Predictors of diagnosis of child psychiatric disorder in adult–infant social-communicative interaction at 12 months

H. Marwick [a,*], O. Doolin [b], C.S. Allely [c], A. McConnachie [b], P. Johnson [b], C. Puckering [c], J. Golding [d], C. Gillberg [c], P. Wilson [c]

[a] National Centre for Autism Studies, University of Strathclyde, Scotland, United Kingdom
[b] Robertson Centre for Biostatistics, Boyd Orr Building, University of Glasgow, Glasgow G12 8QQ, Scotland, United Kingdom
[c] Institute of Health and Wellbeing, University of Glasgow, RHSC Yorkhill, Glasgow G3 8SJ, Scotland, United Kingdom
[d] School of Social and Community Medicine, University of Bristol, England, United Kingdom

ABSTRACT

To establish which social interactive behaviours predict later psychiatric diagnosis, we examined 180 videos of a parent–infant interaction when children were aged one year, from within the Avon Longitudinal Study of Parents and Children (ALSPAC) cohort. Sixty of the videos involved infants who were later diagnosed with a psychiatric disorder at seven years, and 120 were a randomly selected sex-matched control group. Interactive behaviours for both the caregiver and the one year old infant were coded from the videos according to eight holistic categories of interpersonal engagement: Well-being, Contingent Responsiveness, Cooperativeness, Involvement, Activity, Playfulness, Fussiness, and Speech. Lower levels of adult activity and speech in interaction at one year significantly predicted overall diagnosis of child psychiatric disorder.

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1. Introduction

Atypicalities in interpersonal behaviours in early adult–infant interaction have been associated with childhood diagnosis of psychopathology, including disruptive behaviour disorders (DBDs), pervasive developmental disorder (PDD) and emotional disorders (Field et al., 1988; Halligan, Murray, Martins, & Cooper, 2007; Kubicek, 1980; Morrell & Murray, 2003; Murray, Marwick, & Arteche, 2010; Saint-Georges et al., 2011; Trevarthen & Aitken, 2001; Webb & Jones, 2009). Parenting styles and environment are indicated, in addition to genetic vulnerabilities, to be risk markers in relation to the development of DBDs, including attention deficit hyperactivity disorder (ADHD), Oppositional Defiant Disorder (ODD), and Conduct

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Disorder (CD) (Campbell, Pierce, March, & Ewing, 1991; Latimer et al., 2012; Zahn-Waxler, Iannotti, Cummings, & Denham, 1990). Bidirectional influences between observable child behaviour problems and parent–child interactions are reported (Lifford, Harold, & Thapar, 2008), with early infant 'difficult' temperament found to contribute to irritable parenting style, and low maternal responsiveness in combination with infant temperament predicting conduct problems (Guerin, Gottfried, & Thomas, 1997; Lahey et al., 2008; Shaw, Owens, Vondra, & Keenan, 1996). Children with ADHD are more likely to be reported by their mothers to have been fussy, irritable and active as infants (Weiss & Hechtman, 1993), with higher activity levels seen as early as the first months of life (Rothbart, 1989; Auerbach et al., 2005) and within the first year (Auerbach, Atzaba-Poria, Berger, & Landau, 2004; Auerbach et al., 2008). Compared to controls, mothers of children with ADHD are found to be generally more directive, negative and less socially interactive, and children with ADHD less compliant and more negative (Barkley, Karlsson, & Pollard, 1985; Campbell, Breaux, Ewing, Szumowski, & Pierce, 1986; Cunningham & Barkley, 1979; DuPaul, McGoey, Eckert, & VanBrakle, 2001; Jacobvitz & Sroufe, 1987; Olson, Bates, Sandy, & Schilling, 2002). Several studies have used infants at high risk of developing autism, typically younger siblings of a child diagnosed with autism, in order to identify early predictors. A recent study examined global characteristics of parent–infant interaction in 6–10 month-old at-risk and low-risk infants using 6 min videos of unstructured mother–infant play. Findings showed that at-risk infants were less lively, and their parents exhibited both higher directiveness and lower sensitive responding (Wan et al., 2012).

