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Differentiation of self and its relationship with metacognitions about worry and anxiety  
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## **Differentiation of self and its relationship with metacognitions about worry and anxiety**

### **Abstract**

In the present study, the relationship between differentiation of self, metacognitions about worry, and state and trait anxiety is analyzed. The research involved 384 Spanish participants, aged between 18 and 89 years, who answered the Differentiation of Self Scale-Revised (DSS-R), the Metacognitions Questionnaire (MCQ-30) and the State-Trait Anxiety Inventory (STAI). In the study, of a cross-sectional correlational type, Pearson correlations were performed to analyze the relationships between differentiation of self, metacognitions about worry and anxiety.

Furthermore, two stepwise linear regressions were carried out to explore the predictive role of differentiation of self dimensions on metacognitions about worry and trait anxiety. The results showed significant relationships between differentiation of self, metacognitions about worry, and state and trait anxiety. Likewise, emotional reactivity, dominance over others and emotional cutoff predicted metacognitions about worry, and emotional reactivity and fusion with others predicted trait anxiety.

*Keywords:* differentiation of self, metacognitions, worry, state anxiety, trait anxiety.

### **Differentiation of self**

Differentiation of self (DoS) is a multidimensional concept of Bowen's Family Systems Theory (Bowen, 1989; Kerr & Bowen, 1988), which refers to the intrapsychic ability to distinguish emotional from cognitive processes, and the interpersonal ability to establish intimate relationships with others while functioning autonomously.

At the intrapsychic level, more differentiated individuals are better able to develop a clear sense of themselves and to think clearly in stressful situations, and are less emotionally reactive.

Conversely, less differentiated people tend to confuse cognitive and emotional processes, having greater difficulties in acting reflectively in stressful situations, having a clearly defined sense of oneself, and regulating emotions (Bowen, 1989; Skowron & Schmitt, 2003). At the interpersonal level, the most differentiated people are better able to maintain meaningful relationships with others, follow their criteria and respect the criteria of others. However, less differentiated individuals tend to merge with others, to distance themselves physically or emotionally from them, or to be dominant (Bowen, 1989; Kerr & Bowen, 1988; Oliver et al., 2022).

DoS consists of five dimensions (Skowron & Friedlander, 1998; Oliver et al., 2022): Emotional Reactivity, I Position, Fusion with Others, Emotional Cutoff and Dominance over Others. The I Position (IP) refers to the clearly defined sense of self and the ability to rationally adhere to one's convictions even under pressure from others to think or act differently. Emotional Reactivity (ER) is a construct that refers to the tendency to respond to environmental stimuli in an immoderate, labile manner and with autonomous emotional responses. Fusion with Others (FO) consists of the predisposition to feel, think and act in the same way as others, thus yielding to personal convictions to avoid conflict and obtaining the approval of others. Emotional Cutoff (EC) refers to the emotional or physical distancing to avoid intimacy. Finally, Dominance over Others (DO) refers to the lack of tolerance for diversity of opinions, trying to exert emotional pressure on others to conform to one's interests (Oliver et al., 2022).

Bowen (1989) stated that more differentiated people regulate their thoughts and emotions better, have less physical and psychopathological symptomatology, and more functional relationships. In this sense, several studies have found that DoS is related to emotional regulation, specifically, that cognitive reappraisal is positively related to DoS and I position, and that emotional suppression is negatively related to DoS and positively related to emotional cutoff and fusion

with others (e.g., Duch-Ceballos et al., 2020; Rodrigues, 2016; Yavuz & Karaca, 2020).

Furthermore, several investigations have found that DoS is related to less physical and psychopathological symptomatology (e.g., Rodríguez-González et al., 2018). Finally, studies have also shown that individuals with higher levels of DoS have more functional family and couple relationships (e.g., Dolz-del-Castellar and Oliver, 2021; Mozas-Alonso et al., 2022).

### **Metacognitions about worry**

According to Bowen's Family Systems Theory (1989; Kerr & Bowen, 1988), more differentiated people have a stronger sense of self and a greater agility to rationally adhere to their convictions. This allows them to distinguish their self from others, and even from their own mental processes, such as emotions, and plausibly cognitions. They also have a lower tendency to respond to perceived threats, such as environmental stimuli, and plausibly mental stimuli (emotions and cognitions), with emotional lability. Finally, due to their ability to regulate their thoughts and emotions, and to maintain a balance between intimacy and autonomy with others, they have less psychopathological symptomatology.

