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Disinhibited reactive attachment disorder symptoms impair social judgements from faces

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ABSTRACT

Typically developing adults and children can rapidly reach consensus regarding the trustworthiness of unfamiliar faces. Maltreated children can have problems with trusting others, yet those with the disinhibited form of reactive attachment disorder (dRAD) can be indiscriminately friendly. Whether children with dRAD symptoms appraise and conform to typical judgements about trustworthiness of faces is still unknown. We recorded eye movements of 10 maltreated dRAD children and 10 age and gender matched typically developing control children while they made social judgements from faces. Children were presented with a series of pairs of faces previously judged by adults to have high or low attractiveness or trustworthiness ratings. Typically developing children reached a consensus regarding which faces were the most trustworthy and attractive. There was less agreement among the children with dRAD symptoms. Judgments from the typically developing children showed a strong correlation between the attractiveness and trustworthiness tasks. This was not the case for the dRAD group, who showed less agreement and no significant correlation between trustworthiness and attractiveness judgments. Finally, both groups of children sampled the eye region to perform social judgments. Our data offer a unique insight in children with dRAD symptoms, providing novel and important knowledge for their rehabilitation.

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1. Introduction

We present novel data regarding evaluation of faces in maltreated children suffering from symptoms of reactive attachment disorder (RAD). A core clinical characteristic of RAD is indiscriminate friendliness and we wished to investigate whether or not this was associated with atypical appraisal of faces by these children—especially as regards the evaluation of trustworthiness, a key deficit in the RAD syndrome.

1.1. Reactive attachment disorder

Reactive attachment disorder (RAD) is a serious disorder of social functioning associated with maltreatment with two subtypes: Inhibited (wary, watchful behaviour) and Disinhibited (overfriendly behaviour).[2] The Disinhibited form (that we focus on in this paper) is known to be associated with significant psychiatric morbidity (Rutter et al., 2007) and can persist despite changes in care giving context (Gleason et al., 2011). The core characteristic of Disinhibited RAD (dRAD) is indiscriminate friendliness. We have already shown that children with indiscriminate friendliness can have complex neurodevelopmental problems including multiple psychiatric comorbidities (Kocovska et al., 2012). Children with indiscriminate friendliness are significantly socially impaired: despite being aware of the risks associated with speaking to strangers and the efforts made by their caregivers to protect them from danger, they demonstrate "a trust of new people and a craving for kindness from others" which may introduce them to further risky situations (Bennett et al., 2009).

1.2. How does trust develop in childhood?

Trust "is essential to initiate, establish, and maintain social relationships [and] encourages the initiation of mutual cooperative relationships" (Balliet and Van Lange, 2013). A sense of trust develops in the context of a secure attachment relationship with parents (Corriveau et al., 2009) and behavioural genetic research has shown that development of a sense of trust in family members

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[2] Please note the dRAD is labelled Social Engagement Disorder in the DSM-V. We are keeping the appellation dRAD throughout the manuscript for clarity and consistency with previous literature.

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and peers is based largely on environmental, rather than genetic factors. A sense of trust is an important buffer against life stressors and can reduce the likelihood of problems such as isolation or bullying in school and the development of depression (Sakai, 2010). It is also associated with prosocial (i.e. caring, helpful) behaviour (Rotenberg et al., 2004) and with academic achievement (Goddard, 2003).

While very young children (aged 3 or 4) have difficulty discriminating between "helpers" and "trickers" in experiments, by age 5 typically developing children are systematically more likely to take advice from individuals who have previously proven helpful (Vanderbilt et al., 2011). By middle childhood, therefore, typically developing children are not indiscriminately trusting. Harris and Corriveau (2011) argue that "indiscriminate credulity is implausible, both biologically and psychologically".

Yet indiscriminate friendliness is a relatively common phenomenon in children who have experienced maltreatment (Rutter et al., 2009). Lieberman has suggested that a basic problem for maltreated children is the sense of mistrust that has emerged from their lack of a predictable, loving caregiver in early childhood and that this lack of trust is associated with a range of difficult behaviours including indiscriminate friendliness (Lieberman, 2003). We have previously suggested that indiscriminate friendliness might develop out of "discordant intersubjectivity" between a child and a maltreating caregiver in early life: in a secure attachment relationship, a concordant intersubjective relationship results in the development of "in-jokes" and other highly personal codes shared between the child and caregiver. These will soon lead to a preference for caregiver over strangers. In a maltreating relationship characterised by discordant clashes and failed attempts at interaction, relationships with strangers may seem at least as satisfying – or even preferable (Minnis et al., 2006). A qualitative study of maltreated, indiscriminately friendly children supported this view: despite being grossly over-inclusive in those they regarded as "friends", these children were also preoccupied with issues of trust (Bennett et al., 2009).

