Future Academy®
Offering excellence in Social and Behavioural Sciences

The European Proceedings of
Social & Behavioural Sciences
EpSBS

eISSN: 2357-1330

CPSYC 2016: 4th International Congress on Clinical and Counselling Psychology

Gender Differences In Anxiety, Depression And Metacognition

Vittorio Lenzo[a]*, Mary Ellen Toffle[b], Fabiana Tripodi[a], Maria C. Quattropani[a]

* Corresponding author: Vittorio Lenzo, vlenzo@unime.it

[a]*Department of Cognitive Sciences, Psychology, Education and Cultural studies, University of Messina, Italy*
[b]*Faculty of Medicine, University of Pavia and Department of Giuridical Sciences and Institutional History, University of Messina, Italy, mtoffle@unime.it*

Abstract

http://dx.doi.org/10.15405/epsbs.2016.05.02.1

There are many gender differences relating to mental health issues and they concern all aspects: diagnosis, treatment and incidence. No research has been conducted to evaluates the role of metacognition on the basis of gender and its relation to other psychological constructs.
This study had two primary goals. The first was to compare metacognitions by gender. The second goal was to explore the relations among the constructs of metacognitions, anxiety, depression, pathological worry, and obsessive-compulsive symptoms in two groups. Sixty-four participants (32 men and 32 women) took part in this study; they were assessed with the MCQ-30, STAI, BDI, PSWQ, and PADUA Inventory. T-test results for two independent samples for MCQ-30 did not reveal differences between gender. Results of correlational analysis found significant relations between dysfunctional metacognitive beliefs and other constructs on the basis of gender. In conclusion, results of this study point out that gender differences can play an important role in the clinical efficacy of treatments.

Keywords: Anxiety; Depression; Metacognition; Gender Differences.

1. Introduction

There are many gender differences relating to mental health issues and they concern all aspects: diagnosis, treatment and incidence. In fact, the "gender specific" and "gender correlated" differences are well noted. Gender differences were examined more in terms of unsystemized observations rather than by scientific study in the past.

A "gender oriented " approach was used in the last few decades when analyzing gender differences and their impact on mental health, including the onset, course and prognosis of mental illness as well as

the response to various pharmacological treatments. The consideration of gender differences in mental illness offers the opportunity to examine the impact of biological and psychosocial factors on both the cause and development of mental disease and the therapeutic approach (Giardinelli, Murciano, Di Meo, Restuccia, & Placidi, 2003). Research conducted before 2000 yielded relatively little data about possible biological explanations of gender differences, despite clear differences in the prevalence of psychic disturbances. There was also very little information about how gender influences treatment response, collateral effects etc. One of the primary areas where research has been conducted is that of schizophrenia (Speca, Pasquini, Picardi, Gaetano, & Biondi, 2001).Recent studies have found specific gender differences in essential neurocognitive functions (Fischer, Danielmeier, Villringer, Klein, & Ullsperger1, 2016).

At the moment this state of affairs seems to be rapidly changing (Alan & Schatzer, 1997; Cynthia, Hartung, & Thomas, 1998; Allen & Gorski, 1991). Additionally there seem to be emerging gender differences in affective disorders. At this regard, gender infuences suicide risk among patients with mood disorders (Weiss et al., 2016). Regarding mood disorders, it seems that depressive symptoms profiles are heterogeneous as a function of gender (Wagener, Baeyens, & Blairy, 2016). Hovewer, depression has become an interesting field of study for gender differences in the last years (Troisi & Moles, 1999; Prigerson & Slimack, 1999; Yonkers, 1998; Blehar & Oren, 1997; Malone & Johnson, 1998; Skaff, Finnery, & Moos, 1999;Sherrill et al., 1997; Ahnlund & Frodi, 1996; Zlotnick, Shea, Pilkonis, Elkin, & Ryan, 1996; Blehar, 1995). A strong relationship between anxiety and depression has been noted in clinical practice. Brown and Barlow (2012) affirmed that 55% of the patients with an anxiety or mood disorder satisfy the diagnostic criteria for a concomitant anxiety disorder or depression. Unipolar depression is extremely frequent in the female gender. The National Comorbidity Survey (Kessler & McGonagle, 1994) found a prevalence of 21% in women and 13% in men. In both sexes the prevalence of bipolar disorder was found to be at 1% (Weissman & Bland, 1996) and it is probable the study of gender differences received scarse attention. Undoubtedly gender differences wield great clinical importance as well as being of interest theoretically, since progression and treatment of bipolar disorder are strongly influenced by gender (Giardinelli et al., 2003).

Even the first descriptions of affective disorders mentioned significant diversity between men and women. Farlet (1854) in the classic work “Circular Insanity” affirmed that this problem “is definitely more frequent” in women than in men (Sedler & Farlet, 1983).

Past studies have shown the particular prevalence of depression in females as well as the prevalence of hyperthymia in males and the alteration of psychopathological expression of affective disorders (Perugi et al., 1990).

The depressive tendency relating to the female gender does not manifest itself before puberty and the notable differences in incidence of depression begin at the age of puberty. Even this information is scarce and contradictory.

The importance of biological variables and complex sociocultural factors draws interest to the influence of personality factors associated with the gender role that could justify the female’s major predisposition to depression (Giardinelli et al., 2003). A recent research has shown that treatment for

adults with depression should take into account also gender differences (Martínez-Hernáez, Carceller-Maicas, DiGiacomo, & Ariste, 2016).

Low self esteem is recognized as one of the factors that play a fundamental role in the development of depression. Various authors in the past have stated that self esteem in the female gender is much less that of the male and is significantly dependent on the quality of interpersonal relations (Horney, 1967; Farina, 1981).

A cognitive style characterized by high "interpersonal sensitivity" was recognized as a predisposing factor for psychiatric disorders, in particular depression.

