

Metacognition and negative emotions in clinical practice.

A preliminary study with patients with bowel disorder

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Abstract: In the past few years psychological characteristics in patients with organic bowel disorder have been poorly considered. However recent studies underline that psychological features increase gastrointestinal symptoms. The aim of this study is to investigate metacognition and emotions in patients with organic bowel disorder and functional bowel disorder. 33 outpatients with organic diagnosis and 28 outpatients with functional diagnosis were assessed with MCQ-30, ANPS and Brief-Cope; moreover stress was evaluated in all outpatients. Results revealed that two groups show the same psychological disturbances and there are no differences between organic patients and functional patients. Statistical analysis indicated significant relations between dysfunctional metacognitive beliefs and negative emotions. Specifically, Beliefs of Uncontrollability and Danger (UD) are significantly related to Fear, Anger and Sadness. Moreover Fear and Anger are significantly related to stress; dysfunctional metacognitive beliefs are related to coping strategies. Beliefs of UD are related to Using Emotional Support; Positive Beliefs (PB) are related to Planning, while Cognitive Confidence (CC) is related to Self-Blame. Unexpectedly results are higher in patients with organic diagnosis. Our results suggest to reconsider psychological influences in patients with organic diagnosis of gastrointestinal disease.

Keywords: Metacognition; Inflammatory bowel diseases; Functional gastrointestinal disorders; Emotions; Coping; Introduction

INTRODUCTION

The biopsychosocial model (BPS) (Engel, 1977) underlines that genetic, environmental, psychological and social factors all play a significant role in human functioning in the context of disease and illness individual predisposition. Biological, psychological and social variables can determine onset and development of clinical disorder.

Gastrointestinal disorders are generally classified into functional and organic categories (Drossmann, 2006). This classification if on one hand simplifies the investigation of psychological factors considered important in the aetiology, symptomatology, onset and development of gastrointestinal functional disorders; on the other hand the classification into functional and organic categories support a dualistic point of view. For example peptic ulcer is considered exclusively an organic disease and psychological factors are disregarded.

Inflammatory Bowel Disease (IBD) includes Ulcerative colitis (UC) and Crohn's disease (CD). Both of them are chronic diseases with remissions and relapses over the years and manifest symptoms such as diarrhoea, abdominal spasms, pain, weight loss and intestinal bleeding. Irritable Bowel Syndrome (IBS) is a really common disease and is considered a gastrointestinal functional disorder because its symptoms (abdominal pain, diarrhoea and constipation) usually don't react to the conventional treatments.

In the scientific literature there are more studies about psychological factors in Irritable Bowel Syndrome (IBS) than psychological factors in organic gastrointestinal diseases. Patients with IBS seem to be very susceptible to stressful events of daily life; Posserud et al. (2003) evaluated impact of stress on IBS patients' colorectal sensitivity and hormonal changes compared to healthy subjects and they observed that stress produces hyperactivity of neuroendocrine system and visceral perception disorders during stressful moments explaining most of IBS patients' symptoms. Moreover corticotropin-releasing

hormon (CRH) functions as reaction to stress increasing adreno cortico cropic releasing hormone (ACTH) and increases IBS patients' bowel movement compared to normal subjects (Winston et al., 2010). Use of coping strategies seem to be not effective in IBS patients because they usually adopt avoidance-oriented strategies (Wrzesińska, & Kocur, 2008). Lastly, it stands to reason that there is a statistical relation between stressful events and negative emotions' overstatement in patients with functional gastrointestinal diagnosis (Elsenbruch, Lovallo, & Orr, 2001).

