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# Psychophysiological responsiveness to the distress of others in children with autism

R. J. R. Blair\*

*Department of Psychology and Institute of Cognitive Neuroscience, University College London, 26 Bedford Way, London,  
WC1H 0AH, U.K.*

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## Abstract

This study investigates the psychophysiological responsiveness of children with autism and comparison groups to distress cues, threatening and neutral stimuli. 20 children with autism, 20 children with moderate learning difficulty and 20 normal developing children were shown slides of these three types of stimuli and their electrodermal responses were recorded. The children with autism showed appropriate electrodermal responses to the distress cues. However, and surprisingly, the children with autism were hypo-responsive to the threatening stimuli. The results are interpreted with reference to the violence inhibition mechanism model (Blair, 1995) and possible frontal lobe dysfunction in autism. © 1999 Elsevier Science Ltd. All rights reserved.

*Key words:* autism; empathy; distress

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## 1. Introduction

The suggestion that children with autism are unresponsive to the socio-affective cues of those around them, that they lack empathy, is an old and widespread idea (e.g., Kanner, 1943; Frith, 1989; Gillberg, 1992). According to Kanner (1943), people “figured in about the same manner as did the desk, the bookshelf, or the filing cabinet” (p. 38). In line with this, Sigman et al. (1992) noted that children with autism were behaviorally unresponsive to adults showing distress, fear and discomfort in semi-naturalistic settings. There have also been some demonstrations that children with autism have difficulty recognizing the emotional expressions of others (e.g., Hobson,

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\* To whom all correspondence should be addressed. Department of Psychology, University College London, Gower Street, London WC1H 6BT, U.K.

1986; Tantam et al., 1989; Bormann-Kischkel et al., 1995). In addition, children with autism have been found to show difficulties in detecting intermodal correspondence of facial and vocal/linguistic affect (e.g., Hobson et al., 1988; Loveland et al., 1995).

However, there are contrasting reports which indicate that children with autism are not entirely un-responsive to the socio-affective cues of those around them. According to Wing and Gould (1979), the social impairment of the autistic child need not manifest itself in the avoidance of social contact as Kanner (1943) described. They noted that some children with autism were merely passive or even actively sociable in a peculiar fashion. Phillips et al. (1995) found that children with autism did not treat people as objects when problem solving. Yirmiya et al. (1992) found that autistic children performed “surprisingly well” on the Feshbach and Powell audiovisual test for empathy (Feshbach, 1982) although they were impaired relative to normally developing controls. Also, children with autism have been found to be unimpaired in facial affect recognition when the control group was matched on verbal mental age (e.g., Ozonoff et al., 1990; Prior et al., 1990). In addition, several studies have found the emotion processing impairment to be pronounced only when the emotion is a complex “cognitive” emotion such as surprise or embarrassment (e.g., Capps et al., 1992; Baron-Cohen et al., 1993; Bormann-Kischkel et al., 1995). Finally, while Davies et al. (1994) found that high ability children with autism did show difficulties in facial affect matching tasks relative to controls, they also showed difficulties on non-facial stimuli matching tasks. Davies et al. (1994) suggested that this indicates that there may be a general perceptual deficit in children with autism which is not specific to faces or emotions.

While there has been considerable work investigating the ability of children with autism to recognise and interpret facial expressions, there have been no direct tests of the emotional responsiveness of the child with autism to emotion expressions. This study specifically investigated the psychophysiological responsiveness of children with autism to the facial expression of sadness by examining their skin conductance responses to this expression. Skin conductance responses have been found to give a reliable measure of emotional arousal (Greenwald et al., 1989). In addition, skin conductance has been used to specifically index empathic responsiveness to the distress of others (e.g., Fabes et al., 1994).

There is reason to believe that children with autism may emotionally respond to distress of others; autistic children are unimpaired on a test of the moral/conventional distinction (Blair, 1996). Moral transgressions are defined as acts which result in victims (e.g., an individual hurting another). Conventional transgressions are acts which do not commonly result in victims but do result in social disorder (e.g., a boy dressing in a skirt); Turiel, 1983. It is hypothesized that the affective response to the distress of victims is the basis of the moral/conventional distinction (Blair, 1995). This hypothesis is supported by the finding that individuals who do not show emotional responses to the distress cues of others, psychopaths (House and Milligan, 1976; Aniskiewicz, 1979; Blair et al., 1997), have been found to fail to make the moral/conventional distinction (e.g., Blair, 1995, 1997; Blair et al., 1997).

The main objective of the present study was to determine the responsiveness of children with autism to distress cues. This issue was examined by comparing the responsiveness of children with autism and comparison groups to distress cues, threatening stimuli and neutral stimuli. The procedure followed that used previously with adults with psychopathy (Blair et al., 1997) and children with psychopathic tendencies (Blair, submitted). On the basis of the earlier finding that children with autism are able to make the moral/conventional distinction, it was predicted that the

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