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1 Title

2 The school experiences of autistic girls and adolescents: a systematic review

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1 **Abstract**

2 The purpose of the current review is to provide an overview of research relating to the school
3 experiences of autistic females throughout childhood and adolescence.

4 Web and database searches were conducted between December 2017 and April 2018 to identify
5 studies exploring school experiences of autistic females. Eight studies met the inclusion criteria and
6 the data were analysed using a framework synthesis methodology, where a conceptual framework
7 of general autistic experiences in education was used to map study findings onto. Key themes were
8 identified, highlighting similarities between autistic girls and boys in several areas, including sensory
9 issues and difficulties with peer relationships. Noteworthy differences included contrasting
10 perspectives between staff and parents in relation to the girls' experiences, as well as the greater
11 tendency for girls to mask their difficulties. The implications of these findings are discussed in the
12 context of professional practice and directions for further research.

13 **Keywords:** autism, autistic, gender differences, educational experiences, school experiences, social
14 experiences

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1 **Introduction**

2 Autism is a pervasive developmental disorder, characterised by persistent impairments in social
3 communication and interaction, alongside restrictive or repetitive interests, activities or patterns of
4 behaviour and sensory sensitivities (APA 2013). In England most autistic children are educated in
5 mainstream settings (Department for Education (DfE) 2018). However, research suggests that
6 experiences of education for autistic children can be significantly worse than for ‘typically developing’
7 (TD) children, particularly when appropriate provision is not in place (Humphrey et al. 2015).
8 Although autism is more likely to be diagnosed in boys, there is increasing awareness of autism in girls
9 (Gould and Ashton-Smith 2011). This review seeks to provide a systematic synthesis of girls’
10 experiences of education to inform education practice and research. The following sections describe
11 autistic young people’s experiences of education in general before focusing specifically on gender
12 differences in autism.

13 *Autism and education*

14 Education-based research, though focused predominantly upon boys, has proposed that autistic
15 children report fewer friendships (Kasari et al. 2011), and less social support from their peers than
16 those without Special Educational Needs (SEN) or with other types of SEN (Humphrey and Symes
17 2010). Indeed, difficulties with social relationships is a key finding in the extant literature (Humphrey
18 and Lewis 2008; Poon et al. 2014), though it is worth noting that although friendships may look
19 different, often autistic children are happy with their interactions (Calder Hill and Pellicano 2013).
20 More worryingly, pupils with autism are likely to experience higher levels of loneliness and social
21 isolation (Bauminger and Kasari 2000; Schroder et al. 2014) and increased bullying (Cappadocia, Weiss
22 and Pepler 2012; Rowley et al. 2012) compared to their peers. Chamberlain, Kasari and Rotheram-
23 Fuller (2007) found that although autistic pupils reported involvement in social networks they rated
24 friendship qualities such as acceptance, companionship and reciprocity as lower than those of their
25 TD peers. Access to high-quality friendships has a significant impact on emotional well-being and the
26 negative consequences of difficulties in developing and maintaining friendships is well documented
27 (see Danker, Strnadova and Cumming 2016 for a review of the literature).

28 A further key difficulty relates to the physical environment, and the design of the mainstream school
29 can be an important facilitator or barrier to a truly inclusive environment (Bond and Hebron 2016;
30 McAllister and Maguire 2012). Coping with the sensory demands of a busy environment and frequent
31 transitions (Banda et al. 2009) can increase anxiety (Goodhall 2015), leading to pupils becoming
32 distanced from the learning process (McAllister and Maguire, 2012), and can contribute to academic
33 underachievement compared to TD students (Asburner, Ziviani and Rodger 2010).

1 *Sex differences in autism*

2 Traditionally, autism has been conceptualised as a principally male condition and differential rates of
3 diagnosis range from a male/female ratio of 2:1 to 16:1 (Gould and Ashton-Smith 2011). The ratio is
4 smaller in those individuals at the lower end of the IQ distribution and greater at the high-
5 functioning end (Rivet and Matson 2011), with the suggestion that this may be partly due to the
6 under-identification of females because of bias in diagnostic tools (Lai et al. 2015). Girls may also be
7 mis-diagnosed with conditions such as anxiety and depression or diagnosed with autism later than
8 boys (Begeer et al. 2013). Research suggests that although autistic females may demonstrate similar
9 difficulties with social communication compared to boys (Van Wijngaarden-Cremers et al. 2014) they
10 often exhibit fewer repetitive or restricted behaviours (Frazier et al. 2014; Van Wijngaarden-Cremers
11 et al. 2014), and the interests they show are like those of TD girls, varying only in intensity and
12 severity (Gould and Ashton-Smith 2011). Furthermore, girls may be less likely to be identified due to
13 their propensity to display internalising behaviours compared to the externalising behaviour of their
14 male counterparts (Mandy et al. 2012), with the implication that girls may be more likely to be
15 overlooked within educational settings. This is amplified by the tendency of autistic females to
16 camouflage to 'fit in' or not be noticed (Attwood 2006).