In recent years it is observed that there are many studies about evaluation of psychological variables in IBD's onset, development and outcome, which is usually considered a disease with organic aetiology. A lot of studies underline the importance of stress in IBD's symptoms as Tang's work (2008) that studied differences in health mental and physical perception and in stress perception in IBD and IBS patients. He discovered that IBS and IBD patients presented high levels of perceived stress. Sajadinejad et al. (2012) showed that stress is decisive for disease's worsening again in patients with IBD and it is connected to poor coping strategies, depressive characteristics, negative emotions and low level of quality of life; stressful events increase symptoms in patients with UC producing bleedings (Moriya et al. 2011). Li (2012) underlined that oxidize stress has place in IBD pathophysiology and he suggested use antioxidant against gastrointestinal diseases. CRH seem to be responsible for inflammatory of gastrointestinal system (Larauche, Kiank, & Cure, 2009) because CRH causes TNF- α (tumor necrosis factor) increasing devastation of gastrointestinal system (Overman, Rivier, & Moeser, 2012).

Kiebles, Doerfler & Keefer (2010) underlines the importance of considering cognitive, emotional, behavioural and medical aspects in the treatment of gastrointestinal diseases.

Literature analysis suggests the importance of an integrated treatment with clinical psychology. Psychological characteristics such as metacognition and emotions have a hand at the functional and organic gastrointestinal ethiology. Although scientific literature confirmed links between emotional, cognitive, metacognitive and behavioural processes, there aren't any studies that evaluated metacognitive and affective aspects in patients with gastrointestinal diagnosis. Therefore, the aim of this study is to investigate a possible presence of dysfunctional metacognitive beliefs and negative emotions to individuate patients with gastrointestinal disorder from a clinical-psychological point of view. We are going to compare psychological functioning of the two groups (organic diagnosis/functional diagnosis; IBS/IBD) to find significant differences in choosed variables. Another aim is to investigate links between dysfunctional metacognitive beliefs, negative emotions, coping strategies and stress.

Materials and Methods

Sixty-one outpatients from the Clinical Unit for Chronic Bowel Disorders, Department of Internal Medicine and Medical Therapy, Hospital "G. Martino" of University of Messina, were selected after an assessment by a gastroenterologist to confirm IBS, UC or CD diagnosis.

33 outpatients had an organic bowel disorder (13 with CD, 20 with UC), 19 males and 14 females (mean age: 33.87 years, DS: 11.76); level of educations was 13.6 years (DS: 2.88). 28 outpatients had functional bowel disorder (13 males; 15 females) between 17 and 62 years of age (mean age: 38; DS: 12); level of educations was 12 years (DS: 4). According to the social and demographic features there were no significant differences between the two clinical groups of patients (Table 1). These results probably underline that social and demographic characteristics do not influence the following comparison with MCQ, ANPS, Stress and Brief Cope instruments between clinical groups.

Patients were exposed to a clinical interview conducted by a clinical psychologist to collect socio-demographic informations and to exclude the presence of positive anamnesis for schizophrenia or severe somatization disorders, any psychiatric disorder included in Axis I and/or Axis II of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; APA, 2000) at the time of gastrointestinal diagnosis or during a six-month period before the study. They were required to sign a written consent and also exposed to a battery of tests.

Table 1

Socio-demographic features of the two groups of outpatients

	Diagnosis		Mann-Whitney test	
	Organic	Functional	U	p
	M (DS)	M (DS)		
Age (years)	33.88 (11.76)	38.11 (12.21)	350.0	.105
Level of education (years)	13.61 (2.88)	12.07 (3.74)	349.0	.087

