



## Development and validation of the thought control ability questionnaire

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### Abstract

Previous research suggests that an individual difference factor could account for the divergent findings across thought suppression studies. The present study reports on the development and validation of the Thought Control Ability Questionnaire (TCAQ), a self-report measure of individual differences in the perceived ability to control unwanted, intrusive thoughts. The TCAQ and a battery of instruments that assess emotional vulnerability, psychopathological symptoms and thought control strategies were administered to 211 Spanish university students. Data analysis yielded a unidimensional instrument with 25 items that showed high internal consistency and test–retest reliability. In addition, the TCAQ had significant negative relationships with trait anxiety (STAI-T), neuroticism (EPQ-N), depressive symptomatology (BDI), guilt feelings (SC-35), worry (PSWQ), obsessive–compulsive symptoms (MOCI) and with the use of self-punishment as thought control strategy (TCQ). The implications of these results are discussed in relation to thought suppression and clinical research.

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**Keywords:** Thought suppression; Thought control; Unwanted intrusive thoughts; Emotional vulnerability; Psychopathological symptoms; Cognitive processes

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## 1. Introduction

Thought suppression was defined by Wells and Davies (1994) as an effort “not to think about” a particular thought. Current diagnostic criteria (American Psychiatric Association, 1994) and thought suppression research (for reviews see Abramowitz, Tolin, & Street, 2001; Purdon, 1999; Rassin, Merckelbach, & Muris, 2000; Wenzlaff & Wegner, 2000) suggest that certain patients have deficient ability to suppress unwanted intrusive thoughts and impulses, but rely on thought suppression as a general mental control strategy. Thus, since the Wegner, Schneider, Carter, and White (1987) white bear study, a body of work has found robust evidence for the implication of thought suppression in depression (Wenzlaff, Wegner, & Roper, 1988), addiction (Palfai, Monti, Colby, & Robsenow, 1997), primary insomnia (Harvey, 2003), obsessive–compulsive disorder (Tolin, Abramowitz, Przeworski, & Foa, 2002) and spider phobia (Wenzel, Barth, & Holt, 2003). To sum up, thought suppression seems to play an important role in the etiology and maintenance of some mental disorders. However, Purdon (1999) and Rassin et al.’s (2000) reviews suggested little reason to believe that thought suppression is implicated in the etiology or the maintenance of trauma-related symptoms, worry-related ruminations or other psychopathological conditions. Tolin et al. (2002) pointed out that excessive thought suppression attempts are a common characteristic of anxiety disorders, whereas low thought suppression ability might be limited to a smaller group of mental disorders.

Few investigations have focused on the effects of thought suppression with clinical samples. In fact, research on thought suppression has occurred mainly with normal populations that suppressed thoughts of neutral stimuli (e.g. Clark, Ball, & Pape, 1991; Clark, Winton, & Thynn, 1993). As in clinical studies, a great number of experiments with non clinical participants have yielded null effects and authors investigating thought suppression think that an individual difference factor could explain the divergent findings across studies. To date, we only know that subjects high in reactance (Kelly & Nauta, 1997) and low-hypnotizable individuals under hypnosis (Bowers & Woody, 1996) experience more intrusions than subjects low in reactance and highly suggestible ones respectively when they are instructed to suppress a thought. Recently, Brewin and Beaton (2002) pointed to another individual difference that determines successful suppression. These researchers found that more effective thought suppression was related to higher fluid intelligence and working memory capacity.

Some researches have used self-report measures in order to study individual differences in thought control. To this end, Wegner and Zanakos (1994) developed the White Bear Suppression Inventory (WBSI), which is a 15-item self-report questionnaire that measures people’s dispositional tendency to suppress thoughts. Participants have to indicate on a five-point scale the extent to which they agree (1 = strongly disagree; 5 = strongly agree) with each item. Total WBSI scores vary from 15 to 75, with higher scores indicating more tendency to suppress. On the other hand, the Thought Control Questionnaire (TCQ; Wells & Davies, 1994) is a 30-item self-report questionnaire that was developed to provide a measure of the various techniques which individuals use to control unpleasant and unwanted thoughts. The TCQ measures five factors: Distraction (e.g. “I think pleasant thoughts instead”), Social Control (e.g. “I find out how my friends deal with these thoughts”), Worry (e.g. “I dwell on other worries”), Punishment (e.g. “I punish myself for thinking the thought”) and Re-appraisal (e.g. “I analyse the thought rationally”). The following anchors are used for frequency ratings: 1 = never, 2 = sometimes, 3 = often; 4 = almost al-