17 *Rationale and aims of the current review*

18 Most studies exploring the experiences of autistic children and adolescents focus on males (Gould,
19 2017), though recently there has been a move towards research utilising solely female samples to
20 better understand girls' experiences specifically (e.g. Cridland et al. 2014; Moyse and Porter 2015).
21 The aim of the current review is to provide a systematic synthesis of findings of research studies
22 investigating the school experiences of autistic girls and adolescents. The literature review question
23 (LRQ) was defined as follows:

24 *'What are the school experiences of autistic girls and adolescents?'*

25 **Methodology**

26 *Review process*

27 Although there is growing awareness of autistic girls (Gould, 2017), there is limited guidance for
28 schools in meeting their needs and provision could be more specifically targeted. The current review
29 therefore aims to inform professional practice in this area. Given that social difficulties are a core
30 deficit in autism and a presenting issue causing many problems among school-age girls, the review
31 adopted a broad definition of educational experience to include social as well as academic aspects of
32 school experience.

1 To identify the included studies a systematic search strategy was employed, following the Preferred
2 Reporting Items for Systematic Reviews and Meta Analyses (PRISMA) approach (Moher et al. 2009)
3 (Fig 1). Between December 2017 and April 2018, systematic searches of the following databases
4 were undertaken; Psych Info, Education Resources Information Centre (ERIC), Web of Science,
5 Applied Social Science Index and Abstracts (ASSIA) and the British Index of Education (BIE). Further
6 searches were made using Google Scholar. The search terms employed were males AND females OR
7 boys AND girls, ASD OR ASD OR aut* and education OR school OR social. Searches were conducted
8 using single and combined terms. Reference harvesting from retrieved papers was undertaken to
9 ensure that all relevant literature had been identified. The initial search yielded 285 papers of which
10 269 were excluded after removing duplicates and screening titles and abstracts for relevance. The
11 remaining 16 articles were considered for further analysis utilising the following pre-defined
12 inclusion criteria:

- 13 1. Studies included females with a clinical diagnosis of autism (including Asperger's Syndrome)
14 who were under 18 years of age or 18 years and older reflecting on their school experiences.
- 15 2. Data focused on the experiences of autistic girls including their narrative accounts, peer
16 nomination data or parent or teacher reports of the girls' experiences.
- 17 3. Studies focused explicitly on the experiences of females or included the male and female
18 experience, with relevant aspects of the female experience drawn out of the data.
- 19 4. Quantitative, qualitative or mixed-methods studies were deemed appropriate due to the
20 lack of research in this area.
- 21 5. Papers were written in English.
- 22 6. Papers published in a peer-reviewed journal.
- 23 7. Studies utilised primary or secondary data to maximise scoping.

24
25 Initial scoping revealed that there was likely to be limited research in this area, so no date range was
26 set. Following this process, a further eight papers were excluded for the following reasons; the study
27 focused primarily on behavioural presentation in relation to the diagnostic criteria or findings were
28 not related to education, participants were over 18 years and were not reflecting on childhood or
29 adolescent experiences or the target females did not have a diagnosis of autism.

