

Outcome Measure	Interpersonal Reactivity Index (IRI)
Sensitivity to Change	Not known
Population	Adult
How to obtain	Contact the authors (Davis, 1980)
Domain	Social Cognition
Type of Measure	Self-report scale
Time to administer	3-5 minutes
Description	<p>The Interpersonal Reactivity Index (IRI) (Davis, 1983) is a multidimensional measure designed to assess dispositional empathy, which was defined as "the reactions of one individual to the observed experiences of another."</p> <p>The instrument contains four seven-item subscales, each tapping a separate facet of empathy.</p> <p>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").</p> <p>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").</p> <p>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").</p> <p>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> <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>: Original estimates of Cronbach's alpha coefficients ranged from .71 to .77 (Davis, 1980). Further reports of reliabilities of the IRI generally confirm internal consistency within this range for the four subscales: PT: .63-.81; EC: .68-.81; PD: .70-.88; FS: .70-.86; (Baldner & McGinley, 2014; Bartholow, Sestir, & Davis, 2005; Christopher, Owens, & Stecker, 1993; Cliffordson, 2001; Corte et al., 2007; Fernandez, Dufey, & Kramp, 2011; Gilet, Mella, Studer, Grünh, & Labouvie-Vief, 2013; Peloquin & Lafontaine, 2010; Rueda, Fernández-Berrocal, & Schonert-Reichl, 2014)</p> <p><u>Test-retest reliability (ICC)</u>: 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). Similar test-retest reliability: .71-.86 was found over much longer (4-30 months) (Gilet et al., 2013)</p> <p><u>Construct validity</u>: There is mixed evidence of the scale's construct validity. In two large scale studies (n = 365, 322 respectively) factor analyses confirmed that IRI subscales measure four discernibly different empathy dimensions (Carey, Fox, & Spraggins, 1988; Gilet et al., 2013). However, both the FS and PD subscales have demonstrated problems with construct and criterion validity (Davis, 1983). Other studies with large samples have questioned the goodness of fit of the four-factor model, suggesting an additional factor is required (Yarnold, Bryant, Nightingale, & Martin, 1996), the use of a single factor that excludes PD (Cliffordson, 2001) or change/exclusion of the FS subscale (De Corte et al., 2007).</p> <p><u>Construct validity</u>:</p> <p>Davis's original study (Davis, 1983), validity of the subscales is as follows:</p>

The PT subscale also correlated significantly with another measure of cognitive empathy (The Hogan scale) (.37-.42) and less with a measure of emotional empathy (the Mehrabian and Epstein Emotional Empathy Scale (MEEES): .17-.22). Conversely, the EC and FS scales correlated more with the MEEES (.48-.63) and less with the Hogan (.11 to .25) subscales. PD correlations were not as expected, correlating negatively with the Hogan (-.25--.4) and positively with the MEEES (.12-.36)

Independent research

The subscales EC and PT have been found to correlate with an independent measure- the Empathy Quotient (Baldner & McGinley, 2014; De Corte et al., 2007; Gilet et al., 2013; Melchers, Montag, Markett, & Reuter, 2015). The PD scale was negatively correlated (except in (Baldner & McGinley, 2014) while in two of these studies, the FS was not correlated at all.

Despite this, the convergent validity of the IRI remains in question. In a large-scale comparison of a number of empathy scales, Baldner et al (Baldner & McGinley, 2014) concluded that IRI subscales do not converge with other empathy scales. They suggest that the PD subscale (which comprises questions about the self) seems unrelated to empathy with sometimes negative but sometimes insignificant correlations with other measure. While the EC does inter-correlate with other affective empathy measures, its strongly correlated with scales measuring sympathy. Meanwhile, PT appears to measure a facet of cognitive empathy that is not necessarily shared by other cognitive empathy scales. The FS does not seem to be a valid element of empathy.

Concurrent validity

According to Davis (1983) original research:

PT: higher PT scores were associated with better social functioning ($r = -.15$), higher self-esteem ($r = .23$), relatively little emotionality (M-F scale – no correlation, PAQ Fearfulness scale, $r = .22$) and sensitivity to others (PAQ F scale; $r = .33-.37$).

EC: The EC was not related to self-esteem or interpersonal functioning, but was associated with shyness and anxiety, non-selfish sensitivity to others and a lack of boastfulness and egotism).

PD: was strongly associated with lower self-esteem and poor interpersonal functioning (especially shyness and social anxiety) and a specific "emotional" constellation of vulnerability, uncertainty, and fearfulness.

FS: Fantasy scores were generally unrelated either to self-esteem or social functioning. Higher FS scores were modestly associated with measures of verbal intelligence and with a tendency toward emotional reactivity. Fantasizers demonstrated a tendency to be more sensitive to others. 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 were found for the fantasy scale (Davis, 1980).

As mentioned, the EC is strongly associated with measures of Sympathy (Baldner & McGinley, 2014).

Independent research

Discriminant validity:

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) (Neumann, Zupan, Malec, & Hammond, 2013), as well as between people with ASD and healthy control adults (Mathersul, McDonald, & Rushby, 2013) and adolescents (Rueda et al., 2014) with particular problems for PT measuring cognitive empathy (Rogers, Dziobek, Hassenstab, Wolf, & Convit, 2007). People with bFTD are also discriminated from healthy adults on the basis of IRI scores as reported by close relatives (Lough et al., 2006; Sollberger et al., 2014).

	Normative data: Various studies using the English IRI or translations provide means and SDs in healthy people to provide normative comparisons, for example: N=188 Italian adolescents; (Laghi, Bianchi, Pompili, Lonigro, & Baiocco, 2019), N = 322 French adults; (Gilet et al., 2013), N = 108 adults (Melchers et al., 2015), N = 221 Swedish school children (11 th graders) and their parents (Cliffordson, 2001), N = 651 Dutch adults (De Corte et al., 2007); N = 435 adults from Chile (Fernández, Dufey, & Kramp, 2011).
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 available from Davis (1980)
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.

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