According to Nolen-Hoeksema (1987) the emergence of a gender difference in depression after puberty results from a different mode of interpreting events as more uncontrollable in the perception of the female subject. Girls recieve a kind of "helplessness training" from their environment (Ruble, Greulich, Pomerantz, & Gochberg, 1993); transcultural studies indicate that boys are encouraged to be more active and asserive, while girls are usually taught to be more passive and dependent on others (Maccoby & Master, 1970).

Nolen-Hoeksema (1987) pointed out that a further difference between the sexes is represented by the prevalent "ruminative" style when facing problems and at the first perceptions of a fall in mood which predisposes the female to be more susceptible to depression. Instead, men demonstrate a coping ability that is more adaptive with more activity and the tendency towards distraction in the case of an ermerging depression. These considerations on the different emotional expressions of the two sexes and the weight that this difference can have in the manifestation of physicopathology can be traced back to the sex role concept and the relationship with mental illness (Giardinelli et al., 2003).

All the studies that deal with congruence/incongruence in gender roles, or the presence of behaviours in line with adequate or inadequate gender stereotypes and thus with characteristics of the opposite sex ("passive" men and "active" women) indicate that incongruent behaviours are considered more "disturbed" (D'Atena, 1989). In bipolar disorder a gender difference emerges in the prevalence of alcohol and other substance abuse. Men with bipolar disorder demonstrate double probability to abuse alcohol or other substances as compared to women (Hezler, Burnham, & McEvoy, 1991). While male patient abuse is approximately two times more than the average sample, in bipolar patients there is an added prevalence of about four times more than in the same sample for females (Hendrick, Altshuler, Gitlin, Delraihm, & Hammen, 2000).

Recently Raymont, Bettany et al. (2003) reported that bipolar women who abuse substances present more frequent maniacal episodes. Hendrick (2000) reports that there are no differences between the two sexes in the number of hospitalizations for depressive episodes, while the number of hospitalizations for maniacal episodes are significantly more in the female gender.

This result appears particularly interesting in the light of the described concept of sexual role incongruence; a patient in the mania phase with behaviours that are not adequate in respect to sexual stereotypes is socially tolerated less well and is more often admitted to a hospital (Giardinelli et al., 2003).

Further studies on patients with depressive disorders testify to a larger prevalence of alcohol and substance abuse in the male gender (Pettinati, Pierce, Wolf, Rukstalis, & O'Brien, 1997; Moscato et

al., 1997; Kornstein et al., 1995), but the gender differences in the relationship between alcohol consumption and problems associated to it have not been quantitatively studied to a great extent (Vennucchi & Villani, 2001).

It is evident that gender differences in psychiatric disorders have been the object of many studies, with the purpose of finding out if and how much the gender variable can affect psychopathology (Speca, Pasquini, et al., 2001). These differences appear to be characteristic of base, yet different and counter opposed in the two genders, and emerge more and in a greater measure in the presence of a psychiatric disorder (Speca et al., 2001).

Suicide statistics show an almost double incidence of male suicides as compared to females (Murphy, 1998). The larger incidence of the male gender contrasts with the statistic of the incidence of depressive disorders, where the relationship is inverted (F:M = 2:1) (Kessler, McGonagle, et al., 1994), with an apparent larger facility to become ill from despression in the female gender. This data is apparently in contrast with the fact that 95% of suicides occur as a consequence of a grave depressive disorder (Pancheri, 1999). With regard to European countries, internalizing disorders are more common among women and externalizing disorders among men, whereas gender differences in suicidality varied (Boyd et al., 2016).

According to the cognitive prospective, anxiety disorders are caused by distorted negative thoughts and people with depression tend to have a negative vision of themselves, the world and the future, forming the so-called “negative cognitive triad”. However, dimensions of metacognition are the vulnerability factors to predicting development of psychological symptoms (Wells, 2009).

Metacognition indicates a type of self-reflection on the act of cognition, made possible because of the possibility of self-distancing, self-observation and reflection of one’s own mental states. The metacognitive activity permits the control of thoughts and the ability to know and direct our learning processes. One of the most interesting aspects of metacognition is our consciousness about our psychological resources. The evaluations of people in merit of their own cognition and their own psychological states of mind are instruments useful for understanding that it is the influence of judgements of threats and how to face them. In normal life, to possess a high level of metacognition not only helps to adequately resolve tasks, but also allows the individual to find solutions in a short time and with less effort for the simple reason that, if one is able to monitor the procedure of problem solving, errors can easily be corrected and the individual may proceed in a more productive manner.

Wells (2000) reported how metacognitive dysfunctions contribute to unadaptive reactions, which favor the development and persistence of psychological disorders. According to the author, metacognition deals with psychological structures, knowledge, events and processes that are involved in the control, variation and interpretation of thought itself.

In agreement with recent studies, metacognition is a very important factor for the development and treatment of psychological disorders (Wells & Mathews, 1994). According to Wells (2000, 2007, 2009), vulnerability and psychological maintenance are associated with a non-specific style of thinking that is the Cognitive-Attentional Syndrome (CAS). CAS consists of positive beliefs about worry, negative beliefs about worry regarding uncontrollability and danger, and cognitive resource limitations and beliefs about the need to control thoughts. CAS is the basis for emotional disorders.

http://dx.doi.org/10.15405/epsbs.2016.05.02.1
eISSN: 2357-1330 / Corresponding Author: Vittorio Lenzo
Selection and peer-review under responsibility of the Organizing Committee of the conference

For example, the metacognitive model of obsessive disorder based on this approach (Wells & King, 2006), individuals base their behavior on their negative interpretations of thoughts, and carry out rituals of neutralization or control on the basis of inappropriate criteria that support obstinacy in the evaluation of the threat or reduction in trust of memory.

The S-REF Model, and CAS, stimulated research on different dimensions of metacognition associated with generalized anxiety disorder (Wells & Carter, 2001), obsessions (Wells & Papageorgiou, 1998), post-traumatic stress disorder (PTSD) (Holeva, Tarrier, & Wells, 2001), psychosis (Morrison & Wells, 2003) and depression (Papageorgiou & Wells, 2003).

