Emotional and behavioural problems in children and young people with autism spectrum disorder in specialist autism schools

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ABSTRACT
We investigated emotional and behavioural problems in a sample (N = 615) of children and young people with autism spectrum disorders (ASD), most of whom also had intellectual disability (ID), attending specialist autism schools. High rates of parent- and teacher-reported problems were recorded. Teacher-reported levels of hyperactivity were higher in younger children. Teacher- but not parent-reported levels of conduct problems and hyperactivity were highest in children without phrase speech. Greater use of mental health services was associated with higher levels of emotional and behavioural problems, but only a minority of participants had accessed mental health services in the previous 6 months.

Outcome for children with autism spectrum disorders (ASDs) is affected by many factors, including the severity of the core autism features and levels of cognitive and language impairments (Howlin, Savage, Moss, Tempier, & Rutter, 2013; Szatmari, Bryson, Boyle, Streiner, & Duku, 2003). It is also well established that children with ASD are at high risk of behavioural and emotional problems and that difficulties in these areas can also have a significant impact on their lives and those of their families (Karst & Van Hecke, 2012).

1. Emotional and behavioural problems in children and adolescents with ASD

In children with ASD comorbidity with several psychiatric conditions is increased compared to rates in the general population and this is not necessarily related to the severity of ASD (Simonoff et al., 2008, 2013; Snow & Lecavalier, 2011; Totsika, Hastings, Emerson, Lancaster, & Berridge, 2011). Intellectual disability (ID), which occurs in approximately 50% of children with ASD (CDC, 2012; Charman et al., 2011), is also associated with increased mental and behavioural problems (for review see: Einfeld, Ellis, & Emerson, 2011). A recent study by Totsika et al. (2011) found that the presence of ASD and/or ID was associated with a greater risk for hyperactivity, conduct problems and emotional symptoms. Moreover, once the
contribution of ID was controlled, the presence of ASD remained as a significant predictor of emotional and behavioural problems.

In Simonoff et al. (2008) population-based study, the prevalence of anxiety disorders (obtained via direct clinical assessments) in children and adolescents with ASD was 42% and a similar figure was reported in a recent meta-analysis of 31 studies, 18 of which had been conducted using screening cut off s of questionnaires such as the Child Behavior Checklist (CBCL, Achenbach, 1991) or the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS, Kaufman et al., 1997) to estimate prevalence (van Steensel, Bögels, & Perrin, 2011). Mood disorders are also common, although reported rates vary (from 5% to 24%; de Bruin, Ferdinand, Meester, de Nijs, & Verheij, 2007; Green, Gilchrist, Burton, & Cox, 2000; Kim, Szatmari, Bryson, Streiner, & Wilson, 2000; Leyfer et al., 2006). Hyperactivity symptoms are also elevated in ASD, with a prevalence of 28% of ADHD diagnoses reported by Simonoff et al. (2008) and rates of hyperactivity symptoms ranging between 17 and 57% identified in clinically referred samples (de Bruin et al., 2007; Gadow, DeVincent, Pomeroy, & Azizian, 2005; Goldstein & Schwebach, 2004; Kim et al., 2000; Leyfer et al., 2006). Similarly, using the parent version of the Strengths and Difficulties Questionnaire (SDQ), a prevalence of 60% of “abnormal” levels of hyperactivity was found in children with ID and ASD (Hastings, Beck, Daley, & Hill, 2005). A diagnosable Oppositional Defiant Disorder was found in 30%