In this sense, a variable that could be related to DoS is metacognition about worry.

Metacognition refers to stable knowledge or beliefs about one's cognitive system, knowledge about factors that affect the functioning of the system, regulation and awareness of the current state of cognition, and appraisal of the meaning of thought and memories (Wells, 1995).

The Metacognitive Model of generalized anxiety disorder postulates that the feeling of recurrent and uncontrollable worry, typical of chronic anxiety, is associated with metacognitions about worries (Wells, 2005). Metacognitions can lead to selecting worries as a form of coping strategy and making negative appraisals about worry, patterns that increase anxiety and recursive thoughts (Wells, 1995). Thus, when faced with a stressful event, people with positive beliefs

about worry (e.g., "Worry will help me cope with the situation") tend to use worry as a predominant coping style. Furthermore, if these people activate negative beliefs about worry (e.g., "Worry is uncontrollable," "Worry is dangerous"), their anxiety will be intensified and their recurrent thinking will be maintained.

Wells and Cartwright-Hatton (2004) note that metacognitions about worry include: 1) Positive beliefs about worry, i.e., the degree to which a person believes that their worry is useful to them; 2) Negative beliefs about the ability to control the thought and its dangers, which measures the degree to which a person believes that worry is uncontrollable and dangerous; 3) Cognitive lack of confidence, which refers to the level of confidence a person has in his or her attention and memory processes; 4) Need to control thoughts, which is the degree of need for control and/or suppression of certain thoughts; 5) Cognitive self-consciousness, that is, the tendency to focus attention on thought processes.

Several studies have found that some dimensions of metacognitions about worry correlate positively with obsessive-compulsive symptoms (Hermans et al., 2003; Janeck et al., 2002), pathological worry (Wells & Papageorgiou, 1998) and depression (Papageorgiou & Wells, 2004).

Another variable associated with metacognition about worry is rumination. Wells and Matthews (1994) established that ruminations arise from metacognitive beliefs and are cognitive processes that perpetuate uncertainty and discrepancies. Furthermore, it has been established that rumination arises as a basic dysfunctional coping strategy for anxiety, which increases the difficulties in the emotion regulation (Yavuz & Karaca, 2020). This relationship has been studied from the metacognitive model in patients with depression, in which rumination plays an important role since it negatively biases the attentional focus, which is directed to the negative

aspects of the world and oneself, thus generating psychological distress (Wells, 2004). Likewise, rumination has been associated with the presence of psychopathology and anxiety (Aldao et al., 2010).

No studies have been found on the relationship between DoS and metacognitions about worry. However, several studies have found that DoS and its dimensions are related to lower worry, ruminative thoughts, obsessive-compulsive symptomatology, as well as that DoS dimensions predict ruminations (Oliver & Berástegui, 2023; Rodrigues, 2016; Yavuz & Karaca, 2020).

### **Anxiety**

Bowen's Family Systems Theory (Kerr & Bowen, 1988) states that less differentiated people have higher levels of chronic anxiety, due to their better emotional regulation, their stronger self and their balanced relationship. Furthermore, the Metacognitive Model of generalized anxiety disorder postulates that people with more metacognitions about worries have higher levels of anxiety (Wells, 2005).

Anxiety can be defined as the response of an organism to a threat, real or imagined (Bowen, 1989). According to Spielberger et al. (2015), there are two types of anxiety: state anxiety and trait anxiety. State anxiety refers to a transient emotional state of an organism characterized by the presence of subjective and consciously perceived emotions of tension and apprehension and by increased activity of the autonomic nervous system. Trait anxiety can be defined as a propensity to experience anxiety, that is, a tendency to respond to situations perceived as threatening with elevations in the intensity of state anxiety.

In line with Bowen's theory, several studies have observed negative relationships between DoS and state, trait and generalized anxiety (e.g., Dolz-del-Castellar & Oliver, 2021; Oliver et al., 2022; Rodrigues, 2016). Furthermore, a higher presence of both physical and psychological

symptomatology have been observed in people with lower levels of DoS (e.g., Rodríguez-González et al, 2018).