The relation between metacognitive functions, the propensity to worry pathologically and the symptoms of obsessive-compulsive disorder were also studied.

A growing base of research supports the association between the metacognition factors and psychological disorders. The studies of Wells concentrated on the relation between Generalized Anxiety Disorder (GAD) and metacognition. GAD responds only in a moderated manner to already existing cognitive-behavioural treatments (Wells & King, 2006). The metacognitive model (Wells, & Carter, 2001) affirms that individuals with GAD, like in the majority of people, believe that worry is an effective solution to face a threat. When worry is used as the best coping strategy, it becomes a problem because the association of negative thoughts that deal with uncontrollability and the worry about danger encourage the development of ineffective/inefficacious control strategies.

Therefore when negative metacognitions are manifested, people experience an increase in difficulty and worry. The coexistence of positive and negative convictions about worry bring about useless vacillations of avoidance, a focus on worry and the utilization of useless mental strategies of regulation, such as searching for reassurance in the case of the female gender,and thought suppression in the case of the male gender.

Such strategies, when successful, impede the person from discovering that tormenting himself doesn't bring catastrophe. Some methods do not function and in the male gender reinforce the convictions about the loss of control

There is currently a unanimous consensus in the scientific community on the fact that the brain of the two sexes are substantially equal, but that men and women differ in the model of cerebral organization and thus the procedure of elaboration and response to information (Pancheri, 1999).

A literature search revealed that all of the research on the evaluation of metacognitive contents was based on patients with specific psychic disturbances (disorders) such as schizophrenia (Ferrari, Bruscoli, & Pallanti, 2009; Lysaker & Buck, 2009; Popolo et al., 2015).

The tendency to live "inside" emotional states prevail in women, while the tendency to act "outside" with impulsive behaviours is prevalent in men (Pancheri, 1999).

2. Problem Statement

Dysfunctional metacognitive contents constitute the base for the development and maintenance of psychological disorders. However, the role of metacognition in relation to gender remains to be studied. There is a growing need to better understand the role of metacognition in gender in order to improve diagnosis and treatment.

3. Purpose of the study

This research sought to verify the differences of gender in the expression of anxiety symptoms, depressive, obsessive, and compulsive, and of how these are influenced by metacognitive competences, in both sexes, in healthy subjects.

This study had two primary goals. The first was to compare metacognitions by the gender. We hypothesized no significantly differences between the two groups.

The second goal of this study was to explore the relationships among the constructs of metacognitions, anxiety, pathological worry, and obsessive-compulsive symptoms in the two groups. We hypothesized significantly and different correlations between the constructs on the basis of gender.

4. Research questions

The following research questions were formed based on the need to better understand the role of metacognition in gender.

- What is the evidence for the role of metacognitions in the two group on the basis of gender?
- What are the specific associations between metacognitive beliefs, anxiety, depression, pathological worry, and obsessive-compulsive symptoms on the basis of gender?
- How can this research assist in the development of more efficacious and specific treatments in the clinical practice on the basis of gender differences?

5. Research Methods

5.1 Participants

Sixty-four participants (32 males and 32 females) took part in this study on a voluntary basis, without any form of compensation, either financial or other. All participants were living in Southern Italy and the mean age was 39.65 (SD = 9.05; range = 30-61) for males and 39.62 (SD = 9.16; range = 30-57) for females. As shown in Table 1, the level of education in years was 14.56 (SD = 3.22; range = 8-18) for males and 15.03 (SD = 2.49; range = 13-18) for females. Before their participation in the study, all participants gave written consent.

Table 1. Demographic characteristics of the two groups

Variable	Men	Women
Age (M(SD))	39.65 (9.05)	39.62 (9.16)
Gender (n)	32	32
Education in years (M(SD))	14.56 (3.22)	15.03 (2.49)

http://dx.doi.org/10.15405/epsbs.2016.05.02.1
eISSN: 2357-1330 / Corresponding Author: Vittorio Lenzo
Selection and peer-review under responsibility of the Organizing Committee of the conference

5.2 Measures

- The *Metacognitions Questionnaire-30* (Wells & Cartwright-Hatton, 2004) is a 30 item self-report questionnaire, which measures a range of metacognitive beliefs and processes relevant to vulnerability and the 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 showed the presence of five factors: 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, CSC*); positive beliefs about worry, which measures the extent to which a person thinks that perseverative thinking is useful *(Positive beliefs about worry, POS*); negative beliefs about worry concerning uncontrollability and danger, which assess the extent to which a person thinks that perseverative thinking is uncontrollable and dangerous (*Negative beliefs about uncontrollability and danger, NEG*); 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, NC*). All items refer to general ideas and a high score on each factor is considered dysfunctional. The MCQ-30 is a brief, reliable and valid self-reporting measure of metacognitions (Wells & Cartwright-Hatton, 1997; Spada et al., 2008). In this study, a validated Italian version of the MCQ-30 was used to assess metacognitive beliefs (Quattropani, Lenzo, Mucciardi, & Toffle, 2014). Results of the Italian version of MCQ-30 indicated, as in the original version, direct correlations between metacognitive factors (except for CSC) and state and trait anxiety, pathological worry, and obsessive-compulsive symptoms.

– The *State-Trait Anxiety Inventory* (*STAI;* Spielberger, Gorsuch & Lushene, 1970; Spielberger et al., 1983) is a measure of general trait and state anxiety. Each subscale is composed of a 20-item measure scored on a 1-4 response scale.

– The *Beck Depression Inventory* (*BDI*; Beck, Rush, Shaw, & Emery, 1979) is a 21-items measure of depression symptoms. Each item is scored on a 0-3 response scale, with high scores indicating greater depressive symptoms. The total score is obtained by summating all items and range from 0 to 63.

– The *Penn State-Worry Questionnaire* (*PSWQ*; Meyer, Miller, Metzger & Borkovec, 1990; Morani, Pricci & Sanavio, 1999) is a 16-item measure of trait pathological worry.

