Mediterranean Journal of Clinical Psychology MJCP

ISSN: 2282-1619

Doi: *10.6092/2282-1619/2014.2.955*

VOL II N.1 (2014)

Dysfunctional metacognitive beliefs and gastrointestinal disorders.

Beyond an 'organic'/'functional' categorization in the clinical practice

QUATTROPANI MARIA C.[1], LENZO VITTORIO[1], BELVEDERE ASLESSANDRA[2], FRIESS WALTER[2]

[1] *Department of Human and Social Sciences-Psychology Division, University of Messina - Via Bivona, 1, 98122 Messina (Italy),*
[2] *Department of Clinical and Experimental Medicine, Clinical Unit for Chronic Bowel Disorders, University of Messina, Messina; Italy*

Email Corresponding author: mquattropani@unime.it
Abstract: **Background:** Despite the role of metacognition in psychopathology, no studies have explored this construct in the area of gastrointestinal disorders. Moreover, for many times there was a categorization between organic and functional gastrointestinal disorders. The aim of this study was to compare dysfunctional metacognitive beliefs between patients with functional bowel disorders and patients with organic bowel disorders. The purpose of this work was also to examine the relations between metacognitions, alexithymia and symptoms of the patients on the basis of diagnosis.

Methods: A between-subject non parametric and correlational design was employed. We formed three clinical groups from a population of patients with gastrointestinal disorders and on the basis of the 'organic' and 'functional' diagnosis. All the participants underwent the Metacognitions Questionnaire 30, the Toronto Alexithymia Scale-20 and the Gastrointestinal Symptom Rating Scale.

Results: There were no significant differences between the three clinical groups on MCQ-30 and TAS-20 scores. However, there were significant

correlations based on diagnosis of the gastrointestinal disorder between alexithymic features and metacognitive dysfunctional beliefs.
Conclusions: Our results underline the role of metacognitions for both patients with organic and functional gastrointestinal disorders. Moreover, the results highlight the importance to consider these aspects in patients with organic gastrointestinal disorder.

Keywords: alexithymia; Crohn's disease; IBS; metacognition; ulcerative colitis.

INTRODUCTION

In recent years, the high prevalence, the health care and social costs, and the impact on the patients of the symptoms of gastrointestinal disorders have increased the mole of empirical research on gastrointestinal disorders. However, attempts to identify specific categories through specific cluster of symptoms have not showed good results because there is an overlap between various subgroups of gastrointestinal disorders, such as those and other aspecific syndromes. In this field of research, the diagnostic distinction between 'functional' and 'organic' (Prasko, Jelenova, & Mihal, 2010) shows many limits in the possibility to offer efficacious therapeutic strategies. Currently, Rome II survey criteria (Drossman, 2006) are guidelines to the diagnosis of functional gastrointestinal disorders, which include the irritable bowel syndrome (IBS). The symptoms of gastrointestinal disorders cause a strong impairment in daily function and they affect health-related quality of life, work absenteeism, health care use, and high medical costs (Gralnek, Hays, Kilbourne, Naliboff, & Mayer, 2000; Portincasa, Moschetta, Baldassarre, Altomare, & Palasciano, 2003; Moser, 2006). However, in the field of the medical research there is a lack of evidence of pharmacological agents licensed specifically for the treatments of IBS subtypes. More general, evidences for the efficacy, safety and tolerability of therapies for IBS are still limited (Tack, Fried, Houghton, Spicak, & Fisher, 2006). Further, the gastrointestinal problems are associated with the presence of emotional distress (Porcelli, 2004). In the last two decades, some authors have examined possible links between IBS and psychopathology (Thornton, McIntyre, Murray-Lyon, & Gruzelier, 1990).

According to this point of view, a more recent research has indicated an association between unexplained chronic gastrointestinal symptomatology and psychiatric disorders such as depression or anxiety disorder in a sample of young adults (Howell, Poulton, Caspi, & Talley, 2003).

In the last years, the weight of psychosocial factors on the symptoms relating to the onset and the course of the illness are more than in the past (Surdea-Blaga, Băban, & Dumitrascu, 2012).

In the literature, the efficacy of a psychological treatment to decrease the anxiety levels in patients with IBS has been demonstrated (Bennett, & Wilkinson, 1985) and the anxiety level was a better individual predictor of outcome from a variety of psychological and psychosocial aspects (Blanchard, Schwarz, Neff, & Gerardi, 1988). However, many studies have showed that an integrated psychological and medical approach increases the efficacy of the treatments (Heymann-Monikes et al., 2000).

In the clinical practice of 'organic' gastrointestinal disorders, the Inflammatory Bowel Diseases (IBD) are ulcerative colitis (UC) and Crohn's disease (CD), as well as indeterminate colitis. Both UC and CD need specific pharmacologic agents and often surgical interventions, both associated with a severe impairment on quality of life of subjects.

