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Influence of metacognitive variables on paranoid ideation[1]

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ABSTRACT. Based on the Self-Regulatory Executive Function (S-REF) model, the aim of the present correlational study is to investigate whether metacognitive variables have any influence on paranoid ideation in non-clinical subjects. For this purpose, a battery of tests was administered to 148 participants in an attempt to identify the type of metacognitive beliefs that characterized them and to measure their levels of paranoid ideation and trait anxiety. The results show that, once the subject's level of anxiety is controlled, loss of cognitive confidence is the only metacognitive variable that predicts subjects' scores in paranoid ideation. Without this statistical control of trait anxiety, the regression equation would include two more metacognitive factors related to uncontrollability and danger of thoughts and positive beliefs about worry. These results are discussed in the light of recent contributions supporting the extension of models already consolidated in the field of emotional disorders, as the S-REF model, to that of psychotic symptoms.

KEYWORDS. Metacognitions. Paranoia. Psychotic symptoms. Anxiety. Correlational study.

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RESUMEN. Con base en el modelo conocido como "Self-Regulatory Executive Function" (S-REF) el presente estudio correlacional pretende averiguar si las variables metacognitivas tienen alguna influencia sobre la ideación paranoide en sujetos no-clínicos. Con este fin se administró una batería de tests a 148 participantes dirigida a indagar el tipo de creencias metacognitivas por el que se caracterizaban así como su nivel de ideación paranoide y su nivel de ansiedad-rasgo. Los resultados muestran que, una vez controlado el nivel de ansiedad de los sujetos, la pérdida de la confianza cognitiva es la única variable metacognitiva que predice la puntuación de los sujetos en ideación paranoide. De no efectuarse este control estadístico de la ansiedad-rasgo, se incluirían en la ecuación de regresión dos factores metacognitivos más relativos a la incontrolabilidad y peligro de los pensamientos y a las creencias positivas sobre la preocupación. Estos resultados son discutidos a la luz de recientes aportaciones favorables a la extensión de modelos ya consolidados en el campo de los trastornos emocionales, como el modelo S-REF, a los síntomas psicóticos.

PALABRAS CLAVE. Metacogniciones. Paranoia. Síntomas psicóticos. Ansiedad. Estudio correlacional.

RESUMO. Com base no modelo conhecido por "Função Executiva de Auto-regulação" (S-REF) o presente estudo correlacional pretende averiguar se as variáveis metacognitivas têm alguma influência sobre a ideação paranoide em sujeitos não clínicos. Com este fim, administrou-se uma bateria de testes a 148 participantes destinada a questionar o tipo de crenças metacognitivas pelas quais se caracterizavam, assim como o seu nível de ideação paranoide e o seu nível de ansiedade-traço. Os resultados mostram que, uma vez controlado o nível de ansiedade dos sujeitos, a perda de confiança cognitiva é a única variável metacognitiva que prediz a pontuação dos sujeitos em ideação paranoide. Sem se efectuar este controlo estadístico da ansiedade-traço, incluíram-se na equação de regressão dois factores metacognitivos mais relativos à incontrolabilidade e perigo dos pensamentos e às crenças positivas sobre a preocupação. Estes resultados são discutidos à luz de recentes contribuições favoráveis à extensão de modelos já consolidados no campo das perturbações emocionais, como o modelo S-REF, aos sintomas psicóticos.

PALAVRAS CHAVE. Metacognições. Paranóia. Sintomas psicóticos. Estudo correlacional.

