific QOL questionnaires [21, 28, 29]. SF-36 provides norm-based scores (mean score of 50 and standard deviation of 10). All scores above or below 50 can be interpreted as above or below the general population norm.

ASQ The attachment style questionnaire (ASQ) [30] is a self-report questionnaire containing 40 items designed to assess attachment dimensions. Each item corresponds to a statement, and participants must rate if they agree or disagree with it using a six-point Likert scale in which 1 corresponds to "totally disagree" and 6 to "totally agree." The ASQ contains five subscales: (1) confidence, describing secure attachment, (2) discomfort with closeness and (3) relationships as secondary, both assessing attachment avoidance, (4) need for approval, and (5) preoccupation with relationships, both assessing attachment anxiety.

Statistics

Statistical analyses were conducted using SPSS. Analysis of variance (ANOVA) was used for comparison between IBD patients and HC. Chi-squared test was used for categorical variables. Regression models were run using the stepwise data entry method. For the IBD group, two separate multiple linear regression analyses were conducted to identify the role of demographic, clinical variables, and attachment dimensions on the two SF-36 primary outcomes, PCS and MCS, used as dependent variables. A total of 15 variables were entered into the model including age (in years), sex (being female), education, marital status, disease type (having UC), disease duration (in years), disease activity, extraintestinal manifestations, previous surgery, previous use of biologics, ASQ Confidence, ASQ Discomfort with closeness, ASQ Secondary with relationships, ASQ Need for approval, and ASQ Preoccupation with relationships. The criteria were probability of F to enter, <0.05, and probability of F to remove, 1.

Results

The IBD patient group consisted of 103 subjects, 70 with CD and 33 with UC. One hundred and three healthy subjects matched for age, sex, marital status, and education represented the control group. Descriptive statistics, including the sociodemographic characteristics of the two groups, and all clinical data of IBD patients are shown in Table 1.

IBD patients do worse scores than the general norms on physical health-related QOL (45.79±9.73) and mental health-related QOL (39.99±11.60). As expected, there were significant differences between the IBD group and the enrolled control group in QOL measures, both physical ($p<0.0001$) and mental health ($p<0.0001$) (Table 2). Moreover, the comparison between IBD patients and controls of attachment dimensions revealed significant greater scores in IBD patients in two ASQ subscales, relationships as secondary ($p<0.001$), and preoccupation with relationships ($p<0.05$) (Table 2).

In the IBD patient group, the clinical and psychometric parameters were added as predictor variables in the two

Table 1 Characteristics of study participants

		IBD (n=103) (70 CD, 33 UC)	HC (n=103)
Age (years)		37.11 (±13.43) range 18–68	38.80 (±12.91) range 19–69
Gender	Male	55	57
	Female	48	46
Education	Primary school	31	28
	High school	51	49
	Graduate	21	26
Marital status	Single	21	23
	Engaged	26	20
	Married	52	49
	Separated	3	10
	Widow	1	0
Disease duration (years)		8.28 (±8.24) range 1–38	
Disease activity	Remission	45	
	Mild	46	
	Moderate	10	
	Severe	2	
Extraintestinal manifestations	50 none	33 arthralgia, 16 erythema nodosum, 4 episcleritis	
Surgery	56 not treated		
	47 treated (42 CD, 5 UC)	37 segmental resection, 10 colectomy	
Use of biologics	68 not treated, 35 treated		
Current treatment	5-Aminosalicylic acid	53	
	Immunomodulators	20	
	Steroids	2	
	Biologics	26	
	None	2	

Values denote mean ± standard deviation (M ± SD) or number of subjects

IBD inflammatory bowel disease, *HC* healthy controls, *CD* Crohn's disease, *UC* ulcerative colitis

Table 2 Comparison between IBD patients and healthy controls

	IBD (n=103) M (±SD)	HC (n=103) M (±SD)	F
ASQ Confidence	34.27 (±5.20)	33.20 (±3.92)	2.74
ASQ Discomfort with closeness	34.85 (±6.96)	34.03 (±6.08)	0.81
ASQ Secondary with relationships	17.31 (±5.33)	14.63 (±4.92)	14.01***
ASQ Need for approval	19.75 (±5.96)	18.35 (±6.11)	
ASQ Preoccupation with relationships	26.99 (±6.21)	25.07 (±6.57)	4.63*
SF-36 Physical component summary	45.79 (±9.73)	55.33 (±4.86)	78.46***
SF-36 Mental health component summary	39.99 (±11.60)	51.55 (±3.72)	91.95***

Values denote mean ± standard deviation (M ± SD) or number of subjects (n)

IBD inflammatory bowel disease, *HC* healthy controls, *ASQ* attachment style questionnaire, *SF-36* Short Form health survey-36

* $p<0.5$; *** $p<0.001$

models of regression. In the first regression analysis (PCS as dependent variable), there was a significant linear relationship between PCS and the set of predictor variables: R^2=0.36, F=27.37, and $p<0.0001$. Among the parameters entered in the model, the significant predictors of PCS were disease activity (β=−0.48, t=−5.01, $p<0.001$) and disease type, with CD associated with lower scores on QOL (β=0.49, t=4.65, $p<0.001$) (Table 3).

In the second regression analysis with MCS as dependent variable, there was a significant linear relationship between MCS and the set of predictor variables entered: R^2=0.39, F=12.35, and $p<0.0001$. Similar to the results presented above, disease activity (β=−0.54, t=−5.09, $p<0.001$) and disease type (β=0.27, t=2.40, $p<0.05$) were significant predictors of MCS. Moreover, surgery (β=1.81, t=2.06, $p<0.05$), ASQ Confidence (β=0.25, t=2.99, $p<0.01$), and ASQ Preoccupation with relationships (β=−0.28, t=−3.46, $p<0.01$) were significant predictors of mental health (Table 3).