– The *Padua Inventory Washington State University Revision* (Sanavio, 1988; Burns, Keortge, Formea & Sternberger, 1996) is a measure of five categories of obsessive-compulsive symptoms. Subscales include: obsessional thoughts about harm to oneself or others; obsessional impulses to harm oneself or others; contamination obsessions and washing compulsions; checking compulsions; and dressing/grooming compulsions.

All the measure had good psychometric properties.

5.3 *Data analysis*

Data obtained from this research was checked and subsequently analyzed by a descriptive and inferential statistical analysis. Descriptive statistics were calculated for MCQ-30, STAI-X1, STAI-X2,

PADUA, PSWQ, and BDI. Subsequently, we applied a T-test for two independent samples for each variable. Then we computed two correlation analyses (Pearson) for each gender and for each variable. The significance levels for the correlation coefficients was $p < 0.05$ and $p < 0.001$. The statistical analysis was performed with the Statistical Package for the Social Sciences v.18 software (SPSS Inc, 2009).

6. Findings

6.1 Group differences (T-test)

Table 2 shows descriptive statistics for MCQ-30. No gender differences emerged as significant after independent samples t-tests with Bonferroni correction. For six comparisons (.05 divided by 6), the new critical alpha level was .008 (.05 divided by 6).

Table 2. T-test for MCQ-30 for the two groups of subjects

Variable	Gender		Mean difference	Std. error difference	t (df = 62)	p
	Male M(DS)	Female M(DS)				
CC	9.63 (4.68)	9.44 (4.18)	0.19	1.11	0.17	0.87
POS	8.53 (2.80)	9.03 (4.15)	-0.50	0.88	-0.57	0.57
CSC	15.38 (3.67)	16.63 (4.32)	-1.25	1.00	-1.25	0.22
NEG	9.03 (3.72)	9.78 (3.61)	-0.75	0.92	-0.82	0.42
NC	10.00 (2.94	10.25 (2.96)	-0.25	0.74	-0.34	0.74
TOT	52.56 (11.65)	54.88 (11.82)	-2.31	2.93	-0.79	0.43

Note. CC = Cognitive confidence; POS = Positive beliefs about worry; CSC = Cognitive self-consciousness; NEG = Negative beliefs about uncontrollability and danger; NC = Need to control thoughts; TOT = Total score MCQ 30; sig. (two-tailed): p<.008

6.2 Correlational analysis (Pearson)

Results of correlational analysis showed significant association between MCQ-30 and the other variables of this study. Table 3 shows correlations between metacognitive beliefs and state-trait anxiety, and pathological worry.

Considering group of males, *Negative beliefs* subscale was significantly and positively correlated with *State-Anxiety* (r = .57; p<.001). Moreover, the total score of MCQ-30 showed a low correlation coefficient with State-Anxiety (r = .38; p<.05). There were no significant correlations between MCQ-30 subscales and *State-Anxiety* for the group of females.

Some subscales of MCQ-30 were significantly and positively correlated with *Trait-Anxiety* in both groups. The strongest correlation was between *Negative beliefs* subscale of MCQ-30 and *Trait-Anxiety* for males (r = .79; p<.001) and females (r = .75; p<001). There were also high correlation coefficients between *Cognitive confidence* and *Trait-Anxiety* in both groups. Finally, the total score of MCQ-30 was correlated with Trait-Anxiety for male (r = .67; p<001) and females (r = .56; p<001) groups.

http://dx.doi.org/10.15405/epsbs.2016.05.02.1
eISSN: 2357-1330 / Corresponding Author: Vittorio Lenzo
Selection and peer-review under responsibility of the Organizing Committee of the conference

Regarding pathological worry, results of correlational analys display that *Negative beliefs* subscale was significantly and positively correlated with PSWQ for males and female (r = 68; p<.001 and r = .75; p<001, respectively). Moreover, *Cognitive confidence* subscale was moderately correlated with PSWQ (r = .49; p<.001) for the male group and low correlated for the female group (r = .38; p<.001).

Need to control thoughts subscale show a moderately correlation with PSWQ for the male group (r = .43; p<.05) but not for the female group. In addition, there was an association between *Positive beliefs* subscale and PSWQ for the male group (r = .38; p<.001) but not for the female group.

Table 3. Correlation coefficients between MCQ, STAI and PSWQ of the two groups of subjects

Variable	STAI_X1		STAI_X2		PSWQ	
	M	F	M	F	M	F
CC	.26	.17	.60**	.52**	.49**	.38*
POS	.17	.11	.31	.18	.38*	.30
CSC	-.02	-.25	.01	-.13	.13	-.04
NEG	.57**	.22	.79**	.75**	.68**	.75*
NC	.22	.22	.42*	.42*	.43*	.30
TOT	.38*	.16	.67**	.56**	.66**	.55**

*Note. CC = Cognitive confidence; POS = Positive beliefs; CSC = Cognitive self - conscioussness; NEG = Negative beliefs; NC = Need to control thoughts; TOT = Total score MCQ-30; STAI-X1 = State-Trait Anxiety Inventory - X1 Form; STAI-X2 = State-Trait Anxiety Inventory - X2 Form; PSWQ = Penn State Worry Questionnaire. **p<.001; *p<.05.*

Table 4 shows the results of the correlational analysis between MCQ-30 and PADUA for the two groups. Specifically, the *Negative beliefs* subscale was highly correlated with the *Factor I - Insufficient control of mental activities* of PADUA (r = .73; p<.001 for males and r = .80; p<.001 for females, respectively). There was also a significant and positive correlation between *Cognitive confidence* subscale and *Factor I* of PADUA in both groups but not for the *Cognitive self-conscioussness* subscale. Moreover, the *Need to control thoughts* subscale was moderately correlated with *Factor I* of PADUA (r = .48; p<.001 for males and r = .47; p<.001 for females, respectively). Finally, the Positive beliefs subscale was low correlated with *Factor I* of PADUA for the male group (r = .36; p<.05) but not for the female group.

