

Outcome Measure	Interpersonal Reactivity Index (IRI)
Sensitivity to Change	No
Population	Adult
Domain	Social Cognition
Type of Measure	Self-report scale
ICF-Code/s	b1
Description	<p>The Interpersonal Reactivity Index (IRI) is a very widely used multidimensional measure designed to assess dispositional empathy. Empathy itself is defined variously across the literature but there is consensus that it entails both the ability to share the emotional experience of another and the ability to understand it (cognitive empathy) (Baldner & McGinley, 2014).</p> <p>The IRI contains four seven-item subscales, each tapping a separate facet of empathy:</p> <ul style="list-style-type: none"> • The perspective taking (PT) scale measures the reported tendency to spontaneously adopt the psychological point of view of others in everyday life ("I sometimes try to understand my friends better by imagining how things look from their perspective"). • The empathic concern (EC) scale assesses the tendency to experience feelings of sympathy and compassion for unfortunate others ("I often have tender, concerned feelings for people less fortunate than me"). • The personal distress (PD) scale taps the tendency to experience distress and discomfort in response to extreme distress in others ("Being in a tense emotional situation scares me"). • The fantasy (FS) scale measures the tendency to imaginatively transpose oneself into fictional situations ("When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me"). <p>Although not originally described as such by Davis (1980), EC and PD scales have been referred to as measuring affective empathy while the PT and FS scale are commonly referred to as measuring cognitive empathy.</p> <p>The 28-items are answered on a 5-point Likert scale ranging from "Does not describe me well" to "Describes me very well".</p>
Properties	<p><u>Internal consistency</u>: Cronbach's alpha coefficients range from .70 to .78 (Davis, 1980). Further reports of reliabilities of the IRI confirmed these figures for the English version (Baldner & McGinley, 2014): PT = .75, EC = .80, PD = .76, FS = .79). Similar internal consistency has been found in Dutch and French versions (Braun, Rosseel, Kempenaers, Loas, & Linkowski, 2015; De Corte et al., 2007). However, these studies were undertaken using university samples.</p>

Test-retest reliability (ICC): Following an interval of 60-75 days, test-retest reliabilities ranged from .61 to .79 for males and .62 to .81 for females (Davis, 1980).

Construct validity: There is mixed evidence of the scale's construct validity. The original paper by Davis (1980) with a sample of 427 undergraduate students attested to the 4 distinct subscales, and this has been supported in other research with 365 female dieticians (Carey et al., 1988). Other work, however has not always agreed. For example a study on methadone maintenance patients attested to three rather than four factors (Alterman, McDermott, Cacciola, & Rutherford, 2003). Yarnold, Bryant, Nightingale and Martin (1996) assessed the factor structure of the Index with both student and physician samples. Neither sample reproduced the original four subscales.

The EC scale is positively inter-correlated with both the PT and FS ($r \sim .33$). PD and PT are negatively correlated ($r \sim -.25$). Other correlations between scales are smaller (Davis 1983).

Convergent validity

The **PT subscale** correlates with the Hogan scale, a scale of predominantly cognitive empathy ($r \sim .42$) (Davis, 1983). It also correlates with the Empathy Quotient (EQ: $r \sim .49$) (Melchers, Montag, Markett, & Reuter, 2015), the Brief Empathy Scale (BES) cognitive empathy subscale ($r \sim .35$) (Darrick Jolliffe & David P. Farrington, 2006) and the Affective and Cognitive Measure of Empathy (ACME) cognitive empathy subscale ($r \sim .35$) (Vachon & Lynam, 2016). Consistent with being a measure of cognitive empathy, the PT shows the least association of the 4 subscales with the Mehrabian and Epstein Questionnaire Measure of Emotional Empathy (QMEE) ($r=.22$) (Davis, 1983).

As might be expected of an affective empathy measure, The **EC subscale** has only a small correlation with the Hogan scale ($r \sim .18$), but strong correlations with the QMEE ($r = .60$), EQ ($r = .51-.63$), the BES: affective subscale ($r .18-.59$) and the ACME affective subscale ($r = .80$) (Baldner & McGinley, 2014; M.H. Davis, 1983; Melchers et al., 2015; Vachon & Lynam, 2016). There are concerns, however, that the EC taps into sympathy (how one feels about the emotions of another) rather than empathy per se (D. Jolliffe & D.P. Farrington, 2006). Indeed the EC is strongly correlated with measures of trait sympathy ($r=.62$) (Baldner & McGinley, 2014)

The **FS subscale** correlates strongly with the QMEE ($r = .52$) and much less with the Hogan scale (mean $r = .15$). Thus its role as a measure of cognitive empathy can be disputed. Indeed, Davis (1983) originally conceptualised it as more related to emotional empathy. The FS is significantly correlated with the EQ ($r = .36-.46$) (Baldner & McGinley, 2014; Melchers et al., 2015).

The **PD scale** is negatively associated with the Hogan (mean $r = -.33$) and

	<p>the BES cognitive subscale ($r = -.14$). It is positively associated the QMEE (mean $r = .24$) and the BES affective subscale ($r = .33$) (Davis, 1983)(Baldner & McGinley, 2014). These relationships would suggest that the PD does measure affective empathy (and inversely, cognitive empathy). However, its role as a measure of empathy is disputed. Indeed, the PD has small negative ($r = -.2$ (Melchers et al., 2015) to near zero correlation with the EQ ($r = -.06$) and near zero correlation with the Toronto Empathy Questionnaire (TEQ) ($r = .02$). (Baldner & McGinley, 2014). It has been argued that the PD scale mainly focuses on emotion regulation and is about oneself rather than other so is not empathy as usually defined.</p> <p>Thus while the PT and EC subscales of the IRI do show convergent validity with cognitive and affective empathy scales respectively, the FS and PD do not. Further, problems for the IRI emerge from a factor analysis of its items along with several other empathy scales (based on 497 undergraduates). This found that 3 of the 6 emerging factors were unique to the IRI subscales (PT, FS and PD) suggesting that these measure something fundamentally different to other empathy scales.</p> <p><u>Predictive validity:</u> Higher PT scores are associated with better social functioning ($r = -.15$) and higher self-esteem ($r = .23$). FS scores were generally unrelated either to self-esteem or social functioning. Relation between EC and measures of interpersonal functioning was low. PD was strongly associated with lower self-esteem and poor interpersonal functioning (especially shyness and social anxiety). More so than the EC and FS, the PD scale was also strongly associated with a specific "emotional" constellation of vulnerability, uncertainty, and fearfulness. There was little association with intelligence.</p> <p><u>Criterion validity:</u> Studies have shown that the IRI can distinguish between moderate to severe TBI and control participants (Bivona et al. 2013; de Sousa et al., 2010; Muller et al. 2010).</p> <p>Significant differences between males and females occur for each of the four subscales, with women displaying higher scores than men in each case. The largest differences are found for the fantasy scale (Davis, 1980).</p>
Advantages	<ul style="list-style-type: none"> • Measures various aspects of empathy including cognitive and emotional empathy. • Psychometric properties are ok, although may be weak in some parts. • Is a reasonably brief measure which can be administered in a short period of time. • The scale is free to download: http://www.eckerd.edu/academics/psychology/iri.php
Disadvantages	<ul style="list-style-type: none"> • Require a reasonable level of English skills to complete. • It's a subjective (i.e. self-report) measure, thus it is possible that some may lack insight into their empathy difficulties.

	<ul style="list-style-type: none">• There is dispute as to what the various subscales actually measure
Additional Information	
Reviewers	Skye McDonald

References

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