

Contents lists available at [ScienceDirect](http://www.sciencedirect.com)

Research in Autism Spectrum Disorders

journal homepage: <http://ees.elsevier.com/RASD/default.asp>

Measuring the relationship between the parental Broader Autism Phenotype, parent–child interaction, and children’s progress following parent mediated intervention



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ARTICLE INFO

Article history:

Received 31 March 2015

Received in revised form 27 July 2015

Accepted 30 July 2015

Available online 28 August 2015

Keywords:

Broader Autism Phenotype

Child progress

Parent–child interaction

Early intervention

ABSTRACT

Parents of children with ASD may show ASD type behaviours including particular social communication interaction styles—the Broader Autism Phenotype (BAP). Understanding the potential impact of defined parent characteristics may be relevant when designing and evaluating the efficacy and effectiveness of parent-mediated interventions. In this proof of principle analysis, 18 mothers who had taken part in an early parent-mediated intervention later completed Family History Interviews. Parent data were split into lower and higher BAP groups. There was a significant negative correlation between BAP factor total scores and mother–child interaction total and post-intervention change scores. Change in number of words understood was significantly greater in children of mothers scoring in the lower BAP group compared with children of mothers in the higher BAP group. These preliminary findings provide some support for further investigation of parent BAP status as a potential moderator of the impact of early parent-mediated psychosocial interventions.

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1. Introduction

Twin and family studies have identified that genetic factors are important in the development of ASD and the broader autism phenotype (BAP—milder ASD related behaviours and traits seen in some relatives of people with ASD) (Bolton et al., 1994). The BAP is associated with impairments in language use and conversation (Losh & Piven 2007; Whitehouse et al., 2010), face processing (Dawson et al., 2005; Ingersoll, 2010), emotion recognition and theory of mind skills (Sasson, Nowlin, & Pinkham, 2013), social difficulties, and rigidity (Losh & Piven 2007; Pickles, St Clair, & Conti-Ramsden, 2013; Wainer, Block, Donnellan, & Ingersoll, 2013). Most studies report that fewer than half of relatives of a child with ASD have BAP traits; however, BAP traits are more common in multi-incidence ASD families (Bernier, Gerdt, Munson, Dawson, & Estes, 2012). In keeping with the gender difference in ASD, males are more likely to show BAP behaviours or traits than females (Parr et al., 2015).

There is increasing evidence that parent-mediated early interventions can improve outcomes for some children with ASD (Carter et al., 2011; Green et al., 2010; Oono, Honey, & McConachie, 2013). Parent-mediated interventions have also been

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shown to enhance the impact of nursery-delivered intervention (Rickards, Walstab, Wright-Rossi, Simpson, & Reddihough, 2007). Further, parent-mediated interventions improve confidence in parenting abilities as well as impacting upon the child's targeted behaviour (Keen, Couzens, Muspratt, & Rodger, 2010).

However, mothers with depression or ADHD are often less able to administer interventions or engage in training aimed at improving outcomes for their children, as their own difficulties can have a mediating effect on successful outcomes (Chronis-Tuscano et al., 2011; Hutchings, Bywater, Williams, Lane, & Whitaker, 2012). It is possible that the presence of parents' BAP traits may affect how they engage with young children. Parents with BAP traits may find it difficult to vary their own social communication style, which could potentially affect the delivery and effectiveness of parent-mediated interventions. On the other hand, parental rigidity as part of the BAP may make parents more likely to deliver the intervention with the suggested frequency and regularity (Parr, Wittemeyer, & Le Couteur, 2011). However, if parental BAP were associated with less good outcomes for children, clinicians and researchers should investigate what might be appropriate support and/or individual modifications for the delivery of parent-mediated interventions.

This preliminary study aimed to investigate whether, following attendance at a parent-group social communication parent-intervention, the degree of observed change in parent-child interaction and the progress of children would be lower for mothers showing BAP characteristics than for mothers without BAP traits. The aim was to gather preliminary evidence as proof of concept that might warrant evaluation in a larger study.

2. Method

2.1. Participants

Forty parents who participated in an early intervention study eight years previously were approached. Of those approached 19 mothers agreed to be involved, 20 did not respond and one responded saying they would like to help but could not at this time as they had been unwell. Children in the early intervention study (a controlled evaluation of an early parent-mediated social communication intervention) had a clear diagnosis of autism or ASD (as assessed by local clinical teams and confirmed by the senior authors) (McConachie, Randle, Hammal, & Le Couteur, 2005).

2.2. Measures

2.2.1. Family History Interview—subject version (FHI-S)

The FHI-S is a semi-structured interview designed to identify the Broader Autism Phenotype. It takes 30–60 min to complete, shows good inter-rater and test-retest reliability and consists of items relating to the interviewee's childhood and current adult functioning. The questions focus on aspects of language and communication, social skills and behaviour, rigidity, hobbies, circumscribed interests, academic achievements, and occupational functioning. BAP behaviours are scored as '0' (behaviour does not reach scoring threshold); '1' (difficulties of the type specified, but not associated with impairment); or '2' (associated with impairment). Evidence of validity includes the finding that the interview differentiates between parents of children with ASD and those with Down syndrome (de Jonge et al., 2015). Internal reliability in this study was good ($\alpha = .85$). A BAP total factor score was derived using 11 items: lack of interest in conversation; quality of reciprocal conversation; pragmatics; aloofness; friendships; affection; intimacy; responsiveness to emotional cues; demonstrativeness; social behaviour; and rigidity. The full range of possible total scores across these items is 0–22 (Parr et al., 2015).

2.3. Measures used at the time of the early intervention study (McConachie et al., 2005)

2.3.1. Joy and fun assessment (JAFA; a measure of parent-child interaction style)

The JAFA is an observational checklist developed for the previous intervention study to measure nine facilitative interaction strategies taught in the early social communication group course. The parent interaction strategies include: use of fun words, simplified language, musicality of speech, praise, pretend games, fun physical contact, smiles and laughter, turn-taking routines, and imitations and expansions. The ratings were made on a 5 min recorded observation of parent-child play with toys, and were found to have good inter-rater reliability ($r = .88$) (McConachie et al., 2005). The JAFA total maximum score is 36 and participants' scores at baseline ranged from 4 to 18.

2.3.2. MacArthur communicative development inventory (MCDI)

The MCDI is a parent-report checklist of words and gestures, to determine the number of words understood, and the number of words (understood and) said by the child (Fenson et al., 1993).

Parent-child interaction style (JAFA) and child language measures (MCDI) were taken at a 7 month interval, before and after parents attended the early social communication group course. Change scores on measures were calculated by subtracting baseline scores from scores at follow up.

2.3.3. Vineland adaptive behaviour scales (VABS)

The VABS (Sparrow, Balla, & Cicchetti, 1984) is a parent interview regarding a child's communication, social, motor and daily living skills from which a standardised composite score of adaptive functioning is calculated.

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