Although these diseases are classified as 'organic', in recent years some studies have explored the psychological aspects. A review (Graff, Walker, & Bernstein, 2009) has highlighted that patients with IBD very often have anxiety and depression and that these psychological symptoms are more severe during the periods of active phase of disease. Furthermore, the results in this area of research have found a significant association between anxious and avoidant attachment styles and severity of the 'organic' gastrointestinal disorders (Gick & Sirois, 2010; Agostini et al., 2010).

A recent study on a clinical sample of 534 patients with IBD has found a highly prevalence of alexithymia and an association with a very impaired quality of life (Iglesias-Rey et al., 2012).

With regard of alexithymia construct, several empirical studies has shown that alexithymic patients find it hard to distinguish that physical sensations are sometimes the somatic concomitants of affect (Kooiman et al., 2000).

The ancient vision of the bowel as a secondary and peripheral structure of the organism has changed in the last years (Gershon, 1999). Moreover, evidences from many field of the research have showed a more

complex vision of the human organism than in the past. These results led us to argue that psychosocial aspects can play an important role also in the organic gastrointestinal disorders.

In light of these findings, several studies have attempted to examine the role of psychosocial variables both in the organic and functional gastrointestinal disorders. Recently, Tkalcic, Hauser & Stimac (2010) compared the quality of life, the affective state and the personality in patients with IBS and patients with IBD. Results showed that trait anxiety and nevroticism, as personality traits, are higher in patients with IBS than IBD, even if patients with IBD are more impaired in the physical aspects of quality of life than others. Moreover, the nevroticism, as personality trait, predicted the emotional distress of the patients with IBS.

Therefore, these results indicate the importance to study in depth the psychological aspects in the 'organic' disorders. These psychological aspects can play a role also in the possibility to have more efficacious psychological treatments for these patients.

Although there is much evidence pointing towards the role of psychological constructs as anxiety, depression, alexithymia, coping strategy, defense mechanisms, no studies have examined the role of metacognitions in the field of gastrointestinal disorders.

Regarding the role of the metacognitions, many lines of evidence indicate that there is a strong relationship between emotion processes, cognitions, metacognitive beliefs and behaviors (Brune, 2006), also for patients with gastrointestinal disorders (Aszalos, 2008). In fact, according to Wells and Matthews (1994, 1996) dysfunctional metacognitive beliefs are the basis for the development and maintenance of psychological disorders.

Results in this area of empirical research show relationships between dysfunctional metacognitive beliefs and generalized anxiety disorder (Wells & Carter, 2001; Wells, 2007; Tan, Moulding, Nedeljkovic & Kyrios, 2010), social phobia (Wells & Carter, 2001; Wells, 2007), panic disorder (Wells & Carter, 2001; Wells, 2007), obsessive-compulsive disorder (Wells & Papageorgiou, 1998; O'Leary, Rucklidge, & Blampied, 2009; Rees & Anderson, 2013), worry in a non-clinical population (Khawaja & Chapman, 2007), hallucination-prone subjects (Larøi, Van der Linden, & Marczewski, 2004), predisposition to hallucinations (García-Montes, Cangas, Pérez-Álvarez, Fidalgo, & Gutiérrez, 2006), anorexia nervosa (Cooper, Grocutt, Deepak, & Bailey, 2007), patients with schizophrenia before hospital discharge (Giusti, Mazza, Pollice, Casacchia & Roncone, 2013), schizophrenic subjects with hallucinations (Perona-Garcelàn et al., 2011),

patients with severe auditory verbal hallucinations (van Oosterhout, Krabbendam, Smeets, & van der Gaag, 2012), distress associated with auditory verbal hallucinations (Hill, Varese, Jackson, & Linden, 2012), stress sensitization in individuals at ultra-high risk of developing psychosis (Palmier-Claus, Dunn, Taylor, Morrison, & Lewis, 2013).

According to Wells and Purdon's definition (1999), metacognition is "the aspect of information processing that monitors, interprets, evaluates and regulates the contents and processes of its organization".

By this point of view, we hypothesized that metacognitions would play an important role in both organic and functional gastrointestinal disorders. In this study, we aimed to investigate the presence of dysfunctional metacognitive beliefs in patients with gastrointestinal disorders. Moreover, we compared the metacognitive beliefs in three clinical groups on the basis of distinction between 'organic' and functional and of the IBS or IBD's diagnosis. Another aim of this study was to examine the associations between dysfunctional metacognitive beliefs and a more studied construct that is alexithymia.