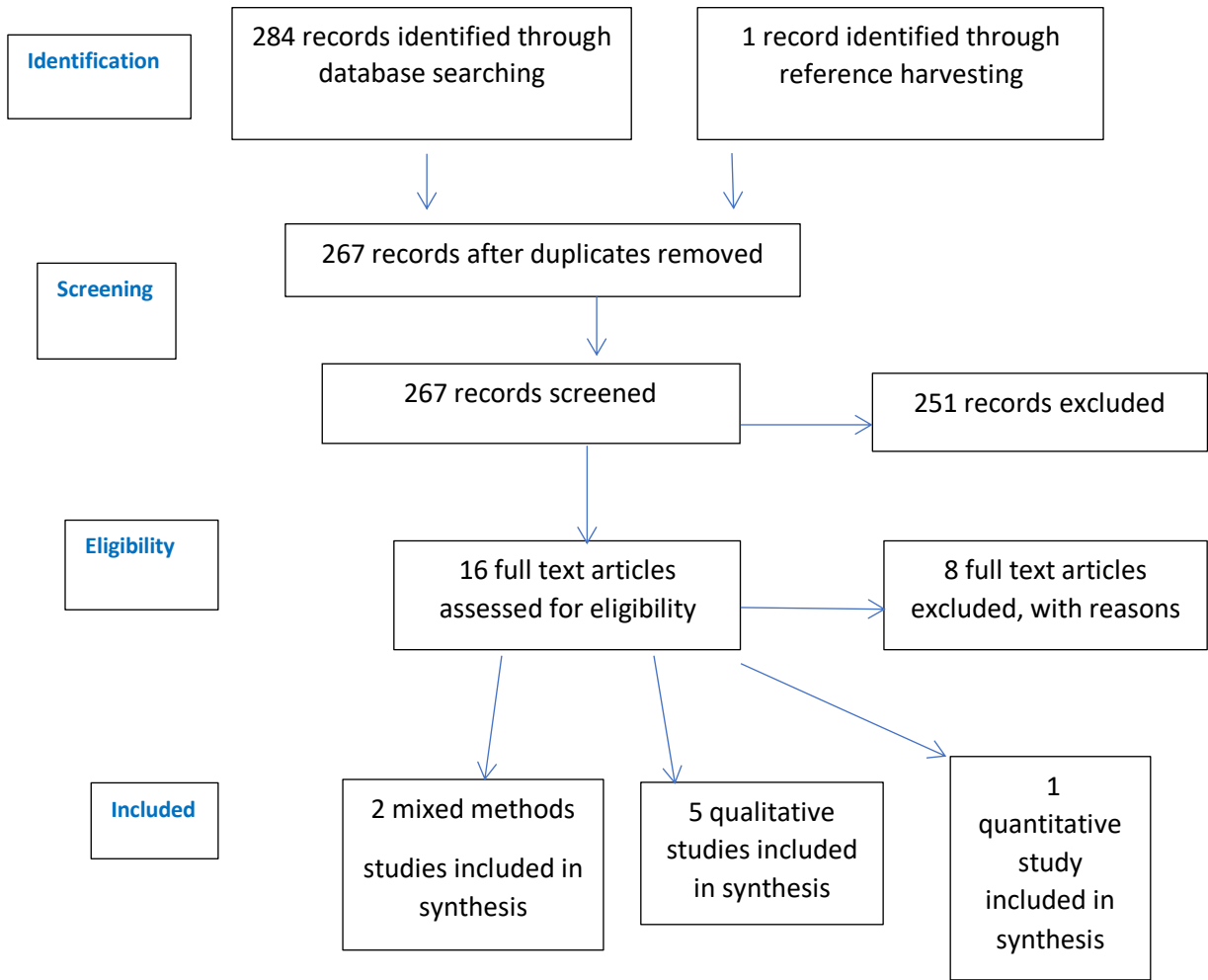
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1 **Figure 1 PRISMA Framework**

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2 *Evaluative frameworks*

3 The remaining 8 papers were assessed for methodological quality using Gough's (2007) Weight of
4 Evidence A (WoE A) criteria. Given that research into the experiences of autistic females remains in
5 its infancy the papers were screened for quality; not as a tool to exclude from the review but rather
6 to highlight what good quality research might look like in this emerging field. Both quantitative and
7 qualitative investigations were assessed using the scoring framework developed by Bond et al.
8 (2013). Qualitative papers were considered against twelve criteria including appropriateness of the
9 research design, clear sampling rationale and evidence of explicit reflexivity. Those receiving a total
10 score between 0-5 were considered 'low quality', 5.5-9.5 'medium quality', and 10-14 'high quality'.
11 The criteria against which quantitative papers were assessed included clear research question(s),
12 comprehensive data gathering and appropriate statistical analyses, with scores of 0-5 classified as
13 'low' quality, 6-10 as 'medium' and 11-15 as 'high'. Mixed methods studies were dual coded using
14 both the qualitative and quantitative frameworks and were then given the higher point rating.
15 These boundaries enabled the considerable range in quality to be highlighted whilst not excluding
16 studies.

17 *Data synthesis and extraction*

18 Overall, eight papers were included in the final review and relevant content is summarised in Table
19 1. A framework synthesis approach (Carroll et al. 2011; Oliver et al. 2008) was adopted to
20 systematically analyse the findings, involving familiarisation with the theoretical and empirical
21 literature to develop a conceptual framework (Fig 2). The conceptual framework encompassed the
22 broad range of factors identified to impact upon school experiences of autistic pupils in general as
23 reported in the literature. An initial map was developed based upon the first author's knowledge of
24 autism and education literature and further refined in consultation with three key educational and
25 academic experts, widely published in the autism field. This enabled their extensive knowledge of
26 the literature to inform development of a peer reviewed conceptual map. This framework facilitated
27 a systematic exploration of the experiences of girls in relation to the general autism and education
28 literature.

29 **Findings**

30 *Overview of the included studies*

31 Eight studies were included in the review, all published between 2014 and 2018, reflecting the
32 emerging nature of this field. Four studies were conducted in the UK (Cook, Ogden and Winstone

1 2018; Honeybourne 2015; Moyses and Porter 2015; Sedgewick et al. 2016), two in Australia (Cridland
2 et al. 2014; Jarman and Rayner 2015), and two in the USA (Dean et al. 2014; Dean, Harwood and
3 Kasari 2017). As illustrated in Table 1, one study utilised semi-structured interviews, two employed
4 a case study method, two used semi-structured surveys, two analysed secondary data and one
5 employed a mixed methods approach. Most studies focused on the experiences of autistic females
6 within mainstream educational settings, though two considered the experiences of those in special
7 schools or both mainstream and specialist settings (Cook, Ogden and Winstone 2018; Sedgewick et
8 al. 2016). Participant sample sizes ranged from three autistic girls to 100 autistic males and females
9 and their TD peers, and ages ranged from 5 to 50+ years. Adolescent experiences were the exclusive
10 focus of three studies, primary (elementary) school experiences in three studies and two studies
11 considered the experiences of adult autistic females reflecting on their childhood/adolescence.
12 While studies focused on aspects of school experience, Dean et al. (2014) focused primarily on social
13 relationships but largely within a school context, and Cridland et al. (2014) highlighted a broader
14 range of experiences across adolescence, which included school experiences.

