Outcome Measure	**Reading the Mind in the Eyes Test (RMET)**
Sensitivity to Change	Not known
Population	Adult
How to obtain	Available from https://www.autismresearchcentre.com/arc_tests
Domain	Social Cognition
Type of Measure	Objective test
Time to administer	6.6 minutes
Description	The Reading the Mind in the Eyes test – Revised (S. Baron-Cohen, Wheelright, Hill, Raste, & Plumb, 2001) or simply the "Eyes test" is a performative measure designed to assess Theory of Mind (ToM). The original RMET (S. Baron-Cohen, Wheelwright, & Jolliffe, 1997)comprised 24 photographs of the eye regions of faces (taken from magazines). With each photo the participant is asked to select the correct mental state term associated with the eyes from two options. The revised version (to be referred to as RMET from here on) comprises 36 photos and the examinee must select the correct mental state from 4 options, the target and three foils which differ across items. The "correct" mental state was decided on by the original authors and confirmed via piloting (S. Baron-Cohen et al., 2001). Mental states include complex emotional states, e.g. "nervous", "playful" as well as non-emotional states, e.g. "pensive", "pre-occupied". The test is freely available from the authors' website https://www.autismresearchcentre.com/arc_tests A single total score is generated for the RMET. The RMET takes approx. 6.6 minutes to administer to patients (Pinkham, Penn, Green, & Harvey, 2016).
Properties	The RMET is possibly one of the most widely used measures of ToM in the research literature. While originally developed to assess Autism Spectrum Disorders it is now used to assess many clinical disorders and conditions as well as the relationship between ToM and other aspects of cognition and every day function. Internal Consistency: The RMET has generally poor internal consistency although reports vary in this regard. Coefficient Alpha of below .7 is considered to reflect less than acceptable consistency, reports of alpha for the RMET range generally below this criterion e.g. .37 (Khorashad et al., 2015), .53-.77 (Prevost et al., 2014), .58 (Harkness, Jacobson, Duong, & Sabbagh, 2010), .6-.63 (Voracek & Dressler, 2006) .64 (Soderstrand & Almkvist, 2012). A recent study of its psychometric properties based on a sample of 484 normal adults (Olderbak et al., 2015) reported an average tetra chloric intercorrelation of .08 (acceptable range 0.15-.5 (Clark & Watson, 1995)). A confirmatory factor analysis by these authors suggested that a single factor was an inadequate solution for the data. Nor do the majority of items load on a single factor. Overall this suggests that the RMET is not measuring a single construct. Test-retest reliability: A variety of studies have reported good test-retest reliability for the RMET (Hallerback, Lugnegard, Hjarthag, & Gillberg, 2009; Pinkham et al., 2016; Prevost et al., 2014; Vellante et al., 2013). For example, an English version yielded an r =.761 over 2-4 weeks (Pinkham et al, 2016), and an Italian version tested on 200 students yielded intraclass correlations of .83 over an interval of one month (Vellante et al., 2013) while a Spanish version indicated test-retest reliability of .63 (ICC) over 12 months (Fernández-Abascal, Cabello, Fernández-Berrocal, & Baron-Cohen, 2013). Construct validity: Evidence for the convergent validity of the RMET is weak. Two studies have reported a significant association between the RMET and the Faux Pas test (a text-based measure of TOM in which participants read a story where a faux pas has been committed and answer questions about the protagonists actions and thoughts) (Ferguson

	& Austin, 2010; Torralva, Roca, Gleichgerrcht, Bekinschtein, & Manes, 2009) whereas others have found no relation with the Faux Pas test or a similar reading task (Strange stories: (Ahmed & Stephen Miller, 2011; Duval, Piolino, Bejanin, Eustache, & Desgranges, 2011; Carol Gregory et al., 2002). Nor does the full RMET correlate with self-reported empathy in general (Simon Baron-Cohen et al., 2015) or cognitive empathy in particular (considered to be the analogue of ToM)(Spreng, McKinnon, Mar, & Levine, 2009). The lack of uniformity of the RMET may underpin some of this apparent lack of validity. Using a psychometrically derived subset of 10 items with good uni-dimensionality (Olderbak et al., 2015), a modest association was found between the RMET and both self-reported cognitive empathy and emotion perception. Importantly there was also a strong association between the RMET and vocabulary (r = .62). Further, the likelihood of making a correct choice across items was correlated with the frequency of the vocabulary items in general word usage. The strong relation between the RMET and vocabulary has been reported elsewhere (Peterson & Miller, 2012; Pinkham, Harvey, & Penn, 2018). <u>Discriminative validity:</u> The RMET has been found to differentiate between many kinds of clinical disorders and demographically matched control groups including people with autism spectrum disorders (Simon Baron-Cohen et al., 2015), schizophrenia (Pinkham et al., 2016; Savla, Vella, Armstrong, Penn, & Twamley, 2012), anorexia nervosa (Russell, Schmidt, Doherty, Young, & Tchanturia, 2009), traumatic brain injury (Geraci, Surian, Ferraro, & Cantagallo, 2010; C. Gregory et al., 2002; Havet-Thomassin, Allain, Etcharry-Bouyx, & Le Gall, 2006; Muller et al., 2010; Torralva et al., 2009) euthymia and bipolar disorder (Bora et al., 2005) and dementia (C. Gregory et al., 2002; Torralva et al., 2009). <u>Normative data</u>: Because the RMET is widely used, there are numerous reports in the literature which can be used to derive normative data including some relatively large samples (e.g. (Simon Baron-Cohen et al., 2015), N = 320 healthy adults Age M/SD = 40/12; (Pinkham et al., 2016) N = 98 middle adulthood controls. There is also at least one study that reports child performance (N = 67 aged 9-15 years) (Tonks, Williams, Frampton, Yates, & Slater, 2007).
Advantages	• Quick and easy to administer • Freely available • Numerous studies and associated normative samples
Disadvantages	• Construct validity is questionable • Strongly associated with vocabulary skills • The RMET does not have a control condition to assess non-social cognitive skills that may be affecting performance.

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