



Developmental pathways of language and social communication problems in 9–11 year olds: Unpicking the heterogeneity



P. Roy^{*}, S. Chiat

Language and Communication Science, City University, Northampton Square, London EC1V 0HB, UK

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ABSTRACT

This paper addressed relations between language, social communication and behaviour, and their trajectories, in a sample of 9–11-year-olds ($n=91$) who had been referred to clinical services with concerns about language as pre-schoolers. Children were first assessed at 2½–4 years, and again 18 months later.

Results revealed increasing differentiation of profiles across time. By 9–11 years, 11% of the sample had social communication deficits, 27% language impairment, 20% both, and 42% neither. The size of group differences on key language and social communication measures was striking (2–3 standard deviations). Social communication deficits included autistic mannerisms and were associated with social, emotional and behavioural difficulties (SEBDs); in contrast, language impairment was associated with hyperactivity only. Children with both language and social communication problems had the most severe difficulties on all measures.

These distinct school-age profiles emerged gradually. Investigation of developmental trajectories revealed that the three impaired groups did not differ significantly on language or SEBD measures when the children were first seen. Only low performance on the Early Sociocognitive Battery, a new measure of social responsiveness, joint attention and symbolic understanding, differentiated the children with and without social communication problems at 9–11 years. These findings suggest that some children who first present with language delay or difficulties have undetected Autism Spectrum Disorders which may or may not be accompanied by language impairment in the longer term. This new evidence of developmental trajectories starting in the preschool years throws further light on the nature of social communication and language problems in school-age children, relations between language impairment and SEBDs, and on the nature of early language development.

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1. Introduction

This study addressed ongoing debate about the overlaps and relations between specific language impairment (SLI) and autistic spectrum disorders (ASD), two distinctive childhood diagnoses that nevertheless share common features (Bishop, 2000; Bishop & Norbury, 2002; Leyfer, Tager-Flusberg, Dowd, Tomblin, & Folstein, 2008; Williams, Botting, & Boucher, 2008). According to diagnostic criteria for SLI (ICD-10, WHO, 1993; DSM-IV, APA, 2000) there should be no overlap, since children

^{*} Corresponding author. Tel.: +44 020 7040 4656.
E-mail address: p.j.roy@city.ac.uk (P. Roy).

are only diagnosed with SLI if they have deficits in receptive and/or expressive language *in the absence of other developmental or neurological disorders*. However, it is well recognized that profiles of children diagnosed with SLI are heterogeneous and may change across the age range, and in the course of development, some present with pragmatic language impairment (PLI) and social communication difficulties that border on ASD (Bishop, 1998, 2000; Bishop, Chan, Adams, Hartley, & Weir, 2000; Bishop & Norbury, 2002; Botting & Conti-Ramsden, 1999). Children and young people with SLI are also known to be at increased risk of a range of social, emotional and behavioural difficulties (SEBDs) (Yew & O’Kearney, 2013), and such difficulties are known to be strongly associated with social communication problems in children with ASD (Hus, Bishop, Gotham, Huerta, & Lord, 2013). The absence of wider developmental disorders in SLI is therefore far from clear, and the presence of social communication difficulties in particular raises questions about relations with ASD. Are these difficulties a mild version of the deficits present in ASD that only become apparent in the school years? Or do they have their origins in distinct deficits that give rise to overlapping profiles of social communication in middle childhood? Or are they a secondary product of language deficits? Whilst social communication difficulties in SLI may fall short of a clinical diagnosis of ASD, there is general agreement that they need recognition and treatment in their own right, and it is important to understand the nature of these problems if intervention is to be appropriate and timely.

