Four-Item Mentalising Index
The first self-report questionnaire measure of mentalising

Rachel A. Clutterbuck, Mitchell J. Callan, Emily C. Taylor, Lucy A. Livingston, and Punit Shah

UNIVERSITY OF BATH

Background

Mentalising is the ability to understand the metal states of oneself and others (e.g., Happé et al., 2017).

Quantifying mentalising ability is important to understand clinical conditions which are characterised by mentalising difficulties, such as autism (e.g., Lever & Geurts, 2016).

Current mentalising measures are impractical for use in clinical practice and large population based samples, due to:
- ✗ complexity
- ✗ long administration times
- ✗ poor/untested psychometric properties and construct validity (e.g., Olderbak et al., 2019)

Aim: To develop and validate the first self-report measure of mentalising.

Read each statement and indicate the extent to which you agree or disagree.

		Strongly Disagree	Slightly Disagree	Slightly Agree	Strongly Agree
1	I find it easy to put myself in somebody else's shoes	☐	☐	☐	☐
2	I sometimes find it difficult to see things from other people's point of view	☐	☐	☐	☐
3	I sometimes try to understand my friends better by imagining how things look from their perspective	☐	☐	☐	☐
4	I can usually understand another person's viewpoint, even if it differs from my own	☐	☐	☐	☐

Study 1: Identifying Items

Study 1a
Four raters identified 9 items on an existing empathy questionnaire (Questionnaire of Cognitive and Affective Empathy; Reniers et al., 2011) that pertained more closely to the conceptual definition of mentalising (understanding mental states), than empathy (understanding emotional states).

Exploratory Factor Analysis (EFA) of an existing dataset (N = 660), showed that the 9 items formed a 2 factor structure (Figure 1). The four-item factor appeared to be measuring mentalising.
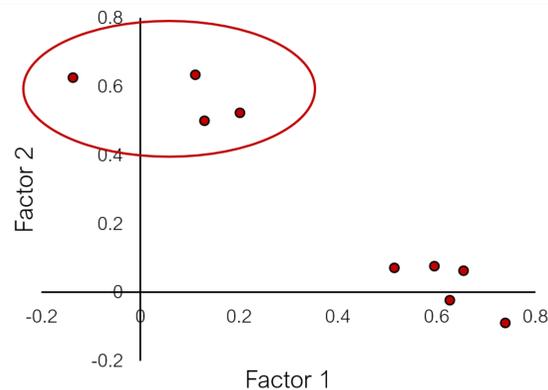
Figure 1. EFA of 9 potential mentalising items.

Study 1b
In a new sample (N = 669), Confirmatory Factor Analysis (CFA) confirmed the 2-factor structure of the 9-items.

Study 2: Factor Structure and Reliability

The four-item factor identified in Study 1 became our mentalising questionnaire – the Four-Item Mentalising Index (FIMI, see items above).

Study 2a
In a large sample (N = 1999) the FIMI showed:
- ✓ Good internal consistency (ω = .75)
- ✓ A one-factor structure
- ✓ Items with similar levels of variance
- ✓ Measurement invariance to sex

The FIMI also detected the expected sex difference in mentalising, with females having higher FIMI scores (d = 0.21, p <.001)

Study 2b
In a sample of students (N = 116) who completed the FIMI in their first and eighth week at university, the FIMI additionally had:
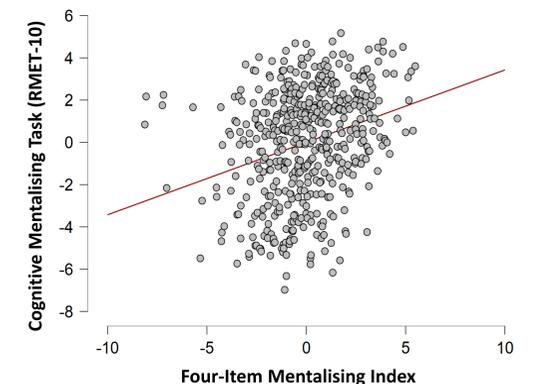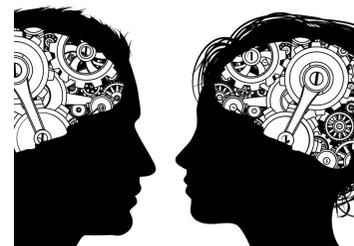- ✓ Good test retest reliability (r = .74, p <.001)

Study 3: Construct Validity

Study 3a
In a new sample (N = 500) the FIMI showed:
- ✓ Expected negative relationship with autistic traits (r = −.43, p < .001)
- ✓ Expected positive relationship with a cognitive mentalising measure (r = .35, p < .001), even after accounting for autistic traits, age, and sex (Figure 2)

Figure 2. Partial regression plot. Standardised residuals of the Four-Item Mentalising Index predicting the 10-item Reading the Mind in the Eyes Test (RMET-10; Olderbak et al., 2015), while controlling autistic traits, age, and sex.

Study 3b
Comparing clinically diagnosed autistic adults (N = 102) and age-, sex-, and general mental ability- matched non-autistic adults (N = 183):
- ✓ Autistic adults had significantly lower FIMI scores, than non-autistic adults (d = 1.25, p < .001), as expected
- ✓ Measurement invariance analysis revealed that the FIMI was invariant to autism

Conclusions

We developed and validated the first mentalising questionnaire, the Four–Item Mentalising Index (FIMI).

The FIMI demonstrates:
- ✓ Good internal consistency and a one-factor structure
- ✓ Excellent construct validity
- ✓ Measurement invariance to sex and autism: i.e., measures the same construct in men and women, and autistic and non-autistic people

The FIMI is therefore ideal for:
- ✓ Collecting large samples of mindreading data in online studies, given its brevity
- ✓ Use in time-restricted clinical sessions
- ✓ Understanding sex and autism-related differences in mentalising

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