Materials and methods

Subjects

Sixty-five outpatients of the Clinical Unit for Chronic Bowel Disorders of the Department of Internal Medicine, Policlinico Universitario of Messina, were consecutively selected after an assessment by a gastroenterologist according to IBS, UC or CD diagnosis. Afterwards, all patients underwent a clinical interview conducted by a clinical psychologist with five years of clinical experiences in this field of research 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 prior the study. On the basis of these criterions, we excluded four patients.

Afterwards, all patients were given a brief clinical interview to evaluate socio-demographic features and then the battery of tests of this study. Before to their participation in the study, all participants gave written consent.

Measures
All the patients underwent the following test:
- *Metacognition Questionnaire-30* (MCQ-30; Wells & Cartwright-Hatton, 2004). The MCQ-30 is a 30 item self-report questionnaire, which measures a range of metacognitive beliefs and processes relevant to vulnerability and maintenance of emotional disorders. The items are rated on a 4-point Likert scale from 1 *('do not agree')* to 4 *('completely agree')*. The items are grouped into five subscales, as in the original version (Cartwright-Hatton & Wells, 1997). Factorial analysis has shown the presence of five factor (Wells & Cartwright-Hatton, 2004): cognitive confidence, which measures confidence in attention and memory *(Cognitive confidence*, CC); cognitive self-consciousness, which measures the tendency to monitor one's own thoughts and focus attention inward (*Cognitive self-consciouness*, CS); positive beliefs about worry, which measures the extent to which a person thinks that perseverative thinking is useful *(Positive beliefs*, PB); negative beliefs about worry concerning uncontrollability and danger, which assess the extent to which a person thinks that perseverative thinking is uncontrollable and dangerous (*Uncontrollability and danger*, UD); beliefs about the need to control thoughts, which assesses the extent to which a person believes that certain types of thoughts need to be suppressed (*Need to control thoughts*, NCT).

The MCQ-30 is a brief, reliable and valid self-report measure of metacognitions (Wells & Cartwright-Hatton, 2004; Spada, Mohiyeddini, & Wells, 2008). In this study, Cronbach's alpha coefficients are: *Cognitive confidence*, Cronbach's $\alpha = .87$; *Cognitive self-consciouness*, Cronbach's $\alpha = .71$; *Positive beliefs,* Cronbach's $\alpha = .85$; *Uncontrollability and danger*, Cronbach's $\alpha = .82$; *Need to control toughts,* Cronbach's $\alpha = .75$).
- *Toronto Alexithymia Scale-20* (TAS-20; Taylor, Bagby, & Parker, 1994a, 1994b; Bressi et al., 1996). The TAS-20 is a 20 item self-report questionnaire, which measures the presence of alexithymia. The items are rated on a 5-point Likert scale ranging from 1 *('strongly disagree')* to 5 *('strongly agree')*. The items are clustered into three factors corresponding to the theoretical dimensions of alexithymia: difficulty in identifying feelings and distinguishing between feelings and somatic sensations of emotional arousal (F1: DIF); difficulty in describing feeling to others (F2: DDF); externally-oriented thinking (F3: EOT). Total scores ranging from 20 to 100. The TAS-20 has demonstrated good psychometric properties and it is currently the most widely used measure of the alexithymia construct (Taylor, Bagby, & Parker, 1997).

- *Gastrointestinal Symptom Rating Scale* (GSR; Svedlund, Dotevall, & Sjodin, 1998; Kulich et al., 2004). The GSRS is an observer-rated illness-specific questionnaire. The scale includes 15 symptoms rated on a 4-point Likert scale ranging from 0 (which denotes no symptoms) to 3 (which denotes the most pronounced symptoms) and measures. The total score represents overall frequency and severity of gastrointestinal symptoms and 3 subscale scores correspond to dyspeptic (DYS; epigastric pain, squeezing sensations, acid regurgitation, heartburn, and nausea), digestive (DIG; borborygmus, abdominal distension, eructation, and increased flatus) and intestinal (INT; decreased passage of stools, increased passage of stools, loose stools, hard stools, urgent need of defecation, and feeling of incomplete evacuation) syndromes. The GSRS is well-validated and used widely in gastrointestinal research (Wiklund, 1993).

Statistical analysis

Data obtained from the research underwent check and, subsequently, to descriptive and inferential statistical analysis. Subsequently, we applied non-parametric test for three independent samples. Continuous data were expressed as mean ± DS and significant differences between clinical groups was appraised using the Kruskal-Wallis non-parametric test for three independent samples.

Non continuous data were expressed as percentages and the comparison between groups was performed by using the χ^2-test. The significance level for the test was $p < 0.01$.

Spearman correlation coefficients were calculated to examine the bivariate associations between dysfunctional metacognitive beliefs and alexithymic features. The significance levels for the correlation coefficients was $p < 0.05$ and $p < 0.001$.

