Investigating the reliability and validity of the Multidimensional Emotional Empathy Scale

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ABSTRACT

The aim of the present study was to investigate the reliability and validity of the Multidimensional Emotional Empathy Scale (MDEES). Using a sample of British young people, we investigated the reliability of the scale, as well as the convergent and divergent validity with standardized measures of IQ and working memory. There was good internal consistency between the items in each subscale. With respect to validity, only the Emotional Suffering and Positive Sharing subscales were significantly related to verbal IQ; no other MDEES subscales were significantly associated with nonverbal IQ or working memory. The findings also suggest that the MDEES is a reliable and valid measure of emotional empathy and captures skills distinct from IQ and working memory.

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1. Introduction

Empathy is the ability to understand the emotions, thoughts, behaviors, and actions of others and respond appropriately in order to assist someone in need. Empathy is also seen as a measure of an individual's other-oriented thinking and responsiveness over self-oriented responses [6,26]. It is widely agreed that empathy is a multifaceted construct with two dimensions: cognitive empathy and emotional empathy. One distinction between the two dimensions is that emotional empathy relates to the emotional arousal one experiences when they see or identify with someone else's misfortunes, while cognitive empathy pertains to the mental understanding of someone else's misfortune without having experienced it before [7,15,16,23,33]. Additional support for the idea that cognitive and emotional empathy reflect distinct dimensions can be found in neuroimaging studies that indicate that cognitive empathy is regulated in the ventromedial area of the brain, while emotional empathy is regulated in the inferior frontal gyrus, insula, amygdala, and anterior cingulate cortex [38].

Measurements of cognitive and emotional empathy also differ. Cognitive empathy is often measured with subscales consisting of Perspective Taking and Fantasy Scale [14]. Perspective Taking is the process of understanding the views and emotions of others

and appropriately reacting. It is highly correlated with Theory of mind – the ability to think about the thoughts, intentions and beliefs of others but does not involve thinking about the feelings of others [38]. An individual experiencing cognitive empathy will use facial, voice, and situational cues to adjust their own emotional state accordingly, without necessarily "feeling" the emotion [36].

In contrast, measures of emotional empathy include items relating to social self confidence, even-temperedness, and sensitivity [24]; see also [20]. In the present study, the scale under investigation is the Multidimensional Emotional Empathy Scale (MDEES), which highlights the emotional component of empathy, using the following dimensions: Empathic Suffering, Positive Sharing, Responsive Crying, Emotional Attention, Feeling for Others, and Emotional Contagion.

The need for reliable and valid measures of empathy is growing as awareness of the importance of empathy increases. Emotional empathy plays an important role in social communication and reflects how we share basic emotions, like happiness, sadness, anger, and fear. The ability to recognize and empathize with others is necessary for fostering and maintaining relationships, including romantic relationships [25]. The value of emotional empathy in social relationships can perhaps best be evidenced in circumstances when there is an empathic imbalance [40]. For example, a lack of emotional empathy is associated with antisocial personality disorder and these individuals tend to demonstrate a low sensitivity to others' distress [8]. In contrast, a surfeit of emotional empathy can be evidenced in those with autism. As a result, they

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Table 1
Descriptive statistics for the MDEES subscales and the standardized tests of working memory and IQ.

Measure	Mean (*SD*)	Mean (*SD*; [12])
Empathic Suffering	3.96 (.59)	3.97 (.71)
Positive Sharing	3.80 (.63)	3.82 (.83)
Responsive Crying	3.18 (1.10)	3.10 (1.16)
Emotional Attention	3.79 (0.76)	3.68 (.90)
Feel For Others	3.11 (0.72)	3.10 (.79)
Emotional Contagion	3.54 (0.78)	3.40 (.91)
IQ: Matrix	109.66 (10.96)	
IQ: Vocabulary	103.72 (13.64)	
Working Memory	33.50 (7.26)	

are particularly susceptible to empathic overarousal, which can lead to anxiety and personal distress [34]. Researchers have also found evidence that links schizophrenia with an impairment in empathy, particularly affective empathy [32]. In contrast, adults diagnosed with an alcohol dependence demonstrate an impaired emotional empathy but preserved cognitive empathy levels [28].

A rising number of schools are also including empathy in their curriculum in an effort to reduce bullying behavior and other aggressive behaviors [17]. Other curriculum develops empathy to increase awareness and positive attitudes toward individuals with learning disabilities [30]. The interest in including empathy in school curriculum is also manifested at the national level—a recent reported recommended that empathy should be integrated into the curriculum as it is as important as English and Math [3].