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Figure 2 The educational experiences of autistic children and adolescents

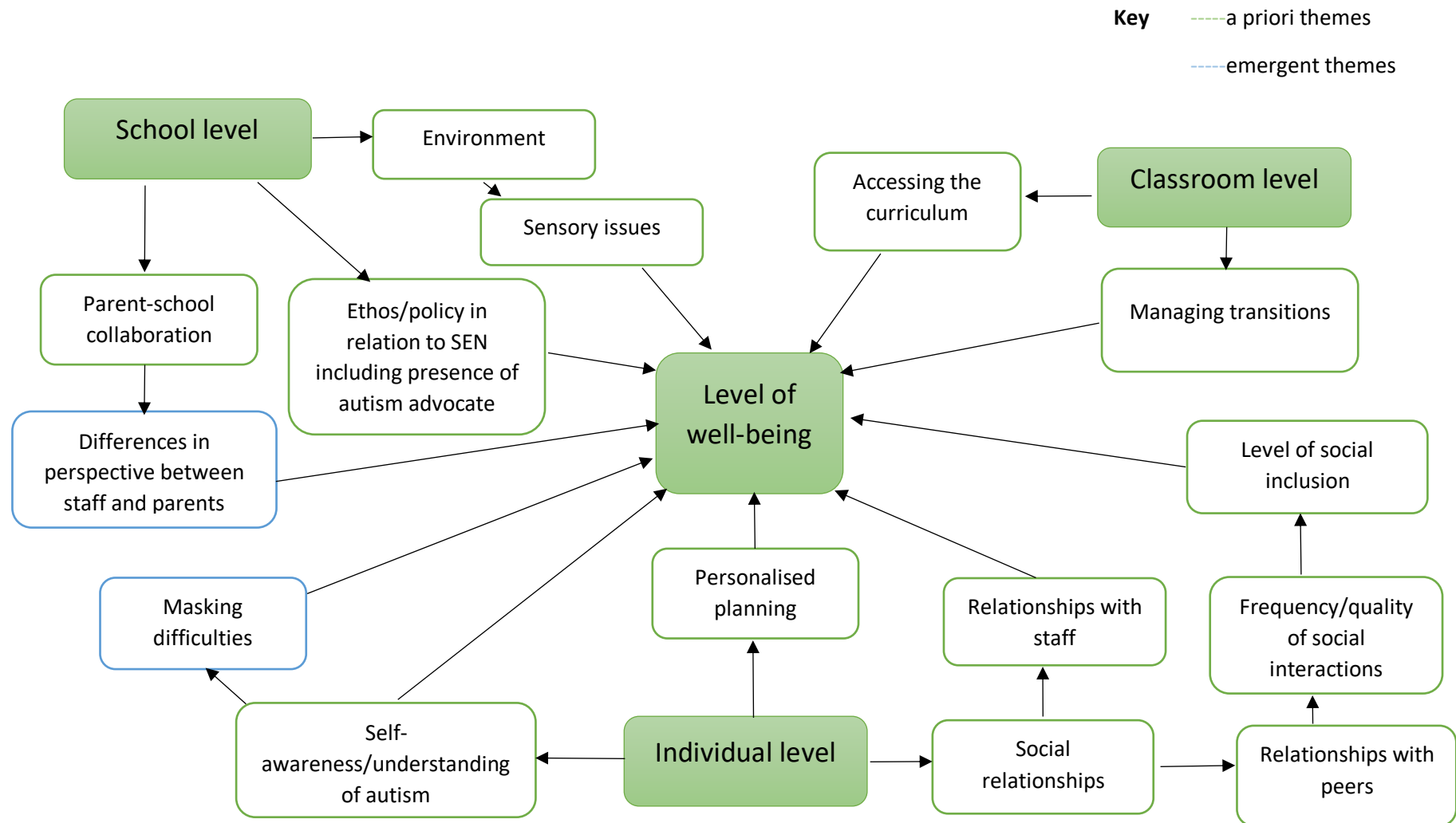


Table 1: Characteristics of included studies

Author (s) & Location	Focus	Participants/recruitment method	Study Method/Design	Summary of Findings	WoE A
Cook, Ogden and Winstone (2018) UK	Autistic girls 'experiences of learning, friendships and bullying	11 girls aged 11-17 years (diagnosed with autism) and one parent of each girl. Mainstream and specialist settings. Purposive sampling.	Semi-structured interviews Qualitative – thematic analysis	Autistic girls were motivated to have friends but encountered social difficulties and were sometimes targeted for bullying.	Medium
Cridland et al. (2014) Australia	Autistic adolescent girls' experiences during adolescence	Three mother-daughter dyads and two additional mothers. Girls aged 12-17 years diagnosed with autism. Recruited through local schools and community groups.	Multiple case study approach Qualitative – Interpretative Phenomenological Analysis (IPA)	Social, physical, emotional and sexual issues identified. The authors likened some experiences to those of autistic boys e.g. transition, others were viewed as specific to autistic girls e.g.	Medium