Introduction

There is an extensive and varied literature on the cognitive processes involved in the genesis and maintenance of paranoid ideation (Bodner and Mikulineer, 1998; Kinderman and Bentall, 1996; Kinderman, Prince, Waller, and Peters, 2003; Martin and Penn, 2001; Von Gemmingen, Sullivan, and Pomerantz, 2003). Recently, it has been suggested that psychotic symptoms, like delusions or hallucinations, are continuous with normal experiences and are not necessarily associated with disability (García-Montes and Pérez-Álverez, 2003; Krabbendam, Myin-Germeys, and Van Os, 2004). It has also been proposed that emotional phenomena, such as anxiety, may be intervening

directly in this type of symptomatology (Freeman and Garety, 1999, 2003; Freeman, Garety, and Philips, 2000; Morrison and Wells, 2003), and this weakens the idea of the classic distinction between neurosis and psychosis, but at the same time makes possible the extension of the models established for the understanding and treatment of emotional problems to the field of psychotic symptoms. One of these models is that known as the Self-Regulatory Executive Function (S-REF) model, proposed by Wells and Matthews (1994). This model is based on the notion that vulnerability to emotional disorders is characterized by an excess of self-focused attention and reflective processes and the activation of certain irrational beliefs. Some of these irrational beliefs may be of a metacognitive nature, and would derive from the interpretation of certain thoughts. As it appears to have been confirmed that certain metacognitive beliefs can act as "psychological markers" of vulnerability to emotional disorders (Cartwright-Hatton and Wells, 1997; Wells and Cartwright-Hatton, 2004), it would be interesting to check whether they maintain this same role for the case of "paranoid ideation." In this line, Morrison and Wells (2003) compared the metacognitive beliefs of a group of schizophrenic patients with auditory hallucinations, a group of schizophrenic patients with persecutory delusions, a group of patients with a diagnosis of "panic disorder" and a group of non-patients. These authors found that the metacognitive beliefs of the patients with paranoid ideation and with panic disorder are frequently similar to one another and, moreover, are clearly distinguished from those maintained by non-patient participants. These results are interpreted by Morrison and Wells (2003) as evidence that certain metacognitive beliefs constitute a generic vulnerability factor and that, consequently, they affect the development of both neurotic and psychotic symptoms. Given that emotional problems play a certain role in the development of persecutory delusions, it is reasonable to think that Morrison and Wells' (2003) results are a direct consequence of the level of anxiety of patients with persecutory delusions, and not a specific factor of vulnerability to delusional disorders.

The present correlational study (Montero and León, 2005) aims to study, in a non-clinical population, the metacognitive factors associated with the development of paranoid ideation, controlling the possible effect of subjects' anxiety. For drawing up this work, we followed the proposal by Ramos-Álvarez and Catena (2004)

Method

Participants

A total of 148 undergraduates of the University of Almería and Oviedo (44 males and 104 females) participated voluntarily in this research. Mean age was 23.65 years (SD = 4.68). Participants were not remunerated.

Materials

– Paranoia Scale (PS) (Fenigstein and Vanable, 1992). Paranoid ideation was measured by means of this 20-item scale, adapted to Spanish following the recommendations of Muñiz and Hambleton (1996). The alpha coefficient of the scale in the sample used in the present study was .82.

– State-trait Anxiety Inventory (STAI) (Spielberger, Gorsuch, and Lushene, 1999). Anxiety, as a personality trait, was measured using the sub-scale "trait anxiety" of this inventory. The Spanish version, translated, adapted and published by the Spanish publishers TEA, was used.
– Metacognitions Questionnaire (MCQ) (Cartwright-Hatton and Wells, 1997). The MCQ is a questionnaire with 65 items answered using a scale of 1 ("I do not agree") to 4 ("I totally agree"). Factorial analysis carried out by the authors showed the presence of five empirically-differentiated and relatively stable factors (Cartwright-Hatton and Wells, 1997). Four of them represent metacognitive content: positive beliefs about worry, negative beliefs about the uncontrollability of thoughts and their danger, loss of cognitive confidence, and superstition and responsibility beliefs in relation to one's own thoughts. The fifth factor represents a metacognitive process: "cognitive self-consciousness" – i.e., the tendency to be aware of one's thoughts. In the present study we used a Spanish version of the MCQ that, once again, was translated according to the recommendations of Muñiz and Hambleton (1996). García-Montes, Cangas, Pérez-Álvarez, and Gutiérrez (en prensa) found, in a Spanish population, that the alpha coefficients of the MCQ subscales were, in the order in which the factors have been described, as follows: .92, .88, .86, .81 and .73.

