

Psychometric properties of the Dutch Empathizing and Systemizing Quotient

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Objective

The male brain hypothesis¹ predicts that individuals with autism spectrum disorder (ASD) are characterized by a low empathizing and high systemizing cognitive style.

Empathizing: “The drive to identify another person’s emotions and thoughts, and to respond to these with an appropriate emotion”.

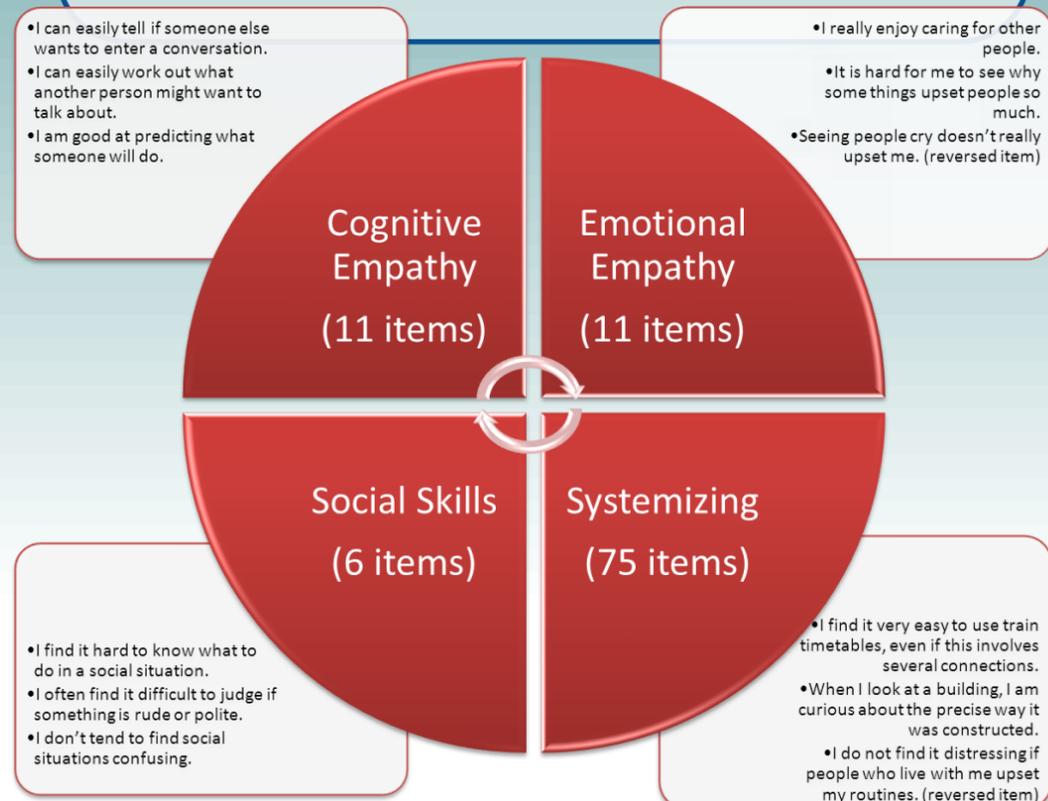
Systemizing: “The drive to analyze how systems work and behave, and to construct systems”

The internationally developed self-report questionnaires ‘Empathy Quotient’ (EQ) and ‘Systemizing Quotient-Revised’ (SQ-R) were translated to Dutch and their psychometric properties were investigated

Factor structure

A 3-factor structure² of the shortened 28-item EQ was confirmed, and a 1-factor structure³ of the 75-item SQ-R was replicated.

The figure shows the scales and examples of items:



Methods

Materials: Dutch translation of 40-item EQ and 75-item SQ-R, and Friendship Questionnaire (FQ)

Samples: Community sample (n=685; males=270; age: 16-84 years); sample of male ASD patients (n=21; age: 18-34 years)

Results

Reliability: Internal consistency (Cronbach's α : EQ=.89; SQ=.87) and test-retest reliability (Pearson r: EQ=.74; SQ=.79) was good. Only the EQ subscale Emotional Empathy had low retest reliability (Pearson r=.58).

Convergent validity:

- Typical sex differences on the EQ scales (f>m) and SQ (m>f) with medium effect sizes (Cohen's d: EQ=.78; SQ=.76)
- Positive correlations between the EQ scales and FQ (Pearson r=.27-.50); small negative correlations of SQ-R with the EQ total (Pearson r=-.11) and EQ subscale Emotional Empathy (r=-.17)

Sensitivity: The EQ scales and brain type (difference: SQ-EQ), but not the SQ-R, differed between males with ASD and males of the community sample with large effect size (Cohen's D: EQ=.96; brain type=.68).

Conclusions

The Dutch 28-item EQ and the SQ-R are reliable and valid tools to assess a person's empathizing and systemizing cognitive style. For autism, these tools are helpful in describing the subjectively experienced difficulties and strengths of the patient in processing social and non-social information. Especially the EQ subscales quickly provide additional information on the specific aspects of social information processing that may be impaired. Emotional empathy should be interpreted merely as a state than as a trait.

Literature

¹Baron-Cohen, S. (2009). Autism: The empathizing-systemizing (E-S) theory. *Year in Cognitive Neuroscience 2009*, 1156, 68-80.

²Lawrence, E. J., Shaw, P., Baker, D., Baron-Cohen, S., & David, A. S. (2004). Measuring empathy: Reliability and validity of the empathy quotient. *Psychological Medicine*, 34(5), 911-919.

³Wheelwright, S., Baron Cohen, S., Goldenfeld, N., Delaney, J., Fine, D., & Smith, R. (2006). Predicting autism spectrum quotient (AQ) from the systemizing quotient-revised (SQ-R) and empathy quotient (EQ). *Brain Research*, 1079(1), 47-56.