				socialising with neuro-typical girls.	
Dean et al. (2014) USA	Social relationships of elementary school children with autism	100 elementary school children (1 st to 5 th grade) 25 autistic girls, 25 TD girls 25 autistic boys, 25 TD boys Autistic children matched by age, gender and IQ with a TD classmate by age and gender. All autistic females included from earlier studies (AIR-B, 2012; Kasari et al., 2011), other group participants randomly selected from these studies.	Secondary analysis of peer nomination data using 'The Friendship Survey' in two earlier studies (AIR-B, 2012; Kasari et al., 2011) Quantitative – ANOVA and regression analysis	Autistic children socialised with same gender friends. Autistic girls and boys were more socially like each other than same-gender controls with fewer nominations and social relationships. Autistic boys overtly socially excluded; autistic girls overlooked by TD peers.	Medium
Dean, Harwood and Kasari (2017) USA	How gender-related social behaviours enable autistic girls to mask symptoms	96 elementary school children (1 st to 5 th grade) 24 autistic girls, 24 TD girls 24 autistic boys, 24 TD boys TD children were matched by sex, age and city of residence to autistic children. All autistic females included from the previous study. Autistic males and TD	Secondary analysis of observational data collected using The Playground Observation of Peer Engagement (POPE) in a previous study (Kasari et al., 2015) Mixed methods- ANOVA	Autistic girls used compensatory behaviours, e.g. staying close to peers masking social challenges. Autistic boys' social difficulties were more obvious.	Medium

		males and females randomly selected from the study (Kasari et al., 2015).			
Honeybourne (2015) UK	School experiences of autistic women and girls	67 autistic females aged between 14 and 50+ years (65 in USA, 2 in UK) Self-selected sample	Participants recruited, and semi-structured survey distributed via face-to-face interviews, email, online surveys and Facebook groups Qualitative – analysis of general themes	Difficulties covered friendships, communication, learning, interpreting the world of school and feeling misunderstood.	Low
Jarman and Rayner (2015) Australia	What parents of school-aged females with Asperger's syndrome (AS) and adult females with AS want teachers to understand.	Parents of females aged between 5 and 18 years with a diagnosis of AS (n=15) Adult females aged 18 years and older with a diagnosis of AS (n=30) Recruited via advertisements on AS and autism related websites.	Semi-structured survey distributed online Qualitative – Inductive thematic analysis	Key themes; teachers' recognition of the AS diagnosis in females; lack of understanding of challenges associated with AS; and helpful attitudes and action of teachers.	Medium
Moyse and Porter (2015) UK	Effects of the 'hidden curriculum' on autistic girls	3 autistic girls aged 7-11 Purposive sampling	Case study method; incorporating semi-structured interviews with each girls' mother, class teacher, and SENCo alongside discussions as well with the girls themselves Qualitative – Thematic analysis (hybrid approach)	Key themes; working collaboratively; class rules; completing tasks; and other interactions with peers.	Medium

<p>Sedgewick et al. (2016) UK</p>	<p>Exploration of gender differences in the social motivation and friendship experiences of autistic adolescent boys and girls compared to TD peers in specialist settings</p>	<p>46 adolescents aged 12 to 16 years (13 autistic girls, 13 TD girls, 10 autistic boys ,10 TD boys). Independent clinical diagnosis of autism (n=19 boys; 10 girls) or AS (n=4 boys; 3 girls). Sampling not specified</p>	<p>Adolescents completed the Friendship Qualities Scale (FQS) Teachers completed the Social Responsiveness Scale – 2nd edition (SRS-2) Semi-structured interviews conducted with adolescents Mixed-methods – ANOVA and thematic analysis</p>	<p>Autistic girls had similar social motivation and friendship quality to TD female peers but both groups reported higher levels of relational aggression than autistic and TD boys.</p>	<p>Medium</p>
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1 The eight papers were systematically analysed in relation to the main themes of the conceptual
2 framework (Fig 1) and the findings are presented below. There were overlaps in some reported
3 findings, thus they may have been mapped under more than one area.

4 **School level**

5 *Environment*

6 Difficulties managing the school environment were highlighted by several studies (Honeybourne
7 2015; Jarman and Rayner 2015; Moyses and Porter 2015). Challenges included individual sensory
8 sensitivities making the school environment overwhelming, often exacerbated by a lack of
9 understanding from school staff regarding the impact of such issues (Jarman and Rayner 2015).
10 Where staff adopted flexible practices such as allowing pupils to listen to music to help them
11 concentrate or staying in the classroom at lunchtime to avoid a busy dining hall, this helped
12 minimise stress and anxiety for autistic female pupils (Jarman and Rayner 2015). Girls themselves
13 also made their own modifications to reduce anxieties relating to environmental demands, e.g.
14 controlling space or waiting for other pupils to go before departing for lunch (Moyse and Porter
15 2015).