Measures

A battery of tests was used during the study consisting of *Metacognitions Questionnaire-30* (MCQ-30; Wells & Cartwright-Hatton, 2004). The MCQ-30 is a 30 item self-report questionnaire constructed as a brief measure of individual differences (traits) in positive beliefs about worry, negative beliefs about worry, belief about need to control thoughts, metacognitive monitoring of thoughts, judgments of cognitive effectiveness. It is a reliable and valid self-report measure of metacognition (Wells & Cartwright-Hatton, 2004; Spada, Mohiyeddini, & Wells, 2008). Items are rated on a 4-point scale from 1 (*do not agree*) to 4 (*completely agree*) and classified into five subscales as in the original version (Cartwright-Hatton & Wells, 1997). Factorial analysis showed the presence of five factors (Wells & Cartwright-Hatton, 2004): cognitive confidence that measures lack of trust or confidence in memory (*Cognitive confidence*, CC); cognitive self-consciousness that measures heightened awareness of one's thoughts and thinking processes (*Cognitive self-consciousness*, CS); positive beliefs about worry that considers worry as a useful or helpful coping strategies (*Positive beliefs*, PB); negative beliefs about worry concerning uncontrollability and danger that considers worry as a dangerous and uncontrollable activity (*Uncontrollability and danger*, UD); beliefs about need for control that assesses that belief is very important to control one's thoughts particularly worrying thoughts (*Need to control thoughts*, NCT).

At this moment our research group is working on MCQ-30 Italian version validation in collaboration with the Author. Preliminary normative data from a sample of 206 subjects of the Italian population are: Cognitive confidence, $M = 10.21$ ($DS = 3.72$); Cognitive self-consciousness, $M = 16.86$ ($DS = 3.11$); Positive beliefs, $M = 10.87$ ($DS = 3.70$); *Uncontrollability and danger*, $M = 11.83$ ($DS = 4.05$); Need to control thoughts, $M = 11.64$ ($DS = 3.18$). In this study, Cronbach's alpha coefficients are: Cognitive confidence, Cronbach's $\alpha = .81$; Cognitive self-consciousness, Cronbach's $\alpha = .70$; Positive beliefs, Cronbach's $\alpha = .81$; Uncontrollability and Danger, Cronbach's $\alpha = .79$; Need to control thoughts, Cronbach's $\alpha = .70$).

Affective Neuroscience Personality Scales (ANPS; Davis, & Panksepp, 2003; with an Italian version provided by Andrea Clarici, University of Trieste, by personal communication, 2007) is a 110 items self-report questionnaire that measures basic categories of emotions as they are considered from the recent neuroscience research. There are three subscales concerning positive emotions (Seeking, Play and Care) and negative emotions (Fear, Anger and Sadness). Positive emotions and negative emotions are considered primary scales, ANPS Spirituality scale was introduced, focusing on feelings of connectedness with all of life and oneness with creation (Farinelli et al. 2013) and it is considered a secondary scale. Items are rated on a 4-point scale from 1 (*do not agree*) to 4 (*completely agree*).

Misurare lo Stress (MS; Di Nuovo, & Rispoli, 2000). It is a 49 items self-report questionnaire that measure a range of physiological changes caused by stress. The items are rated on a 4-point scale from (*not in the least*) to 4 (*highly*).

Brief Cope (Carver, 1997) is a short version of COPE (Carver, Scheier, & Weintraub, 1989) and a 28 item self-report questionnaire designed to assess a range of coping responses. It consists of 14 subscales (Active Coping; Planning; Positive Reframing; Acceptance; Humour; Religion; Using Emotional Support; Using Instrumental Support; Self-Distraction; Denial; Venting; Substance Use; Behavioural Disengagement; Self-Blame); response options range from 0 (*I haven't been doing this at all*) to 3 (*I've been doing this a lot*).

Data were organized in a SPSS version (Statistical Package for Social Sciences v. 18 software for Windows, 2009) database where outpatients were classified into two clinical samples: patients with organic bowel disorders and patients with functional disorders. Analyses were performed with descriptive and inferential statistical analysis. Secondly data were analysed with non-parametric test for two independent samples. Continuous data were expressed as mean \pm DS and significant differences

between clinical groups were appraised using the Mann-Whitney non-parametric test for two independent samples. Spearman correlation coefficients were used to examine the bivariate associations among study variables. The significant levels for the correlation coefficients were $p < 0.05$ and $p < 0.001$.