On the other hand, several studies have found that metacognitions about worry are related to trait anxiety (e.g., Ramos-Cejudo et al., 2013; Ramos-Cejudo & Salguero, 2017).

As noted above, Bowen postulated that more differentiated people better regulate their cognitive and emotional processes and have less chronic anxiety (Bowen, 1989; Kerr & Bowen, 1988).

Several studies have found that DoS, metacognitions about worry and trait anxiety seem to be variables of great relevance for psychological adjustment, which are manifested at both the intrapersonal and interpersonal levels. However, there is little research that has studied the association between these variables, and none has analyzed the relationship between DoS and metacognitions about worry.

For these reasons, the objectives of this study are the following: a) to explore the relationships between DoS, metacognitions about worry and state and trait anxiety; and b) to analyze the predictive role of the DoS dimensions on metacognitions about worry and trait anxiety.

Furthermore, the hypotheses of this study are the following: a) DoS is negatively related to metacognitions and state and trait anxiety; b) Metacognitions are positively related to and state and trait anxiety; c) The DoS dimensions predict metacognitions about worry and trait anxiety.

## **Method**

### **Participants**

Participants were recruited through convenience and snowball sampling. The inclusion criteria were being of legal age and having Spanish nationality. The sample consisted of 384 subjects, of whom 238 were women (62.0%), and 146 were men (38.0%). Their ages ranged from 18 to 89 years ( $M = 38.69$ ;  $SD = 16.70$ ). Concerning the level of studies completed, 178 persons (46.2%)

had a university degree, 155 (40.3%) had completed a postgraduate degree, 31 (8.1%) had attained a high school, 17 (4.4%) had completed a vocational training course, and 4 (1.0%) had completed Secondary Education.

## **Instruments**

The instruments used in this research are the following:

- a) **Socio-demographic questionnaire.** This self-prepared questionnaire collected information on age, gender, educational level, employment status, marital status and cohabitation with the family of origin.
- b) **Differentiation of Self Scale-Revised (DSS-R).** This instrument, developed by Oliver et al. (2022), assesses DoS in adults. The scale consists of 32 items with 6 response options (from 1 -strongly disagree- to 6 -strongly agree). The scale consists of 5 subscales: I Position (IP), Emotional Reactivity (ER), Fusion with Others (FO), Dominance over Others (DO) and Emotional Cutoff (EC). The internal consistency indices (Cronbach's alpha) of the scale and its subscales were high: DSS-R = .91, PI = .90, ER = .85, FO = .85, DO = .85 and EC = .81. Regarding construct validity, the exploratory factor analysis indicated a five-dimension structure, which explained 45% of the variance. The following internal consistency indices were obtained in the present study: DSS-R = .81, IP = .78, ER = .67, FO = .71, DO = .73, and EC = .70.
- c) **Metacognitions Questionnaire (MCQ-30).** This scale, created by Wells and Cartwright-Hatton (2004) and adapted to Spanish by Ramos-Cejudo et al. (2013), assesses metacognitions about worry through 30 items with 4 response options (from 1 -strongly disagree- to 4 -strongly agree). The scale consists of 5 subscales, which showed adequate internal consistency: positive beliefs about worry = .89, negative beliefs about uncontrollability of thoughts and danger = .78, lack of cognitive confidence = .88, beliefs about need to control thoughts = .69 and cognitive

self-consciousness = .81. Also, construct validity was assessed by exploratory and confirmatory factor analysis which indicated an acceptable fit to the five factors consistent with the original MCQ-30. The following internal consistency indices were obtained in the present study: positive beliefs about worry = .70, negative beliefs about uncontrollability of thoughts and danger = .66, lack of cognitive confidence = .71, beliefs about need to control thoughts = .69, and cognitive self-consciousness = .70.

d) **State-Trait Anxiety Inventory (STAI).** This scale was developed by Spielberger et al. (1970) and adapted by Buela-Casal et al. (1982). It evaluates anxiety as a state and as a trait through 40 items, 20 for each subscale. To evaluate state anxiety, three response options are established (from 0 - not at all to 3 - very much so) and the evaluation of trait anxiety consists of three response options (0 – almost never to 3 - almost always). Regarding its adequate psychometric properties, high internal consistency indices were obtained (Cronbach's alpha), with values between .83 and .92. Regarding construct validity, it has been established that its items and scales are closely related to the previously defined constructs. In the present study, the following internal consistency indices were observed: state anxiety = .69 and trait anxiety = .71.