The statistical analysis was performed with Statistical Package for the Social Sciences v.18 software (SPSS Inc, 2009).

Results

Clinical groups features

The sample of patients with IBS and functional bowel disorder consisted of 20 individuals (11 males; 9 females) between 18 and 76 years of age (mean age: 39.3; DS: 19.8). The duration of disease varied from a minimum of 1 month to a maximum of 30 years (mean duration in years: 3.81; DS: 6.63; median in years: 2.25).

The sample of patients with UC and organic gastrointestinal disorder consisted of 20 individuals (10 males; 10 females) between 21 and 62 years of age (mean age: 37.32; DS: 12.71). The duration of disease varied from a minimum of 2 months to a maximum of 35 years (mean duration in years: 7.47; DS: 10.07; median in years: 2.42).
The sample of outpatients with CD and organic bowel disorder consisted of 19 individuals (12 males; 7 females) between 21 and 68 years of age (mean age: 39.84; DS: 14,46). The duration of disease varied from a minimum of 1 month to a maximum of 35 years (mean duration in years: 11.21; DS: 9.26; median in years: 10).
Regarding social and demographic features, there were no significant differences between the three clinical groups (Table 1). The social and demographic features did not affect the subsequently comparison of the three clinical groups.

Table 1. Descriptive statistics (mean with standard deviations in parentheses) of socio-demographic features of IBS, UC and CD patients

	IBS	UC	CD	Kruskal-est (d.f. 2)	
	M (DS)	M (DS)	M (DS)	H	*p*
Age (years)	39.30 (19.80)	37.32 (12.71)	39.84 (14.46)	4.610	.100
Level of education (years)	12.25 (3.73)	11.91 (4.71)	10.95 (4.64)	1.065	.587
				Chi-Square (d.f. 4)	
Marital status (%)				$\chi 2$	*p*
Single	55	36.36	47		
Married	45	54.55	53		
Widower	-	9.09	-	1.63	.804
Divorced	-	-	-		

Group differences (Kruskal-Wallis non-parametric test)

Tables 2,3 e 4 show descriptive statistics and results of the Kruskal-Wallis non-parametric test for three independent samples for IBS, UC and CD patients. As can be seen in tables, there were no significant differences for the variables in the three clinical groups.

Table 2. MCQ mean scores (with standard deviations in parentheses) and group differences of IBS, UC and CD patients

Scale	IBS	UC	CD	Kruskal-Wallis test (d.f 2)	
	M (DS)	M (DS)	M (DS)	H	*p*
Cognitive Confidence	12.25 (4.61)	13.05 (5.33)	14,47 (5.35)	1.791	.408
Cognitive Self-consciouness	18.25 (2.45)	17.64 (2.70)	17,53 (2.74)	0.852	.653
Positive Beliefs	10.40 (4.90)	11.50 (4.50)	10,68 (4.87)	1.297	.523
Uncontrollability and Danger	13.65 (3.73)	14.73 (4.29)	15,37 (4.92)	1.231	.540
Need to control toughts	13.15 (3.15)	14.45 (4.68)	15.42 (4.55)	2.929	.231

Notes: scores have been compared by Kruskal-Wallis H-test for two independent samples.

Table 3. TAS-20 mean scores (with standard deviations in parentheses) and group differences of IBS, UC and CD patients

Factor	IBS	UC	CD	Kruskal-Wallis test (d.f. 2)	
	M (DS)	M (DS)	M (DS)	H	*p*
F1	19.55 (7.40)	15.95 (6.79)	18.63 (8.64)	2.676	.262

F2	11.90 (5.23)	14.14 (5.46)	13.47 (5.11)	1.914	.384
F3	17.45 (3.66)	18.86 (5.08)	19.00 (4.90)	1.536	.436
TOT	48.90 (5.43)	48.95 (5,77)	51.10 (6.22)	0.331	.848

Notes: scores have been compared by Kruskal-Wallis H-test for two independent samples.
F1 = difficulty in identifying feelings and distinguishing between feelings and somatic sensations of emotional arousal; F2 = difficulty in describing feeling to others; F3 = externally-oriented thinking.

Table 4. GSRS mean scores (with standard deviations in parentheses) and group differences of IBS, UC and CD patients

	IBS	UC	CD	Kruskal-Wallis test (d.f. 2)	
	M (DS)	M (DS)	M (DS)	H	*p*
DYS	63.45 (22.85)	65.68 (18.06)	69.05 (19.66)	1.042	.594
DIG	97.55 (44.54)	98.36 (32.57)	105.63 (35.85)	0.614	.736
INT	212.55 (90.74)	215.59 (66.04)	230.00 (72.64)	0.645	.724
TOT	234.85 (89.65)	241.23 (67.91)	254.42 (73.36)	0.872	.647

Notes: scores have been compared by Kruskal-Wallis H-test for two independent samples.
DYS = dyspeptic symptoms; DIG = digestive symptoms; INT = intestinal symptoms; TOT = global score GSRS.