ways. A total score can be obtained by summing the scores of the five sub-scales. Some studies (e.g. Reynolds & Wells, 1999) indicate that the TCQ is a useful tool for measuring the effectiveness of strategies for controlling unwanted thoughts.

Since these instruments of thought control emerged, there have been a number of studies analyzing their properties (Blumberg, 2000; Höping & de Jong-Meyer, 2003; McKay & Greisberg, 2002; Muris, Merckelbach, & Horselenberg, 1996). McKay and Greisberg (2002) conducted an exploratory factor analysis with the items of both questionnaires (WBSI and TCQ). They found that the combination of the instruments resulted in a two factor solution: the first factor accounted for 39.1% of the variance and was called “dysfunctional thought control strategies”. All items from the WBSI, Punishment, Distraction and Worry (TCQ sub-scales) loaded on this factor. The second factor accounted for 22.5% of the variance and was named “functional thought control strategies”, with items from the Social control and Reappraisal (TCQ sub-scales) loading on it.

Although, the WBSI (Wegner & Zanakos, 1994) was originally developed to assess a chronic tendency to suppress unwanted thoughts, two recent studies (Blumberg, 2000; Höping & de Jong-Meyer, 2003) give reason to doubt that the WBSI primarily assesses only chronic thought suppression. Indeed, these studies revisiting the WBSI and examining its factor structure have identified a three-factor solution that includes: unwanted intrusive thoughts (e.g. “There are thoughts that keep jumping into my head”), thought suppression (e.g. “There are things that I try not to think about”) and self-distraction (e.g. “I often do things to distract myself from my thoughts”). Furthermore, it is important to highlight that the “unwanted intrusive thoughts” factor, which implicitly refers to a lack of control over thoughts, showed moderate correlations with measures of depression, trait anxiety, etc, whereas the “thought suppression” factor, which is clearly an expression of the Wegner’s ironic process theory (Wegner, 1994), was not associated with these psychopathological indicators. Thus, Höping and de Jong-Meyer (2003) recommended differentiating between the perceived ability to suppress and the tendency to suppress, when trying to establish a connection between thought control and psychopathological conditions.

Taking this state of the question as its foundation, the primary purpose of this study is to develop and validate in a non clinical Spanish sample, a self-report measure focused specifically on the measurement of individual differences in the ability to suppress unwanted intrusive thoughts. Through this article, we describe the psychometric properties of the Thought Control Ability Questionnaire (TCAQ), a new instrument of thought control which might provide a best understanding of why certain individuals experience paradoxical effects more frequently during or after thought suppression attempts, and are more prone to suffer from psychopathological symptoms.

## 2. Method

### 2.1. Subjects

Two-hundred and eleven undergraduate students (177 female, 34 male) who were studying Psychology at the University of Valencia participated in the study in exchange for course credit. The mean age of subjects was 21.4 years ( $SD = 4.8$ ; range: 18–51 years).

## 2.2. Measures

The following battery of instruments was computer-administered to the participants:

The *Beck Depression Inventory* (BDI; Beck, Rush, Shaw, & Emery, 1979) is a 21 self-report questionnaire that measures depressive symptomatology. Participants have to indicate the severity of symptoms on a four-point scale ranging from 0 (symptom not present) to 3 (symptom very intense). Item responses are summed to yield a total score ranging between 0 and 63.

The *Maudsley Obsessive–Compulsive Inventory* (MOCI; Hodgson & Rachman, 1977) is a 30-item true-false questionnaire which assesses the severity of obsessive–compulsive symptoms. The questionnaire possesses four subscales: *Washing, Checking, Doubting* and *Slowness-Repetition*. Total scores range between 0 and 30.