## **Procedure**

A cross-sectional correlational study was carried out. To obtain the sample, a questionnaire was created using Google Forms, which was disseminated through selected social networks, using a convenience and snowball sample collection method. As a requirement to participate in the study, subjects had to be of legal age, and to provide informed consent. The questionnaire reflected the anonymous, confidential and voluntary nature of the study, as well as the approximate duration of the response time. Information regarding the study was also provided, such as the objective of the research and possible contributions to the development of science, as

well as the possibility of accessing the results once the study was completed. Sample collection began on 01/19/2022 and ended on 02/28/2022. Finally, the data were analyzed with SPSS 26 software.

### **Data analysis**

First, Pearson correlation tests were performed to analyze the relationships between DoS, metacognitions about worry and anxiety, and between these variables and sex and age.

Subsequently, once the relevant assumptions had been checked, two stepwise linear regressions were carried out to explore the predictive role of the DoS dimensions on metacognitions about worry and trait anxiety.

### **Results**

First, several correlations were carried out to explore the relationships between DoS, metacognitions about worry and state and trait anxiety. As can be seen in Table 1, the results showed that DoS was related to metacognitions total score and all their subscales. Notable for their large magnitude were the relationships of DoS with metacognitions total score and negative beliefs.

Likewise, numerous relationships were found between the DoS dimensions, metacognitions total score and their subscales. Some relationships worthy of note are the strong relationships of emotional reactivity with metacognitions total score and negative beliefs, and the moderate relationships of emotional reactivity with beliefs about need to control thoughts, positive beliefs about worry and cognitive self-consciousness. In addition, the moderate relationships of fusion with others and emotional cutoff with metacognitions total score and negative beliefs, and dominance over others with positive beliefs stand out.

Furthermore, DoS and its dimensions were found to be significantly related to anxiety. The negative relationships of DoS and the positive relationships of emotional reactivity with state and trait anxiety can be highlighted for their large magnitude.

Finally, metacognitions total score and all their subscales were found to be positively related to anxiety, with the relationships of metacognitions total score and negative beliefs with state and trait anxiety standing out for their large magnitude.

Table 1

*Matrix correlations between DoS, metacognitions and anxiety*

	MCQ-30	PB	NB	CC	CT	S-C	S-Anx	T-Anx	Sex	Age
DSS-R	-.55**	-.36**	-.59**	-.34**	-.43**	-.25**	-.61**	-.52**	.07	-.04
ER	.57**	.31**	.69**	.24**	.47**	.36**	.67**	.57**	-.22**	-.09
IP	-.27**	-.18**	-.28**	-.26**	-.18**	-.04	-.33**	-.21**	.02	-.03
FO	.32**	.18**	.32**	.29**	.24**	.09	.34**	.36**	.02	.08
DO	.28**	.31**	.23**	.15**	.23**	.11*	.19**	.20**	.04	.11*
EC	.35**	.21**	.38**	.22**	.25**	.17**	.46**	.32**	-.02	.03
S-Anx	.58**	.39**	.66**	.24**	.47**	.34**	---	---	-.08	-.07
T-Anx	.55**	.37**	.58**	.26**	.49**	.30**	---	---	-.12*	-.10
Sex	.05	.16**	-.07	-.04	.07	.07	---	---	---	---
Age	-.08	-.18**	-.06	.19**	-.07	-.20**	---	---	---	---

*Note.* DSS-R = Differentiation of Self Scale-Revised; ER = Emotional reactivity; IP = I Position; FO = Fusion with others; DO = Dominance over others; EC = Emotional cutoff; MCQ-30 = Metacognitions Questionnaire-30 total score; PB = Positive beliefs about worry; NB = Negative beliefs about uncontrollability of thoughts and danger; CC = Lack of cognitive confidence; CT = Beliefs about need to control thoughts; S-C = Cognitive self-consciousness; S-Anx = State anxiety; T-Anx= Trait anxiety. Sex was coded with 1 = Women and 2 = Men.

