Supplemental Table: Details of commonly used tests of social cognition including psychometrics, clinical sensitivity, normative information, advantages and disadvantages

Test	Psychometrics	Clinical Sensitivity	Normative data	Advantages	Disadvantages
TESTS OF FACE RECOGNITION					
The Benton Facial Recognition Test (BFRT) [1] The examinee matches a target face to one of six below (Part 1: 6 items) and to three of six presented which differ with respect to head orientation (8 items) or lighting (8 items) (Part 2). There is also a short form of 12 items [2]. Long Form= 9 mins	Internal reliability: Lon***g form***: α: .61 [3], .69 [4], .72[5], ***Short form:*** α: .41- .53 [3,5]. Computerised version $r_{sh::}$ .61 (accuracy), .88 (reaction time) [6]. Test-retest (one year): ***Long Form:*** .71 [5] **Short Form:** .60 [2]. Convergent validity: Correlates with the CFMT (.49 [4] and emotion perception subtest of TASIT (.45 [7]). Does not correlate with	Performed poorly by many people with acquired prosopagnosia [8,9] but not all [10,11] although in these cases, response times are inordinately slow, suggesting reliance on other strategies. Sensitivity is improved using adjusted normative cut-offs to the original [3] or considering response times [12].	Original cut-off for impairment was 40 [1]. Albonica et al (N = 272 19-31 y.o. students) suggest their cut-off is 41.71 (i.e. 2s.ds below the mean) is more appropriate and sensitive [13,14]. Norms available for elderly (N =349, 60-90+)[5]	Numerous studies and associated normative samples Is widely used and reasonably suitable for examinees from different ethnic origins to the target faces [3].	Accuracy does not seem to be the best index for identifying prosopagnosia, response times need to be considered also There is no control task

	self-ratings of face memory ability in adults [4].				
Cambridge Face Recognition Tasks: [10]: **Face Memory test (CFMT)** Part 1: Examinees exposed to different images of the same face then Part 1: select image from other identities; Part 2: select novel image of identity from distractors; Part 3: select identity amongst images with heavy visual noise. **Face Perception**	Internal consistency: **CFMT**: α: .89-.92; **CFPT**: α: .74 for upright faces, .50 for inverted faces [3,4,16,17]. Test-retest (6 months): **CFMT**: .70; [16]; **CFPT:** N/A. Convergent validity: **CFMT** correlates with the **CFPT** (upright) r = -.61 [17], r =.67 [18] and long term face memory (r = .72 [18], r = .51 [16]. Divergent validity: No correlation between **CFMT**	Discriminative validity: 25/32 people with suspected prosopagnosia performed below the cut-off on the **CFMT** vs only 6/32 on the BFRT [3]. **CFPT:** People with prosopagnosia were only mildly impaired on the **CFPT** relative to the **CFMT** [17].	Normative data: N= 3000+ collected via the internet [16], and for young adults from USA (N=50), Israel (N = 49), Germany (N= 153) and Australia (N =117, 241) [3,4] [17] and older adults from 35 to 79 [17]. Similar data for young to older adults (65-88 y.o.s) is available for the **CFPT (N = 125)** [17].	CFMT is differentially sensitive to prosopagnosia. In well educated samples, education did not influence scores [17] although women tend to out-perform men (approx. 3 point advantage [3].	Ethnicity similarity between target items and examinees influences scores [17] The **CFPT** has been found to correlate with verbal memory [17] suggesting intelligence may play a role in scores.