2. Mental health service use

Evidence of high rates of emotional and behavioural problems in children and adolescents with ASD has led to the investigation of the mental health services available to them. Two studies have used databases from community mental health centres to examine the characteristics of patients with ASD in terms of service history, functioning, presenting problems, and psychosocial features. Bryson, Corrigan, McDonald, and Holmes (2008) found that mental health service systems served less than 15% of the population of children estimated to have any ASD. Mandell, Walrath, Manteuffel, Sgro, and Pinto-Martin (2005) reported that children with ASD were significantly more likely than children with other conditions to have received educational or school-based services, or other external services, rather than mental health services. One limitation of these surveys is their dependence on data from samples already in contact with mental health services, which might inflate the rates of service use. In the UK, and in a number of other countries, children with ASD and ID are often educated in special schools and surveys in these settings may provide a more representative picture of rates of emotional and behavioural problems. A Dutch study based on schools for children with ASD found that 41% of students with ASD symptoms had a comorbid disorder, but only about a third of them received specialist care (Dekker & Koot, 2003). Narendorf, Shattuck and Sterzing (2011) also explored access to mental health services in a US nationally representative study of adolescents in special education in the USA. Nearly half of the students with an ASD had used a mental health service in the past year: of these, half were school-based services.

The present study aimed to describe levels of emotional and behavioural difficulties in a UK special school-based sample of children and adolescents with ASD, most of whom also had ID.

The specific aims of the present study are

(i) To describe parent- and teacher-reported rates of emotional and behavioural problems in a sample of students with ASD and ID, attending specialist autism schools.

(ii) To examine whether, as is found in the more general psychopathology literature, emotional and behavioural difficulties are associated with age, gender and verbal ability.

(iii) Information on access to Child and Adolescent Mental Health Services (CAHMS) as reported by parents was also recorded to examine whether service use was associated with levels of emotional and behavioural difficulties.

3. Method

3.1. Participants

Teachers and parents of a total population of 759 students enrolled in 10 specialist ASD schools that were part of the Pan London Autism Schools Network (PLASN), all located in a variety of boroughs within the Greater London area, were invited to take part to the study. All the students in the schools had a Statement of Special Educational Needs (SEN)1 with autism as their primary recognized need. Although no direct information on intellectual ability of the students was available for this study, the characteristics of the school intake meant that the vast majority would be considered to have ID. Levels of ID varied from severe through moderate to mild, but Headteachers confirmed that all children had significant learning problems that

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1 In the UK, many children with intellectual or other difficulties affecting their education are provided by their local education authorities with a formal “Statement of Special Educational Needs”. This describes the child’s diagnosis and needs and the arrangements that the school has to make in order to meet these needs.
meant they could not be educated in mainstream school. All parents of children enrolled in the schools and all teachers were invited to take part in the study with a presentation of the study held at parents evenings followed by an invitation letter. Data were available for 615 children (see below); the ethnicity in our sample was reasonably representative of the London population: 40.3% of respondents were White, 30.2% were Black, 17.5% were Asian and 12% of other ethnic backgrounds. They were aged from 4 to 19 years at the time of the study (mean age = 11.42 years; SD = 3.77); 481 (78.2%) were boys. Information on gender was unavailable for 45 children (7.3%) and age data were missing for 38 (6.2%). A direct diagnostic assessment was not available, but a subset of parents (N = 239, 39%) completed the Social Communication Questionnaire – Lifetime version (SCQ: Rutter, Bailey, & Lord, 2003) which provides a measure of severity of autism symptoms. Scores on this scale range from 0 to 39; a score of 15–21 is considered to indicate a moderate level of autism severity and a score of >22 indicates high autism severity. Parents reported high levels of autism symptoms for the majority of the participants: 67.8% (N = 162) had an SCQ Total Score >22 (the cut off for autism) and 88.7% (N = 212) had an SCQ Total Score >15 (the cut off for broader autism spectrum disorder).

3.2. Measures

Emotional and behavioural difficulties were assessed by both parent and teacher report using the parallel versions of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). The SDQ comprises 5 subscales: Hyperactivity, conduct problems, emotional symptoms, peer problems and prosocial behaviour. Screening cut-offs for the SDQ are available from a nationally representative community sample of 10,438 5- to 15-year-olds recruited by the Office for National Statistics from a base of 12,529 eligible children, stratified by postal sectors and socio-economic group and weighted to correct for non-response bias by age and sex (ONS: Meltzer, Gatward, Goodman, & Ford, 2000). The normative school-age data derived allow identifying children with ‘borderline’ (top 20%) and ‘abnormal’ (top 10%) levels of difficulties (www.sdqinfo.org).

