**ANGER IN CHILDREN WITH AUTISM SPECTRUM DISORDER: PARENT’S PERSPECTIVE**

**Betty P. V. Ho**

**Jennifer Stephenson**

**Mark Carter**

*Macquarie University*

*Anger related behaviours such as aggression are known to be an area of difficulty for children with autism spectrum disorders (ASD). A national internet forum for parents of children with ASD was selected out of other similar forums from six English speaking countries. Information about the angry episodes of 121 children with ASD as described by 120 parents on this forum was analysed. From the parents’ perspective, children with ASD were angry frequently with aggressive behaviours, their anger was target and context specific, and they could not control their own behaviours during their angry episodes but some were apologetic afterward. These behaviours impacted on the whole family, their parents, their siblings and the children with ASD. These episodes were influenced by their being physically or emotionally unwell, and antecedents included inaccessibility to preferred items, and changes in routines/environments. There might be improvement over time and possible gender difference in these behaviours.*

*Characteristics of children with ASD*

There is strong evidence that children with autism spectrum disorders (ASD) have generally higher levels of emotional and behavioural problems such as physical aggression, hostility, temper tantrums and self-injurious behaviours (Brereton, Tonge, & Einfeld, 2006; Dominick, Davis, Lainhart, Tager-Flusberg, & Folstein, 2007; Farmer & Aman, 2010; Myrbakk & Von Tetzchner, 2008). This may plausibly be related to their social and communication impairments; and restricted, repetitive behaviours as well as higher rates of co-morbidity of ASD with mental disorders (Leyfer et al., 2006; Mandell, 2008; Simonoff et al., 2008; Wing & Gould, 1979).

One specific social deficit in people with ASD is comprehension of emotions (Baron-Cohen, 1991). It is suggested that children with ASD have difficulties in identifying their own emotions and differentiating their anger from other negative emotions, and difficulties in recognising other people’s facial expressions, in particular expressions of anger (Bal et al., 2010; Rieffe, Terwogt, & Kotronopoulou, 2007; Volker, Lopata, Smith, & Thomeer, 2009). In typically developing children, the ability or inability to recognise important social cues of emotions is directly related to appropriate social behaviours and inversely related to behavioural problems (Blair & Coles, 2000; Izard et al., 2001). Given the severity of social deficits exhibited by children with ASD (Bishop, Gahagan, & Lord, 2007), their manifested inability to recognise emotions, in particular anger, may partly account for their increased behavioural problems.

Some specific communication deficits found in children with ASD may also be associated with their emotional and behavioural problems. These deficits have been found in their pragmatic language processing, nonverbal communications, responses in conversations, understanding of complex social communications such as teasing, and in the intonation and expression of emotions in their speech (Bishop et al., 2007; Hale & Tager-Flusberg, 2005; Heerey, Capps, Keltner, & Kring, 2005; Hubbard & Trauner, 2007; Tesink et al., 2009). Miscommunications and resultant frustration may trigger negative emotions including anger, and there is evidence that challenging behaviours are associated with impaired communication skills and a diagnosis of ASD (Holden & Gitlesen, 2006).

Restricted and repetitive behaviours are common in children with ASD (Wing & Gould, 1979) Insistence on sameness may also present as resistance to changes, while changes cause feelings of fear, upset and distress together with aggressive, disruptive and angry behaviours (Banda, Grimmett, & Hart, 2009; De Bildt et al., 2005; Eisenberg & Kanner, 1956; Leekam et al., 2007; Norton & Drew, 1994; Schreibman, Whalen, & Stahmer, 2000).

Common mental disorders found in children with ASD may also make angry responses more likely (Leyfer et al., 2006). For example, people with phobic disorders have a tendency to exhibit anxiety (Hurtig et al., 2009; Kelly, Garnett, Attwood, & Peterson, 2008), which may be associated with anger (Carver & Harmon-Jones, 2009); people with obsessive compulsive disorder (OCD) with attachment to rituals or routines, may over-react to changes with frustration, which can be a source of anger (VandenBos, 2007); and people with attention deficit hyperactivity disorder (ADHD) may be impulsive and lack self-regulation in provocative situations. So, these common co-morbid disorders may be associated with anger emotions and behaviours in people with ASD.

*Possible causes and impact of anger in children with ASD*

In different populations, specific antecedents for anger have been identified including conflicts in communication, behaviours being controlled or managed, and actual or perceived offences (Cheng, Mallinckrodt, & Wu, 2005; Chipperfield, Perry, Weiner, & Newall, 2009; Honig, 2007; Tam, Heng, & Bullock, 2007; Uphill & Jones, 2007). These common antecedents in other populations also occur in the daily life of children with ASD and their impact may be exacerbated due to their social and communication deficits.

Once triggered, an individual’s angry responses will possibly be determined by the individual’s cognition in social information processing, in identifying emotions and resolving social problems. Regarding the cognition of children with ASD in social situations, deficits have been found in many aspects (Channon, Charman, Heap, Crawford, & Rios, 2001; Dennis, Lockyer, & Lazenby, 2000; Embregts & Van Nieuwenhuijzen, 2009). While there seem to be some basically intact knowledge/skills developed (Barbaro & Dissanayake, 2007; Embregts & Van Nieuwenhuijzen, 2009; Rieffe, Terwogt, & Stockmann, 2000), these may often be underused (Channon et al., 2001; Embregts & Van Nieuwenhuijzen, 2009; Rieffe et al., 2000). Whether due to actual cognitive deficiency or poor performance of the acquired skills in social situations, an obvious consequence will be inappropriate display of emotion (e.g., anger) and reactive problematic behaviours.