test (CFPT) [15]: Examinee sorts 6 morphed images below in similarity to target above in (1) upright and (2) inverted presentations. Time to administer: Not available.	scores and abstract visual [16] or verbal memory [16,17]. <u>Ecological validity:</u> **CFMT** correlates with self-reported problems with face recognition (r = .14) [4].				
TESTS OF EMOTION PERCEPTION					
Facial Expression of Emotion: Stimuli and Tests (FEEST) [19] 2 tests of emotion identification 1) *The Ekman 60 Faces Test* and 2) *The Emotion Hexagon Test*. Time to administer:	<u>Internal reliability[19]:</u> 60 Faces: r_{sh} = .62 (total score); .21-.66 (individual emotions): Hexagon test: r_{sh} = .92 (total score); .18-.92 (individual emotions): <u>Convergent validity:</u> 60 faces correlates with TASIT (Part 1; 0.69) [20] vocal	TLE reduces 60 Faces scores [22]. Fear is selectively poor with amygdala damage [23-25]. FTD also leads to impairment [26], while face recognition is preserved [27]. People with ASD and SSD do poorly on 60 Faces [28] but not necessarily face recognition [21].	Manual has data for *60 Faces Test* (N = 227, ages 20-70 years); *Emotion Hexagon Test* (N = 125, ages 20-75) [19]. Other studies with *60 Faces provide* normative data, e.g. [29] N =33; [30], N =88; [31], N= 51; [32] N =58.	The Ekman Faces are the most widely used images in emotion perception research.	The Ekman faces are outdated, black and white and posed.

Not available.	emotion (0.65), posture (0.70) and social judgements in people with ASD [21].				
The Comprehensive Affect Test System (CATS) [33]. Short form also available. 13 subtests examining facial, prosodic and cross-modal affect. Time to administer: Not available.	Internal reliability: α – 0.15 to 0.76 [34] in children [35,36] and adults [37]. Test-retest: Subtest 11 in children: r_{12} =.7 (12 months) [35]. Construct validity: Subtests 5 and 6 inter-correlate (*r* = .61) [37]. Subtest 11 correlates with DANVA, Strange stories, posture recognition in children, reflecting developmental trends [35].	SSD and BPD have poor face identification [38], naming and conflict judgements (prosody) and name/affect matching. [38-40]. FTD, AD, vascular dementia are poor at voice and face affect [41]. People with (left lateralised) PD have difficulty with prosody but not facial affect (CATS-A) [42].	Normative data for the CATS is reportedly in the manual for 20-79 year olds[1]. For the CATS-A the means and SDs for the individual subtests (n = 48, aged 18-60) are reported in [43] and for the composite scales (N=60, aged 20-79) [44].	In adults, simple and complex emotions are not influenced by age but women out-perform men. Allows testing of separate modalities.	Scores influenced by fluid reasoning (MR) and age [44]. Faces are outdated, black and white and posed. Manual currently inaccessible[1]
The Emotion	Internal	The ERT is sensitive	Regression-	Freely available www.metrisquare.net	Limited

Recognition Task (ERT) [45] 96 videos of faces morphing into an emotional expression (40%, 60%, 80%, 100% intensities) . Long & short forms take 20 and 10 minutes respectively.	reliability**:** Based on N=54 (TBI and healthy controls) [46], α for emotions range from .51 (happy) to .84 (anger) Construct validity**:** Reanalysing published data [46], ERT correlates with TASIT Part 1 (r =.78). Concurrent validity: The ERT correlates with informants' view of difficulties with communication after TBI [47].	to TBI [46-49]; SSD [50], ASD [51,52], OCD [53], BPD (Gray et al., 2006), PTSD [54], depersonalisation disorder [55], Korsakoff's amnesia [56], amygdalectomy [57], HD [58], FTD [59], social anxiety disorder [60], Noonan syndrome [61] and stroke [62].	based norms are available from a sample of 373 healthy participants from Australia, Ireland and Europe, aged 8-75 [45] and also based on many clinical comparison studies, e.g. [47], N =42; [52], N=50; [61], N = 40.	Translated into multiple languages	psychometric data to date
The Awareness of Social Inference Test (TASIT)[63] & **TASIT-S**	*Internal reliability:* Short version: Rasch item reliability estimates all >	TASIT Part 1 has proven sensitive to emotion perception impairments in many clinical populations, including stroke [20],	**TASIT**: 270 Australian adults aged 16-74 and 150 adolescents (aged 13-16)[63] **TASIT-S:**	Uses videos everyday type conversations that mimic real world emotion processing than many tests. Has alternate forms. Short version takes 20-30 minutes	TASIT correlates with measures of working memory and processing