16 *Parent-school collaboration*

17 Working with school staff was reported by many parents as a key challenge because of staff
18 members' 'disregard of their daughters' difficulties, their unwillingness to help (Jarman and Rayner
19 2015), or misunderstanding their daughters' needs in relation to autism (Cook, Ogden and Winstone
20 2019; Moyses and Porter 2015). Despite this, there were clear examples of where collaborative
21 relationships were beneficial in supporting the needs of autistic females, for example, in the
22 effective sharing of information (Jarman and Rayner 2015).

23 *Differences in staff and parental perspectives*

24 Difference in perspectives between parents and school staff regarding the challenges presented by
25 autism was a key theme which emerged during this review. For example, parents assessed their
26 daughters' needs as greater in severity than the class teacher or SENCo, impacting on identification
27 of need (Moyse and Porter 2015), or reported that their concerns were met with scepticism from
28 school staff (Cook, Ogden and Winstone 2018), often being dismissed entirely (Jarman and Rayner
29 2015). There appeared to be a consensus amongst parents that misunderstandings were predicated
30 on the mistaken assumption that autism is a male condition.

31

1 **Classroom level**

2 *Access to the curriculum*

3 Like the experiences of autistic males detailed in the existing literature there were reported
4 difficulties accessing the curriculum, including the structure of lessons (Moyses and Porter 2015) and
5 need for clear instructions and more varied teaching approaches (Honeybourne 2015; Jarman and
6 Rayner 2015). Activities which required collaboration with peers were also a potential cause of
7 difficulty (Jarman and Rayner 2015; Moyses and Porter 2015). The need for clear language and
8 checking of understanding and difficulties was also echoed in specialist provision (Cook, Ogden and
9 Winstone 2018).

10 Alternative experiences were reported by some participants including the benefits of having access
11 to a broader range of subjects in secondary school (Cridland et al. 2014) and finding the work too
12 easy (Honeybourne 2015). Personalised planning which included visuals and processing time was
13 identified as supportive by Jarman and Rayner (2015), and one girl's autism friendly classroom
14 facilitated a clearer understanding (Moyses and Porter 2015).

15 *Managing transitions*

16 The transition from primary to high school was highlighted as a concern by all mothers in Cridland
17 (2014). Mothers reported their daughters having difficulty moving between lessons, managing
18 equipment and coping with different classes and teachers, resulting in parents being regularly called
19 in to speak to staff.

20 Transitions within the school day were also identified as a challenge (Honeybourne 2015; Moyses and
21 Porter 2015), including difficulties moving between the structure of lessons to the unstructured
22 times of play and lunchtime. Moyses and Porter (2015) observed girls managing these transitions
23 themselves by making personal modifications such as coming in early from the lunch break, and this
24 was often endorsed by staff by providing tasks within the classroom.

25 **Individual level**

26 *Relationships with staff*

27 Positive relationships with members of staff were highlighted as facilitating more helpful
28 experiences of schooling through a greater understanding of the needs of those with autism (Jarman
29 and Rayner 2015) or by developing positive relationship with pupils (Jarman and Rayner 2015) often
30 shaping their experiences of education (Honeybourne 2015).

31

1 *Level of understanding of ASD*

2 Essential to the facilitation of positive relationships with both the girls themselves and collaboration
3 with parents was the knowledge and understanding of staff of autism in females. Mainstream
4 teachers' limited knowledge of autistic symptomology in girls was identified as an issue (Cridland et
5 al. 2014; Honeybourne 2015; Jarman and Rayner 2015), impacting negatively on the flexibility of
6 teachers and the extent to which they were prepared to make accommodations. Indeed,
7 participants in Cridland et al. (2014) noted that teachers who knew about autism often understood
8 more about what it was like in boys.

9 Where autistic females were making good progress, the effort required to achieve this was
10 frequently underestimated by teaching staff, including challenges with sensory sensitivities,
11 handwriting and impaired executive functioning and this often came at a personal cost; 'after
12 meltdowns and some self-injury though, I managed to pull through' (Jarman and Rayner 2015
13 p.134).

14 *Masking as a solution*

15 The apparent ability of autistic females to cope with the stresses they face in relation to their
16 experiences of school emerged in several studies (Cook, Ogden and Winstone 2018; Jarman and
17 Rayner 2015; Moysse and Porter 2015) where girls were able to hide their autistic traits by modifying
18 behaviour, often linked to issues of self-identity including girls consciously trying to change their
19 personality or hide their autism (Cook, Ogden and Winstone 2018). Although it was recognised that
20 this offered a solution to their difficulties, parents reflected that the implications could be far-
21 reaching; 'my daughter holds her emotions in during the day and then melts down in the car and at
22 home' (Jarman and Rayner, 2015, 133).