Table 3 Results of the regression analyses

Predictor variables	β	t	P value
Dependent variable=SF-36 PCS			
Disease activity	−0.78	−7.40	<0.001
Disease type, CD versus UC	0.49	4.66	<0.001
Dependent variable=SF-36 MCS			
Disease activity	−0.54	−5.09	<0.001
Disease type, CD versus UC	0.27	2.40	<0.05
Surgery	0.18	2.06	<0.05
ASQ confidence	0.25	2.99	<0.01
ASQ preoccupation with relationships	−0.28	−3.46	<0.01

Predictor variables in both models included age, sex, education, marital status, disease duration, disease activity, extraintestinal manifestations, previous surgery, use of biologics, ASQ Confidence, ASQ Discomfort with closeness, ASQ Secondary with relationships, ASQ Need for approval, ASQ Preoccupation with relationships

ASQ attachment style questionnaire, *SF-36* Short Form health survey-36, *PCS* physical component summary, *MCS* mental health component summary, *CD* Crohn's disease, *UC* ulcerative colitis

Discussion

In this study, the attachment dimensions and QOL were compared between groups of IBD outpatients and matched healthy controls. Furthermore, the impact of attachment on QOL was assessed in the IBD group.

Compared to healthy controls, IBD patients had lower scores in QOL not in only physical but also in mental health measures. Moreover, patients exhibited a more insecure attachment style characterized by high attachment anxiety and avoidance. These findings are consistent with those of previous studies conducted on CD patients that have hypothesized a contribution of chronic disease in the development of attachment insecurity [5]. Indeed, although the attachment style is conceptualized as a quite stable personality trait, the chronic disorders and related stress represent adverse conditions that may promote a shift towards attachment insecurity in patients affected [13–15]. Overall, disease-related prolonged stress affects the mental processes essential to consider and recognize the motivations, beliefs, and feelings of the self and others. Deficits in these mental processes, named mentalization in the attachment terminology, represent the preconditions of attachment insecurity [6, 30]. In particular, the persistent disease-related stress and anxiety may induce patients to massively use affect regulation strategies either hyperactivating or deactivating the attachment system. Indeed, anxious individuals hyperactivate the attachment system in order to monitor behavioral and mental states of the others to obtain proximity and social support. Conversely, avoidant individuals tend to deactivate the attachment system, to suppress the attachment needs and negative affects [6, 9, 30]. Attachment avoidance was shown in previous studies in other chronic medical disorders [5, 31–33]. Therefore, our results

suggest that IBD patients may share with other chronic patients the tendency to use strategies focused on avoidance in order to cope with the repeated stressors imposed by the chronic inflammatory bowel disorders. To sum up, although this cross-sectional study does not address the direction of the relationship between IBD and insecure attachment, our results are consistent with the hypothesis that the distress imposed by the chronic inflammatory disorder might promote attachment insecurity in patients affected.

When we investigated the determinants of QOL in IBD patients, we found that, among the socio-demographic, clinical, and psychological variables that we had evaluated, IBD severity was the most important predictor of both physical and mental health as measured by the SF-36. These findings are consistent with a number of studies showing that the severity of IBD symptoms not only seriously affects physical health but also imposes a considerable burden on patients' psychological functioning [34–36] and well-being [1–3, 20–24]. Consistently with previous studies [1, 22, 23] reporting a greater negative impact on QOL in CD with respect to UC, CD emerged as a predictor of poor QOL. The effect of the disease type on QOL is likely to reflect a more severe disease course in patients with CD compared to those with UC.

In IBD patients, the attachment dimensions were unrelated to physical health but were significant predictors of mental health. A secure attachment style is associated with high psychological functioning, effective coping strategies, and resilience, whereas attachment insecurity is believed to represent a risk factor for poor mental health. Consistently, we found that, in IBD patients, attachment security, as measured by the dimensions ASQ confidence, was negatively correlated with SF-36 mental health. On the other hand, ASQ preoccupation with relationships was also a predictor of MCS, suggesting that attachment anxiety had a significant impact on mental health-related QOL in these patients.

Although, compared to controls, IBD patients exhibited higher scores in ASQ relationships as secondary (a dimension describing avoidance), this ASQ subscale had no impact on mental health. These findings are consistent with the hypothesis that avoidant individuals are prone to devaluate the close interpersonal relationships and tend to consider them irrelevant for their QOL. Indeed, attachment avoidance is characterized by appearance of confident self-reliance, minimal self-disclosure, and mistrust in others. When faced with stress, avoidant individuals cope with cognitive distancing from emotions, denial, emotional disengagement, and distraction [6, 19].

Finally, we found that surgery was associated with improvement of mental health. Although patients who had surgery may have more severe disease, surgery has been previously reported to improve QOL in IBD patients over time [24, 37, 38]. Indeed, surgery may improve QOL in patients requiring it, aiming for better disease control with less progression to severe disease and possibly avoiding the negative impact of the severe symptoms on psychological functioning and mental health in patients affected.

To the best of our knowledge, this is the first study assessing the impact of the quality of close interpersonal relationships on QOL in IBD patients. The cross-sectional design of the study limits the possibility to infer causal relationships between the variables that we had assessed. Further longitudinal studies, in larger samples of patients, could attempt to address those limitations.

In conclusion, taken together, the results of the present study suggest that, compared to controls, in IBD, the close interpersonal relationships are characterized by attachment insecurity that, in turn, is a significant predictor of QOL. These findings suggest the potential usefulness of the evaluation of the attachment dimensions in patients with IBD and moreover suggest plausible insights for psychological interventions in IBD patients with deterioration in QOL.

Conflict of interest None

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