[64]. **Part 1: Emotion Evaluation Test** 28 videos (9 in TASIT-S) of professional actors. Examinee classifies emotion. Long and short forms take 20 minutes and 10 minutes respectively	.89 [65]. <u>*Test-retest:*</u> r_{12} = .74 (1 week); <u>*Alternative form:*</u> r_{AB} = .83 (5-26 weeks) [7]; <u>*Construct validity:*</u> Correlates with socially orientated tasks of new-learning and executive processing and experimental social tasks [7]. Short version correlated with original (all *r*'s > .87;[65]. <u>*Concurrent:*</u> correlates with poor social communication in vivo [66]	acquired brain injury [67], multiple sclerosis [68] and Alzheimer's Disease [69].	Normative data for 616 Australians including 226 adolescents (13–19) and 390 adults aged 20–75+ along with 180 U.S. residents (aged 20–74)[70].		speed but not with non-social executive function and learning tasks [7]. Full version is lengthy (60 minutes or more)
The Penn Emotion Recognition Test (ER-40) [71] 40 colour	<u>Internal reliability:</u> α = .56-.65-(HC), .75-.81 (SSD) [72,73]. <u>Test-retest (2-4 weeks)</u>: r_{12} =	ER-40 differentiates patients with SSD from health controls with medium to large effect size (d = .71) [72].	Normative data is available from Pinkham [72], N =104; age 39.2 (13.70) and [73], N = 154: age = 41.95 (12.42).	The ER-40 is quick (3.5 minutes) and simple to administer. Gender, age and ethnicity are varied and balanced across each emotional category.	

photographs of 4 face emotions (i.e., happiness, sadness, anger, or fear) at high and low intensity and neutral. Time to administer = 3.5 minutes	.68-.75 (patients and controls) [72,73]. <u>Convergent validity</u>: Correlates with the BLERT (r = .59) [72]. <u>Concurrent validity:</u> Predicts functional and social outcomes in people with SSD. Confidence ratings/reaction times predict functional outcomes beyond neurocognitive measures [73].			
The Bell-Lysker Emotion Recognition Test (BLERT) [74] 21 x 10 second videos of a	<u>Internal reliability:</u> α: .74-.78 (SSD), .57-.63 (HC) [72,73]. <u>Test-retest</u> (2-4 weeks): r_{12}.70-.81 (SSD) .63-.68 (HC)	The BLERT differentiates patients with SSD from healthy controls [76] with medium to large effect size (d = .76) [72,77].	<u>Normative data:</u> Normative data is available for middle adulthood from Pinkham [72], N =.98 and [73], N = 148, [75], N = 63.	Quick (7 minutes) and simple to administer and a good predictor of functional outcomes in people with schizophrenia, i.e. has good ecological validity

male actor expressing one of 6 emotions and neutral) via face, voice and upper body movement. Time to administer = 7 minutes	[72,73]. Convergent validity: Correlated with cognition measures [75]. Correlates with ER-40 (r = .59) [72]. Concurrent validity: predicts functional and social outcomes in SD more strongly than TASIT, ER-40 or RMET [72].				
TESTS OF THEORY OF MIND (ToM)					
Reading the Mind in the Eyes – Revised (RMET) [78,79] 36 photographs of the eye regions of faces (taken from	Internal reliability: α: .37 [80], .53-.77 [81], .58 [82], .6-.63 [83] .64 [84]. Average tetrachloric intercorrelation of .08 (acceptable range 0.15-.5 [85]) [86].	Many clinical disorders perform poorly including people with ASD [94], SSD [72,97], anorexia nervosa [98], TBI [89,99-102] euthymia and bipolar disorder [103] and dementia [89,102].	Numerous reports in the literature provide normative data including some relatively large samples (e.g. , N = 320 healthy adults age M/SD = 40/12 [94]; N = 98 middle age	Very widely used and has minimal motor or speech demands.	Evidence suggests that the RMET is neither internally reliable nor a valid test of ToM. It is strongly predictive of vocabulary skills.