Correlational analysis (*Rho$_s$*)

As can be seen in Table 5, the results of correlational analysis regarding the three clinical groups show significant associations between MCQ-30 and TAS-20.

Regarding clinical group with IBS, *Cognitive Confidence* subscale was significantly and positively correlated with DIF – *Difficulty in identifying*

feelings and distinguishing between feelings and somatic sensations of emotional arousal of TAS-20 ($r = .51$; $p < .05$). Moreover, there was a negatively correlation between DIF subscale of TAS-20 and the *Need to control thoughts* scale of MCQ-30 ($r = -.48$; $p < .05$). The NCT scale of MCQ-30 was also negatively correlated with EOT subscale – *Externally-oriented thinking* ($r = -.44$; $p < .05$).
Regarding clinical group with CD, there was an highly positive correlation between *Cognitive Confidence* subscale of MCQ-30 and DIF subscale - *Difficulty in identifying feelings and distinguishing between feelings and somatic sensations of emotional arousal* ($r = .72$; $p < .001$). The DIS subscale showed a positively correlation with the *Uncontrollability and Danger* of MCQ-30 ($r = .49$; $p < .05$).
Regarding clinical group with UC, there were not significant coefficients correlation between MCQ-30 and TAS-20.

Table 5. Correlational analysis between MCQ-30 and TAS-20 of IBS, UC and CD patients

	TAS-20 F1			TAS-20 F2			TAS-20 F3		
	IBS	UC	CD	IBS	UC	CD	IBS	UC	CD
MCQ-30 CC	.51*	0.28	.72**	0.35	0.26	0.43	0.23	0.02	0.15
MCQ-30 CS	-0.30	0.18	0.12	0.01	-0.01	-0.03	0.06	-0.27	-0.31
MCQ-30 PB	0.04	0.25	0.24	-0.08	0.30	-0.05	-0.11	0.07	0.07
MCQ-30 UD	0.07	0.27	.49*	0.27	0.13	0.35	0.29	0.12	0.19
MCQ-30 NCT	-.48*	0.41	0.37	-0.31	0.38	0.25	-.44*	0.04	0.27

Notes: CC = Cognitive Confidence; CS = Cognitive Self-Consciousness; PB = Positive Beliefs; UD = Uncontrollability and Danger; NCT = Negative Control Thoughts; F1 = difficulty in identifying feelings and distinguishing between feelings and somatic sensations of emotional arousal; F2 = difficulty in describing feeling to others; F3 = externally-oriented thinking.
*p < .05; **p < .001.

Discussion

The current study aimed to explore the role of metacognitions in the field of gastrointestinal disorders where there was for many years a distinction between ‘organic’ and ‘functional’.

Patients with an ‘organic’ diagnosis were often approached by gastroenterologists in a different way from patients with a ‘functional’ diagnosis. With regard to the course of the gastrointestinal disorder, it might influences the illness experience of disease and the efficacy of treatments.

Moreover, there was a lack of studies that had explored metacognitive beliefs of these patients, even so metacognitions are the basis for the development and maintenance of clinical problems. According to us, differences between patients with different diagnosis of gastrointestinal disorders can depend by other factors as the severity and duration of the disorder, periods of acute symptom exacerbation or psychological features of the subjects.

In the past, psychological aspects in the organic gastrointestinal disorders had a lower weight than in the functional gastrointestinal disorders. Furthermore, there was a vision of bowel as a secondary and peripheral structure of the organism. In contrast, the psychosomatic research attempted to clarify the role of psychosocial features relating to the onset and the course of the illness and symptoms of functional gastrointestinal disorders with less attention to the organic disorders.

It is very hard for subjects with a diagnosis of gastrointestinal disorders to cope with the impairment in the quality of life. From this point of view, the metacognitive beliefs can play an important role in the experience of the disease and in the psychological distress.

In this perspective, we compared the metacognitive beliefs of three clinical groups with different diagnosis. The results did not show significant differences between patients with IBS, UC and CD. Besides, there were no significant differences for alexithymic features in the three groups. Thus, patients with different medical diagnosis did not show differences in psychological aspects. Therefore it underlines the importance to consider these aspects for care both in patients with ‘organic’ and ‘functional’ diagnosis.

The absence of studies which studied the metacognitive beliefs took us to explore associations between metacognitions and a more investigated construct in the literature, that is alexithymia.