Results

Group differences (Mann-Whitney U-test)

Tables 2, 3, 4 and 5 show descriptive statistics and the results of Mann-Whitney U-test for two independent samples for patients with organic bowel disorders and patients with functional disorders. Considering metacognition, negative emotions, stress and coping, no significant differences between the two clinical groups of patients were recognized.

Table 2
MCQ mean scores of the two groups of patients with bowel disorder

Scale	Diagnosis		Mann-Whitney test	
	Organic	Functional		
	M (DS)	M (DS)	U	<i>p</i>
CC	12.06 (3.98)	12.50 (5.25)	460.5	.983
CS	17.27 (3.20)	17.29 (2.71)	438.0	.726
PB	10.97 (4.57)	11.89 (4.57)	398.0	.352
UD	15.15 (4.98)	12.57 (3.51)	329.0	.057
NCT	14.15 (3.87)	13.04 (3.72)	378.5	.224

Notes: CC = Cognitive Confidence; CS = Cognitive Self-Consciousness; PB = Positive Beliefs; UD = Uncontrollability and Danger; NCT = Negative Control Thoughts.

Mann-Whitney U-test for two independent samples has been used.

Table 3
ANPS mean scores of the two groups of patients with bowel disorder

Scale	Diagnosis		Mann-Whitney test	
	Organic	Functional		
	M (DS)	M (DS)	U	<i>p</i>
Seek	25.24 (4.72)	24.61 (4.41)	398.5	.356
Fear	23.27 (6.49)	22.46 (5.27)	444.5	.800
Care	27.06 (5.51)	26.82 (5.06)	456.0	.931
Anger	20.52 (6.10)	21.82 (4.63)	406.0	.416
Play	23.73 (4.46)	24.18 (5.33)	453.5	.902
Sadness	21.52 (4.81)	21.21 (4.14)	460.0	.977
Spirituality	20.21 (4.99)	20.93 (6.39)	434.0	.685

Mann-Whitney U-test for two independent samples has been used.

Table 4

MS mean scores of the two groups of patients with bowel disorder

	Diagnosis		Mann-Whitney test	
	Organic	Functional		
	M (DS)	M (DS)	U	P
TOT	100.61 (26.51)	95.11 (22.72)	419.5	.538

Notes: TOT = global score MS.
Mann-Whitney U-test for two independent samples has been used.

Table 5

Brief-Cope mean scores of the two groups of patients with bowel disorder

Scale	Diagnosis		Mann-Whitney test	
	Organic	Functional		
	M (DS)	M (DS)	U	P
AC	5.55 (1.80)	5.54 (1.62)	448.5	.842
P	5.18 (1.88)	6.07 (1.61)	343.0	.079
PR	4.94 (1.80)	5.14 (1.53)	439.5	.740
A	5.67 (1.90)	6.00 (1.66)	416.0	.499
H	4.00 (1.92)	3.61 (1.45)	404.0	.391
R	5.12 (2.18)	4.71 (2.40)	400.5	.364
UES	4.15 (1.80)	4.04 (1.57)	445.0	.800
UIS	5.03 (1.99)	4.46 (1.48)	383.0	.236
SD	4.64 (2.00)	3.75 (1.32)	331.5	.059
D	2.97 (1.47)	2.46 (0.88)	369.0	.121
V	4.21 (1.83)	4.32 (1.12)	433.0	.667
SU	2.27 (1.13)	2.29 (0.76)	442.0	.639
BD	3.00 (1.60)	2.61 (0.88)	412.5	.436
SB	4.94 (1.84)	4.54 (1.62)	396.5	.336

Notes: AC = Active Coping; P = Planning; PR = Positive Reframing; A = Acceptance; H = Humour; R = Religion; UES = Using Emotional Support; UIS =Using Instrumental Support; SD = Self-Distraction; D = Denial; V = Venting; SU = Substance Use; BD = Behavioral Disengagement; SB = Self-Blame.
Mann-Whitney U-test for two independent samples has been used.

