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Embracing the Structure of Metacognitive Beliefs: Validation of the French Short Version of the Metacognitions Questionnaire

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Abstract

Cognitive models of psychopathology posit that metacognitive beliefs may figure prominently in the maintenance, and perhaps the etiology, of emotional disorders. Wells and Cartwright-Hatton (2004) developed the 30-item Metacognitions Questionnaire (MCQ-30) to measure metacognitive beliefs among individuals with anxiety and depression. However, uncertainty still abounds regarding the factorial structure of the French version of the MCQ-30. We designed the present study to overcome this issue. We computed confirmatory factor analyses to examine structural properties of the MCQ-30 in a French-speaking community sample (N = 262). Our results are consistent with previous studies, especially regarding the factorial structure. Moreover, good internal reliability and concurrent validity were observed. The MCQ-30 is a reliable and valid tool for assessing various factors of metacognitions for research and clinical purposes.

***Keywords*:** Metacognition; MCQ-30; Self-report; Psychometrics, Metacognitive beliefs; Cognitive therapy; Assessment

Embracing the Structure of Metacognitive Beliefs:

Validation of the French Short Version of the Metacognitions Questionnaire

Cognitive models of psychopathology posit that metacognitive beliefs figure prominently in the maintenance, and perhaps the etiology, of emotional disorders (e.g., Harvey, Watkins, Mansell, & Shafran, 2004; Wells, 1995; Wells & Matthews, 1996; Wong & Rapee, 2016). In traditional cognitive models parlance, metacognitive beliefs represent knowledge about appraisal, monitoring, and control of cognitions. Accordingly, problematic metacognitive beliefs have been evidenced in a wide range of psychopathological conditions such as anxiety- and mood-related psychopathology as well as psychotic disorders (e.g., Janeck, Calamari, Riemann, & Heffelfinger, 2003; Papageorgiou & Wells, 2003; Lobban, Haddock, Kinderman, & Wells, 2002).

According to Wells (1995), individuals may hold two functionally distinct types of metacognitive beliefs about worry, namely positive beliefs and negative beliefs. In this way, beliefs about the efficacy of worrying as a problem-solving strategy—i.e. positive beliefs—may foster worrying as a coping strategy. Yet, some individuals might concurrently hold negative beliefs about worry, such as "worrying will turn me crazy", which conflict with the positive beliefs and lead to unsuccessful attempts to suppress worry. For these individuals, the presence of both positive and negative beliefs about worry acts as a core dysfunctional process (Wells & Butler, 1997).

To assess metacognitive beliefs, Cartwright-Hatton and Wells (1997) developed the metacognitions questionnaire (MCQ). To generate the items of the MCQ, they relied on transcripts of cognitive therapy as well as materials from in-depth semi-structured interviews with patients and unselected participants regarding the reasons and consequences of worrying. As doubts about one's own cognitive ability may lead to worry and rehearsal, Wells (1995) also included items assessing confidence in cognitive skills, ultimately leading to a 65-item scale.

Exploratory factor analyses revealed a five-factor structure: 1) *Positive Beliefs about Worry* (benefits of worrying); 2) *Negative Beliefs about the Uncontrollability of Thoughts and Corresponding Danger* (UD; absence of control over the activity of worrying and associated dangers); 3) *Superstition, Punishment and Responsibility* (SPR, negative beliefs about superstition, punishment, and responsibility); 4) *Beliefs about Cognitive Confidence* (CC, lack of confidence in one's own memory capabilities); and 5) *Cognitive Self-Consciousness* (CSC; indexing the tendency to focus on and monitor the thinking process). The authors also reported good scale score internal reliability (Cronbach's alphas: PB = .87; UD = .89; CC = .84; SPR = .74; CSC = .72). Each subscale correlated with trait anxiety, with the strongest correlation holding for UD. Moreover, whereas UD correlated with impaired control of mental activities, CSC correlated with the tendency to focus on one's thoughts and feelings and CC correlated with checking behaviors as well as with self-reported failures of memory, action and attention. Given its metric qualities, the MCQ was translated and validated in French by Larøi, Van der Linden, and d'Acremont (2009). The translation from English to French was performed by one of the authors and then back translated by a professional native English-speaking translator. These authors found a similar five-factor structure based on exploratory factor analyses.