Early intervention can support parenting behaviours and environmental adaptations to help to optimise positive developmental outcomes for infants (Dawson, 2008; Guralnick, 2004; Landry, Smith, & Swank, 2006), and intervention at a later point can be ineffective (Shaw, Bell, & Gilliom, 2000). Reliable identification of predictors in early care-giver and infant interactions of later child psychopathology are likely to be of value in the targeting of early intervention and support but research into the relations between psychopathology and the parent–infant relationship within a longitudinal non-clinical context has been sparse (Thompson et al., 2010). Additionally, previous studies have been disorder specific, often using an 'at risk' group, which has not enabled comparison between disorders, nor consideration of early risk markers of co-occurring disorders. Several studies have used adult or child reported perceptions as their assessment measure, which does not have the objectivity of independent or prospective observation. A longitudinal population based cohort study affords prospective analysis, using systematic observational assessment, of early interactive behaviours for both adults and infants in relation to a range of later diagnosed disorders, and based on a contemporary birth cohort, we examined whether there are particular social interactive behaviours which predict later diagnosis of a range of psychiatric disorders.

2. Method

2.1. Participants

The sample consists of participants from the Avon Longitudinal Study of Parents and Children (ALSPAC). ALSPAC is an ongoing population-based study investigating a wide range of environmental and other influences on the health and development of children. Pregnant women resident in the former Avon Health Authority in south-west England, having an estimated date of delivery between 1 April 1991 and 31 December 1992 were invited to take part, resulting in a 'core' cohort of 13,988 singletons/twins alive at 12 months of age (Golding, Pembrey, Jones, & the ALSPAC Study Team, 2001).

Ethical approval for the study was obtained from the ALSPAC Law and Ethics Committee and the Local Research Ethics Committees. All adult participants gave their informed consent prior to their inclusion in the study.

The present study examined video footage from a sub sample of the core ALSPAC cohort who were invited to attend Children in Focus clinics after birth. A range of measures was collected at the clinic visits, including regular questionnaires completed by the parents, medical assessments and biological samples collected for biochemical and genetic analyses. When the children were 12 months old the clinic session for the 1240 participating families (usually mother/infant dyads) included the Thorpe Interaction Measure (TIM) (Thorpe, Rutter, & Greenwood, 2003). The TIM involves a caregiver and child sharing a picture book, and the adult is asked to engage the child in this activity as they would at home. The same 'living room' style environment in the clinic was used for all interactions, and the interaction was video-recorded.

Sixty of the infants from the Children in Focus cohort later received diagnoses of one or more psychiatric disorders using the Development and Wellbeing Assessment (DAWBA) (Goodman, Ford, Richards, Gatward, & Meltzer, 2000) which was administered to all children remaining in the cohort at 91 months of age. The DAWBA is a structured diagnostic assessment which relies on parental report as well as teacher reports (Goodman et al., 2000), but final diagnoses are assigned by a child psychiatrist. The TIM videos of these 60 case infants were analysed in the current study, and the TIM videos of a further 120 infants from the cohort were randomly selected for analysis to comprise a sex-matched control group.

Within the case infant group there were 26 cases of any oppositional-conduct disorder (of which there were 19 "pure" cases without ADHD comorbidity), 35 cases of disruptive behaviour disorders (28 without comorbidity), five cases of conduct disorder alone (3 without comorbidity), six cases of pervasive developmental disorder (autism), and 25 and five infants diagnosed respectively with any anxiety (15 without comorbidity) or any depressive disorder (1 without comorbidity). There were 16 infants diagnosed with any form of ADHD (nine without comorbidity), of which five had inattentive ADHD.

The majority (89%) of the caregivers in the videos analyses were mothers. The mean duration of these caregiver–infant interactions was 211 (SD 84.5) s with a range from 60 to 510 s.