Correlational analysis (Rho_s)

Results of correlational analyses showed significant associations between MCQ 30 and ANPS for the two samples of outpatients. Table 6 displays correlations between metacognitive beliefs and primary emotions. Considering clinical group with organic diagnosis Cognitive Confidence subscale was significantly and positively correlated with subscale Anger of ANPS ($r = .61$; $p < .01$). Instead there were no significant correlations between metacognitive beliefs as Positive Beliefs or Self-Consciousness and ANPS subscales. In table 6 Uncontrollability and Danger subscale shows many links with different emotional measures. Specifically there were significant correlations between UD subscale and Fear ($r = .72$; $p < .01$), Anger ($r = .66$; $p < .01$), Sadness ($r = .54$; $p < .01$) for outpatients with organic bowel disorder. Considering clinical group with functional bowel disorder correlations were statistically significant but there were lower coefficients. Need to Control Thoughts subscale showed significant and positive correlations with Anger for clinical group with organic bowel disorder ($r = .51$; $p < .01$) but not for clinical group with functional bowel disorder. Dysfunctional metacognitive

beliefs showed associations with pathological stress too. Table 6 illustrates positive correlations between MCQ-30 subscales and stress except for Cognitive Self-consciousness. Besides, correlation coefficients in patients with organic bowel disorders were greater than those in patients with functional bowel disorders.

Table 6.

Table 6										
Correlation coefficient between ANPS, MCQ and MS of the two groups of patients with bowel disorder										
	CC		PB		CS		UD		NCT	
	O	F	O	F	O	F	O	F	O	F
Seek	-0.22	-.28**	-0.09	0.03	0.02	-0.05	-0.20	-0.01	-0.16	-0.11
Fear	.34*	.22*	0.06	-0.07	0.01	-0.04	.72**	.55**	0.32	0.01
Care	0.10	-0.15	-0.22	-0.10	0.10	0.11	0.07	0.042	0.07	-0.08
Ang	.61**	0.15	0.21	0.18	0.27	0.10	.66**	.39**	.51**	0.19
Play	-.35*	-0.20	-0.17	-0.05	-0.10	-0.11	-0.24	-.23*	-0.18	-0.17
Sad	0.09	0.17	0.02	0.03	0.03	0.12	.54**	.51**	0.22	0.13
Spir	-0.18	-0.11	-0.13	0.03	-0.05	0.09	-0.18	0.00	-0.18	-0.03
MS	.62**	.46**	.44**	.21*	0.18	0.10	.77**	.65**	.57**	.33**

Notes: CC = Cognitive Confidence; CS = Cognitive Self-Consciousness; PB = Positive Beliefs; UD = Uncontrollability and Danger; NCT = Negative Control Thoughts; MS = Misurare lo stress test; O = Clinical Group with organic bowel disorder; F = Clinical group with functional bowel disorder.
* p < .05; ** p < .01.

Table 7

Correlation coefficient between ANPS, Brief Cope and MS of patients with bowel disorder

	Seek		Fear		Care	
	O	F	O	F	O	F
Act Cop	0.04	.27*	-0.04	-0.10	0.00	0.13
Plann	-0.01	.31**	-0.10	-0.12	-0.18	0.036
Pos Refr	0.08	.25*	-0.21	-0.03	0.04	0.16
Accept	-0.04	-0.10	-0.15	-0.03	-0.11	0.03
Hum	0.11	0.13	-0.06	-0.06	0.04	0.06
Relig	-0.19	-0.60	0.29	.29**	0.26	.29**
Us E S	-0.24	0.05	.50**	.53**	0.14	.32**
U In S	-0.27	0.07	0.17	.32**	0.09	.24*
S-D	-0.01	0.06	0.27	.32**	-0.04	0.13
Den	-0.08	-0.04	.41*	.25*	-0.15	-0.09
Vent	-0.19	-0.06	.39*	.37**	0.18	0.16
Sub Use	-0.25	0.00	.35*	0.15	-0.04	-0.06
Beh D	-.43*	-.27**	.40*	.23*	-0.27	-.25*
Self-BI	-0.33	0.04	.44*	.35**	-0.21	-0.00
MS	-0.14	-0.12	.73**	.54**	0.13	0.05