The *Scale of guilt feelings* (SC-35; Zabalegui, 1993) comprises 35 items measuring guilt feelings. Subjects are asked to answer each item on a four-point scale ranging from completely false to completely true. Total SC-35 scores vary from 35 (guilt feelings not present) to 175 (guilt feelings very intense).

The *State-Trait Anxiety Inventory* (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) is a 40 item self-report measure of state and trait anxiety. We administered the trait subscale (20 items) in the present research. Total scores on the STAI-T range between 0 and 60, with higher scores indicating more severe trait anxiety.

The *N-Scale of the short revised version of the Eysenck Personality Questionnaire* (EPQ; Eysenck, Eysenck, & Barrett, 1985) measures neuroticism. Scores on the N-scale vary between 0 and 12.

The *Penn State Worry Questionnaire* (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990) is a 16-item questionnaire which captures pathological worry as typical of patients diagnosed with Generalized Anxiety Disorder (GAD). The PSWQ measures stable pathological worry as a trait-like person characteristic. Total PSWQ scores range between 16 and 80 (with high scores indicating high trait worry).

The *Thought Control Questionnaire* (TCQ; Wells & Davies, 1994) and the *White Bear Suppression Inventory* (WBSI; Wegner & Zanakos, 1994) were previously described.

The *Thought Control Ability Questionnaire* (TCAQ) was developed to assess individual differences in the ability to control unwanted intrusive thoughts. Two of the authors generated an initial pool of 42 items that inquired about the perceived ability to suppress unwanted thoughts and emotions. Subjects rated on a five-point Likert-type scale the extent to which they agree with each statement (1 = strongly disagree; 2 = disagree; 3 = neutral or don't know; 4 = agree; 5 = strongly agree).

## 2.3. Apparatus

Desktop computers running E-Prime v 1.0 software (MacWhinney, St. James, Schunn, Li, & Schneider, 2001) were used to administer the questionnaires and to record subjects responses via keypress.

## 2.4. Procedure

Participants came in groups of 15 to the laboratory and completed the questionnaires. A male research assistant was present during the one hour in which subjects completed the questionnaires.

The experimenter instructed the subjects and answered questions. A group of 138 participants came back to the laboratory two months later and completed the TCAQ again, in order to obtain the test–retest reliability.

### 3. Results

#### 3.1. Preliminary analyses

The total item pool for the initial version of the TCAQ was comprised of 42 items, but in order to produce a questionnaire measuring a relatively specific construct (DeVellis, 1991), only those items with a corrected item-total correlation  $>0.40$  were retained for the analysis of reliability, factor structure and validation with some instruments measuring psychopathological symptoms and emotional vulnerability. The corrected item-total correlations are displayed in Table 1. Seventeen items were eliminated from the analysis, so the final version of the TCAQ consisted of a total of 25 items. Therefore, total scores range between 25 and 125, with higher scores reflecting more thought control ability. Finally, five participants were dropped because of missing data and were not included in the statistical analysis.

#### 3.2. Reliability

Internal consistency of the TCAQ (Cronbach's alpha) was very high,  $\alpha = 0.92$ . In order to establish the consistency of TCAQ scores over time (test–retest reliability), 138 subjects were re-tested after eight weeks, and the reliability coefficient was very satisfactory [ $r = 0.88$ ,  $p < 0.01$ ]. Mean TCAQ scores and standard deviations on occasions 1 and 2 were 83.6 (SD = 17) and 84.8 (SD = 17) respectively.

#### 3.3. Exploratory factor analysis

An Exploratory Factor Analysis (principal components with varimax rotation) was used to study the underlying structure of the questionnaire. With the final version of 25 items, we were able to satisfy the minimum five participants-per-item ratio that is usually recommended for factor analysis (Gorsuch, 1983). The EFA revealed 5 factors with eigenvalues greater than 1.0. The principal factor accounted for 35.4% of the variance whereas the other four factors accounted for 6%, 5.3%, 4.8% and 4.5% of the variance respectively (eigenvalues of the 5 factors were 8.84, 1.49, 1.32, 1.19 and 1.13). However, an examination of the scree plot (Cattell, 1966) indicated that the instrument's structure was more appropriately described as having one factor. Factor loadings for the one-factor solution are presented in Table 1. All items loaded strongly on the factor (all factor loadings  $>0.45$ ).

