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Purpose

Social cognition has been proposed as one possible mediator between neurocognition and functional outcome in Schizophrenia (Green, Kern, Braff & Mintz, 2000). Social cognition is a broad construct including different domains such as emotion processing, social perception and theory of mind. In this study we will focus on emotion recognition in order to analyze the associations between cognitive skills, facial emotion recognition and psychosocial functioning, and to determine if emotion recognition mediated the relationship between cognition and psychosocial functioning.

Methods

- **Participants:** 30 Portuguese patients diagnosed with Schizophrenia (Age Md = 41.47, SD = 8.78; 90% males).
- **Instruments:**

Neurocognition: Battery comprised by the subtests derived from the Working Memory and Processing Speed indexes of WAIS-III (Digit Span; Letter-Number Sequencing; Arithmetic; Symbol Search and Digit Symbol — Coding).

Emotion recognition: 30 morphed faces with different 6 emotional intensities of happiness, sadness, anger, fear and disgust. For each morph, participants had to decide which of the 5 emotions was being expressed (Aguiar, Queirós & Rocha, 2006; Aguiar, 2008)

Psychosocial Functioning and Communication Skills: Life Skills Profile – Portuguese Version (Rocha et al., 2006) was used to determine psychosocial functioning. This scale was completed by psychologists and occupational therapists who follow their patients over the years and have ample opportunity to observe and assess patient functioning in different community settings. The Life Skills Profile comprises 39 items, which can measure five key dimensions: self-care, nonturbulence, social contact, communication and responsibility. The General Psychosocial Functioning score was obtained by the sum of all dimensions and the Communication skills were measured through the Communication dimension of the scale.

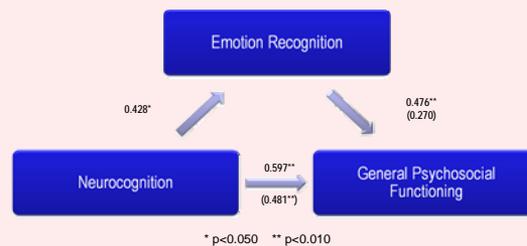
• **Data Analysis:**

Given the large number of parameters to be estimated we created a composite score of neurocognition based on the mean z-transformed scores of the cognitive measures (for that purpose we obtained the scores of 37 control subjects in the different cognitive tasks used in the study). To determine whether emotion recognition mediates the relationship between neurocognition and psychosocial functioning, a series of analyses were performed according to the method outlined by Baron and Kenny (1986). The conditions to establish mediation are: (1) the independent variable is correlated with the outcome; (2) the independent variable is correlated with the mediator; (3) the mediator affects the outcome variable; and (4) when the effects of the mediator are controlled for, a previously significant correlation between the independent and dependent variables is greatly attenuated. Sobel test was used to test for mediation, by computing the raw regression coefficient and the standard error for this regression coefficient for the association between the independent variable and the mediator, and the association between the mediator and the outcome variable (adjusting for the independent variable).

Results and Conclusions

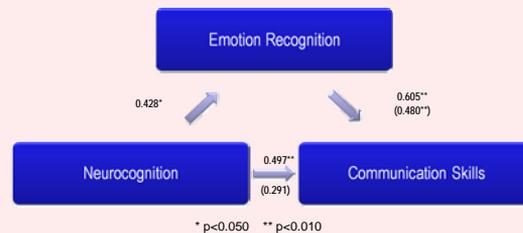
Model 1: Emotion Recognition as a mediator of the relationship between Neurocognition and General Psychosocial Functioning

Condition 1: The independent variable predicts the outcome variable						Condition 2: The independent variable predicts the mediator						Conditions 3 and 4: The mediator predicts the dependent variable (when the effects of the independent variable are controlled) and the independent variable does not predict the dependent variable (when controlling for the effects of the mediator)							
Regression analysis: Independent variable: Neurocognition Dependent variable: General Psychosocial Functioning						Regression analysis: Independent variable: Neurocognition Dependent Variable: Emotion recognition						Regression analysis: Independent variables: Neurocognition and Emotion Recognition Dependent variable: General psychosocial functioning							
VI	r	β	T	sig.		VI	r	β	T	sig.		VI	r	β	T	sig.	Sobel Test	sig.	
Neurocognition	0.597**	0.597	3.934	0.001		Neurocognition	0.428*	0.428	2.509	0.018		Neurocognition	0.597**	0.481	2.953	0.006			
												Emotion recognition	0.476**	0.270	1.661	0.108	1.38	0.17	



Model 2: Emotion recognition as a mediator of the relationship between Neurocognition and Communication Skills

Condition 1: The independent variable predicts the outcome variable						Condition 2: The independent variable predicts the mediator						Conditions 3 and 4: The mediator predicts the dependent variable (when the effects of the independent variable are controlled) and the independent variable does not predict the dependent variable (when controlling for the effects of the mediator)							
Regression analysis: Independent variable: Neurocognition Dependent variable: Communication Skills						Regression analysis: Independent variable: Neurocognition Dependent Variable: Emotion recognition						Regression analysis: Independent variables: Neurocognition and Emotion Recognition Dependent variable: Communication Skills							
VI	r	β	T	sig.		VI	r	β	T	sig.		VI	r	β	T	sig.	Sobel Test	sig.	
Neurocognition	0.497**	0.497	3.028	0.005		Neurocognition	0.428*	0.428	2.509	0.018		Neurocognition	0.497**	0.291	1.817	0.080			
												Emotion recognition	0.605**	0.480	2.998	0.006	1.993	0.04	



Through the causal steps method developed by Baron and Kenny we observed that controlling for the mediator (emotion recognition) the association between neurocognition and psychosocial functioning decreased. Sobel test revealed that emotional recognition was a better mediator of the Communication dimension of the Life Skills Profile rather than of the Life Skills Profile total score.

There was found some evidence to support emotion recognition as a mediator of psychosocial functioning. Communication was better mediated by emotional recognition than general psychosocial function, since the latter include other areas of function such as self-care skills, which are not dependent of social interaction (Bellack, 2004).

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