Regarding *Factor II – Come contamines* of PADUA, there was no significant correlations in both groups.

Regarding *Factor III – Control behaviors* of PADUA, there were moderately correlation coefficients with *Negative Beliefs* (r = .41; p<.05) and *Cognitive confidence* (r = .37; p<.05) subscales for the female group but not for the male group.

Cognitive Confidence subscale was signicantly and highly correlated with *Factor IV – Impulses and worries about losing control of one's own motor behaviors* of PADUA for the male group (r = .64; p<.001) and moderately correlated for the female groups (r = .48; p<.001). In addition, *Need to control thoughts* subscale was moderately correlated with *Factor IV* of PADUA in both groups (r = 44; p<.05

for males and r = .46; p<.001, respectively). Finally, Negative beliefs subscale was moderately correlated with Factor IV of PADUA for males (r = .56; p<.001) but nor for females.

Cognitive confidence subscale was positively and highly correlated with *Factor V - Compulsions in dressing and washing oneself* of PADUA in both groups (r = .67; p<.001 for males and r = .65; p<001 for females, respectively). *Negative beliefs* subscale was highly and positively correlated with Factor V of PADUA for the male group (r = .66; p<.001) and moderately correlated for the female group (r = .58; p<.001). *Need to control thoughts* subscale was moderately correlated with *Factor V* of PADUA in both groups (r = .49; p<.001 for males and r = .51; p<001 for females, respectively). Finally, *Positive beliefs* factor was low correlated with Factor V of PADUA for males (r = .38; p<.05) but not for females.

Table 4. Correlation coefficients between MCQ and PADUA of the two groups of subjects

	PADUA									
Variable	I		II		III		IV		V	
	M	F	M	F	M	F	M	F	M	F
CC	.74**	.59**	.33	.24	.28	.37*	.64**	.48**	.67**	.65**
POS	.36*	.16	.12	-.04	-.14	.13	.27	.02	.38*	.13
CSC	.03	-.04	.06	-.16	.30	-.07	-.04	.25	.15	.14
NEG	.73**	.80**	.08	.21	.05	.41*	.56**	.33	.66**	.58**
NC	.48**	.47**	.30	.12	.16	.10	.44*	.46**	.49**	.51**
TOT	.75**	.63**	.29	.11	.23	.30	.60**	.50**	.77**	.64**

*Note. CC = Cognitive confidence; POS = Positive beliefs; CSC = Cognitive self-consciousness; NEG = Negative beliefs; NC = Need to control thoughts; TOT = Total score MCQ-30; PADUA I = Insufficient control of mental activities; PADUA II = Come contamined; PADUA III = Control behaviors; PADUA IV = Impulses and worries about losing control of one's own motor behaviors; PADUA V = Compulsions in dressing and washing oneself. **p<.001; p<.05.*

Table 5 shows the results of the correlational analysis between MCQ-30 and BDI for the two groups. Specifically, the *Cognitive Confidence* subscale was highly correlated with the total score of BDI for males group (r = .74; p<.05). Regarding females group, the *Cognitive Confidence* was moderately correlated with BDI (r = .49; p<.05). The *Negative beliefs* subscale was highly correlated with BDI in both groups (r = .69; p<.001 for males and r = .64; p<.05 for females, respectively). Moreover, the *Need to control thoughts* subscale was highly correlated with BDI for females group (r = .60; p<.001). On the other hand, the *Need to control thoughts* subscale low correlated with BDI in males g

http://dx.doi.org/10.15405/epsbs.2016.05.02.1
eISSN: 2357-1330 / Corresponding Author: Vittorio Lenzo
Selection and peer-review under responsibility of the Organizing Committee of the conference

Table 5. Correlation coefficients between MCQ and BDI of the two groups of subjects

Variable	BDI	
	M	F
CC	.74*	.49**
POS	.22	.13
CSC	-.06	.09
NEG	.69**	.64**
NC	.38*	.60**
TOT	.65**	.60**

Note. CC = Cognitive confidence; POS = Positive beliefs; CSC = Cognitive self - consciousness; NEG = Negative beliefs; NC = Need to control thoughts; TOT = Total score MCQ-30; BDI = Beck Depression Inventory.
***p<.001; *p<.05.*

7. Conclusions

In this study, our aim was to explore the role of metacognitions, and the relations with other constructs, on the basis of gender. We tested two hypotheses and two main results emerged from our study.

Our study had the aim of comparing psychological functioning in males and females. Results showed that there were no significant differences between the two groups of subjects (T-test for two independent samples).

The second goal was to explore the relations between metacognitions and the other constructs on the basis of the gender. Results of correlational analysis (Pearson) have shown specific correlations for males and females.

The negative beliefs about worry concerning uncontrollability and danger (NEG) was moderately correlated with state-anxiety in the group of males but not in females. But on the other hand, negative beliefs about worry were highly correlated with trait-anxiety for both groups. Moreover, the negative beliefs factor, that is the extent to which a person thinks that perseverative thinking is uncontrollable and dangerous, had a strong relation also with pathological worry in both groups. Additionally, the negative beliefs factor had a strong relation with depression in both groups.

Another metacognitive factor, the Cognitive Confidence, showed a significant but moderate correlation coefficient with pathological worry in both groups. The Cognitive Confidence factor had a strong relation with depression in males but not for females.

Moreover, the Need to control thoughts and Positive beliers factors, showed a moderate correlation coefficient for the males group but not for the females group. Hence, the personal confidence in attention and memory, and the extent to which a person thinks that perseverative thinking is useful can play a role in the development of pathological worry on the basis of gender. Furthermore, the Need to control thoughts factor had a strong relation with depression for the females group but not for the males group.

Results of correlational analysis have also shown specific correlations between metacognitions and obsessive-compulsive symptoms. The negative beliefs factor was highly and positively correlated with

the Factor I of PADUA, that is the insufficient control of mental activities in both groups. In this regard, cognitive confidence has shown a significant correlation with the insufficient control of mental activities in both groups.