#### 3.4. Relation with instruments measuring psychopathological symptoms, emotional vulnerability and specific thought control strategies

Means, standard deviations and internal consistencies for all study measures are presented in Table 2. The correlation matrix is also shown in this table. The highest correlations for the TCAQ

Table 1

Items, corrected item-total correlations ( $r_{\text{tot}}$ ) and factor loadings ( $\lambda$ ) of the Thought Control Ability Questionnaire (TCAQ)

	Items	$r_{\text{tot}}$	$\lambda$
1	It is often difficult for me to fall asleep because my mind keeps going over personal problems <sup>a</sup>	0.45	0.48
2	I often cannot avoid having upsetting thoughts <sup>a</sup>	0.46	0.51
3	Although some people criticize me unfairly, I can't help thinking they might be right <sup>a</sup>	0.47	0.51
4	I manage to have control over my thoughts even when under stress	0.59	0.64
5	I constantly censure my thoughts and actions <sup>a</sup>	0.44	0.48
6	Any setback overwhelms me, no matter how small <sup>a</sup>	0.58	0.62
7	I am usually successful when I decide not to think about something	0.51	0.57
8	I constantly evaluate whether my thoughts and actions are appropriate <sup>a</sup>	0.45	0.50
9	It is very easy for me to stop having certain thoughts	0.57	0.62
10	I feel worried, frustrated or sad for a long time after having an embarrassing, troublesome or painful experience <sup>a</sup>	0.42	0.46
11	It is easy for me to free myself of troublesome thoughts	0.71	0.76
12	Frequently, some thoughts or images take over my mind <sup>a</sup>	0.61	0.66
13	There are negative things in my past that I cannot help remembering <sup>a</sup>	0.51	0.56
14	There are few things in life that manage to trouble me	0.46	0.49
15	I haven't been able to get the argument I had with (my partner, my parents, a friend...) out of my head for several days <sup>a</sup>	0.47	0.51
16	I consider myself a person who is good at controlling positive and negative emotions.	0.55	0.60
17	My thoughts control me more than I control them <sup>a</sup>	0.67	0.73
18	There are some thoughts that enter my head without me being able to avoid it <sup>a</sup>	0.67	0.72
19	My thoughts are uncontrollable <sup>a</sup>	0.62	0.67
20	I am not usually overwhelmed by unpleasant thoughts	0.57	0.62
21	I am unable to free myself from certain thoughts: e.g. "I am a failure", "I am useless", "I am no good at all", etc <sup>a</sup>	0.56	0.60
22	I think other people have more control over their thoughts than I do <sup>a</sup>	0.61	0.67
23	If I get angry or fight with someone, I can't stop thinking about it, and I can hardly work or concentrate <sup>a</sup>	0.55	0.59
24	I get rid of uncomfortable thoughts or images almost effortlessly	0.59	0.65
25	I have much patience, and I do not lose my composure easily	0.47	0.52

Note: Items were originally in Spanish and have been translated into English for this manuscript.

$N = 206$ .

<sup>a</sup> Reverse scored items.

occurred with trait anxiety (STAI-T) [ $r = -0.82$ ,  $p < 0.01$ ], worry (PSWQ) [ $r = -0.74$ ,  $p < 0.01$ ] and neuroticism (EPQ-N) [ $r = -0.72$ ,  $p < 0.01$ ]. In addition, the TCAQ was negatively associated with measures of depressive symptomatology (BDI), guilt feelings (SC-35) and obsessive-compulsive symptoms (MOCI). We also calculated partial correlations between the TCAQ and these instruments while holding measures of emotional vulnerability constant (Muris et al., 1996). Thus, when we controlled for the influence of trait anxiety (STAI-T) and neuroticism (EPQ-N), all correlations were significant, in spite of the resultant attenuated relations between the TCAQ and the measures of psychopathological symptoms.