Each item is scored 0–2, with subscale scores across 5 items ranging from 0 to 10; higher scores indicate higher levels of psychopathology (with the exception of the Prosocial behaviour scale). Scale scores can be prorated if at least 3 items in each subscale are completed. The SDQ has been validated against longer questionnaires such as the CBCL (Goodman & Scott, 1999) and has proven to be useful and reliable to screen for emotional and behavioural difficulties in childhood within community groups (Goodman, Ford, Simmons, Gatward, & Meltzer, 2003) and in children with ID (Beck, Daley, Hastings, & Stevenson, 2004; Emerson, 2003; Emerson, Einfeld, & Stancliffe, 2010). As in the study by Totsika et al. (2011), we focus here on scores for emotional symptoms, conduct problems and hyperactivity subscales. Scores on the Prosocial behaviour and Peer problems subscales were not analyzed separately as they directly overlap with diagnostic characteristics of ASD and because the Prosocial behaviours scale contributes to the Total Problem score, this is also not reported. In the current sample Cronbach’s alpha values were acceptable both for parent-rated [emotional symptoms (M = 3.68; α = 0.63); conduct problems (M = 2.63; α = 0.52); hyperactivity (M = 6.81; α = 0.71)] and for teacher-rated scales [emotional symptoms (M = 3.35; α = 0.72); conduct problems (M = 2.34; α = 0.57); hyperactivity (M = 6.21; α = 0.79)].

Additional questions were used for parents to record any contact with a mental health service (Child and Adolescent Mental Health Services [CAMHS]) in the previous 6 months or any time in the child’s life. To obtain an estimate of communication abilities, teachers were asked to indicate whether the student was non-verbal, had single word speech, or phrase speech.

3.3. Procedure

Headteachers from the PLASN schools informed their staff about the scope and rationale of the study. A teacher pack was distributed including the SDQ. Through schools, parents were given a pack including the SDQ (teacher and parent forms), the SCQ (parent completed lifetime form) and a set of questions regarding their experience with CAMHS services. Approval for distributed including the SDQ. Through schools, parents were given a pack including the SDQ (teacher and parent forms), the

3.4. Response rates

SDQs were completed by either the child’s teacher or parent for 81% of the available sample (n = 615). For 44.6% (n = 274) the SDQ was completed by both respondents; teacher-only SDQ’s were available for 48.6% (n = 299), and parent only SDQ’s for 6.8% (n = 42).

3.5. Data analysis

Within this sample, levels of emotional and behavioural problems within the sample of children as measured by the SDQ, were categorized as ‘typical’/‘borderline’ or ‘abnormal’ according to the age- and gender-appropriate UK norms, based on the 1999 ONS sample (Meltzer et al., 2000). Due to the non-normality of data, non-parametric tests were used (skewness and kurtosis values for the SDQ distributions are available from the first author).

A Mann–Whitney U test was used to test differences in emotional difficulties, conduct problems and hyperactivity reported in the teacher- and parent-SDQ by age group (children: 4–11 years; adolescents: 12–19 years), verbal ability (lower verbal ability: non-verbal and single words speech; higher verbal ability: phrase speech) and gender (male/female).
Service use was compared for students scoring above/below the SDQ ‘abnormality’ (10%) cut-points on UK norms using chi-square tests. Odds ratios were calculated on the basis of cross-tabulating the data. Appropriate effect sizes (Rosenthal’s $r$, and Cramer’s $V$ [ranging from 0 = no association to 1 = perfect association; with values of 0.70+ indicating large effects (Rosenthal, 1991)]) were used to indicate the strength of the association between the variables of interest and levels of emotional and behavioural problems.

