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Recognition of facial expressions of emotion by adults with intellectual disability: Is there evidence for the emotion specificity hypothesis?



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ABSTRACT

This study aimed to evaluate the emotion recognition abilities of adults ($n = 23$) with an intellectual disability (ID) compared with a control group of children ($n = 23$) without ID matched for estimated cognitive ability. The study examined the impact of: task paradigm, stimulus type and preferred processing style (global/local) on accuracy. We found that, after controlling for estimated cognitive ability, the control group performed significantly better than the individuals with ID. This provides some support for the emotion specificity hypothesis. Having a more local processing style did not significantly mediate the relation between having ID and emotion recognition, but did significantly predict emotion recognition ability after controlling for group. This suggests that processing style is related to emotion recognition independently of having ID. The availability of contextual information improved emotion recognition for people with ID when compared with line drawing stimuli, and identifying a target emotion from a choice of two was relatively easier for individuals with ID, compared with the other task paradigms. The results of the study are considered in the context of current theories of emotion recognition deficits in individuals with ID.

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What this paper adds

To the authors' knowledge this is the first paper to evaluate the impact of a number of key factors which potentially influence emotion recognition in people with ID, including task demand, stimulus type and processing style. In this context the paper was also able to examine the two explanatory models proposed by Moore (2001) and Rojahn, Rabold, et al. (1995) by (a) controlling for estimated IQ and (b) examining the impact of varying task demand and contextual information.

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1. Introduction

The ability to recognise, label and interpret expression of emotion in others is a fundamental skill that is considered to be a key component of successful social interactions and relationships (Hext & Lunskey, 1997). There is a body of research that indicates that both adults and children with an intellectual disability (ID) have difficulties in recognising and identifying facial expressions of emotions, compared with their counterparts without ID (e.g. McAlpine, Kendall, & Singh, 1991; Owen, Browning, & Jones, 2001; Rojahn, Kroeger, & McElwain, 1995; Weisman & Brosigole, 1994). A recent review of studies examining the facial emotion recognition abilities of adults with ID, without a specific syndrome, as compared with child or adult control groups without ID, found that all of the studies reported that the participants with ID had an impairment on at least some of the tasks compared to the control group (Scotland, Cossar, & McKenzie, 2015).

Several studies have found evidence to suggest that the ability to decode emotional expression of others plays a fundamental role in the development of socio-emotional competence (e.g. Hooker & Park, 2002; Leppänen & Hietanen, 2001). Deficits in this area may, in turn, impact on the ability of people with ID to maintain employment and community placements (e.g. Best-Sigford, Bruininks, Lakin, Hill, & Heal, 1982; Martin, Rusch, Lagomarcino, & Chadsey-Rusch, 1986); may be linked to aggressive behaviour (Matheson & Jahoda, 2005) and, in turn, poorer psychological wellbeing (Rojahn & Warren, 1997). For example, in respect of employment, a number of studies in this area have indicated that both productivity and social factors, such as social competence were common reasons for job loss, with an associated negative impact on psychological well-being, self-esteem and social networks (see Banks, Jahoda, Dagnan, Kemp, & Williams, 2010 for an overview).

In respect of community placements, early research suggested that limitations in social competence, as well as in cognitive abilities appeared to impact on problems with community placements (see Rojahn, Lederer, & Tassé, 1995). More recent research indicates a more complex interaction between actual and perceived social competence. For example, Phillips and Rose (2010) compared two groups of individuals, while controlling for challenging behaviour, and found that those who had experienced placement breakdown were perceived as being more socially aware by staff. As a result, their challenging behaviour was perceived as being more intentional, resulting in lower levels of staff interaction and support and increased likelihood of placement breakdown.

Given the potential detrimental impact of emotion recognition difficulties for people with ID, research into the possible causes of this impairment is important in order to allow for effective, targeted interventions.

1.1. Theories of emotion recognition deficits in individuals with ID

The recent review by Scotland et al. (2015) noted that methodological differences between the studies precluded any firm conclusions as to the specific nature and cause of the deficit in facial emotion recognition that people with ID were found to have relative to those without ID. There are two main proposals that attempt to explain why people with ID are impaired in recognising facial expressions of emotion. The first, the ‘emotion specificity hypothesis,’ argues that impaired performance on emotion recognition tasks is a reflection of a *specific* impairment in emotion-perception competence, i.e. that cannot be fully explained by cognitive-intellectual deficits alone (Rojahn, Rabold, & Schneider, 1995). The second proposal is that basic emotion perception is intact in people with ID and, instead, that poor performance on emotion recognition tasks is a consequence of poor IQ-related information processing abilities (Moore, 2001).

Evidence for the emotion specificity hypothesis comes primarily from a study by Rojahn, Rabold, et al. (1995). These authors compared the performance of a group of adults with ID with that of a group of ‘mental age matched’ (i.e. matched on a measure of cognitive ability) children and a group of adults without ID on an emotion recognition task and a control task (estimating the age of individuals from pictures). The authors noted that the two tasks had equivalent task demands and only differed in terms of the cues used to discriminate either emotion or age. They found that the group of adults with ID were significantly impaired in recognising emotions (happy, sad and neutral expressions) in comparison with the group of mental age matched controls and that this impairment was not evident on the control task, i.e. recognising if a picture depicted a person who was young or old.

There are a number of methodological strengths of this study, most notably that the authors recruited a matched child control group, included a control task and used validated emotion recognition materials. However, the materials used were black and white photographs of faces and may therefore have lacked ecological validity. Additionally, Moore (2001) highlighted that closer examination of the results revealed that the group of people with ID did not differ from the mental age matched control group in terms of their ability to rate happy and sad faces. Rather, the group differences were determined by their ability to rate neutral expressions. Moore (2001) therefore highlighted that the only *specific* emotion recognition deficit observed in the study was in terms of rating faces with no emotional content (i.e. neutral expressions).

Zaja and Rojahn (2008) outlined the methodological considerations pertinent to any ‘credible’ emotion specificity hypothesis study: at least two groups of participants (individuals with ID and ‘mental age-matched’, typically developing children) and two tasks of comparable complexity (i.e. one task of facial affect discrimination and one task that requires discrimination based on other facial cues). To date, no studies have attempted to replicate the study by Rojahn, Rabold, et al. (1995). One difficulty that is common to many studies of emotion recognition abilities is that the relative complexity and task demands of the emotion and control tasks have not explicitly been measured and compared. As such it is unknown to what extent the results of a given study relate to differences or similarities in task demands. An alternative methodology is,

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