In follow-up research, Wells and Cartwright-Hatton (2004) developed a shortened version of the MCQ. Based on the factor-loading values of their initial studies (i.e., Cartwright-Hatton & Wells, 1997), they removed the items that loaded on more than one factor. This procedure yielded the MCQ-30, a 30-item version of the initial scale. In line with the earlier version, a five-factor structure was observed. Likewise, internal reliability and convergent validity were high. Given that the time matters in daily routine care assessment, the MCQ-30 may be especially appropriate for clinical settings. The observation that the MCQ-30 is as psychometrically good as the long MCQ supported this hypothesis.

In order to be used consistently worldwide, it is important that the factor structure of the MCQ-30 remains consistent across cultures. Accordingly, it remains across several cultural adaptations, e.g. Spanish (Martín et al., 2014; Ramos-Cejudo, Salguero, & Cano-Vindel, 2013), German (Arndt, Patzelt, Andor, Hoyer, & Gerlach, 2011), Turkish (Tosun & Irak, 2008; Yilmaz, Gençöz, & Wells, 2008), and Korean adaptations (Cho, Jahng, & Chai, 2012). Yet, the MCQ-30 has not been validated in French, which is unfortunate given that French is the official language in at least 32 countries and territories worldwide—i.e. 274 million people (French Language Observatory, 2014).

The present study was designed to address two main questions. First, does the MCQ-30 fit a five-factor solution in a community sample? Second, would the psychometric properties of the English version of the MCQ-30 be replicated in a French-speaking sample?

Methods

Participants

Two hundred and sixty-two participants (188 women) took part in the study. Their ages ranged from 18 to 72 years (M = 36.30, SD = 14.78), with 66% (n = 173) being from France and 34% (n = 89) from the French-speaking part of Belgium. Among them, 67.9% (n = 178) were university graduates, 16% (n = 42) had a college degree, 10.3% (n = 27) had a high school degree, 4.6 % (n = 12) had a middle school degree, and 1.1% (n = 3) had an elementary school degree. All participants were native French speakers. They were all recruited via listservs and performed the study online. Informed consent was obtained from each participant. The study was approved by the local ethical committee and carried out according to the 1964 Declaration of Helsinki.

Measures

Participants completed the MCQ-30, the trait version of the Spielberger State-Trait Anxiety Inventory (STAI-Trait; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983), and the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1998). Measures were chosen in order to assess a potential relation between the various factors of the MCQ-30 and levels of anxious and depressive symptoms. Following the approach of Wells and Cartwright-Hatton (2004), the French MCQ-30 items were extracted from the long French version of the MCQ (Larøi et al., 2009)[1]. The items are presented in the Electronic Supplementary Material section (Table b). The STAI-Trait is a 20-item self-reported measure of anxiety proneness. The BDI-II is a 21-item self-reported measure of symptoms of depression. We used the validated French versions of these scales (BDI-II: Beck et al., 1998; STAI-T: Bruchon-Schweitzer & Paulhan, 1993).

Data analysis

Confirmatory factor analyses (CFA) were performed using AMOS 16 (IBM, Armonk, NY, USA). Before performing the analyses, we conducted the Kolmogorov-Smirnov test on each item of the MCQ-30. Normality was not achieved for all items ($p < .0001$). Moreover, the standard method of estimation in structural equation modeling is maximum likelihood, which assumes multivariate normality of manifest variables. As noted by Byrne (1994), a frequent error when performing CFA is that the multivariate normality of the data is not taken into account. In our case, multivariate kurtosis was high, with a Mardia's (1974) coefficient of 87.59 (with a cut-off value of 16.18), indicating a lack of multivariate normality. MCQ-30's items refer to a sample of psychological constructs that can be present or absent with varying frequency. This makes non-normality and categorization problems likely (e.g., Douilliez et al.,

[1] In order to be more consistent with the original English version, a bilingual member of the team revised the translation of items 6, 9, and 12. Moreover, a pretest phase indicated potential confusions in the way those items might be understood by the participants.