23 *Relationships with peers*

24 Autistic girls often wanted to have friendships but lacked the necessary skills to form or maintain
25 them, including struggles with perspective-taking (Cook, Ogden and Winstone 2018) and knowing
26 what was expected of them in relationships (Cridland et al. 2014). Reports from parents supported
27 this contrast between desiring friendships but struggling to know how to present oneself in social
28 settings (Cook, Ogden and Winstone 2018).

29 In studies employing quantitative measures autistic girls were identified as more socially motivated
30 than autistic boys and the quality of friendships as similar in nature to TD girls in terms of
31 companionship, closeness, help and security (Sedgewick et al. 2016). Female participants in this
32 study were able to name at least one 'best friend' in school and most saw their friends outside

1 school; however, both autistic girls and their TD peers discussed instances of ‘relationally aggressive’
2 behaviours such as gossiping, being excluded and having their trust betrayed, not reported by the
3 boys. The complexity of female friendships in adolescence was highlighted in one study by mothers
4 who felt the social difficulties their daughters experienced were greater than those experienced by
5 their autistic male peers (Cridland et al. 2014).

6 Although it may appear externally that autistic females are more socially adept when compared to
7 their male peers, one study highlighted how this social success may be misperceived with girls using
8 compensatory behaviours, such as maintaining proximity to their peers, that masks their social
9 challenges (Dean, Kasari and Chamberlain 2017). Furthermore, Dean et al. (2014) found that social
10 challenges were equally present in the male and female autistic groups they studied; and in general,
11 all autistic children in this study had fewer social connections and were less likely to have a mutual
12 friend. Thus, despite having greater opportunities for social interaction autistic girls are influenced
13 by both their gender and autism diagnosis. Although all girls in Dean et al. (2014) - both autistic and
14 TD - were less likely to be explicitly rejected using peer nomination data, autistic girls were also less
15 likely to be listed as a friend or as a member of a group, leading the authors to identify them as
16 overlooked rather than specifically rejected compared to autistic boys. Both Cook, Ogden and
17 Winstone (2018) and Sedgewick et al. (2016) found that relationships were often formed with other
18 girls with SEN or who were different in some way. This was identified in both specialist and
19 mainstream settings where girls tended to gravitate towards other girls with autism, perhaps due to
20 more similar interests.

21 *Level of social inclusion*

22 Reports of social isolation and perceived bullying were prevalent throughout the studies reviewed
23 (e.g. Cook, Ogden and Winstone 2018; Cridland et al. 2014; Honeybourne 2015; Moyses and Porter
24 2015) and these were confirmed by parents. In one study (Cook, Ogden and Winstone 2018)
25 participants from both mainstream and specialist settings reported examples such as being picked
26 last by team captains in PE or no longer being invited to parties. Bullying was more likely to be
27 viewed as intentional in mainstream settings and the consequences as more severe than in specialist
28 settings, for example increased absenteeism (Cook, Ogden and Winstone 2018). Several studies
29 suggested that girls with autism were more likely to be shunned by others during adolescence due to
30 this being a time when individuals are expected to fit in with the group, and participants reported or
31 recollected feelings of isolation, loneliness, being a ‘social misfit’ and bullying. (Cook, Ogden and
32 Winstone 2018; Cridland et al. 2014; Honeybourne 2015; Moyses and Porter 2015).

33

1 **Well-being**

2 There was a recognition that the often-negative experiences of autistic girls and young women
3 within the education system had a detrimental impact on their well-being including high levels of
4 stress and anxiety (Cook, Ogden and Winstone 2018) and feelings of depression (Honeybourne
5 2015), often a consequence of the tendency for autistic girls to internalise their difficulties (Jarman
6 and Rayner, 2015; Moyses and Porter 2015).

7 **Discussion**

8 *Summary of findings*

9 This investigative review aimed to summarise the literature relating to school experiences of autistic
10 girls. To date research in this area remains limited and only eight studies were identified which met
11 inclusion criteria, meaning only tentative conclusions can be drawn from such a small sample. Data
12 were analysed using the conceptual framework as a tool to add rigour to the analysis by ensuring
13 that key themes in the broader literature were considered in relation to girls whilst also allowing for
14 inductive themes to emerge. The review highlights the importance of contextualising the school
15 experiences of autistic females within the broader literature on autism and education, and reported
16 experiences largely fit with those of autistic children and young people in general. Examples
17 included difficulties managing noisy school environments (Honeybourne 2015; Moyses & Porter,
18 2015), challenges accessing the curriculum (Jarman & Rayner 2015), difficulties with transitions
19 (Moyes and Porter 2015) and challenges managing social relationships (Cridland et al. 2014; Dean,
20 Kasari and Chamberlain 2017; Honeybourne 2015). However, there were areas where experiences
21 were more specific to females; for example, the extent to which autistic girls mask or camouflage
22 their symptoms which can lead to the minimising of social challenges experienced by autistic
23 females in comparison to their male peers. Such coping skills, defined as ‘masquerading’ or
24 ‘camouflaging’ have been documented in literature pertaining to the male experience (e.g.
25 Humphrey and Lewis 2008; Lai et al. 2015); however, the suggestion is that females on the autism
26 spectrum are more skilful at this than their male peers (Attwood 2007). A further key difference
27 linked to this was reported variation in the perceptions of staff and parents in relation to the level of
28 difficulty experienced by autistic girls. Notably, parents were more likely to consider their daughter
29 as experiencing significant difficulties managing the school environment, whereas staff perspectives
30 often highlighted how well the girls appeared to be coping. These differences in staff and parent
31 perception may reflect girls’ increased tendency to internalise their difficulties (Mandy et al. 2012).