<i>Anger</i>		<i>Play</i>		<i>Sad</i>		<i>Spirit</i>	
<i>O</i>	<i>F</i>	<i>O</i>	<i>F</i>	<i>O</i>	<i>F</i>	<i>O</i>	<i>F</i>
0.02	0.12	-0.30	-0.01	0.25	-0.09	0.08	0.19
0.20	0.17	-0.22	0.07	-0.09	-0.06	-0.02	0.04
-0.29	-0.14	-0.07	0.16	-0.01	0.07	0.15	.28**
-0.07	-0.12	-0.27	-0.12	0.10	0.15	-0.00	0.16
-.37*	-0.11	0.19	.29**	-0.05	0.06	0.09	-0.03
0.06	-0.08	-.38*	-.25*	0.04	0.17	0.28	.59**
.51**	.27*	-0.12	0.05	0.29	.34**	-0.09	.21*
0.18	0.08	-0.19	0.05	0.02	0.19	-0.02	0.15
0.12	0.08	-0.07	-0.00	0.33	.29**	-0.27	-0.02
.37*	.21*	-0.11	-0.12	0.22	0.15	-0.01	-0.01
.50**	.34**	-0.29	-0.05	0.25	.32**	-0.01	0.02
0.22	0.14	-0.07	0.01	0.30	0.21	0.07	-0.19
0.20	-0.02	-0.24	-.25*	0.18	0.15	-0.11	-0.06
.50**	.30**	-0.29	-0.08	0.33	.26*	-0.32	-0.04
.70**	.32**	-.39*	-.31**	.53**	.56**	-0.03	0.04

Notes: Act Cop = Active Coping; Plann = Planning; Pos Refr = Positive Reframing; Accept = Acceptance; Hum = Humour; Rel = Religion; Us E S = Using Emotional Support; U In S = Using Instrumental Support; S-D = Self-Distraction; Den = Denial; Vent = Venting; Sub Use = Substance Use; Behav D = Behavioural Disengagement; Self-Bl = Self-Blame; MS = Misurare lo stress test; O = Clinical Group with organic bowel disorder; F = Clinical group with functional bowel disorder.
 * $p < .05$; ** $p < .01$.

Table 7 shows significant associations between stress and basic emotions. Stress scores were positively correlated with Fear in patients with organic ($r = .73$; $p < .01$) and functional ($r = .54$; $p < .01$) bowel disorders. Sadness as basic emotion was moderately correlated with stress scores in both clinical groups. Anger was highly correlated in patient with organic diagnosis ($r = .70$; $p < .01$) and it was low correlated in patient with functional diagnosis ($r = .32$; $p < .01$).

Finally, there was a negatively low correlation between Play and stress in both groups. Table 7 illustrates also associations between ANPS subscales and Brief Cope subscales. Considering patients with organic bowel disorders results revealed that *Anger* was moderately correlated with Self-Blame ($r = .50$; $p < .01$), Venting ($r = .50$; $p < .01$) and Use of Emotional Support ($r = .51$; $p < .01$). Associations did not change in patients with functional bowel disorders but the coefficients were lower ($r = .30$; $p < .01$; $r = .34$; $p < .01$; $.27$; $p < .05$, respectively). There were associations between Fear scores and the Use of Emotional Support in both clinical groups ($r = .50$; $p < .01$ for patient with organic diagnosis and $r = .53$; $p < .01$ for patients with functional diagnosis). Moreover, there was an association between Spirituality and Religion for patients with functional bowel disorders ($r = .59$; $p < .01$) but not for patients with organic disorders.