2014; Heeren, Wong, Ceschi, Moulds, & Philippot, 2014; MacDonald & Ho, 2002). Therefore, using standard normal theory estimators with these data could produce estimation problems. The most appropriate approach to correct for the lack of multivariate normality is to implement an estimation method that makes no distributional assumptions, such as the unweighted least squares (ULS) estimation method. ULS is analogous to ordinary least squares in a traditional regression. Because the covariance matrix might not be as asymptotically distributed as chi-square with the ULS method, the chi-squared test and other fit indices based on such statistics cannot be computed and are thus not reported (Browne, 1982). Instead, we used the following fit indices: (a) Goodness-of-Fit Index (GFI); (b) Adjusted Goodness-of-Fit Index (AGFI); (c) Parsimony Goodness-of-Fit Index (PGFI); and (d) Parsimony Ratio (PRATIO). Incremental and residual fit indices cannot be used with the ULS method (Browne, 1982).

GFI is an absolute fit index with a corresponding adjusted version, the AGFI, developed to incorporate a penalty function for the addition of free parameters in the model (Jöreskog & Sörbom, 1984). The GFI is analogous to R-square and performs better than any other absolute fit index regarding the absolute fit of the data (Hoyle & Panter, 1995; Marsh, Balla, & McDonald, 1988). Both GFI and AGFI have values between 0 and 1, with 1 indicating a perfect fit. A value of .80 is usually considered a minimum for model acceptance (Cole, 1987).

PGFI and PRATIO are parsimony-based fit measures. Absolute fit measures judge the fit of a model per se without reference to other models that could be appropriate (James, Mulaik, & Brett, 1982). Parsimony-adjusted measures introduce a penalty for complicating the model by increasing the number of parameters in order to increase the fit. Usually parsimony fit indices are much lower than other normed fit measures. Values larger than .60 are generally considered satisfactory (Blunch, 2008).

The present study also requires comparing fit across different models that are not necessarily nested (i.e., meaning that one model is not simply a constrained version of the other). Therefore, we also reported the Akaike Information Criterion (AIC; Akaike, 1987) the Browne-Cudeck Criterion (BCC; Browne & Cudeck, 1989), and the Expected Cross-Validation Index (ECVI; Browne & Cudeck, 1989), which are the best suited for comparison of non-nested models (Blunch, 2008). AIC, BCC, and ECVI are fit measures based on information theory. These indices are not used for judging the fit of a single model, but are used in situations in which one needs to choose from several realistic but different models. These indices are a function of both model complexity and goodness of fit. For these indices, low scores refer to simple well-fitting models, whereas high scores refer to complex poor-fitting models. Therefore, in a comparison-model approach, the model with the lower score is to be preferred.

Results

Structural Validity

We first imposed a default single factor model (Model A) and, following Wells and Cartwright-Hatton (2004), a five-factor model (Model B). Results appear in Table 1. Model B exhibited a better fit than Model A as indexed by GFI, AGFI and PGFI. Moreover, the AIC, BCC, and ECVI strongly favored Model B.

----------Insert Table 1 and Figure 1 about here----------

As shown in Figure 1, all the standardized factor loadings of Model B were statistically significant ($p < .01$). Yet, some items showed loadings below .40 (see Figure 1). We thus ran Model B analyses again, but without these items. However, most of the parsimony-based fit measures were lower (*GFI* = .972, *AGFI* = .963, *PGFI* = .741, *PRATIO* = .842). Consequently, we did not exclude these items. Further analyses refer to Model B.

Descriptive statistics and internal consistency

Descriptive statistics and scale score reliability of the French short MCQ-30, as compared to previous MCQ validation studies, are presented in Table 2. Good Cronbach's alphas were observed (α >.79). Item-total descriptive statistics and factors score distributions are presented in the supplementary materials section (see Tables b and c).

----------Insert Table 2 about here----------

Intercorrelations and convergent validity

Table 3 displays the zero-order correlations among the subscales of the MCQ-30, the measure of trait-anxiety, and depressive symptoms. We used the Benjamini-Hochberg procedure (1995) to hold the false discovery rate at 5% for the 34 correlations. The strongest correlation was found between the UD and trait anxiety. Likewise, a similar pattern of findings was observed for each MCQ factor. Moreover, anxiety and depressions were highly correlated [$r(262)=.70$, $p < .0001$].