In typical development, very rapid judgements about faces are possible (after less than 100 ms exposure to a face) based on a range of factors such as trustworthiness, competence and aggressiveness (Willis and Todorov, 2006). Oosterhof and Todorov (2008) argue that cues about whether to avoid or approach an individual are important in making social decisions, even though such decisions may be based on rather crude information.

Despite the associations between maltreatment, lack of a sense of trust/indiscriminate friendliness and poor social, academic and psychological outcomes, little is known about the mechanisms involved during childhood. One possibility is that these difficulties originate in a basic problem with visual processing of faces. The other disorder well known to be associated with severe problems in social interaction is Autism Spectrum Disorder (ASD) and there is already a body of research investigating visual processing of faces ASD. Some eye-tracking studies in ASD have shown reduced fixations on socially salient aspects of visual scenes (Noris et al., 2012; Pierce et al., 2011; Riby and Hancock, 2009; Rice et al., 2012) and there are reports that individuals with ASD look less at facial features (eyes, nose, mouth) than typically developing peers (Chawarska and Shic, 2009; Pelphrey et al., 2002). Other studies suggest a more complex picture with mixed results depending on the cognitive sub-phenotypes in ASD (Norbury et al., 2009; Rice et al., 2012).

It is important to note that, in most of these studies, results were analysed using a "Regions-Of-Interest" (ROI) approach. The most critical limitations of such an approach rely on the fact that the subjective criteria used to define ROIs compromise the potential to replicate findings across studies (Caldara and Miellet, 2011). Other factors might explain inconsistencies across studies such as type of stimuli, task, subgroups of ASD observers, etc. For instance, the atypical fixation pattern in children with ASD is more pronounced in natural social settings than in experimental settings with isolated stimuli. As yet, the precise impact of ASD on visual exploration of socially relevant stimuli is not completely understood.

In summary, the extant literature suggests that the ability to discriminate rapidly between trustworthy and untrustworthy individuals typically develops in the preschool period and the development of a sense of trust appears to be largely environmentally (rather than genetically) determined. Maltreated children with indiscriminate friendliness are insecure about relationships, lack trust and appear unable to make the correct judgements about who they should and should not trust. Our knowledge about the mechanisms of trustworthiness judgements largely comes from studies in typically developing adults and it has been shown that such adults are able to rapidly come to a consensus, based on facial traits, about who should be judged trustworthy and who should not.

To the best of our knowledge, appraisals of trustworthiness in children with indiscriminate friendliness have not yet been investigated. In this study we wished to ask whether, like adults, typically developing children come to a consensus about which faces are trustworthy or untrustworthy; whether maltreated children with indiscriminate friendliness suffering from dRAD are able to make similar judgements and, lastly, whether typically developing and dRAD children differ in the way they appraise faces in making these judgements.

Importantly, atypical social judgements of faces in children with indiscriminate friendliness could originate from an inadequate strategy in facial feature sampling during social judgements (i.e., gaze avoidance to the eye region). Therefore, eye-movement recording is the method of choice to isolate the facial information sampled by the dRAD population compared to typically developing controls. Mapping eye movement fixation in children with dRAD could thus provide invaluable insights into the mechanisms relating to their potential atypical social judgements of faces.

2. Materials and methods

This study was carried out at the Department of Psychology, University of Glasgow between August 2010 and February 2012. There were 20 participants aged between 6 and 16 years: 10 children and adolescents with symptoms of reactive attachment disorder (RAD) and 10 typically developing controls group-matched for age and gender. The study was approved by the Ethics Committee of the Department of Psychology, University of Glasgow.

For participant characteristics, see Table 1.

2.1. Clinical group

All clinical children were recruited from a pool of participants from a previous research study regarding neurodevelopmental difficulties in maltreated children with indiscriminate friendliness (Kocovska et al., 2012). All participating children had experienced severe maltreatment in the early years, prior to being adopted (age of adoption range 16 months to 7 years), including emotional and/or physical neglect and/or physical abuse often in the context of parental mental illness and/or drug and alcohol problems. In addition, all participating children had indiscriminate friendliness as measured by standardised instruments (for detail regarding the

Table 1
Participant characteristics.

	Controls	Clinical
Age (Mean, SD)	9.62 (1.41)	9.80 (2.74)
Gender	50% Female	50% Female
Mean (SD) SDQ total difficulties score	4.10 (3.93)	19.50 (6.26)
Mean (SD) RPQ total score	1.0 (2.83)	6.62 (5.26)
History of abuse and/or neglect	0%	100%

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