Table 8 shows correlation coefficient between Brief Cope and MCQ-30 of the two groups of patients. Considering patients with organic bowel disorders on the one hand, there were associations between the Uncontrollability and Danger and Use of Emotional Support ($r = .67$; $p < .01$), on the other hand associations between Positive Beliefs and Planning ($r = .66$; $p < .01$). Uncontrollability and Danger was also correlated with Self-Blame ($r = .56$; $p < .01$). Moreover there was a positive correlation between Cognitive Confidence and Self-Blame ($r = .60$; $p < .01$). Correlation coefficients were lower in patients with functional bowel disorders. Dysfunctional metacognitive belief as Uncontrollability and Danger was the factor with the greater number of associations with maladaptive coping strategies.

Table 8*Correlation coefficient between Brief Cope and MCQ-30 of the two groups of patients*

	CC		PB		CS		UD		NCT	
	O	F	O	F	O	F	O	F	O	F
<i>Act Cop</i>	0.27	-.22*	0.20	0.19	0.10	0.13	0.01	-0.13	0.05	-0.01
<i>Plann</i>	0.30	0.04	.66**	.40**	0.30	0.16	0.22	-0.02	.38*	0.08
<i>Pos Refr</i>	0.07	-0.01	0.32	0.14	-0.10	0.03	-0.08	-0.07	-0.05	-0.04
<i>Accept</i>	0.21	0.13	0.30	0.09	-0.03	0.07	0.16	0.06	0.11	-0.02
<i>Hum</i>	-0.29	-.25*	-0.04	-0.01	-.42*	-.23*	0.04	-0.05	-0.25	-0.13
<i>Relig</i>	0.31	-0.13	0.11	0.03	-0.03	0.15	0.32	.22*	0.11	0.05
<i>Us E S</i>	.41*	0.09	.35*	0.15	-0.07	-0.01	.67**	.44**	.38*	0.06
<i>U In S</i>	0.21	0.03	0.31	0.13	-0.07	0.02	.39*	.33**	0.24	0.04
<i>S-D</i>	0.13	-0.07	0.27	0.04	-0.08	-0.04	.39*	.30**	0.06	0.01
<i>Den</i>	0.30	0.08	0.23	0.20	-0.09	-0.03	.47**	.40**	0.31	.38**
<i>Vent</i>	.47**	.22*	0.01	0.08	0.00	-0.01	.40*	.39**	0.25	0.09
<i>Sub Use</i>	0.24	0.15	0.01	0.17	-0.25	-0.15	0.32	.26*	0.16	0.08
<i>Behav D</i>	-0.04	0.07	-0.17	-0.20	0.05	-0.06	0.28	.25*	-0.09	-0.08
<i>Self-Bl</i>	.60**	.32**	.49**	.22*	-0.02	0.07	.56**	.43**	.48**	.23*

Notes: *Act Cop* = Active Coping; *Plann* = Planning; *Pos Refr* = Positive Reframing; *Accept* = Acceptance; *Hum* = Humour; *Rel* = Religion; *Us E S* = Using Emotional Support; *U In S* = Using Instrumental Support; *S-D* = Self-Distraction; *Den* = Denial; *Vent* = Venting; *Sub Use* = Substance Use; *Behav D* = Behavioral Disengagement; *Self-Bl* = Self-Blame; *O* = Clinical Group with organic bowel disorder; *F* = Clinical group with functional bowel disorder.

* $p < .05$; ** $p < .01$.

Discussion

At some previous time patients with organic bowel disorders were treated in different ways compared to patients with functional bowel disorders. Patients with functional bowel disorder have been classified as psychosomatic disorders and treated with a clinical-psychological approach. However, some studies revealed the role of psychological and social factors in onset and development's organic bowel disorders (Surdea-Bлага, Băban, & Dumitrascu, 2012). Besides, results of research show the high prevalence of anxiety and depression during active phases of disease (Graff, Walker, & Bernstein, 2009), a relation between anxious and avoidant attachment styles and severity of illness (Gick & Sirois, 2010; Agostini et al., 2010) and an association between alexithymic features and an impairment of quality of life (Iglesias-Rey et al., 2012).