The reliability of the MDEES was established with American adolescents and adults (1998). Since then, it has been linked to performance in a variety of contexts, including educational and medical settings. In the classroom, teachers' empathic level enhanced adolescents' emotional development [39]. Empathy has also been linked to second-language learning [18], and can be improved through the use of cognitive-affective literary readings as part of an English-foreign language course [35]. In a medical setting, empathy plays an important role in the doctor–patient relationship, in the delivery of health care, and management of clinical anger [19].

With respect to validity of the MDEES, one way to explore this is to investigate the link between empathy and other measures of intelligence. Conceptually, emotional empathy is related to emotional intelligence (EQ; [31,29]), and some EQ scales include an empathy subscale (e.g., Bar-On [5]). While EQ is correlated with verbal intelligence [9], there is little, if any, research on whether emotional empathy also shares a similar link with IQ tests.

Another aspect of interest is whether emotional empathy is related to working memory, the ability to process and recall information [4]. Empathy may be linked to working memory, as this skill is required to hold emotional information in mind and apply it in a specific context. Furthermore, there appears to be some shared functional connection, as the prefrontal cortex is involved in both emotional processing [27] and working memory [11]. Both IQ and working memory are important cognitive skills for success in the classroom and the workplace [2,10]. With the growing emphasis of empathy in school curriculum, it was important to establish whether emotional empathy is related to these critical skills.

Thus, the aim of the present study was to examine the reliability and validity of the MDEES. A novel aspect of this study was to measure the internal consistency of the scale in a British population. Previous research on the reliability of the MDEES has recruited American adults, but it is important to extend this research to other populations to investigate potential cultural differences in the expression of empathic concern (see [13], for

further discussion on cultural empathy). The convergent and divergent validity was measured using standardized measures of cognitive skills, such as nonverbal intelligence and working memory. It is hypothesized that given the link between EQ and IQ, emotional empathy may also be linked with verbal and nonverbal IQ scores. It is also hypothesized that based on the functional overlap in the prefrontal cortex between emotional processing and working memory, there may be a link between empathy and working memory scores.

2. Method

2.1. Participants

There were 312 participants aged between 17 and 29 years (*M* age = 19 years, *SD* = 24 months; 63% females). All were first-year Psychology students attending a British University, who volunteered in exchange for course credit. The selected participants were from different demographic, and ethnic backgrounds. All were monolingual speakers, from middle-class backgrounds. The ethnic distribution is as follows: 71% Caucasian/White, 1% Black, 1% Asian, 17% international students, and the remainder listed as other/unidentified.

2.2. Materials

2.2.1. Multidimensional Emotional Empathy Scale (MDEES)
The 30-item scale measures the ability to recognize and understand emotions experienced by others. The scale consisted of six dimensions: *Suffering* (e.g., "The suffering of others deeply disturbs me"), *Positive Sharing* (e.g., "Seeing other people smile makes me smile"), *Responsive Crying* (e.g., "I don't cry easily"), *Emotional Attention* (e.g., "I don't give others' feelings much thought"), *Feel for Others* (e.g., "I feel other people's pain"), and *Emotional Contagion* (e.g., "When I'm with other people who are laughing I join in"). In order to reduce response bias and social desirability bias, six items were negatively worded and reversed scored. An example of one of the reversed scored items is "I rarely take notice when other people treat each other warmly." The empathy scale includes items dealing with positive emotional situations (e.g., "It makes me happy when I see people being nice to each other"), as well as negative emotional situations (e.g., "It makes me mad to see someone treated unjustly"). Responses for each item were measured on a five-point scale (1 = "Strongly Disagree"; 5 = "Strongly Agree"), with higher scores indicating a greater level of emotional empathy.

2.2.2. Working memory
This was measured using a modified version of the Backward Digit Recall, from a standardized memory assessment, the Automated Working Memory Assessment (AWMA; [1]). The individual recalled a sequence of spoken digits in reverse order. There were four levels, each consisting of four trials. The first trial began with three numbers, and increased by one item per level up to six numbers. Participant completed all four levels and the number of correct trials was recorded. In Level 3, the maximum score was four; in Level 4, scores were multiplied by two (max score = 8); in Level 5, scores were multiplied by three (max score = 12); and in Level 6, scores were multiplied by four (max score = 24). Scores from all four levels were summed for a total score (max score = 48).

2.2.3. General ability
Two subtests from the Wechsler Abbreviated Scale of Intelligence (WASI, [41]) were administered. In the Vocabulary test assessing verbal ability, the individual provides a short definition