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

On the other hand, two stepwise linear regression analyses were carried out to check if DoS dimensions predicted metacognitions total score and trait anxiety. Sex and age were not included as predictors in the first analysis, because no significant relationships were observed between these variables and metacognitions total score (see Table 2). However, sex was added as a predictor in the second analysis, because it was significantly related to trait anxiety.

The first multiple linear regression analysis revealed that emotional reactivity, dominance over others and emotional cutoff predicted metacognitions . In Step 1, emotional reactivity explained 33% of the variance of metacognitions ( $F(1,382) = 183.69, p < .001$ ). In Step 2, dominance over others was added to the model, which predicted 35% of metacognitions ( $F(2,381) = 101.18, p < .001$ ). Finally, in Step 3, emotional cutoff was included in the model, which explained 36% of the variance ( $F(3,380) = 69.81, p < .001$ ). The second multiple linear regression analysis showed that emotional reactivity and fusion with others predicted trait anxiety. In Step 1, emotional reactivity explained 32% of the variance of metacognitions ( $F(1,382) = 180.80, p < .001$ ). In Step 2, fusion with others was added to the model, which predicted 34% of the variance ( $F(2,381) = 99.90, p < .001$ ). The regression coefficients of both analyses are shown in Table 2.

Table 2  
*Regression coefficients*

Regression	Criterion	Step	Predictors	Unstandardized	Standardized		
				coefficients	coefficients	<i>t</i>	<i>p</i>
				<i>B</i>	$\beta$		
1	MCQ-30	1	(Constant)	1.20		20.13	<.001
			ER	.23	.57	13.55	<.001
		2	(Constant)	1.03		13.68	<.001
			ER	.22	.53	12.46	<.001
			DO	.08	.15	3.60	<.001
		3	(Constant)	.96		11.95	<.001
			ER	.20	.49	10.47	<.001
			DO	.08	.14	3.36	<.001
			EC	.05	.10	2.22	.027

2	T-Anx	1	(Constant)	.96		26.87	<.001
			ER	.14	.57	13.45	<.001
2		2	(Constant)	.86		19.60	<.001
			ER	.12	.50	11.08	<.001
			FO	.05	.16	3.64	<.001

*Note.* MCQ-30 = Metacognitions Questionnaire-30 total score; T-Anx = Trait anxiety; ER = Emotional Reactivity; FO = Fusion with Others; DO = Dominance over Others; EC = Emotional Cutoff.

## Discussion

Despite the importance of DoS, metacognitions and anxiety on people's mental health, no studies have been found that have analyzed the association between these variables. This study aimed to observe the relationship between DoS, metacognitions about worry and state and trait anxiety, and to analyze the predictive role of DoS dimensions on metacognitions about worry and trait anxiety.

The results showed that people with higher DoS and I position, and lower emotional reactivity, fusion with others, dominance over others and emotional cutoff, have fewer metacognitions about worry. Some relationships worthy of note are those of DoS with metacognitions and negative beliefs; emotional reactivity with metacognitions, negative beliefs, beliefs about need to control thoughts, positive beliefs about worry, and cognitive self-consciousness; fusion with others and emotional cutoff with metacognitions and negative beliefs; and dominance over others with positive beliefs. In addition, DoS and its dimensions, and metacognitions about worry and their dimensions were associated with state and trait anxiety.

On the other hand, results revealed that 36% of metacognitions about worry were explained by emotional reactivity, dominance over others and emotional cutoff, and that 34% of trait anxiety was explained by emotional reactivity and fusion with others.

These results are consistent with Bowen's Family Systems Theory (Bowen, 1989; Kerr & Bowen, 1988), which states that more differentiated people, who are less emotionally reactive, define themselves clearly, and do not merge with others, isolate themselves from others or try to dominate them, are better able to regulate their thoughts and emotions, and have lower chronic anxiety. In this sense, individuals with higher levels of DoS seem to be better able to distinguish their self from their emotions and cognitions, that is, to experience in a metacognitive mode and not in an object mode (Wells, 2019). On the other hand, more differentiated people seem to have a lower tendency to respond to environmental or mental stimuli, such as emotions and cognitions, with emotional lability. The results are also consistent with the Metacognitive Model of generalized anxiety disorder (Wells, 2005), which states that individuals with more metacognitions about worries have higher levels of trait anxiety.