Moreover, some authors explored differences about quality of life, affective states and personality in patients with IBS and IBD (Tkalcic, Hauser, & Stimac, 2010).

In conclusion our study had the aim of comparing psychological functioning in two groups of patients with gastrointestinal disorder (organic and functional). We considered dysfunctional metacognitive beliefs, emotions, stress and coping strategies. Differently from previous researches results of our study highlights the role of psychological characteristics in patients with organic bowel disorders. In fact, there were no significant differences between the two clinical groups of patients (Mann-Whitney non-parametric test for two independent samples).

However, results show significant correlation (Spearman correlation analysis) on the basis of the diagnosis of gastrointestinal disorder. Regarding the clinical sample of patients with organic bowel disorders there were positive correlations between some dysfunctional metacognitive beliefs and basic emotions. There was a significant associations between Cognitive Confidence (CC) and Anger ($r = .61$; $p < .01$). Dysfunctional metacognitive beliefs showed the most significant associations with some emotions. In other words negative beliefs about Uncontrollability and Danger (UD) had positive correlations with Fear ($r = .72$; $p < .01$), Anger ($r = .66$; $p < .01$), Sadness ($r = .54$; $p < .01$). Therefore, perseverative thinking is uncontrollable and dangerous and has a strong relation with a number of negative emotions.

In contrast, dysfunctional metacognitive beliefs as Positive Beliefs (PB) and Cognitive Self Consciousness (CS) did not show significant associations with any emotions.

Finally, there was a positive associations between Need to Control Thoughts (NCT subscale) and Anger ($r = .51$; $p < .01$) in patients with organic bowel disorder but not in patients with functional

disorder. These beliefs concerning the extent to which a person believes that some types of thoughts need to be suppressed and anger have a role only in patients with an organic diagnosis.

Dysfunctional metacognitive beliefs show significant associations with coping strategies with different coefficients in the two groups. Regarding patients with organic bowel disorder, the most strong associations were between beliefs about Uncontrollability and Danger (U) and Use of Emotional Support ($r = .67$; $p < .01$) and Self-Blame ($r = .56$; $p < .01$). Moreover, on the one hand there was association between the Positive Beliefs (PB) and Planning coping strategy ($r = .66$; $p < .01$), on the other hand there was association between lack of Cognitive Confidence (CC) and Self-Blame ($r = .60$; $p < .01$).

Associations were stronger in patients with organic diagnosis than in patients with functional diagnosis. In addition, results showed significant correlations between stress and Fear ($r = .73$; $p < .01$) and Anger ($r = .70$; $p < .01$) for the patients with organic bowel disorder. Coefficients of clinical groups are higher than those of the group of patients with functional bowel disorder (respective correlation coefficients are $r = .54$; $p < .01$ and $r = .32$; $p < .01$). The two groups differ except with regard the association between stress and Sadness.

Interestingly, correlational analysis showed similar associations for coping strategies and emotions. There were stronger associations between Anger and some coping strategies such as Self-Blame, venting and Use of Emotional Support in patients with organic bowel disorder than in patients with functional disorder.

Considering scientific literature, our results highlight some interesting question regarding the relations between functional bowel disorders and organic bowel disorders. In the first place, we did not find any differences regarding metacognitions negative emotions, stress and coping strategies between the two clinical group. Differently from many researches that assume a categorization between “organic/functional”, we underline the importance to consider psychological characteristics in both group. Moreover we found different associations in the two group of patients with gastrointestinal disorder. In fact, in the clinical group with functional bowel disorder there were the same correlations but with lower coefficients.

However, our results show a number of limitations. In the first place, the absence of a control group from the normal populations. In the second place, small samples and lack of use of parametric statistics for the analysis of results.

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