Outcome Measure	**Comprehensive Affect Test System (CATS)**
Sensitivity to Change	Not known
Where to obtain	The manual is advertised as on-line but according to the authors is no longer available.
Population	Adult
Domain	Social Cognition
Time to administer	**20 minutes**
Type of Measure	Objective test
Description	The CATS (Froming, Levy, Schaffer, & Ekman, 2006) is a system of 13 subtests that uses the original Ekman and Friesen images as well as voice tracks to asses affect recognition: The test can be administered via pen and pencil or via computer. The full version is reported to take 45-60 minutes. An abbreviated version has also been developed (Sarah G. Schaffer, Wisniewski, Dahdah, & Froming, 2009) suggested to take 20 minutes. The subtests are (number of items in brackets for full and abbreviated respectively): 1. Identity discrimination: two neutral faces are shown and the participant needs to decide whether they are the same (22: 12) 2. Affect discrimination: two faces of the same actor are shown. Same or different emotion? (22: 12) 3. Non-emotional prosody discrimination: Two neutral sentences are heard, spoken as either question or statement. Same or different? (22: 6 items) 4. Emotional prosody discrimination: Two sentences spoken as Happy, angry, sad, fearful or neutral (22: 6 items) 5. Name affect: Name the expression on a face from 6 options: happy, sad, angry, fear, disgusted, neutral (16: 6) 6. Name emotional prosody: Listen to a neutral sentence: choose emotion from happy, sad, angry, fear, neutral (22: 12) 7. Match affect: Choose from 5 faces below target face to match affect (20: 12) 8. Select affect: choose which of 5 faces (same actor) has expression that matches target emotion (announced orally) (20: 6) 9. Conflicting prosody/meaning: Attend to prosody: Listen to a sentence, ignore its meaning and identify the prosodic emotion (32: 12) 10. Conflicting prosody/meaning: Attend to meaning: Listen to a sentence, ignore its prosody and identify the meaning emotion (32: 12) 11. Match emotional prosody to face: Listen to sentence and select face that matches prosody (sentences are from subtest 6) (22: 12)

	12. Match face to prosody: choose between three sentences to match face. (22: 12) 13. Three face test: Choose which two of three faces (same gender; one individual shows two emotions) have same affect. (24) The manual has been stated to be available on-line but at the stage of writing this review was not searchable.
Properties	Internal consistency: IC data is provided in the manuals (S.G. Schaffer, Gregory, Froming, Levy, & Ekman, 2006) which have been reported to range from –0.15 to 0.76, across subtests for the full version. Independent research cites .61 (Subtest 5), .66-.67 (subtest 11) in children (McKown, Allen, Russo-Ponsaran, & Johnson, 2013; McKown, Gumbiner, Russo, & Lipton, 2009), .7 (Subtest 5), .56 (Subtest 6) in adults (Albuquerque et al., 2014). No information is available for the CATS-A. Test-retest: There is very little information on the stability of the CATS. Test-retest for one subtest (11) over 12 months in children is r =.7 (McKown et al., 2013). No information is available for the CATS-A. Construct Validity: Subtests 5 and 6 inter-correlate (r = .61) (Albuquerque et al., 2014). CATS Subtest 11 correlates with a range of other social cognition measures (e.g. DANVA, Strange stories, posture recognition) in children, probably reflecting developmental influences (McKown et al., 2013). In the CATS-A, Shaffer reports that five scales emerge by coalescing subtests that inter-correlate from .3 to >.4. These are: Simple facial emotion (Subtests 2 and 5); Complex facial emotions (Subtests: 8,7 and 13), prosody (subtests 3, 6 and 9) lexical (Subtest 10) and cross modal (Subtests 11 and 12). In adults, simple and complex emotions are not influenced by age but women out-perform men. Cross-modal emotions and prosody are influenced by fluid reasoning (MR) and age, the latter even once MR scores are co-varied (Sarah G. Schaffer et al., 2009). Subtests 5 (Affect naming) and Subtest 2 (discrimination) are likewise influenced by cognitive ability, naming continues to be so even when level of education is covaried (Martins, Moura, Martins, Figueira, & Prkachin, 2011). CATS Subtest 6 (name emotional prosody) and Subtest 7 (face affect matching) are correlated with the detection of lies (r = .28 and .38) and sarcasm (r- .45 and .32 respectively) in an audiovisual test of conversational inference (TASIT Part 3) (Shany-Ur et al., 2012). Divergent validity: Various subtests of the CATS have been shown to discriminate clinical disorders from healthy matched controls. For example, while people with schizophrenia do not differ from controls on basic affect and prosody discrimination, they do differ on face identification (Martins et al., 2011), naming and conflict judgements (prosody) and on name/affect matching (Face affect). (Martins et al., 2011; Rossell et al., 2013; Rossell, Van Rheenen, Joshua, O'Regan, & Gogos, 2014). People with bipolar disorders also have deficits although these are more limited (Rossell et al., 2013; Rossell et al., 2014). People with different forms of dementia (FTD, AD, PSP, vascular dementia) have also been reported to have difficulty with subtests of voice and face affect (Shany-Ur et al., 2012). Using the CATS-A, people with (left lateralised) Parkinson's disease have been found to have specific difficulty with prosody but not facial affect subtests (Ventura et al., 2012). Finally using the entire CATS-A 13 subtests it was found that chronic cocaine users were selectively impaired on subtests 9 and 11 (attending to

	prosody and matching prosody to faces) (Hulka, Preller, Vonmoos, Broicher, & Quednow, 2013). Normative data: Normative data for the CATS is reportedly in the manual for 20-79-year olds. For the CATS-A the means and SD's for the individual subtests (n = 48, aged 18-60) are reported in (Hulka et al., 2013) and for the composite scales (N=60, aged 20-79) (Sarah G. Schaffer et al., 2009).
Advantages	• Comprehensive range of subtests • Abbreviated version is much shorter
Disadvantages	• Limited evidence of psychometrics • Evidence for predictive validity missing.

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