magazines). Examinee chooses a mental state term e.g. "nervous", "playful", "pensive", "pre-occupied" from four options that best matches the eyes. Time to administer = 6.6 minutes	Test-retest: ICC (one month) = .83 [87], (12 months) .63 [88]. Convergent validity: Evidence is weak. Two studies found RMET correlates with text based ToM tasks [89,90] but others did not [91-93]. Does not correlate with empathy [94,95]. Correlates with vocabulary (e.g. r = .62) [73,96].		adults [72]. There is also at least one study that reports child performance (N = 67 aged 9-15 years) [104].
Strange Stories Task (SST) [105]. 24 short texts ending with a non-literal lie, joke, pretence, etc. plus	The stories have acceptable internal consistency α: .74-.75 and inter-rater and test-retest reliability [35]. Convergent	The mentalising (but not control stories) are typically poorly performed by people with ASD from childhood through to adult. [105-107,109-113]).	Varying numbers of ToM stories from 5 upwards and normative data for children and adults (usually fairly small samples of 30 or

control stories. Examinees answer whether the final statement is true or not and why. Time to administer: 15-20 minutes	validity: correlates with other measures of ToM [35,106-108].		less) can be found in these.		
Faux Pas Recognition Test (FPT) [114]. A series of short stories (usually 10 or 20), approximately half of which describe a situation in which a person commits a faux pas unintentionally. The stories are read aloud and then a series of questions are asked to probe	Internal reliability: α: .91 [115] as cited in [84,116]. Test-retest:(3 months) r_{12} =.83 [117] (4 weeks) = .76 [116]. Inter-rater reliability: .76 [117] to .98 [102]. Convergent validity: Correlates with the RMET[84,89] but not always [116]. Correlates with SST [106,116]	The FPT is performed poorly by many kinds of clinical disorders including ASD [119], neuropsychiatric conditions [120-122], TBI [123] and dementia [89,102].	Many clinical studies of the FPT, e.g. [29,30,118,120, 122] provide data on normal healthy controls in middle adulthood (N=41, 36, 152, 33, 88 respectively) that can be useful to derive normative comparisons. There are also norms for children [124] N =59 7, 9 and 11 year olds.	Quick and easy to administer Freely available from the authors website https://www.autismresearchcentre.com/arc_tests Numerous translations (e.g. [84,116,119,122,125].	Requires reading/listening and reliance on working memory/memory

comprehension . Time to administer: 15-20 minutes	(r = .29, .36 respectively) and indirect language [101]. <u>Concurrent validity</u>: Is associated with social function in SSD [117] and behavioural problems in people with TBI [118].				
The Hinting Task (HT) [126] 10 short stories describing an interaction between two characters, which end with one of the characters making a hint. At the end of each passage, the participant is asked what the hint meant.	<u>Internal reliability:</u> α: .56 [72], .57 [127] for HC .73 for SD [72]. <u>Test-retest:</u> r_{12} *(2-4 weeks)* = .42-.51 (HC) and .64-.70 (SSD) [72,73]. <u>Convergent validity</u>: Correlates with other measures of ToM [128,129]. Loads with other ToM tests (FPT [130] and	The HT discriminates between people with SSD [72,73,133] and people with OCD [134] and healthy adults. It is also one of the most sensitive of a range of social cognitive measures for discriminating adults with ASD [131]	<u>Normative data</u>: There are a number of sources of normative data for middle aged adults for the Hinting task including [131], N =95; [73], N =154; [72], N = 104; [126], N = 30; [135]; N= 30; [133], N = 32. There are also some normative data for children N=20 10-15	Simple and quick to administer Freely available	Does not have a control condition to determine what other non-social difficulties may be contributing.