Procedure

Participants completed the scales in the order they appear in the above descriptions. For this purpose they were allocated to groups that in no case included more than 40 people. Given the nature of some items, it was ensured that the distance between subjects was sufficient to prevent them observing the responses of their companions.

Results

With the aim of discovering whether metacognitive factors play a specific role in the development of paranoid ideation, we carried out a partial correlation analysis in which the effect of trait anxiety was controlled. Table 1 shows the results obtained from this analysis.

TABLE 1. Partial correlations controlling for trait anxiety (Mcq 1 = Positive beliefs about worry; Mcq 2 = Negative beliefs about uncontrollability of thoughts and their danger; Mcq 3 = Loss of cognitive confidence; Mcq 4 = superstition and responsibility beliefs in relation to one's own thoughts; Mcq 5 = cognitive self-consciousness.

	Mcq 1	*Mcq 2*	*Mcq 3*	*Mcq 4*	*Mcq 5*	*Paranoia*
Mcq 1		.03	.12	.31***	.21**	.18*
Mcq 2			.12	.44***	.22**	.14
Mcq 3				-.05	-.03	.25**
Mcq 4					.26**	.03
Mcq 5						.02

*p< .05; ** p < .01; *** p< .001

As it can be seen here, the only metacognitive variables that show a statistically significant relationship with score in paranoia, after controlling trait anxiety, are positive beliefs about worry ($r = .18$, $p < .05$) and metacognitions related to loss of cognitive confidence ($r = .25$, $p < .01$). In this regard, a linear regression analysis using the stepwise method reveals that, on controlling the effects of anxiety on paranoia and on the factors measured by the MCQ, the only metacognitive variable that predicts the score in paranoia is that related to loss of cognitive confidence. Table 2 illustrates these results.

TABLE 2. Multiple regression analysis controlling for trait anxiety (method: Stepways).

Variable in the equation	*β*	*F (df, df)*	*R^2 adjusted*
Loss of cognitive confidence	.25	10.66 (1,146)	.06

The results in this table can be compared to those that would be obtained in a linear regression analysis in which there was no control of the effect of analysis on the dependent variable and on the factors. These results, markedly different from those shown in Table 2, are presented in Table 3.

TABLE 3. Multiple regression analysis not controlling for trait anxiety (method: Stepways).

Variable in the equation	*β*	*F (df, df)*	*R^2 adjusted*
Uncontrollability and danger	.31		
Loss of cognitive confidence	.23	19.08 (3,144)	.27
Positive beliefs about worry	.18		

Discussion

In the research presented here it was found that, once subjects' anxiety levels had been controlled, the only metacognitive variable with any degree of weight in the prediction of subjects' paranoid ideation is that related to loss of cognitive confidence. Without such statistical control, other variables, such as uncontrollability and danger of thoughts and positive beliefs about worry, would be included in the regression equation. Recently, Freeman and Garety (2003) have argued that there is no empirical evidence supporting the distinction between neurosis and psychosis, and that the frequent occurrence of emotional disorders prior to and accompanying schizophrenia indicates that neurosis contributes to the development of the positive symptoms of psychosis. Nevertheless, while recognizing the important role of anxiety in the appearance and maintenance of

paranoid ideation, it is still useful, in our view, to try and identify those psychological mechanisms that are related more directly to paranoid ideation, hence the decision to control statistically subjects' level of anxiety. In any case, on interpreting the present results, it should be borne in mind that the design of the study was correlational, so that no causal relationships of any kind can be established. Thus, although we have reported certain metacognitive variables as contributing to paranoid ideation, it is possible that they are the result of paranoid ideation. We believe that the results obtained suggest a need for caution with regard to extending models derived from emotional problems directly to the context of psychotic symptomatology. In our view, it is of great interest to continue research on the psychological processes, metacognitive or otherwise, most closely linked to paranoid ideation, and which distinguish it from other types of psychological problem.

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