In order to examine whether metacognitive factors are uniquely associated with anxiety or depression, we also computed first-order partial correlations. These analyses revealed a distinct pattern of correlations. Anxiety specifically relates to the "Uncontrollability of Thoughts" factor, while depression is related to to the "Superstition, Punishment and Responsibility" factor.

----------Insert Table 3 about here----------

Wells' (1995) meta-cognitive theory specifically postulates that the cognitive engine of generalized anxiety is the presence of both positive and negative beliefs about worries concurrently. To test this assumption, we computed a compound variable by multiplying the normalized PB and UD scales of the MCQ-30, thus indexing the interactive effect of positive and negative beliefs. This compound variable was entered in a regression after the normalized PB and UD scores to predict the STAI-Trait score. These analyses revealed a significant regression equation, $F(3,258) = 65.77$, $p < .001$. However, the combination of PB and UD factors did not significantly predict the STAI-Trait score, $\beta = -.02$, $p = .75$, whereas sole PB and UD did significantly predict the STAI-Trait score, $\beta = .17$, $p < .001$, and $\beta = .61$, $p < .001$ respectively.

Discussion

Our goals in this study were to (a) test whether the French version of the MCQ-30 fit with a five-factor solution in a community sample, and (b) investigate whether the psychometric properties of the English version of the MCQ-30 would be replicated in a French-speaking community sample. First, confirmatory factor analysis indicated that the five-factor solution adequately fit the data. This observation is consistent with the original model (Cartwright-Hatton & Wells, 1997). Moreover, this study is the first to show this structure *via* confirmatory factor analysis. Second, this study also found adequate internal reliability values corroborating findings from the initial MCQ-30 (Wells & Cartwright-Hatton, 2004).

In keeping with previous studies (Cartwright-Hatton & Wells, 1997; Davis & Valentiner, 2000; Wells & Cartwright-Hatton, 2004), the Uncontrollability of Thoughts subscale was particularly related to trait-anxiety. For instance, Davis and Valentiner (2000) reported that Uncontrollability of Thoughts was the only subscale to predict pathology worry. Taken together, these findings suggest that Uncontrollability of Thoughts is particularly connected to anxiety vulnerability. Though the intercorrelations scores among the subscales of

the MCQ-30 were low in the present study, Cartwright-Hatton and Wells (1997) reported similar findings.

Notably, as anxiety correlated with "Uncontrollability of Thoughts" and depression with "Superstition, Punishment and Responsibility", our results suggest that metacognitive factors contribute to depression and anxiety differently. Future studies should replicate this effect among clinically depressed samples with low anxiety and anxious samples with low depression.

In contrast to Wells' meta-cognitive model (1995), the combination of both positive and negative beliefs did not significantly predict trait anxiety above and beyond their respective individual contributions. However, this model focuses on individuals with pathological worry, whereas our study was conducted among a community sample. Alternatively, although the positive beliefs might be involved in the onset of emotional disorders,
the presence of an emotional disorder does not require the presence of such beliefs. Longitudinal studies are thus needed to explore this issue.

Some authors have proposed methodological guidelines to ensure the validity of abbreviated forms (Smith, McCarthy, & Anderson, 2000). According to their recommendations, the justification of a reduction in the number of items must balance a reduction of the requisite time for completion and the maintenance of sufficient validity. In regards to the MCQ-30, both elements were met. The shortened version substantially reduces participant burden. And, we found that the abbreviated form of the MCQ maintains good psychometric qualities, including construct validity and internal consistency.

In follow-up studies, several issues require further research. First, our sample was part of the general population and highly educated, thereby reducing the generalizability of the present data. Second, the literature could benefit from studies investigating the sensitivity of the scale in response to clinical interventions, for instance showing changes from before and

after behavioral and cognitive interventions. Moreover, ten items showed factor loadings below 0.40. Although our complementary analyses indicated that the removal of these items did not change the fit indices of the five-factor solution, future studies are needed to ensure that these items do not weaken the psychometric properties of the scale. Finally, we only assessed concurrent validity with self-report measures. Future studies exploring the associations between responses on the MCQ and non-self-report indices of maladaptive cognitions are needed (e.g., behavioral tasks). Furthermore, a study directly comparing the English and French versions would further establish the equivalence of the two versions. These limitations notwithstanding, in the current study, we provided the first adaptation and validation of the MCQ-30 in a French-speaking community sample.