Moreover, the Factor III of PADUA demonstrated significant correlations with the negative beliefs and the cognitive confidence factors for females but not for males. Hence, the control behaviors demonstrated a role on the basis of the gender.

Results of correlational analysis demonstrated significant associations between Factor IV of PADUA and the cognitive confidence factor in both groups. The impulse and worries about losing control of one's own motor behaviors had a moderately relationship with the need to control thoughts factor. The negative beliefs showed a significant and positive correlation with need to control thoughts for males but not for females.

Finally, the negative beliefs factor has shown a significant and high correlation with the Factor V of PADUA in both groups. The compulsions in dressing and washing oneself demonstrated a low correlation with the positive beliefs factor for males but not for females.

The limit of this study concerned the sample size and composition. On one hand, it is important to extend the research on a more large sample. On the other hand, gender differences can play an important role in the clinical efficacy of treatments. Research of this kind is currently in progress by the authors.

References

Action Plan for Women's Health (1991). *Public Health Service Office on Women's Health*. DHHS Publication (PHS), 91-50214.

Adlaf, EM., & Smart, RG. (1995). Alcohol use, drug use, and well-being in older adults in Toronto. *International Journal Addiction*, 30, 1985-2016.

Ahnlund, K., & Frodi, A. (1996). Gender differences in the development of depression. *Scandinavian Journal of Psychology*, 37, 229-37.

Alan, F., & Schatzber, M.D. (1997). The dinamics of sex: Gender differences in psychiatric disorders. *Journal of Clinical Psychiatry*, 58, 3-4.

American Psychiatry Association (1994). Diagnostic and Statistical Manual, Fourth Edition (DSM-IV). Washington, DC: *American Psychiatry Press*.

Andreasen, NC. (1997). What shape are we in? Gender psychopathology and the brain. *American Journal of Psychiatry*, 154, 1637-1639.

Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). Cognitive therapy for depression.
New York: Guilford.

Blehar, MC., & Oren, DA. (1997). Gender Differences in Depression. *Medscape Womens Health*, 2, 3.

Blehar, MC. (1995). Gender differences in risk factors for mood and anxiety disorders: implications for clinical treatment research. *Psychopharmacol Bulletin*, 31, 687-91.

Boyd, A., Van de Velde, S., Vilagut, G., de Graff, R., O'Neill, S., Florescu, S., & Alonso, J. (2015). Gender differences in mental disorders and suicidality in Europe: Results from a large cross-sectional population-based study. *Journal of Affective Disorders, 173*, 245-254.

Breslau, N., Schultz, L., & Peterson, E. (1995). Sex differences in depression: a role for preexisting anxiety. *Psychiatry Research*, 58, 1-12.

Brier, A., Charney, DS., & Heninger, GR., (1986). Agoraphobia with panic attacks: development, diagnostic stability and course of illness. *Archives of General Psychiatry*, 43, 1029-1036.

Brown, GW., Bifulco, A., & Andrews, B. (1990). Self-esteem and depression. III Aetiological issues. *Social Psychiatry Epidemiology*, 25, 235-43.

Brown, GW., & Harris, TO. (1978). Social origins of depression: a study of psychiatric disorder in women. Tavistock, London, New York: Free Press.

Buglass, D., Clarke, J., et al. (1977). A study of Agoraphobic housewifes. *Psychological Medicine*, 7, 72-86.

Burns, G.L., Keortge, S., Formea, G. & Sternberger, L. (1996). Revision of the Padua Inventory of obsessive-compulsive disorder symptoms: Distinctions between worry, obsessions, and compulsions. *Behaviour Research and Therapy, 34*, 163-173.

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

D'Atena, P. (1989) *Malattia Mentale e ruoli sessuali*. Roma: Bulzoni Editore.

Davidson, J., Zisook, S., Giller, E., & Helms, M. (1989). Symptoms of Interpersonal Sensitivity in Depression. *Comprehensive Psychiatry*, 30, 357-68.

Diamond, MC. (1989). Sex and the cerebral cortex. *Biological Psychiatry*, 25, 823-825.

Faravelli, C., & Pallanti, S. (1989). Recent Life Events and Panic Disorders. *The American Journal of Psychiatry*, 146, 622-626.

Faravelli, C. (1989). *Le crisi di Panico*. Napoli: Idelson.

Farina, A. (1981). Are women nicer people than men? Sex and the stigma of mental disorder. *Clinical Psychology Review*, 1, 223-43.

Fava, M., Abraham, M., Alpert, J., Nierenberg, AA., Pava, JA., & Rosenbaum, JF. (1996). Gender differences in axis I comorbidity among depressed outpatients. *Journal of Affective Disorders*, 38, 129-133.

Ferrari, G., Bruscoli, M., & Pallanti, S. (2009). Metacognition in schizophrenia spectrum disorders: methods of assessing metacognition within narrative and links with neurocognition. *Journal of Psychopathology*.

Fischer, A.G., Danielmeier, C., Villringer, A., Klein, T.A., & Ullsperger, M. (2016). Gender Influences on Brain Responses to Errors and Post-Error Adjustments. *Scientific Reports, 6*, 24435.

Garvey, MJ., & Tuason, VB. (1984). The relationship of panic disorder to agoraphobia. *Comprehensive Psychiatry*, 25, 529-531.

Giardinelli, L., Murciano, M.C., Di Meo, G., Restuccia, G., & Placidi, G.F. (2003). Gender Differences in Bipolar Disorder. *Journal of Psychopathology, 9(4),* 21-28.

Hankin, BL., Abramson, LY., Moffitt, TE., Silva, PA., McGee, R., & Angell, KE. (1998). Development of depression from preadolescence to young adulthood: emerging gender differences in a 10-year longitudinal study. *Journal of Abnorm Psychology*, 107, 128-40.

Hartung, CM., & Widiger, TA. (1998). Gender differences in the diagnosis of mental disorders: conclusions and controversies of the DSM-IV. *Psychological Bulletin*, 123, 260-278.