Time to administer = 6 minutes	TASIT [131]) on a single factor, separate to emotion perception and cognition. Concurrent validity: associated with *in vivo* social skills and functional outcomes in SSD [72,73,128] but not always [132].		years [136].		
TASIT [63] & **TASIT-S** [64]: **Part 2 (Social Inference - Minimal) and Part 3 (Social Inference enriched).** Videos of actors engaged in conversations that are sincere or sarcastic	*Reliability:* *Test-retest:* Part 2: *r* = .88; Part 3: *r* = .83 (1 week); *Alternative form:* Part 2: *r* = .62; Part 3: *r* =.78 (5-26 weeks); *Internal Consistency*: Short version: Rasch item reliability	TASIT Parts 2 and/or 3 have proven sensitive to ToM impairments in SSD [138-141], major depression [142], TBI [67], multiple sclerosis [68,143], Parkinson's Disease [144] and FTD [141].	**TASIT**: 270 Australian adults aged 16-74 and 150 adolescents (aged 13-16)[63] **TASIT-S:** Normative data for 616 Australians including 226 adolescents (13–19) and 390 adults aged 20–75 + along with 180 U.S.	Uses videos everyday type conversations that mimic real world emotion processing than many tests. Has alternate forms. Short version takes 20-30 minutes	TASIT correlates with measures of working memory and processing speed but not with non-social executive function and learning tasks [7]. Full version is lengthy (60

(Part 2) or sarcastic or lies (Part 3). Examinees answer 4 questions per item regarding thoughts, feelings and intentions. Time to administer long and short forms = 40-50 minutes and 20 minutes respectively.	estimates all > .89. *Validity:* *Convergent*: Correlates with socially orientated tasks of new-learning and executive processing and experimental social tasks [7]. *Construct*: TASIT-S correlated with original (all *r*'s > .87)[137] *Concurrent:* correlates to poor social communication in vivo[66].		residents (aged 20–74)[70].		minutes or more)
Movie for the assessment of social cognition (MASC) [108] 15 minute movie of four people interacting, regularly	Internal Reliability: α: entire scale = .84-.86 [108,145]. Inter-rater: ICC = .99 [108] Test-retest(one year) r_{12} = .67 [146] Convergent	Differentiates b/w healthy adults and people with ASD [145], SSD [148,149], antisocial personality disorder [150]. This is true for most scores including under-mentalising errors but not over-mentalising [147-149].	Range of norms for young adults, e.g. N = 71 age: M/SD=29.3/7.7 [149], N = 80, age: 39.1/10.7 [148], N = 42, age 37.5/15.9 [150], N = 71, age 29.3/7.7 [147], N =26,	Ecologically valid assessment that combines verbal and non-verbal cues. Samples a range of mental state inferences Freely available from the website	Not all questions sample mental state terms. The over-mentalising errors seem to lack validity. Not yet consistent

paused and a question is asked as to the thoughts/feelings or intentions of the relevant characters. Also MC format Time = 45 minutes	validity: correlates with the SST in ASD [108,145] and with emotion recognition and RMET in healthy controls [108,145,147].		27.2/4.7 [145].		agreement about how scores/errors are categorized.
The Social Attribution Task (SAT) [151,152] Adaption of Himmel and Seidler's 60 second cartoon of animated geometrical shapes. Explanations of the shapes' actions are rated for Pertinence, Salience, ToM, ToM affective, Animation, Person and Problem	Internal reliability: α:.74 [73] and .83 [153] (MC version). Inter-rater reliability: ICCs (2 raters) .76-.90 [151]. Test-retest (2 weeks) .55 for parallel MC versions [73]. (ES = .49). Convergent validity: Correlates with the BLERT (r =.47) and the HT (r = .37) but not IQ [151,152]. Is associated with	The SAT discriminates between people with ASD, SSD and HC [73,151-153]	Norms for the MC version are provided for 154 adults [73] and 85 adults [153] in mid adulthood.	Requires minimal verbal comprehension Has both free response and MC with detailed scoring procedures. High IRR is reported for both scoring systems.	Psychometrics are not well established. The free response scorings systems are detailed and complex.