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Compliance with Ethical Standards

Conflict of interest: None

Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent: Informed consent was obtained from all individual participants included in the study.

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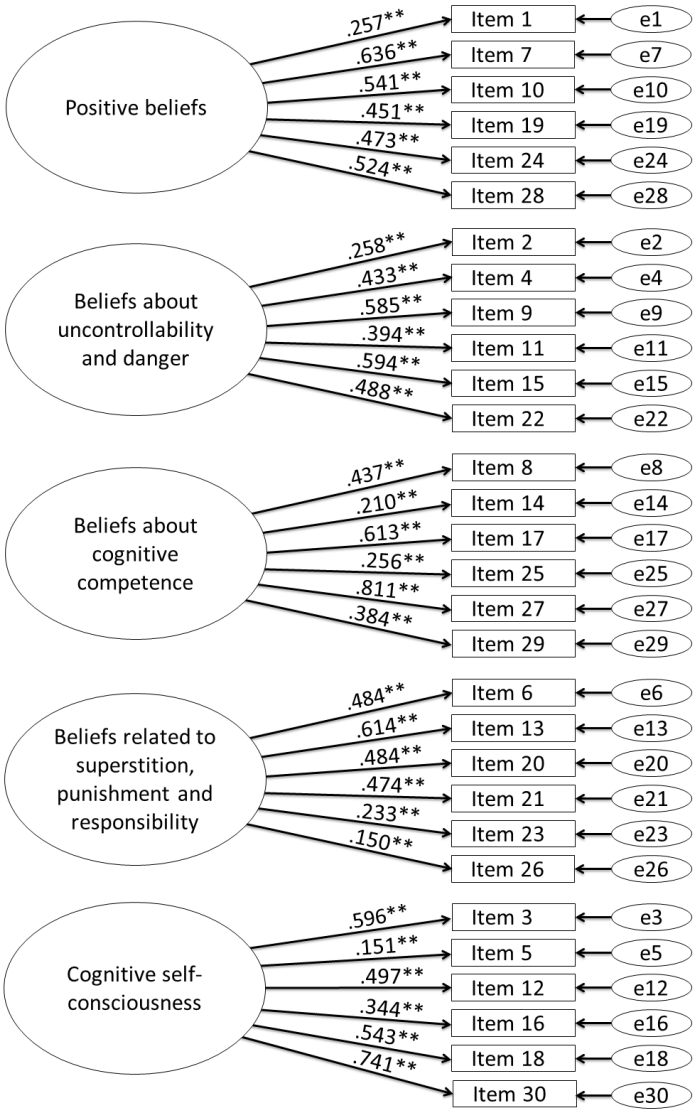
FIGURE CAPTIONS

Figure 1.Path diagram depicting the five-factor solution (Model C) of the French short version of the Metacognitions Questionnaire.



Note. For each item, e represents the error measurement related to that specific item.

*, $p < .01$.

369 **Table 1.** Fit index values for the different tested models.

Model	df	GFI	AGFI	PGFI	PRATIO	AIC	BCC	ECVI
A	405	.822	.796	.716	.931	2354.538	2370.712	9.021
B	**395**	**.956**	**.948**	**.812**	**.908**	**829.934**	**848.804**	**3.180**

370

371 ***Note*.** We considered Model B (emphasized by bold font) as the best fitting model. AGFI,
372 Adjusted Goodness-of-Fit Index; AIC, Akaike Information Criterion; BCC, Browne-Cudeck
373 Criterion; ECVI, Expected Cross-Validation Index; GFI, Goodness-of-Fit Index; PGFI,
374 Parsimony Goodness-of-Fit Index; PRATIO, Parsimony Ratio.