Table 2

Means (M), Standard Deviations (SD) and internal consistencies ( $\alpha$ ) for all study measures and correlations and partial correlations (controlling for STAI-T and EPQ-N) with the Thought Control Ability Questionnaire (TCAQ)

	M (SD)	$\alpha$	TCAQ	TCAQ (STAI-T)	TCAQ (EPQ-N)	TCAQ (STAI-T EPQ-N)
STAI-T	21.88 (10.95)	0.91	–0.82**			
EPQ-N	5.08 (3.56)	0.85	–0.72**			
BDI	7.82 (6.28)	0.81	–0.68**	–0.20**	–0.45**	–0.19**
MOCI	6.38 (4.25)	0.77	–0.50**	–0.16*	–0.28**	–0.15*
Checking	1.83 (1.78)	0.67	–0.48**	–0.20**	–0.31**	–0.19**
Washing	2.09 (1.67)	0.48	–0.31**	–0.12	–0.13	–0.09
Slowness	1.13 (1.11)	0.31	–0.35**	–0.12	–0.15*	–0.09
Doubting	2.08 (1.56)	0.51	–0.42**	–0.08	–0.21**	–0.06
WBSI	45.97 (11.41)	0.89	–0.69**	–0.41**	–0.52**	–0.40**
UIT	23.65 (6.42)	0.82	–0.69**	–0.45**	–0.55**	–0.45**
TS	13.73 (3.38)	0.72	–0.48**	–0.15*	–0.23**	–0.12
S-D	8.58 (3.18)	0.79	–0.57**	–0.32**	–0.42**	–0.32**
PSWQ	50.83 (11.22)	0.90	–0.74**	–0.33**	–0.51**	–0.30**
SC-35	85.55 (19.69)	0.89	–0.67**	–0.22**	–0.52**	–0.26**
TCQ	63.20 (8.72)	0.75	–0.23**	–0.06	–0.13	–0.06
Distraction	15.12 (3.53)	0.76	0.11	0.16*	0.11	0.15*
Social Control	14.86 (4.47)	0.85	–0.05	–0.03	–0.01	–0.02
Worry	10.18 (2.30)	0.58	–0.15*	0.01	–0.06	0.01
Punishment	9 (2.70)	0.72	–0.43**	–0.16*	–0.32*	–0.18*
Reappraisal	14.03 (3.48)	0.69	–0.20**	–0.16*	–0.15*	–0.15*

Note:  $N = 206$ . Significance levels: \* $p < 0.05$ ; \*\* $p < 0.01$ .

STAI-T: State-Trait Anxiety Inventory (trait version); EPQ-N: N-Scale of the short revised version of the Eysenck Personality Questionnaire; BDI: Beck Depression Inventory; MOCI: Maudsley Obsessive–Compulsive Inventory; WBSI: White Bear Suppression Inventory (UIT: Unwanted Intrusive Thoughts. TS: Thought Suppression. S-D: Self-Distraction); PSWQ: Penn State Worry Questionnaire; SC-35: Scale of guilt feelings; TCQ: Thought Control Questionnaire.

In these correlational analyses we were very interested in exploring the relation between thought control ability (TCAQ) and MOCI subscales, specific thought control strategies (TCQ) and thought suppression factors (WBSI: Unwanted Intrusive Thoughts, Thought Suppression and Self-distraction). There were significant negative relationships ( $p < 0.01$ ) between the TCAQ and MOCI subscales. Among the MOCI subscales, the strongest relationship was found with the checking subscale [ $r = -0.48$ ,  $p < 0.01$ ], because it remained significant [ $r = -0.19$ ,  $p < 0.01$ ] when measures of trait anxiety and neuroticism were partialled out. Pearson product-moment correlations between the TCAQ and specific thought control strategies showed negative relations between the perceived ability to control unwanted thoughts and the use of worry [ $r = -0.15$ ,  $p < 0.05$ ], punishment [ $r = -0.43$ ,  $p < 0.01$ ] and reappraisal [ $r = -0.20$ ,  $p < 0.01$ ], whereas we found a positive association between TCAQ and distraction [ $r = 0.15$ ,  $p < 0.05$ ] when we held trait anxiety and neuroticism constant. The correlation with social control was not significant [ $r = -0.05$ ,  $p > 0.05$ ]. These results confirmed our expectations and the ability to control unwanted thoughts was negatively associated with the use of most thought control strategies. This negative association is also reflected in the correlation between the TCAQ and the TCQ total score [ $r = -0.23$ ,  $p < 0.01$ ]. Finally, results indicated significant partial correlations between the