Helzer, JE., Burnam, A., & McEvoy, LT. (1991). Alcohol abuse and dependence. In L.N. Robins, & D.A. Regier (Eds.), *Psychiatric Disorders in America (81-129)*. New York, NY: Free Press.

Hendrick, V., Altshuler, L., Gitlin, M., Delrahim, S., & Hammen, C. (2000). Gender and Bipolar Illness. *Journal of Clinical Psychiatry*, 6, 393-96.

Holeva, V., Tarrier, N., & Wells, A. (2001). Prevalence and predictors of acute stress disorder and PTSD following road traffic accidents: Thought control strategies and social support. *Behavior Therapy*, 32(1), 65-83.

Horesh, N., Amir, M., Kedem, P., Goldberger, Y., & Kotler, M. (1997). Life Events in childhood, adolescence and adulthood and the relationship to Panic Disorder. *Acta Psychiatrica Scandinavica*, 96, 373-378.

Horney, N. (1967). *Feminine psychology*. New York: Norton.

Jones, FS. (1998). Are men's and women's brains different? *North Carolina Medical Journal*, 59, 191- 192.

Kessler, R., McGonagle, KA., Zhao, S., Nelson, CB., Huges, M., Eshleman, S., et al. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: result from a national comorbidity survey. *Archive of General Psychiatry*, 51, 8-19.

Kirkpatrick, B., & Bryant, N.L. (1995). Sexual dimorphism in the brain: it's worse than you thought. *Biological Psychiatry*, 38, 347-348.

Kornstein, S.G., Schatzberg, AF., Yonkers, KA., Thase, ME., Keitner, GI., Ryan, CE., & Schlager, D. (1995). Gender differences in presentation of chronic major depression. *Psychopharmacology Bulletin*, 31, 711-718.

Kushner, M.G., Mackenzie, T.B., Fiszdon, J., Valentiner, D.P., Foa, E., Anderson, N., et al. (1996). The effects of alcohol consumption on laboratory-induced panic and state anxiety. *Archives of General Psychiatry*, 53, 264-70.

Lysaker, P.H., & Buck, K.D. (2009). Metacognition in schizophrenia spectrum disorders: methods of assessing metacognition within narrative and links with neurocognition. *Journal of Psychopathology*.

Malone, P.T., & Johnson, C.G. (1998). Men and depression. *Journal of Medical Association of Georgia*, 87, 27-29.

Marra, F.S., Pacitti, F., & Pancheri, P. (1998). Morte del padre e della madre come evento di perdita precedente l'insorgenza del disturbo da attacchi di panico e dei disturbi dello spettro depressivo: uno studio sperimentale su 2541 casi. *Giornale Italiano di Psicopatologia*, 4, 373-382.

Martin, C.S., Lynch, KG., Pollock, N.K., & Clark, D.B. (2000). Gender differences and similarities in the personality correlates of adolescent alcohol problems. *Psychology Addictive Behaviors*, 14, 121-33.

May, P.A. (1982). Substance abuse and American Indians: prevalence and susceptibility. *International Journal of Addiction*, 17, 1185-1209.

Merikangas, KR., Stevens, DE., Fenton, B., Stolar, M., O'Malley, S., Woods, SW., et al. (1998). Co-morbidity and familial aggregation of alcoholism and anxiety disorders. *Psychological Medicine*, 28, 773-788.

Meyer, T.J., Miller, M.L., Metzger, R.L. & Borkovec, T.D. (1990). Development and validation of the Penn State Worry Questionnaire. *Behavior Research and Therapy*, *28*, 487-495.

Morani, S., Pricci, D. & Sanavio, E. (1999). Penn State Worry Questionnaire" and "Worry Domains Questionnaire" Italian version and reliability. *Psicoterapia Cognitiva* e *Comportamentale, 5*, 195-209.

Morrison, A.P., & Wells, A. (2003). A comparison of metacognitions in patients with hallucinations, delusions, panic disorder, and non-patient controls. *Behaviour Research and Therapy*, 41, 251–256.

Moscato, BS., Russell, M., Zielezny, M., Bromet, E., Egri, G., Mudar, P., et al. (1997). Gender differences in the relation between depressive symptoms and alcohol problems: a longitudinal perspective. *American Journal of Epidemiology*, 146, 966-74.

Murphy, G.E. (1998). Why women are less likely than men to commit suicide? *Comprehensive Psychiatry*, 39, 165-175.

Nolen-Hoeksema, S. (1987). Sex difference in unipolar depression: evidence and theory. *Psychological Bulletin,* 101, 259-282.

Papageorgiou, C., & Wells, A. (2003). An empirical test of a clinical metacognitive model of rumination and depression. *Cognitive Therapy and Research*, 27, 261-273.

Perris, C. (1966). A study of bipolar (manic-depressive) and unipolar recurrent depressive psychoses. *Acta Psychiatrica Scandinavica*, 194, 175-181.

Perugi, G., Musetti, E., Simonini, F., Piagentini, F., Cassano, GB., & Akiskal, HS. (1990). Gender-mediated clinical features of depressive illness. The importance of temperamental differences. *The British Journal of Psichiatry*,157, 835-41.

Pettinati, HM., Pierce, JD. Jr, Wolf, AL., Rukstalis, MR., & O'Brien, CP. (1997). Gender differences in comorbidly depressed alcohol-dependent outpatients. *Alcoholism: Clinical and Experimental Research*, 21, 1742-1746.

Popolo, R., Vinci, G., D'Amato, F., Buonocore, Balbi, A., Dimaggio, G., & Salvatore, G. (2015). The metacognitive functioning in schizophrenia: a proposal for assessment. *Journal of Psychopathology.*

Prigerson, HG., & Slimack, MJ. (199.9) Gender differences in clinical correlates of suicidality among young adults. *Journal of Nervous and Mental Disease*, 187, 23-31.