solving. There is also a multiple choice format [153] and parallel versions [73]. Time to administer = 10 minutes	neuropsychological test scores in SSD [153]. <u>Concurrent validity:</u> Correlated with financial, communication and social skills in SSD but not another measure of real world function [73].				
The Yoni task [154] Uses items with a central schematic face "Yoni" with changing eye gaze/mouth. In the corners around Yoni are objects (1st order ToM) or other faces with adjacent objects (2nd order ToM). Questions are	<u>Internal consistency:</u> N/A. <u>Test-retest</u> N/A. Adults with SSD improve on the test 18 months later, suggestive of practice effects: $\eta 2$ = 0.193 [155]. <u>Construct validity:</u> Yoni scores are associated with cognition in some [156,157] but not all	The 1st order tasks poor at differentiating clinical groups [154,156,158-160,162-164]. The 2nd order task sensitive to brain lesions [154,161-163], PD [158], MCI [165], OCD [156], HD [166] and SSD [155,157,160,161,164, 167], bipolar disorder [159], ASD [164] and psychopathy [162]. Affective vs cognitive tasks differentiate different disorders, e.g. affective task is	Normative data is limited and varies depending on the number of trials. Several studies using the original 64 items version [154,155,162,164] provide percent accuracy estimates (and SDs) for small samples of adults (43, 44, 20 and 30 healthy adults respectively).	Simple and has limited verbal demands. Has been used in a number of studies and is sensitive to clinical disorders Provides the capacity to look at cognitive and affective ToM and there appears to be evidence that these dissociate in some clinical conditions.	Psychometrics are not established Does correlate with cognitive abilities in some studies at least The use of different numbers of (and possibly type of) trials across studies, limits generalisability

of the form *"Yoni is thinking of."*. *"Yoni loves…"* (1st order) or "*Yoni is thinking of/loves the fruit that -- wants/loves"* (2nd order). Control items tests physical judgements. Time to administer: Not available.	studies [158]. Yoni task- 2nd order ToM is associated with comprehension of irony[154]. <u>Concurrent validity</u>: Correlated with Health related Quality of Life in PD [158] and with positive and negative symptoms in SSD [159,160] although not always [161] also psychopathy [162].	difficult for people with psychopathy or ventromedial frontal lesions [154,161,162]	One study using a 54 version, presents normative data (raw scores) for 316 normal adults age M/SD = 23.3/7.8 years [168].		Very little normative information
TEST OF EMPATHY					
Interpersonal Reactivity Index (IRI) [169] 4 x 7 item self report scales measuring Perspective	*<u>Reliability</u>:* *<u>Internal consistency</u>:* α = .70-.78 [169]; *<u>Test-retest</u>*: ICC: .61-.81[170]; *<u>Convergent validity</u>:*PT and	IRI can distinguish between moderate to severe TBI and control participants[171,172].	Studies using the English IRI or translations provide means and SDs in HC, for example: N=188 Italian adolescents; [173], N = 322	Measures cognitive and emotional empathy; has been used brief, quick to administer; free to download: http://www.eckerd.edu/academics/psychology/iri.php;	Require good English skills; Subjective (i.e. self-report) thus lack of insight may limit validity Scales

Taking (PT), Empathic Concern (EC), Personal Distress (PD) and Fantasy (FS). Examinee rates each item on 5-point Likert scale ranging from "Does not" to "Describes me very well". Time to administer: 3-5 minutes	Hogan Empathy (cognitive empathy) scale: *r* = .40, EC scale less (*r* = .18), EC and Mehrabian and Epstein Emotional Empathy Scale (*r* = .60) and PT scale less (*r* = .20). *Concurrent:* Higher PT scores associated with better social functioning (*r* = -.15) and higher self-esteem (*r* = .23), but not related to intellectual ability[169].		French adults; [174], N = 108 adults; [175], N = 221 Swedish children (11th graders) and their parents; [176], N = 651 Dutch adults; [177]; N = 435 adults from Chile [178].	confound other attributes (e.g. sympathy)[179].
The Empathy Quotient (EQ) [180] Self-report questionnaire with 40 items	*Reliability:* *Internal consistency:* α = 0.78 to 0.92 across studies [83,87,180]. A factor suggested	Discriminates between those with ASD and controls (e.g. [180,181]) It also discriminates between people with schizophrenia and	Cut-off of 30 recommended as only 12.2% typically developed adults (N = 90) score below this [180].	

