

Outcome Measure	CANTAB Social
Sensitivity to Change	No evidence
How to obtain	https://www.cambridgecognition.com/cantab/
Population	Adult
Domain	Social Cognition – Emotion recognition
Type of Measure	Performance task
Description	<p>Two subtests of CANTAB</p> <p>1. Emotion Recognition Test – presents morphed images (blended prototype of 12-15 individuals of same age and gender- 4 identities representing a child male and female and an adult male and female). Each image is shown with (1) an ambiguous expression (morph of all possible) and then increasing intensity (8 levels) to maximum representing the six basic emotions, i.e. 4 (identities) x 6 emotions x 8 (intensities) = 192 images. Each image is presented very briefly for 200ms and then the participant is asked to select the correct label from 6 displayed. Outcome is the percent correct and latency. (6-10 minutes)</p> <p>2. Emotion Bias test (developed by (Penton-Voak, Bate, Lewis, & Munafo, 2012; Penton-Voak et al., 2014): Prototypical images (morphed from 20 male adult faces taken from the Karolinska faces set) transition in 15 steps between happy and (a) sad, (b) angry and (c) disgust. Each face is presented for 150ms and participant is asked to choose between happy and other emotion. Key outcome is the bias point, i.e. the point on the continuum that the participant selects Happy. (4 minutes)</p>
Properties	<p>There is very little publicly available information on the psychometrics of these social cognition subtests.</p> <p><u>Reliability</u>: None available</p> <p><u>Construct validity</u>: Two studies of patients at high risk of psychosis (Glenthøj et al., 2019; Glenthøj et al., 2016) found the ERT discriminated them from controls while another found that children with ASD performed more poorly than controls on the ERT although this was no longer the case when vocabulary skills, Ravens Progressive Matrices performance and gender was taken into account (Griffiths et al., 2019). Both ASD and typically developing children found the low intensity emotions very difficult. In a manipulation of anxiety levels in normal adults, increased anxiety was associated with poorer ERT scores as was a bias on the EBT towards perceiving anger in ambiguous faces (Attwood et al., 2017). People with depression also demonstrated a bias towards seeing ambiguous faces as angry (Stoddard et al., 2016).</p> <p><u>Concurrent validity</u>: One study of patients at high risk of psychosis found that latency on the ERT (but not accuracy) predicted functional outcome (Glenthøj et</p>

	<p>al., 2019) while another found that different emotional categories had different relationships to outcomes in the same patient population (Glenthøj et al., 2016). A study of patients with schizophrenia found the ERT predicted global assessment of function (Gica, Poyraz, & Gulec, 2019).</p> <p><u>Normative data</u> is possibly available from CANTAB. Some published data is available for the ERT (Glenthøj et al., 2019; Glenthøj et al., 2016) (N= 60 and 30 respectively).</p>
Advantages	Probably useful for experimental studies and detecting individual differences
Disadvantages	<ul style="list-style-type: none"> • May be difficult for many patient populations • No reliability data available • Construct validity needs further research • Little normative data available • Access to normative data is via CANTAB

References

- Attwood, A. S., Easey, K. E., Dalili, M. N., Skinner, A. L., Woods, A., Crick, L., . . . Munafò, M. R. (2017). State anxiety and emotional face recognition in healthy volunteers. *Royal Society Open Science*, 4(5), 160855. doi:doi:10.1098/rsos.160855
- Gica, S., Poyraz, B. C., & Gulec, H. (2019). Are emotion recognition deficits in patients with schizophrenia states or traits? A 6-month follow-up study. *Indian J Psychiatry*, 61(1), 45-52. doi:10.4103/psychiatry.IndianJPsychiatry_307_18
- Glenthøj, L. B., Albert, N., Fagerlund, B., Kristensen, T. D., Wenneberg, C., Hjorthøj, C., . . . Jepsen, J. R. M. (2019). Emotion recognition latency, but not accuracy, relates to real life functioning in individuals at ultra-high risk for psychosis. *Schizophr Res*, 210, 197-202. doi:10.1016/j.schres.2018.12.038
- Glenthøj, L. B., Fagerlund, B., Hjorthøj, C., Jepsen, J. R. M., Bak, N., Kristensen, T. D., . . . Nordentoft, M. (2016). Social cognition in patients at ultra-high risk for psychosis: What is the relation to social skills and functioning? *Schizophr Res Cogn*, 5, 21-27. doi:10.1016/j.scog.2016.06.004
- Griffiths, S., Jarrold, C., Penton-Voak, I. S., Woods, A. T., Skinner, A. L., & Munafò, M. R. (2019). Impaired Recognition of Basic Emotions from Facial Expressions in Young People with Autism Spectrum Disorder: Assessing the Importance of Expression Intensity. *Journal of Autism & Developmental Disorders*, 49(7), 2768-2778. doi:10.1007/s10803-017-3091-7
- Penton-Voak, I. S., Bate, H., Lewis, G., & Munafò, M. R. (2012). Effects of emotion perception training on mood in undergraduate students: Randomised controlled trial. *The British Journal of Psychiatry*, 201(1), 71-72.
- Penton-Voak, I. S., Thomas, J., Gage, S. H., McMurrin, M., McDonald, S., & Munafò, M. R. (2014). Increasing recognition of happiness in ambiguous facial expressions reduces anger and aggressive behaviour. *Psychological Science*, 28, 719-732. doi:10.1177/0956797612459657
- Stoddard, J., Sharif-Askary, B., Harkins, E. A., Frank, H. R., Brotman, M. A., Penton-Voak, I. S., & Leibenluft, E. (2016). An Open Pilot Study of Training Hostile Interpretation Bias to Treat Disruptive Mood Dysregulation Disorder. *Journal of Child and Adolescent Psychopharmacology*, 26(1), 49-57. doi:10.1089/cap.2015.0100