Quattropani, M.C., Lenzo, V., Mucciardi, M., & Toffle, M.E. (2014). Psychometric properties of the Italian version of the Short Form of the Metacognitions Questionnaire (MCQ-30). *Bollettino di Psicologia Applicata*, 269, 29-41.

Raskin, M., & Peeke, HVS., et al. (1982). Panic and generalized Anxiety disorders: developmental antecedentes and precipitans. *Archives of General Psychiatry*, 39, 587-589.

Raymont, V., Bettany, D., & Frangou, S. (2003). The Maudsley Bipolar Disorder Project. Clinical characteristcs of Bipolar Disorder I in a catchment area treatment sample. *European Psychiatry*, 18, 13-17.

Roth, M., (1984). Agoraphobia, panic disorder, and generalized anxiety disorder: some implications of recent advances. *Psychiatric Development*, 2, 31-52.

Rounds, BJL., Kristiansen, PL., Fairbank, JA., & Hubbard, RL. (1998). Substance use, mental disorders, abuse, and crime: Gender comparisons among a national sample of adolescent drug treatment clients. *Journal of Child and Adolescent Substance Abuse*, 7:19-34.

Roy Birne, PP., Geraci, M., & Uhde, TW. (1986). Life Events and the onset of Panic Disorder. *American Journal of Psychiatry*, 143, 1424-1427.

Ruble, DN., Greulich, F., Pomerantz, EM., Gochberg, B. (1993). The role of gender-related processes in the development of sex differences in self-evaluation and depression. *Journal of Affective Disorders*, 29:97-128.

Sanavio, E. (1988) Obsessions and compulsions: The Padua Inventory. *Behaviour Research and Therapy, 26*, 169-177.

Salkovskis, P.M., Clark, DM., Hackmann, A., Wells, A., Gelder, MG. (1999). An experimental investigation of the role of safety-seeking behaviours in the maintenance of panic disorder with agoraphobia. *Behaviour Research and Therapy,* 37, 559-574.

Schatzberg, A.F. (1997). The dynamics of sex: gender differences in psychiatric disorders. *Journal of Clinical Psychiatry*, 58, 3-4.

Schuckit, M.A., & Hesselbrock, V. (1994). Alcohol dependence and anxiety disorders: what is the relationship. *The American Journal of Psychiatry*, 151, 1723-1734.

Sedler, M.J. (1983). Farlet's discovery: the origin of the concept of bipolar illness. *The American Journal of Psychiatry*, 140, 1127-33.

Sheehan, D.V. (1982). Panic attacks and phobia. *New Engand Journal of Medicine*, 307, 156-161.

Sherrill, J.T., Anderson, B., Frank, E., Reynolds, C.F., Patterson, D., et al. (1997). Is life stress more likely to provoke depressive episodes in women than in men? *Depression and Anxiety*, 6, 95-105.

Skaff, M.M., Finney, J.W., & Moos, R.H. (1999). Gender differences in problem drinking and depression: different "vulnerabilities?" *American Journal of Community Psychology*, 27, 25-54.

Solyom, L., Bek, P., et al. (1974). Some Etiological Factors in phobic neurosis. *Canadian Psychiatric Association Journal*, 19, 69-77.

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.

Speca, A., Pasquini, M., Picardi, A., Gaetano, P., Biondi, M. (2001). Gender-related psychopathological differences in a general psychiatric population. *Journal of Psychopathology,* 1, 31-37.

Spielberger, C., et al. (1983). Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: *Consulting Psychologists Press.*

Spielberger, C.D., Gorsuch, R., Lushene, R. (1970). Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: *Consulting Psychologist Press.*

Thomas, P. (1996). Big boys don't cry? Mental health and the politics of gender. *Journal of Mental Health UK*, 5, 107-110.

Thyer, B.A., McNeece, C.A., Miller, M.A. (1987). Alcohol abuse among agoraphobics. *Treatment Quarterly*, 4, 61-67.

Troisi, A., Moles, A. (1999). Gender differences in depression: an ethological study of nonverbal behavior during interviews. *Journal of Psychiatry Research*, 33, 243-50.

Wagener, A., Baeyens, C., & Blairy, S. (2016). Depressive symptomatology and the influence of the behavioral avoidance and activation: A gender-specific investigation. *Journal of Affective Disorders, 193,* 123-129.

Weissman, M.M., Bland, R.C., Canino, G.J., Faravelli, C., Grenswald, S., Hwu, HG., et al. (1996). Cross-national epidemiology of major depression and bipolar disorder. *JAMA*, 24-31, 293-9.

Wells, A. (2000). *Emotional Disorders and Metacognitions. Innovative Cognitive Therapy.* John Wiley and Sons Ltd.

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. (2009). *Metacognitive therapy for anxiety and depression*. New York: Guilford Press.

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., & 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., & King, P. (2006). Metacognitive therapy for generalized anxiety disorder: An open trial. *Journal of Behavior Therapy and Experimental Psichiatry*, 37, 206-212.

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

Wells, A., & Papageorgiou, C. (1998). Relationships between worry, obsessive compulsive symptoms and metacognitive beliefs, *Behaviour Research and Therapy*, 36, 899–913.

Wells, A, & Papageorgiou, C. (1995). Worry and the incubation of intrusive images following stress, Behaviour. *Research and Therapy*, 33.

Yonkers, K.A. (1998). Assessing unipolar mood disorders in women. *Psychopharmacol Bulletin*, 34, 261-266.

Zack, M., Toneatto, T., MacLeod, C.M. (1999). Implicit activation of alcohol concepts by negative affective cues distinguishes between problem drinkers with high and low psychiatric distress. *Journal of Abnormal Psychology*, 108, 518-531.

Zlotnick, C., Shea, M.T., Pilkonis, P.A., Elkin, I., Ryan, C. (1996). Gender, type of treatment, dysfunctional attitudes, social support, life events, and depressive symptoms over naturalistic follow-up. *The American Journal of Psychiatry*, 153, 1021-1027.