375

376 **Table 2.** Descriptive statistics and Cronbach's alpha for each factor of the MCQ-30

377 and other measures

	Present Study				Wells et al. (2004)
	α	Number of items	*M*	*SD*	α
MCQ-30					
Positive Beliefs	.85	6	10.81	3.70	.92
Beliefs about Uncontrollability and Danger	.83	6	13.33	4.29	.91
Cognitive confidence	.81	6	10.74	3.83	.93
Beliefs related to Superstition, Punishment and Responsibility	.79	6	9.73	3.63	.72
Cognitive Self-Consciousness	.84	6	15.56	4.32	.92
Total score		30	60.16	12.44	
STAI-Trait	.92	20	44.31	10.64	
BDI-II	.90	21	10.24	8.94	

378 ***Note***. **p<.01. BDI-II: Beck Depression Inventory-II; MCQ-30: Abbreviated Metacognitions

379 Questionnaire; STAI-Trait: Spielberger Trait Anxiety Inventory; BDI-II.

380

Table 3. Pearson's Correlations

	Bivariate correlations						Partial correlations	
	MCQ-30				STAI-Trait	BDI-II	STAI-T (controlling for BDI-II)	BDI-II (controlling for STAI-Trait)
	UD	CC	SPR	CSC				
Positive Beliefs (PB)	.16*	.09	.27*	.28*	.26*	.26*	.12	.11
Beliefs about Uncontrollability and Danger (UD)		.16*	.46*	.41*	.64*	.54*	.44*	.17*
Cognitive Confidence (CC)			.16*	.02	.30*	.29*	.14	.12
Beliefs related to Superstition, Punishment and Responsibility (SPR)				.40*	.40*	.43*	.16*	.23*
Cognitive Self-Consciousness (CSC)					.28*	.25*	.16*	.07
MCQ-30 Total score					.61*	.56*	.36*	.25*

Note. *Correlations significant at $p < .05$, corrected for multiple correlations using the false discovery procedure (Benjamini-Hochberg procedure). BDI-II: Beck Depression Inventory-II; MCQ-30: Abbreviated Metacognitions Questionnaire; STAI-Trait: Spielberger State-Trait Anxiety Inventory.

388 Electronic Supplementary Material

389 ***Table a.*** MCQ-30 items

Item Number	French	English	Factor
1	Le fait de m'inquiéter m'aide à éviter des problèmes qui pourraient survenir	Worrying helps me to avoid problems in the future	PB
2	Le fait de m'inquiéter est dangereux pour moi	My worrying is dangerous for me	UD
3	Je réfléchis beaucoup sur mes pensées	I think a lot about my thoughts	CSC
4	Le fait de m'inquiéter pourrait me rendre malade	I could make myself sick with worrying	UD
5	Je suis conscient(e) de la façon dont mon esprit fonctionne quand j'examine un problème en détail	I am aware of the way my mind works when I am thinking through a problem	CSC
6	Si je ne contrôlais pas une pensée inquiétante et puis qu'elle arrivait, je considérerais que c'est de ma faute	If I did not control a worrying thought, and then it happened, it would be my fault	SPR
7	J'ai besoin de me tracasser pour rester organisée	I need to worry in order to remain organized	PB
8	J'ai peu confiance en ma mémoire pour les mots et pour les noms	I have little confidence in my memory for words and names	CC
9	Mes inquiétudes persistent, malgré mes tentatives d'essayer de les arrêter	My worrying thoughts persist, no matter how I try to stop them	UD
10	L'inquiétude m'aide à mettre de l'ordre dans ma tête	Worrying helps me to get things sorted out in my mind	PB
11	Je ne peux pas ignorer mes inquiétudes	I cannot ignore my worrying thoughts	UD
12	Je surveille mes pensées	I monitor my thoughts	CSC
13	Je devrais garder en permanence le contrôle sur mes pensées	I should be in control of my thoughts all of the time	SPR
14	Ma mémoire peut parfois m'induire en erreur	My memory can mislead me at times	CC
15	Mon inquiétude pourrait me rendre fou (folle)	My worrying could make me go mad	UD
16	Je suis en permanence conscient(e) de mes pensées	I am constantly aware of my thinking	CSC
17	J'ai une mauvaise mémoire	I have a poor memory	CC
18	Je prête beaucoup d'attention à la façon dont mon esprit fonctionne	I pay close attention to the way my mind works	CSC