1 The studies illustrate autistic girls and young women, like autistic boys and young men do not
2 present as a homogenous group. Significantly, that their school experiences are varied and broad,
3 underpinned by a range of individual factors.

4 A limitation of the research is that none of the included studies were categorised as high quality,
5 which perhaps reflects the emerging nature of the field in drawing upon small self-selecting or
6 community samples which may result in a lower overall quality of the evidence base (Bond et al.,
7 2013). Although it is possible to draw some limited conclusions from a small number of studies,
8 more work is clearly needed to use these exploratory studies as the foundation for development of a
9 broader and more robust evidence base relating to autistic girls' school experiences.

10 *Implications for professional practice*

11 The review highlights the importance of masking in relation to autistic girls and the necessity to look
12 beyond external presentation. Tensions between parents and teachers were evident, especially in
13 terms of the prevailing sentiment that autism is a male condition. Thus, there is considerable scope
14 for specialised training of educational staff to enhance their understanding of autism in females,
15 facilitating more effective levels of support and dispelling the stereotype that 'females cannot have
16 ASD' (Jarman and Rayner 2015, p138; Morewood, Tomlinson and Bond in press 2019).

17 Training needs to focus on aspects of girls' experiences raised in this review and in the broader
18 literature including mental health difficulties (Eaton, in press 2019) and the specific communication
19 challenges faced by autistic girls (Bauminger et al. 2008), incorporating a focus on personal
20 experiences to increase empathy in staff (Barrett 2006).

21 This review highlights marked differences in the social challenges faced by autistic girls (Dean et al.
22 2014). Autistic girls were 'easily overlooked' and their social behaviour from a distance resembled
23 that of TD girls, whereas the social challenges for autistic boys were more obvious (Dean, Harwood
24 and Kasari 2017). Thus, teachers need to look out for more subtle social difficulties in girls which at
25 first glance may not seem apparent. Furthermore, the increased likelihood of 'relational aggression'
26 calls for more specialised social skills interventions which focus on improving the quality of
27 interactions with peers and supporting the interpretation of subtle social cues. The 'Girls' Night Out'
28 (GNO) model (Jamison and Schuttler 2017) is an example of a social skill and self-care programme
29 designed to address the unique needs of autistic adolescent females targeting social behaviours
30 (e.g., reciprocal conversation, shared interests, independence) related to the social norms of
31 adolescent females.

32 *Limitations of the current review*

1 Although the use of a framework approach was a helpful scaffold which strengthened the analysis,
2 this methodology is still in its infancy and thus there will be variations in the subjective
3 interpretation of study findings potentially impacting reliability and validity. Furthermore, where
4 minimal or no mention was made in relation to an aspect of the framework within the studies (e.g.
5 school ethos/policy) this is likely to reflect the specific review research question and/or foci across a
6 small number of studies rather than being indicative that these themes are not important in relation
7 to girls.

8 *Implications for research*

9 The current review highlights the need for robust, high quality research in this area. There were gaps
10 for autistic girls in areas of the conceptual map and findings from single studies which warrant
11 further research e.g. girls developing their own coping strategies (Moyes and Porter, 2015). The
12 included studies were also cross-sectional, indicating a need for longitudinal research to better
13 understanding of the educational experiences of autistic females over time. Furthermore, few of the
14 included studies sought to understand current experiences of school from the perspective of the
15 girls themselves. Although empirical research in this area is limited, other aspects of education for
16 girls which have been discussed in the literature, such as meeting mental health needs in school
17 (Eaton, 2017), school refusal (O'Hagan and Bond, in press 2019), puberty and sex and relationships
18 education (Cridland et al, 2014) would also benefit from further exploration.

19 *Conclusion*

20 Despite the limitations discussed, the current review is the first systematic analysis of the school
21 experiences of autistic girls and adolescents, and as such offers a summary of the current state of
22 knowledge in this area, highlighting potential areas for future research. The main findings were that
23 although their experiences were similar to their autistic male peers in some respects, there exist key
24 differences which need to be considered, most notably the recognition that autistic girls are more
25 likely to mask their difficulties. It is hoped that these findings will assist educators in furthering their
26 understanding of the experiences of autistic girls.

27 *Declaration of interest statement*

28 No potential conflict of interest was reported by the authors.

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