### 4. Results

#### 4.1. Levels and correlates of behavioural and emotional problems

Levels of behavioural and emotional problems were elevated compared to UK normative data (see Table 1). On the SDQ, the proportion of children with high (‘abnormal’) levels of behavioural and emotional problems was found to be 3- to 4-fold higher than the normative sample across the SDQ scales for both the parent-rated (27.5–45.9%) and the teacher-rated (30.8–42.7%) versions. Parent–teacher agreement was low ($r = 0.20–0.23$ across the emotional, hyperactivity and conduct scales).

Levels of emotional difficulties and conduct problems were not different in children (4–11 years) and in adolescents (12–19 years) as reported by both teachers and parents, but teachers reported significantly higher levels of hyperactivity in children ($M = 6.60 (2.69), Mdn = 7$) than in adolescents ($M = 5.89 (2.73), Mdn = 6$); although the effect size of this difference was small ($U = 29,916.5, z = -3.12, p = 0.002, r = 0.14$).

By teacher report, children and adolescents with lower verbal abilities (non-verbal or single words language; $M = 7.01 (2.47), Mdn = 7$) displayed significantly higher levels of hyperactivity than students with higher verbal abilities (phrase speech; $M = 2.22 (2.12), Mdn = 2$), with a moderate effect size ($U = 25,810.5, z = -6.92, p < 0.001, r = -0.29$). Teachers also reported significantly higher levels of conduct problems in students with lower verbal abilities ($M = 2.62 (1.79), Mdn = 2$) than in students with phrase speech ($M = 2.22 (2.12), Mdn = 2$), however the effect size of this difference was small ($U = 32,271, z = -3.53, p < 0.001, r = -0.15$).

Both by teacher and parent report, levels of emotional and behavioural difficulties of any kind did not differ significantly by gender (all $p$ values $> 0.228$; details are available from the first author) (Table 2).

### Table 1

Levels of emotional and behavioural problems in the total sample.

<table>
<thead>
<tr>
<th></th>
<th>PLASN sample</th>
<th>ONS sample*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$N$</td>
<td>$M$ (SD)</td>
</tr>
<tr>
<td><strong>SDQ teacher</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional symptoms</td>
<td>569</td>
<td>3.32 (2.47)</td>
</tr>
<tr>
<td>Conduct problems</td>
<td>571</td>
<td>2.43 (1.97)</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>571</td>
<td>6.20 (2.73)</td>
</tr>
<tr>
<td><strong>SDQ parent</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional symptoms</td>
<td>310</td>
<td>3.67 (2.29)</td>
</tr>
<tr>
<td>Conduct problems</td>
<td>309</td>
<td>2.70 (1.82)</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>309</td>
<td>6.75 (2.37)</td>
</tr>
</tbody>
</table>

$^a$ British data for the 5–15 year old males sample in the ONS 1999 survey (Meltzer et al., 2000).

$^b$ Abnormal SDQ scores fall into the top 10% of the ONS 1999 survey.

### Table 2

Correlates of emotional and behavioural problems: age and verbal ability.