Table 3

Summary of hierarchical multiple regression analysis for thought control measures predicting scores on the BDI, MOCI, PSWQ and SC-35

Criterion variables	$R^2$ Step 1	$R^2$ Step 2	$\Delta R^2$	$F$ change
BDI	0.26	0.47	0.21	76.35***
MOCI	0.31	0.35	0.04	11.22**
PSWQ	0.36	0.58	0.22	100.13***
SC-35	0.33	0.48	0.15	59.46***

Note:  $N = 206$ . Significance levels: \*\*  $p < 0.001$ ; \*\*\*  $p < 0.0001$ .

Step 1: WBSI factors (Unwanted Intrusive Thoughts, Thought Suppression, and Self-Distraction) + TCQ sub-scales (Distraction, Social Control, Worry, Punishment, and Re-appraisal).

Step 2: TCAQ.

BDI: Beck Depression Inventory; MOCI: Maudsley Obsessive–Compulsive Inventory; PSWQ: Penn State Worry Questionnaire; SC-35: Scale of guilt feelings.

TCAQ and the Unwanted Intrusive Thoughts [ $r = -0.45$ ,  $p < 0.01$ ] and Self-distraction [ $r = -0.32$ ,  $p < 0.01$ ] factors of the WBSI, when controlling for the STAI-T and EPQ-N; however, a non significant partial correlation was observed with the Thought Suppression factor [ $r = -0.12$ ,  $p > 0.05$ ].

As a related point, four hierarchical multiple regression analysis were conducted in order to examine whether the TCAQ explains variance in the psychopathological measures employed in the present study (BDI, MOCI, PSWQ, and SC-35), after controlling for the other thought control instruments (WBSI and TCQ). Thus, the three WBSI factors (unwanted intrusive thoughts, thought suppression, and self-distraction) and the five TCQ sub-scales (distraction, social control, worry, punishment, and re-appraisal) were simultaneously entered in the first step, followed by the TCAQ on the second step. A summary of the multiple regression analysis is displayed in Table 3.

In all analysis the independent variable entered on the second step (the TCAQ) accounted for a significant amount of unique variance. That is, the TCAQ predicted depressive symptoms (BDI), obsessive–compulsive complaints (MOCI), pathological worry (PSWQ) and guilt feelings (SC-35), even after controlling for the other mental control instruments and accounted for an additional 21%, 4%, 22% and 15% of the variance respectively.

#### 4. Discussion

Little is known about the factors that determine thought suppression efficacy. It is suggested that an individual difference factor is at work in the paradoxical effects of thought suppression (Wenzlaff & Wegner, 2000). Some investigators have employed self-report measures in order to study individual differences. Thus, Wegner and Zanakos (1994) developed the White Bear Suppression Inventory (WBSI) to measure individual differences in the chronic tendency to suppress unwanted thoughts across a wide range of situations. These authors and Muris et al. (1996) found that this construct was positively associated with anxiety, depression and other psychopathological conditions. The problem is that some recent researches (Blumberg, 2000; Höping & de Jong-Meyer, 2003) exploring the factor structure of the WBSI found that this scale is not unidimen-



sional. In fact, confirmatory factor analysis indicated the presence of three highly intercorrelated factors: unwanted intrusive thoughts, thought suppression, and self-distraction. The unwanted intrusive thoughts factor was moderately correlated with measures of psychopathology, whereas the thought suppression factor was not correlated with them. In our opinion, it was necessary to build and validate a new instrument of thought control not influenced by the Wegner's ironic process theory (Wegner, 1994).

The aim of the present study was to develop and validate a questionnaire for measuring individual differences in the perceived ability to control unwanted intrusive thoughts. The new instrument, the Thought Control Ability Questionnaire (TCAQ), showed high internal consistency and good test–retest reliability. Factor analysis yielded a five-factor solution, however, a one-factor solution appears to more clearly capture the essence of the TCAQ.