Most evidence to date stems from cross-sectional comparisons of children with SLI and ASD, and investigations of the heterogeneous outcomes observed in longitudinal studies of children first diagnosed with language delay or SLI. Given the criteria for diagnosis, it is perhaps unsurprising that cross-sectional studies of SLI find little evidence of co-occurring ASD at a group level. Loucas et al. (2008), for example, compared groups of children aged 9–14 years who had SLI, ASD with normal language, or ASD with co-occurring language problems, all with nonverbal IQ ≥ 80 . Although everyday social functioning and communication in the SLI group was impaired (their mean Social score on the Vineland Adaptive Behaviour Scales (Sparrow, Balla, & Cicchetti, 1984) was nearly 2 SDs below the normative population mean), their mean scores on all diagnostic measures of ASD were substantially less impaired than those of the two ASD groups. Leyfer et al. (2008)’s comparison of children with SLI and ASD produced similar results at a group level. However, their within-sample analyses revealed that 41% of the SLI group had scores above the autism cut-offs for social or communication domains on gold standard diagnostic measures for ASD (either the Autism Diagnostic Interview Revised (ADI-R; Lord, Rutter, & Le Couteur, 1994) or the Autism Diagnostic Observation Schedule (ADOS; Lord et al., 2000) or both). This accords with the known heterogeneity in SLI samples, and demonstrates that analysis at group level may not be sufficiently sensitive to identify subsamples of children with different profiles of difficulties, particularly if samples are small and lack power.

Moreover, Leyfer et al.’s findings are in line with increasing evidence from longitudinal studies of preschoolers and school-aged children with SLI. A significant proportion of children with earlier diagnoses of language impairment have been found subsequently to have difficulties in social relationships and to develop autistic-like symptomatology across time which in some cases meets clinical criteria for ASD (Clegg, Hollis, Mawhood, & Rutter, 2005; Conti-Ramsden, Simkin, & Botting, 2006; Durkin, Conti-Ramsden, & Simkin, 2012). Miniscalco, Nygren, Hagberg, Kadesjö, & Gillberg (2006) found that about a quarter (23.8%) of a small community sample of Swedish children who had screened positive for speech and language problems at 30 months had ASD at 7 years. More recently Ek et al. (2012) carried out a small follow-up study of Swedish preschoolers (5–7 years) with moderate or severe speech and language problems and concluded that LI in young children is a marker for several developmental disorders including ASD. After 10 years, over a third (39.1%) of the adolescents had ASD symptoms, and over half of these had a clinical diagnosis of ASD. Findings from our follow-up study of 108 UK preschoolers referred to services with concerns about their language and communication development when they were 2½–4 years old were strikingly similar (Chiat & Roy, 2013). At 9–11 years, about a third of the sample had social communication problems according to the Social Responsiveness Scales (Constantino & Gruber, 2005) and over half of these children (about a sixth of the total sample) had clinical diagnoses of social communication problems, ASD, or both. As in the Miniscalco et al. study, none of the preschoolers had a diagnosis of ASD when first assessed.

To date, the focus of research on the SLI-ASD ‘borderlands’ (Bishop & Norbury, 2002) has been on social communication outcomes, with a dearth of research on developmental trajectories leading up to these. As Durkin et al. (2012) have recently argued, citing Sroufe (2009), ‘there is a need to examine in more depth and detail the role of development in developmental disorders’ (p. 135). In our longitudinal study (Chiat & Roy, 2013), measures of language were administered at three time points: T1, when children were first referred, at age 2½–4 years; T2, roughly 18 months later, at age 4–5 years; and T3, roughly 5 years later, at age 9–11 years. In addition, social cognition was assessed at T1 and social communication at T3, and social, emotional and behavioural difficulties (SEBD) at all three time points. These data allow examination of the distribution and nature of profiles at school age and the developmental trajectories behind these profiles. This paper reports language and social communication profiles at T3, and evaluates performance at T1 and T2 to investigate whether children with different T3 profiles were differentiated at earlier stages. The aim is to determine the extent to which school age outcomes may be predicted, and what this reveals about the nature of children’s problems, with implications for early identification of children needing support.

2. Method

2.1. Participants

The sample under consideration in this paper comprised 91 children with a mean age of 10;5, SD 6.74 months, who had been referred to speech and language therapy (SLT) services at age 2;6–3;6. Three-quarters of the sample (74%) were boys. The sample was recruited from 7 London Primary Healthcare Trusts and 2 private clinics. Reason for their early referral was

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