The results showed different associations on the basis of the diagnosis of gastrointestinal disorder. Regarding patients with IBS, we found a bond

between the lack of cognitive confidence and the difficulty in identifying feelings and distinguishing between feelings and somatic sensations of emotional arousal. This alexithymic feature showed an inverse association with the need to control thoughts. Besides, the negative beliefs about thoughts concerning the need for control showed an inverse association with another alexithymic features, that is externally-oriented thinking. Moderate correlation coefficients highlighted that there were other variables that influence these associations.

Results of the clinical group with IBS showed associations. We registered a very strong association between the lack of cognitive confidence and the difficulty in identifying feelings and distinguishing between feelings and somatic sensations of emotional arousal. Moreover, this alexithymic feature was associated with negative beliefs about worry concerning uncontrollability and danger.

Instead, cognitive self-consciousness' domain of metacognitive beliefs and the positive beliefs about worry did not show any relation with alexithymic features.

Regarding patients with UC, the absence of significant correlations between alexithymic features and dysfunctional metacognitive beliefs, on the hand, and no significant differences with other groups for these variables, on the other hand, need a more systematic study to clarify these results.

The results of the current study highlight the role of metacognitions in a field where there is a little mole of research, that is the gastrointestinal disorders area. We underline the weight of specific dysfunctional metacognitive beliefs in this clinical population and the importance to consider the associations on the basis of the diagnosis. These findings can be very useful in the possibility to have more efficacious and tailored treatments for these patients.

A more detailed analysis of data is, however, necessary to find out the role of metacognitions in the field of gastrointestinal disorders, comparing these results to normal populations. Research of this kind is currently in progress by the authors.

REFERENCES

Agostini, A., Rizzello, F., Ravegnani, G., Gionchetti, P., Tambasco, R., Straforini, G., Ercolani, M., & Campieri, M. (2010). Adult attachment and early parental experiences in patients with Crohn's disease, Psychosomatics, 51, 208-215.

American Psychiatric Association. (2000). *DSM-IV-TR – Diagnostic and Statistical Manual of Mental Disorders – text revision (4th ed.)*. Washington, DC: APA.

Aszalós, Z. (2008). Neurological and psychiatric aspects of some gastrointestinal diseases. *Orv Hetil*, 149(44), 2079-86.

Bagby, R.M., Parker, J.D.A., & Taylor, G.J. (1994a). The twenty-item Toronto Alexithymia Scale. I. Item selection and cross-validation of the factor structure. *Journal of Psychosomatic Research*, 38, 23-32.

Bagby, R.M., Taylor, G.J., & Parker, J.D.A. (1994b). The twenty-item Toronto Alexithymia Scale. II. Convergent, discriminant, and concurrent validity. *Journal of Psychosomatic Research*, 38, 33-40.

Bennett, P., & Wilkinson, S. (1985). A comparison of psychological and medical treatment of the Irritable Bowel Syndrome. *British Journal of Clinical Psychology*, 24, 215–216.

Blanchard, E.B., Schwarz, S.P., Neff, D.F., Gerardi, M.A. (1988). Prediction of outcome from the self-regulatory treatment of irritable bowel syndrome. *Behavior Research and Therapy*, 26(2), 187-190.

Bressi, C., Taylor, G. J, Parker, J. D. A., Bressi, S., Brambilla, V., Aguglia, E., Allegranti, S., Bongiorno, A., Giberti, F., Bucca, M., Todarello, O., Callegari, C., Vender, S., Gala, C., & Invernizzi, G. (1996). Cross validation of the factor structure of the 20-Item Toronto Alexithymia Scale: an Italian multicenter study, *Journal of Psychosomatic Research*, 41, 551-559.

Brune, M. (2006). La "Teoria della Mente" nella schizofrenia: una rassegna della letteratura esistente. *Psychotherapy Research*, 69(2), 123-177.

Cartwright-Hatton, S., & Wells, A. (1997). Beliefs about worry and intrusions: the metacognitions questionnaire and its correlates. *Journal of Anxiety Disorders*, 11, 279-296.

Cooper, M.J., Grocutt, E., Deepak, K., & Bailey, E. (2007). Metacognition in anorexia nervosa, dieting and non-dieting controls: A preliminary investigation. *British Journal of Clinical Psychology*, 46, 113–117.

Drossman, D.A. (2006). The functional gastrointestinal disorders and the Rome III process. *Gastroenterology*; 130, 1377-90.

Garcia-Montes, J.M., Cangas, A., Pérez-Álvarez, M., Fidalgo, A.M., & Gutiérrez, O. (2006). The role of meta-cognitions and thought control techniques in predisposition to auditory and visual hallucinations. *British Journal of Clinical Psychology*, 45, 309-317.

Gershon, M. (1999). *The Second Brain: A Groundbreaking New Understanding of Nervous Disorders of the Stomach and Intestine*. New York: Harper Perennial.