<table>
<thead>
<tr>
<th>SDQ</th>
<th>4–11 years</th>
<th>12–19 years</th>
<th>$U$ ($p$)</th>
<th>ES</th>
<th>Non-verbal/single words</th>
<th>Phrase speech</th>
<th>$U$ ($p$)</th>
<th>ES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n$</td>
<td>$M$</td>
<td>SD</td>
<td>$n$</td>
<td>$M$</td>
<td>SD</td>
<td>$n$</td>
<td>$M$</td>
</tr>
<tr>
<td>Teacher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emot</td>
<td>279</td>
<td>3.28</td>
<td>2.51</td>
<td>253</td>
<td>3.40</td>
<td>2.54</td>
<td>34,427 (0.619)</td>
<td>-0.02</td>
</tr>
<tr>
<td>Cond</td>
<td>280</td>
<td>2.57</td>
<td>1.95</td>
<td>253</td>
<td>2.35</td>
<td>1.96</td>
<td>32,969 (0.166)</td>
<td>-0.06</td>
</tr>
<tr>
<td>Hyper</td>
<td>280</td>
<td>6.60</td>
<td>2.69</td>
<td>253</td>
<td>5.89</td>
<td>2.73</td>
<td>29,916.5 (0.002)*</td>
<td>-0.14</td>
</tr>
<tr>
<td>Parent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emot</td>
<td>171</td>
<td>3.56</td>
<td>2.31</td>
<td>137</td>
<td>3.84</td>
<td>2.27</td>
<td>10,959.5 (0.333)</td>
<td>-0.06</td>
</tr>
<tr>
<td>Cond</td>
<td>170</td>
<td>2.64</td>
<td>1.78</td>
<td>137</td>
<td>2.80</td>
<td>1.87</td>
<td>11,135.5 (0.508)</td>
<td>-0.04</td>
</tr>
<tr>
<td>Hyper</td>
<td>170</td>
<td>6.82</td>
<td>2.25</td>
<td>137</td>
<td>6.64</td>
<td>2.54</td>
<td>11,338 (0.692)</td>
<td>-0.02</td>
</tr>
</tbody>
</table>

* $p < 0.01$.

** $p < 0.001$.

ES: Effect size (Rosenthal’s $r$).
4.2. Levels of behavioural and emotional problems and mental health service use

A total of 307 parents reported on the use of mental health services by their child. Of these, 207 (67.4%) reported having never accessed mental health services for their child, 44 (14.3%) reported current use of a mental health service (i.e., in the previous 6 months) and 56 (18.2%) had accessed such support in the past but not in the previous 6 months.

Rates of current (within the previous 6 months) access to services were calculated separately for students with ‘abnormal’ levels of behavioural and emotional difficulties as reported by parents and teachers. Considering both parent- and teacher-reported emotional and behavioural difficulties, children and adolescents with abnormal levels of difficulties were more likely to be currently seen by a mental health service than children with typical or borderline levels. The increased likelihood was higher for parental report than for teacher report (parent report: ORs ranged 2.31–5.23 across SDQ subscales; teacher report: ORs ranged 2.08–2.32). However, the crude rates of current access to mental health services in pupils with teacher-reported elevated difficulties ranged between 19 and 21% and for parent-reported difficulties between 19 and 29% (Table 3).

### Table 3
Rates of access to mental health services in the last 6 months, by ranges of mental health difficulties.

<table>
<thead>
<tr>
<th>SDQ score</th>
<th>N</th>
<th>Access to mental health services (last 6 months)</th>
<th>χ² (p)</th>
<th>ES</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical/borderline</td>
<td>Abnormal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SDQ teacher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional symptoms</td>
<td>15 (10.2)</td>
<td>22 (19.1)</td>
<td>4.239 (0.030)</td>
<td>0.127</td>
<td>2.08</td>
<td>[1.03–4.22]</td>
</tr>
<tr>
<td>Conduct problems</td>
<td>18 (10.2)</td>
<td>19 (22.1)</td>
<td>6.807 (0.009)</td>
<td>0.161</td>
<td>2.50</td>
<td>[1.24–5.07]</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>17 (10.2)</td>
<td>20 (20.8)</td>
<td>5.723 (0.015)</td>
<td>0.148</td>
<td>2.32</td>
<td>[1.15–4.69]</td>
</tr>
<tr>
<td>SDQ parent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional symptoms</td>
<td>18 (8.8)</td>
<td>23 (24.2)</td>
<td>13.099 (0.001)**</td>
<td>0.208</td>
<td>3.30</td>
<td>[1.68–6.49]</td>
</tr>
<tr>
<td>Conduct problems</td>
<td>16 (7.5)</td>
<td>25 (29.8)</td>
<td>25.432 (0.001)**</td>
<td>0.291</td>
<td>5.23</td>
<td>[2.62–10.42]</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>15 (9.3)</td>
<td>26 (19.1)</td>
<td>6.160 (0.010)</td>
<td>0.143</td>
<td>2.31</td>
<td>[1.17–4.59]</td>
</tr>
</tbody>
</table>

* p < 0.01.
** p < 0.001.
ES: Effect size (Cramer’s V).