19	L'inquiétude m'aide à m'adapter aux choses	Worrying helps me to cope	PB
20	Le fait de ne pas pouvoir contrôler mes pensées est un signe de faiblesse	Not being able to control my thoughts is a sign of weakness	SPR
21	Si je ne contrôlais pas mes pensées, je ne serais pas capable de fonctionner	If I could not control my thoughts, I would not be able to function	SPR
22	Quand je commence à me tracasser, je ne peux pas m'arrêter	When I start worrying, I cannot stop	UD
23	Je serai puni(e) pour ne pas avoir contrôlé certaines pensées	I will be punished for not controlling certain thoughts	SPR
24	Le fait de m'inquiéter m'aide à résoudre les problèmes	Worrying helps me to solve problems	PB
25	J'ai peu confiance en ma mémoire pour les lieux	I have little confidence in my memory for places	CC
26	Ce n'est pas bien d'avoir certaines pensées	It is bad to think certain thoughts	SPR
27	Je n'ai pas confiance en ma mémoire	I do not trust my memory	CC
28	Pour bien travailler, j'ai besoin de m'inquiéter	I need to worry in order to work well	PB
29	J'ai peu confiance en ma mémoire pour les actions	I have little confidence in my memory for actions	CC
30	J'examine constamment mes pensées	I constantly examine my thoughts	CSC

***Note*.** CC: Cognitive Confidence; CSC: Cognitive Self-Consciousness; PB: Positive Beliefs; SPR: Beliefs related to Superstition, Punishment and Responsibility; UD: Beliefs about uncontrollability and danger

396 **Table b** Item-total descriptive statistics

MCQ-30 Factors	Item	Scale mean if item deleted	Scale variance if item deleted	Alpha if item deleted	Alpha	Corrected Item-factor correlation
Positive Beliefs	1	8.81	10.14	.84	.85	.55
	7	8.98	9.33	.82	.85	.65
	10	9.24	9.99	.82	.85	.63
	19	8.94	10.60	.83	.85	.60
	24	8.94	9.60	.81	.85	.72
	28	9.11	9.77	.82	.85	.64
Beliefs about Uncontrollability and Danger	2	11.26	13.93	.82	.83	.51
	4	10.85	12.23	.79	.83	.65
	9	11.21	12.60	.78	.83	.70
	11	10.65	14.17	.82	.83	.49
	15	11.42	12.80	.80	.83	.63
	22	11.25	13.38	.80	.83	.63
Cognitive Confidence	8	8.76	10.16	.80	.81	.52
	14	8.31	11.13	.81	.81	.44
	17	9.10	9.81	.74	.81	.74
	25	9.11	11.18	.80	.81	.46
	27	9.14	9.88	.73	.81	.81
	29	9.27	11.39	.79	.81	.52
Beliefs related to Superstition, Punishment and Responsibility	6	7.99	9.30	.77	.79	.54
	13	7.92	8.35	.72	.79	.70
	20	8.08	8.73	.74	.79	.65
	21	7.92	9.04	.76	.79	.59
	23	8.55	11.25	.78	.79	.48
	26	8.17	10.62	.80	.79	.37
Cognitive Self-Consciousness	3	12.44	13.27	.81	.84	.66
	5	12.74	15.00	.84	.84	.44
	12	13.32	13.81	.83	.84	.54
	16	13.29	13.71	.83	.84	.56
	18	12.70	12.29	.79	.84	.75
	30	13.34	12.27	.78	.84	.76

397 Note. **p<.01

398

Table c Centiles of the factors scores distributions

Centiles	**5th**	**10th**	**25th**	**50th**	**75th**	**90th**	**95th**
Positive Beliefs (PB)	6	6	8	10	14	16	18
Beliefs about Uncontrollability and Danger (UD)	7	8	10	13	16	19	21.85
Cognitive Confidence (CC)	6	7	8	10	13	16	18.85
Beliefs related to Superstition, Punishment and Responsibility (SPR)	6	6	7	9	12	15	17
Cognitive Self-Consciousness (CSC)	8	10	12.75	16	19	21	23

Notes. A centile is the value of a variable below which a certain percent of observation fall.