Gick, M.L., & Sirois, F.M. (2010). Insecure attachment moderates women's adjustment to inflammatory bowel disease severity. *Rehabilitation Psychology*, 55, 170-179.

Giusti, L., Mazza, M., Pollice, R., Casacchia, M., & Roncone, R. (2013). Relationship between self-reflectivity, Theory of Mind, neurocognition, and global functioning: An investigation of schizophrenic disorder. *Clinical Psychologist*, 17(2): 67–76.

Graff, L.A., Walker, J.R., & Bernstein, C.N. (2009). Depression and anxiety in inflammatory bowel disease: a review of comorbidity and management. *Inflammatory Bowel Disease.* 15, 1105-1118.

Gralnek. I.M., Hays, R.D., Kilbourne, A., Naliboff, B., & Mayer, E.A. (2000). The impact of irritable bowel syndrome on health-related quality of life. *Journal of Gastroenterology*, 119, 654-660.

Heymann-Monikes, I., Arnold, R., Florin, I., Herda, C., Melfsen, S., & Monikkes, H. (2000). The combination of medical treatment plus multicomponent behavioral therapy is superior to medical treatment alone in the therapy of irritable bowel syndrome. *American Journal of Gastroenterology*, 95, 981-994.

Hill, K., Varese, F., Jackons, M., & Linden, D.E.J. (2012). The relationship between metacognitive beliefs, auditory hallucinations, and hallucinations-related distress in clinical and non-clinical voice-hearers. *British Journal of Clinical Psychology*, 51, 434-437.

Howell, S., Poulton, R., Caspi, A., & Talley, N.C. (2003). Relationship between abdominal pain subgroups in the community and psychiatric diagnosis and personality. A birth cohort study. *Journal of Psychosomatic Research*, 55, 179-187.

Iglesias-Rey, M., Barreiro-de Acosta, M., Caamaño-Isorna, F., Vázquez Rodríguez, I., Lorenzo González, A., Bello-Paderne, X., & Domínguez-Muñoz, J.E. (2012). Influence of alexithymia on health-related quality of life in inflammatory bowel disease: are there any related factors? Scandinavian Journal of Gastroenterology, 47(4), 445-53.

Khawaja, N.G. & Chapman, D. (2007). Cognitive predictors of worry in a non-clinical population. *Clinical Psychologist*, 11(1): 24–32.

Kooiman, C.G., Bolk, J.A., Brand, R., Trijsburg, R.W., & Rooijmans, H.G.M. (2000). Is alexithymia a risk factor for unexplained physical symptoms in general medical outpatients? *Psychosomatic Medicine*, 62, 768-778.

Kulich, K.R., Calabrese, C., Pacini, F., Vigneri, S., Carlsson, J., & Wiklund, I.K. (2004). Psychometric validation of the italian translation of the gastrointestinal symptom-rating scale and quality of life in reflux and dyspepsia questionnaire in patients with gastro-oesophageal reflux disease. *Clinical Drug Investigation*, 24(4), 205-15.

Larøi, F., Van der Linden, M., & Marczewski, P. (2004). The effects of emotional salience, cognitive effort and meta-cognitive beliefs on a reality monitoring task in hallucination-prone subjects. *British Journal of Clinical Psychology*, 43, 221-233

Moser, G. (2006). Psychosomatic aspects of bowel diseases. *Zeitschrift für Psychosomatische Medizin und Psychotherapie*, 52(2):112-26.

O'Leary, E.M., Rucklidge, J.J., & Blampied, N. (2009). Thought-action fusion and inflated responsibility beliefs in obsessive-compulsive disorder. *Clinical Psychologist*, 13(3): 94–101.

van Oosterhout, B., Krabbendam, L., Smeets, G., van der Gaag, M. (2012). Metacognitive beliefs, beliefs about voices and affective symptoms in patients with severe auditory verbal hallucinations. *British Journal of Clinical Psychology*, 51, 1-14.

Palmier-Claus, J.E., Dunn, G., Taylor, H., Morrison, A.P., & Lewis, S.W. (2013). Cognitive-self consciousness and metacognitive beliefs: Stress sensitization in individuals at ultra-high risk of developing psychosis. *British Journal of Clinical Psychology*, 52, 26-41.

Perona-Garcelàn, S., Garcià-Montes, J.M., Ductor-Recuerda, M.J., Vallina-Fernàndez, O., Cuevas-Yust, C., Pèrez-Alvarez, M., Salas-Azcona, R., Gòmez-Gòmez, M.T. (2011). Relationship of metacognition, absorption, and depersonalization in patients with auditory hallucinations. *British Journal of Clinical Psychology*, 51, 100-118.