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5. Discussion

Receiving timely and appropriate support for mental health difficulties is important for children and young people and their families. This may be especially true for young people with ASD and ID whose needs, usually labelled as ‘complex’, often reflect a combination of social, cognitive and behavioural difficulties to which additional mental health difficulties may easily add. In this survey of autism specialist schools, we found highly elevated rates of emotional and behavioural problems on the SDQ screening measure when completed independently by parents and by teachers. Running school-based early mental health identification programmes and accompanying them with follow-up evaluations and treatment services both within the school and in the community is considered to be beneficial to timely address mental issues in children and adolescents with ASD (Levitt, Saka, Hunter Romanelli, & Hoagwood, 2007). However, we found that only a minority of students with ASD and ID were in contact with child mental health services.

On the SDQ the proportion of children scoring above the top 10% compared to UK norms ranged across subscales from 27% to 46% for parent ratings and from 31% to 43% for teacher ratings. The low parent–teacher agreement, a common finding in studies of emotional and behavioural difficulties in childhood and adolescence (see metaanalysis: Achenbach, McConaughy, & Howell, 1987) underlines the importance of capturing differences in the perceived variations in child and adolescent functioning.

We found no differences between boys and girls in either teacher- or parent-rated levels of emotional and behavioural problems. SDQ teacher-rated hyperactivity scores were weakly associated with age with levels being lower in adolescents (12–19 years) than children (4–11 years). By teacher report, levels of hyperactivity and, to a reduced extent, of conduct problems were higher in pupils with lower communication skills. This finding is not unexpected given that children with very limited communication (no speech or only single-words language) are more likely to show externalizing symptoms, problems were higher in pupils with lower communication skills. This finding is not unexpected given that children with very limited communication (no speech or only single-words language) are more likely to show externalizing symptoms, since these behaviours might be their only means of communicating their needs (Carr & Durand, 1985; Howlin, 1998). The findings of the present study are consistent with those of Lecavalier (2006) who found high rates of behavioural and emotional problems in a large (N = 487) USA school-based survey of children receiving special education services for ASD. Lecavalier (2006) also found no gender differences in rates of emotional and behavioural difficulties but in contrast to our findings found higher rates of insecure/anxious difficulties in older children but no age effect for hyperactivity.

Our findings of elevated rates of emotional and behavioural problems in this large UK school-based sample of pupils with ASD, most of whom also have ID, are in line with parent report on the SDQ from Totsika et al.'s (2011) nationally representative sample. In our study, teachers also reported high levels of difficulties. Although based on the SDQ
questionnaire only, these elevated rates of emotional and behavioural problems are consistent with reports of high rates of diagnosable psychiatric disorders in other clinical and populations samples of children and young people with ASD (de Bruin et al., 2007; Gadow et al., 2008; Simonoff et al., 2008, 2013).