Overall, correlational analysis confirmed the predictions with the highest negative correlations occurring between the TCAQ and measures of trait anxiety (STAI-T) and neuroticism (EPQ-N). Our results indicated that thought control disability can be considered an emotional vulnerability variable. The negative relation between the TCAQ and the WBSI indicates that subjects with high ability to keep undesirable thoughts, images or impulses out of consciousness, do not rely strongly on thought suppression, but could use it effectively when necessary.

The other correlations confirmed an expected pattern of results. TCAQ scores were negatively related to measures of depression, worry, guilt feelings, obsessive–compulsive symptoms and the use of worry, punishment and reappraisal as thought control strategies. We also found these relationships to remain significant when we conducted partial correlations controlling for trait anxiety and neuroticism, demonstrating a specific relationship between the TCAQ and the mentioned psychopathological indicators and thought control strategies. Our results replicate some previous studies. For example, according to Wells and Davies (1994), worry and punishment are clearly counterproductive control strategies because they found significant positive correlations between worry and punishment and impaired mental control, measured with the Padua Inventory (Santavio, 1988). Likewise, the positive association between thought control ability and the use of distraction as a thought control strategy supports Abramowitz, Whiteside, Kalsy, and Tolin's (2003) results. These authors found that decreases in obsessional symptoms after treatment with exposure and response prevention were significantly associated with increased use of distraction.

Among the MOCI subscales, the strongest relationship was obtained between the TCAQ and the MOCI checking subscale. When we partialled out trait anxiety and neuroticism the correlation remained significant, nevertheless the relationship between the TCAQ and the other MOCI subscales was not significant. Rachman's cognitive-behavioural theory (Rachman, 2002) points out that compulsive checking usually appears when subjects who believe that they have an elevated responsibility for preventing harm to others, think that a perceived threat has not been completely controlled. Thus, patients with compulsive checking review repeatedly that all is safe in order to prevent future misfortunes. Probably, subjects with high thought control believe that they are not responsible for preventing harm to others, here it would be interesting to remember the significant negative correlation between thought control ability and guilt feelings. It's also possible that individuals with high thought control estimate reasonably the low probability and seriousness of harm from the feared event.

It was also of interest to determine whether the TCAQ has an incremental value in the prediction of psychopathological symptoms after partialling out the WBSI and the TCQ. Therefore,

hierarchical multiple regression analysis were performed to examine how much of the unique variance in depressive symptoms, obsessive–compulsive complaints, worry proneness and guilt feelings, was explained by the perceived ability to control unwanted intrusive thoughts. The results indicated that the TCAQ predicted a significant amount of the variance in these psychopathological indicators, beyond the tendency to suppress, the strategies used to control unpleasant thoughts, and the other aspects measured in the WBSI and TCQ. However, the amount of additional variance accounted for in the MOCI is quite small (4%), suggesting that the TCAQ has a greater specificity for depressive states and pathological worry compared to obsessive–compulsive symptoms. Altogether, these findings support the idea that the perceived ability to control or suppress unwanted intrusive thoughts is a significant predictor of psychopathology.

This study possesses some limitations. The first limitation stems from the fact that 84% participants in this study were women, and we do not know whether gender may have affected the results. In fact, [Wegner and Zanakos \(1994\)](#) found that women have a greater tendency to use suppression than men (female participants exhibited significantly higher scores on the White Bear Suppression Inventory). Another limitation of these data is the use of university students because we think that thought control ability is a construct with serious clinical implications. For example, we are sure that there may be a wide gap between the current study and the results that can be obtained with patients suffering an obsessive–compulsive disorder, who are characterized by chronic and unsuccessful thought suppression attempts ([APA, 1994](#)).

Despite these shortcomings, the current findings support the reliability, validity and utility of the TCAQ as a research tool, suggesting that it is an adequate self-report measure of thought control ability. Clearly further research with this measure is warranted. For instance, future studies should investigate whether the thought control ability measured with the TCAQ is a useful predictor of paradoxical effects. Our hypothesis is that if “bad suppressors”, subjects with low scores on the TCAQ, were instructed not to think about an unpleasant thought, they would suffer more paradoxical effects (increases in the frequency of the target thought during or after suppression attempts) than “good suppressors”, subjects with high scores on the TCAQ.

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