Porcelli, P. (2004). Psychological abnormalities in patients with irritable bowel syndrome. *Indian Journal of Gastroenterology*, 23, 63-69.

Portincasa, P., Moschetta, A., Baldassarre, G., Altomare, D.F., & Palasciano G. (2003). Pan-enteric dysmotility, impaired quality of life and alexithymia in a large group of patients meeting ROME II criteria for irritable bowel syndrome. *Journal of Gastroenterology*, 9, 2293-2299.

Prasko, J., Jelenova, D., & Mihal, V. (2010). Psychological aspects and psychotherapy of inflammatory bowel diseases and irritable bowel syndrome in children. *Biomedical papers of the Medical Faculty of the University Palacky Olomouc Czechoslovakia*, 154(4):307-14.

Rees, C.A., & Anderson, R.A. (2013). A review of metacognition in psychological models of obsessive–compulsive disorder. *Clinical Psychologist,* 17(1): 1–8

Spada, M.M., Mohiyeddini, C., & Wells, A. (2008). Measuring metacognitions associated with emotional distress: Factor structure and predictive validity of the metacognitions questionnaire 30. *Personality and Individual Differences*, 45, 238-242.

Surdea-Blaga, T., Băban, A., & Dumitrascu, D.L. (2012). Psychosocial determinants of irritable bowel syndrome. *World Journal of Gastroenterology*, 18(7): 616-626. World Journal of Gastroenterology.

Svedlund, J., Sjödin, I., Dotevall, G. (1988). GSRS-A clinical rating scale for gastrointestinal symptoms in patients with irritable bowel syndrome and peptic ulcer disease. *Digestive Diseases and Sciences*, 33(2), 129-134.

Tack, J., Fried, M., Houghton, L.A., Spicak, J., & Fisher, G. (2006). Systematic review: the efficacy of treatments for irritable bowel syndrome - a European perspective. *Alimentary Pharmacology & Therapeutics*, 24, 183–205.

Tan, S., Moulding, R., Nedeljkovic, M. & Kyrios, M. (2010). Metacognitive, cognitive and developmental predictors of generalised anxiety disorder symptoms. *Clinical Psychologist*, 14(3): 84–89.

Taylor, G.J., Bagby, R.M., & Parker, J.D.A. (1997). *Disorder of affect regulation: Alexithymia in medical and psychiatric illness*. Cambridge: Cambridge University Press.

Thornton, S., McIntyre, P., Murray-Lyon, I. and Gruzelier, J. (1990), Psychological and psychophysiological characteristics in irritable bowel syndrome. *British Journal of Clinical Psychology*, 29, 343–345.

Tkalcić, M., Hauser, G., Stimac, D. (2010). Differences in the health-related quality of life, affective status, and personality between irritable bowel syndrome and inflammatory bowel disease patients. *European Journal of Gastroenterology & Hepatology*, 22(7):862-7.

Wells, A. (2007). Cognition about cognition: metacognitive therapy and change in Generalized Anxiety Disorder and Social Phobia. *Cognitive and Behavioral Practice*, 14, 18-25.

Wells, A., & Carter, K. (2001). Further tests of a cognitive model of Generalized Anxiety Disorder: Metacognitions and worry in GAD, panic disorder, social phobia, depression, and non-patients. *Behavior Therapy*, 32, 85-102.

Wells, A., & Papageorgiou, C. (1998). Relationships between worry, obsessive-compulsive symptoms, and meta-cognitive beliefs. *Behaviour Research & Therapy*, 39(9), 899-913.

Wells, A., & Purdon C. (1999). Metacognition and Cognitive-Behavior Therapy: a special issue. *Clinical Psychology and Psychotherapy*, 6, 71-72.

Wells, A., & Cartwright-Hatton S. (2004). A short form of the Metacognitions Questionnaire: proprieties of the MCQ-30. *Behavior Research and Therapy*, 42, 385-396.

Wells, A., & Matthews, G. (1994). *Attention and emotion. A clinical perspective*. Hove, UK: Erlbaum.

Wells, A., & Matthews, G. (1996). Modelling cognition in emotional disorder: The S-REF model. *Behavior Research and Therapy*, 34, 881-888.

Wiklund, I. (1993). Aspects of quality of life in gastrointestinal disease: some methodological issues. *Scandinavian Journal of Gastroenterology*, 30 (S208), 129-132.

Paper presented: May 2014; Published online: June, 2014
© 2014 by the Author(s); licensee Mediterranean Journal of Clinical Psychology, Messina, Italy. This article is an open access article, licensed under a Creative Commons Attribution 3.0 Unported License.
Mediterranean Journal of Clinical Psychology, Vol. II, No. 1 (2014).
Doi: *10.6092/2282-1619/2014.2.955*