Although no studies have analyzed the relationship between DoSand metacognitions about worry, the results of the present research are in line with some studies on similar variables. Rodrigues (2016) found that more differentiated people had lower levels of worry. Furthermore, Oliver and Berástegui (2023) observed that people with lower DoSand I position and higher emotional reactivity, fusion with others and emotional cutoff had more obsessive-compulsive symptomatology. Finally, Yavuz and Karaca (2020) observed that the DoSdimensions predict ruminations and difficulties in emotion regulation.

On the other hand, the results of this research are consistent with some studies that found that more differentiated people experience less state, trait and generalized anxiety, and distress, as well as DoSnegatively predicts trait anxiety (e.g., Dolz-del-Castellar & Oliver, 2021; Duch-Ceballos et al., 2020; Oliver et al., 2022; Rodrigues, 2016).

Finally, many studies have observed that individuals with more metacognitions about worry have higher levels of trait anxiety (e.g., Ramos-Cejudo et al., 2013; Ramos-Cejudo & Salguero, 2017; Wells & Cartwright-Hatton, 2004).

The results of the present study indicate that more differentiated people have fewer metacognitions about worry and lower levels of trait anxiety, and have important theoretical and clinical implications. At the theoretical level, it seems that individuals with higher levels of DoS could be better able to distinguish their cognitions from their emotions, but also their self from their cognitions. Furthermore, more differentiated people seem to have a lower tendency to respond lamely to environmental stimuli, but also to mental stimuli, such as emotions and cognitions. In this sense, more differentiated people have a lower tendency to have positive and negative beliefs about worry, to make negative assessments of concerns, and to suppress their thoughts.

At the clinical level, it is likely that therapeutic work aimed at increasing the DoS (Kerr & Bowen, 1988), that is, improving emotion regulation, favoring intimacy and autonomy with the family of origin and significant others, and strengthening the self, will probably help people to reduce their metacognitions about worry and their levels of anxiety. Similarly, metacognitive therapy (Wells, 2019), aimed at becoming aware of metacognitions about worry and changing the way one reacts to mental events, could help people become more differentiated and thoughtful, less emotional reactive, less dominant, distant or merged with others, and less anxious.

To increase DoS, some strategies based on Bowen's Family Systems Theory (Bowen, 1989) could be used, such as objective observation of individual and family patterns, identification of circular patterns that maintain problems, exploration of the relationship between current

individual and family patterns and past family patterns, and application of more differentiated behaviors. Also, as suggested by Bowen (1989) and other authors (e.g., Lampis et al., 2019), techniques from other therapeutic models could be used to increase DoS, such as mindfulness (Kabat-Zinn, 1994) to regulate and transform emotions, questioning of irrational ideas (Ellis & Dryden, 1994) to strengthen the self, or structural techniques (Minuchin & Fishman, 1981) and training in social skills (Caballo, 2002) to decrease fusion with others, dominance of others and emotional cutoff.

To reduce metacognitions about worry, Wells (2019) recommends instructing people in their cognitive functioning, so that they stop functioning in object mode ("I am my thoughts") and do so in subject mode ("I am not my thoughts"). Likewise, to modify reactions to mental events, Wells (2019) suggests using a Socratic dialogue on metacognitions, behavioral experiments, attentional training tasks, and detached mindfulness tasks. These interventions are aimed at the acceptance of thoughts, trying to decentralize them and divert attention focused on internal events, thus affecting the impact of metacognitions and the discomfort they can generate.

The present study has some limitations. First, the convenience and snowball sampling has favored a greater representation of participants with university and postgraduate degrees. Second, the online application of the questionnaire may have prevented those who do not have Internet access or who have difficulties using it from participating in the study. Third, the use of self-report measures may have produced social desirability biases. Finally, the transversal and correlational nature of the data does not allow us to infer cause-effect relationships between the variables of the study, so longitudinal studies are needed to evaluate the direction of the effect between DoS, metacognitions and trait anxiety.

Despite the aforementioned limitations, the present study represents an advance in knowledge, since it offers for the first time an analysis of the relationship between DoS, metacognitions and trait anxiety. As a possible line of future research, it could be interesting to conduct studies with larger and more representative samples, incorporating observations, as well as the development of pre-post longitudinal studies that work on DoS, metacognitions and anxiety, to assess whether metacognitions have decreased after the end of a psychotherapy process.

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