The use of this school-based sample also enabled us to explore the relationship between high levels of emotional and behavioural problems (i.e. in children displaying ‘abnormal’ levels of mental health problems corresponding to 10% of the typical population) and their access to mental health services. A minority of students (14%) had accessed child mental health services in the past 6 months. This is consistent with the findings of Bryson et al. (2008) who reported that 15% of young people with any ASD in their sample were receiving mental health services. Narendorf et al. in the US (2011) found that nearly half of their sample of students with ASD in special education had used mental health services during the last 12 months, a considerably higher rate than in our study. However, in almost 50% of that cohort, mental health services were actually provided within the special schools themselves, whereas very limited mental health services are currently offered within the schools involved in our study (as is usual practice in the UK). When we looked at the characteristics of students accessing such services, we found that pupils reported to show elevated levels of difficulty either by teachers or parents were between two and five times more likely to access the services (depending on the type of difficulties reported). This indicates that the SDQ is effective in detecting clinically relevant emotional and behavioural difficulties. It is of interest to note that parent-rated conduct problems had the strongest association with reported access to mental health services: children with high levels of conduct problems were 5 times more likely to be seen by CAHMS professionals than children with lower levels of difficulties. Conduct problems in children with ASD have been identified as a strong correlate of parental stress in previous studies (Hastings, 2003; Lecavalier, Leone, & Wiltz, 2006) and our finding suggests that this type of difficulties in children are more likely to motivate parents to seek help and/or professionals to provide timely support.

At the same time, only a small proportion of children with high needs were accessing the services, and whether this depends on systemic factors (such as waiting lists or limited availability of services) or on individual characteristics of the children or parental decisions are relevant questions which it was not possible to address in the present study. However, our finding that children and adolescents with the highest needs were those actually more likely to be seen by mental health services is consistent with their description of the high needs of children with ASD.

6. Limitations

There are a number of strengths to the present study, including the large sample size and the use of both parents and teachers as informants. Nevertheless, the results should be interpreted in the context of several limitations. First, neither detailed diagnostic information, nor any direct measure of intellectual or communication ability, was available on the sample. However, since all the students involved had a UK statement of special educational needs, because of their ASD and were enrolled in schools that primarily cater for students with ASD and co-occurring ID we can assume that almost all met full diagnostic criteria for autism and were of below average IQ. A subset of parents completed the SCQ questionnaire: and the vast majority of these children had scores consistent with a diagnosis of ASD. Headteachers also confirmed that the large majority of their students had ID. Whilst we cannot extend our findings to children and young people with autism with intellectual abilities in the average range or in mainstream school, similar parent SDQ scores have been reported in samples with IQs in the (low) average range (Horiuchi et al., 2014; Simonoff et al., 2013). The second main limitation is the use of the SDQ questionnaire to measure emotional and behavioural problems. Whilst the SDQ is increasingly used in samples of children and young people with ID and ASD (Emerson, 2005; Kaptein, Jansen, Vogels, & Reijneveld, 2008), its validity even as a screener has rarely been tested against formal, comprehensive diagnostic assessments of psychiatric difficulty in these populations. The methodological and conceptual issues of whether scores on screening instruments for emotional and behavioural (mental health) difficulties mean the same or different things for children and young people with an ASD as they do for those without ASD are only just beginning to be addressed (see Simonoff et al., 2008, 2013; for discussion). Finally, not all areas of psychopathology are covered by the SDQ, resulting in some problems being possibly under-identified (e.g., sleep problems, obsessive compulsive disorder). This means that more detailed assessment of possible mental health difficulties in this group is required to identify those students with more significant and impairing psychiatric difficulties who may benefit from treatment.

As a measure of emotional and behavioural difficulties, the SDQ is certainly not comparable to a thorough (but also time-consuming and costly) clinical assessment; however it has shown to be valuable in indicating which services or treatment the child may be in most need of (Iizuka et al., 2010). Because of its characteristics (easy and quick completion, possibility to have multiple informants), the SDQ has been used to screen for emotional and behavioural difficulties in large population-based samples (Meltzer et al., 2000) as well as in clinic-based (Simonoff et al., 2013) and school-based (Jones & Frederickson, 2010; Osborne & Reed, 2011) samples of children with ASD.

7. Conclusions

The present study confirms previous reports of high levels of emotional and behavioural problems in a new, large school-based sample of children with ASD and ID. It highlights the feasibility and utility of using the SDQ as a screener to identify the children and young people with ASD and ID most in need of further more detailed assessment of the nature and extent of