tapping empathy Examinees rate each item from 2 strongly agree to 0 disagree, There is also a child version of the EQ available. [181,182]. Time to administer: 3-5 minutes	three factors: Cognitive empathy, emotional reactivity and social skills [183]. <u>Test re-test (12 months)</u> 0.84 [183] to .97 [180]. <u>Convergent Validity</u>: correlates with the RMET [83,183], the FPT [184] and the IRI [183]. <u>Concurrent Validity</u>: inversely correlated with the Autism Spectrum Quotient and positively correlated with the Friendship Questionnaire [180].	controls for self-report [184] and also when using the informant version [185].	M= 45 based on 5,490 adults, age=18-75 [186]. Child (7-11 years) [182] and adolescent versions (12-16 years) [187] (both designed for parents to complete) have large normative sets (N = 1,256 and 1,030 respectively).	
Questionnaire of Cognitive and Affective	<u>Internal consistency</u>: QCAE has 5	People with Schizophrenia have lower Cognitive	<u>Normative data:</u> N=925 participants	Has been derived from other stablished scales based on empirical analysis Provides a measure of both cognitive and

Empathy (QCAE)[188] Self-report derived via factor analysis of items from the EQ [180], Hogan Empathy Scale [189], Impulsiveness-Venturesomeness-Empathy Inventory [190] and the IRI [169]. Examinees rate 31 statements 4 (strongly agree) to 1 (strongly disagree). Time to administer: 3-5 minutes	factors: α: 65 to .85 [135]. Independent research: cognitive and affective factors (α = .90 and .77 respectively)[191]; Test–retest (3 weeks) .84 [192]. Construct validity: Cog and effective subscales intercorrelate r=.31 and correlate with related BES subscales [188] and related IRI scales [191,193]. Predictive validity: Higher Cog empathy is correlated with better community functioning in people with	empathy than matched controls but higher Affective empathy [191,193]	(mean age 23-30; SD 7.3-11, range 17-65). There is also a large data set of 844 adults-mainly university students (M= 22.3 (5.1) years) completing the QCAE on-line [194].	affective empathy

	schizophrenia as well as matched control participants [191]			
The Multifaceted Empathy Test (MET) [195] Pairs of pictures, one context and one of a person in the context. Examinees choose a term to match the state of the character (cognitive empathy- CE), rate how aroused they feel for the person and/or how much empathic concern (EE) they have for the person from 0 to 9.	Internal consistency: CE: α:.71 [195], .55-.69 [196] and .78[197]. EE: α: .91-.92 [195] to .94-.98 [196] to .97 [197]. Test-retest: N/A; Construct Validity: CE does not correlate with the IRI-PT scale [195,196,198] but EE is associated with the IRI-EC subscale (r=.61-.63) [195], .27-.46 [196], .44 [198].	People with ASD, SSD and FTD do poorly on the CE scores but not EE scores [195,197,198]. Conversely cocaine users and people with narcissistic personality disorders tend to have specific problems on the EE scores of the MET, rather than the cognitive scales [199,200]	Studies vary scoring, scales, (e.g. 0-9 vs 1-9), no. of items and presentations, limiting a common corpus of normative data. However, for different scores there are some relatively large normative data sets available, e.g. N=108, 20-79 year olds [196], N =55 (M/SD = 39.8/ 11.9) [197]	Quick and easy to administer Freely available from the authors website https://www.autismresearchcentre.com/arc_tests Numerous studies and associated normative samples.

Time to administer: 10 minutes

Note. HC = Healthy controls; ASD = Autism Spectrum Disorders; SSD = Schizophrenia Spectrum Disorders; TLE = Temporal Lobe Epilepsy; FTD = Frontotemporal dementia; TBI = Traumatic brain injury; OCD = Obsessive-Compulsive Disorder, PTSD = Post Traumatic Stress Disorder. AD = Alzheimer's Disease, MCI = Mild Cognitive Impairment, PSP = PR =; ICC = Intraclass Correlation; α refers to Cronbach's alpha, r_{sh} = split half reliability; r_{12} = *test-retest* reliability; MC= Multiple Choice; [1] The manual is advertised as on-line but according to the authors is no longer available.

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