In short, children with ASD have an increased risk of experiencing anger and displaying associated behaviours. These difficulties with emotion and behaviour, particularly with challenging behaviours (i.e., aggression, property destruction and self injury) can be persistent and stable over time (Matson, Mahan, Hess, Fodstad, & Neal, 2010). Due to their externalising behaviours, children may be deprived of access to effective education and social opportunities; their social relationships, home environments, and community activities may all be affected (Horner, Carr, Strain, Todd, & Reed, 2002; Horner, Diemer, & Brazeau, 1992). Internalising anger can cause health problems including chronic stress and associated physiological disorders to the individuals (Long & Averill, 2002).

Inappropriate expressions of anger by children with ASD impact on their families. The major impact on their parents is the stress in managing their children’s anger and challenging behaviours (DeMyer, 1979; Rao & Beidel, 2009; Sharpley, Bitsika, & Efremidis, 1997). The levels of stress these parents experience are reported to be higher than that experienced by parents of children with other disabilities, together with high levels of anxiety and depression (Dabrowska & Pisula, 2010; Hamlyn-Wright, Draghi-Lorenz, & Ellis, 2007). Siblings of children with ASD may also suffer stress from the aggression and property damage displayed by children with ASD (Ross & Cuskelly, 2006; Bågenholm & Gillberg, 1991).

*Study objectives*

Information about anger related issues of children with ASD has been largely extracted from studies with a focus on general emotions, mental health and other general issues, which have employed experimental assessments, surveys and interviews (Bal et al., 2010; Bryson, Corrigan, McDonald, & Holmes, 2008; Cederlund, Hagberg, & Gillberg, 2010; Herring et al., 2006; Hubbard & Trauner, 2007). Experimental assessments typically investigate specific isolated skills (e.g. recognition and expression of emotions), providing accurate but very limited information that is collected under highly controlled conditions (Bal et al., 2010; Hubbard & Trauner, 2007). Surveys and interviews can provide large amounts of naturalistic data (e.g. experience in expressions/management of emotions and the circumstances around it), but they are usually structured with the use of checklists and questionnaires (Bryson et al 2008; Cederlund et al., 2010; Herring et al., 2006). Standard checklists or rating scales provide systematic information for easy comparison across multiple participants, but again they are restrictive and directive, designed for particular purposes. Questionnaires are usually based on the researchers’ presumptions and respondents may only respond to questions that are posed. For example, Fung (2007, 2008) interviewed parents based on three specific hypothetical contexts in which the researcher presumed that children with ASD would exhibit reactive aggression.

The present study examined publicly available narratives by parents of children with ASD on informal internet discussion forums. Mackintosh, Myers, and Goin-Kochel (2005) found that 86% of parents of children with ASD used web pages to obtain information and support about ASD, thus it appears that the level of use of internet by parents of children with ASD is high. Parents have been found to be acceptable informants in a number of previous studies (Hurtig et al., 2009; Kooij et al., 2008; Murray, Ruble, Willis, & Molloy, 2009). An advantage of the approach taken in the study reported here is that the absence of presumptions allows identification of spontaneously emerging themes and genuine parental concerns about the anger emotions of children with ASD, which come from parents’ real life observations and experiences. Fleischmann (2004) used this strategy when exploring the adjustment process of parents having children with ASD. Drawing on parents’ narratives posted on the internet, he was able to distinguish core issues in the parents’ adjustment process.

The objectives of this project were to explore parent perceptions of the anger exhibited by children with ASD in their daily life settings and the related issues through an analysis of informal parent reports in a parent forum. The focus was on: 1) parent perceptions of anger related behaviours and cognitions of the children; 2) the impacts on individual children and their families; 3) the ranges of antecedents and internal influences of anger in children reported by parents; and 4) the strategies to manage their children’s anger described by parents and the reported effects.

**Methodology**

The forum used in this study was located by using the Google search engine to search for parent forums in six English speaking countries including Australia, Canada, New Zealand, South Africa, United Kingdom, and United States. The descriptors *parents*, *family*, *autism*, *autistic*, *ASD*, *Asperger*, *forum* were used in combination with the full names and short form of the names of the six chosen countries. For countries such as Canada, South America, United Kingdom, United States, where this search strategy failed, the sites of national organisations representing the parents of the children with ASD were searched. The search engine and descriptors used were the same as in searching for national forums except the descriptor *forum* was replaced by *national, organisation, society*. Each site was checked to locate links to parent discussion forums.

The search for appropriate forum was carried out in August 2009. Forums returned were considered for inclusion if they used English, if their contents were publicly accessible without any registration, if their membership was primarily for parents or carers of individuals/ children with ASD, and if their discussions were relevant to issues in supporting and /or parenting individuals with ASD. Forums were excluded if they were designed for only one sub-category of ASD (e.g. Asperger’s’ symptoms), if they had a focus on dietary interventions or supplements to cure or decrease the symptoms of ASD, if they had a focus on medical interventions, if they were not national forums or were limited to a particular population (e.g. families of personnel serving in the military).

Out of the forums appropriate for review, the forum with most members was selected for further investigation. The detailed conditions of use of the discussions on the selected forum were checked to ensure that the forum was open to all. While the discussions in the forum were completely publicly accessible and searchable without any form of registration, additional measures were taken to ensure anonymity of participants and confidentiality of data. Each parent was assigned an author’s number for identification of their reports in the analysis. No authors’ or children’s names are reported. Direct quotations from participants and specific details (e.g. names of places, organisations, and specific behaviours) are not used. Further, access to the database for the study was limited to the authors.

Threads relevant to the research topic were located by using the forum’s search engine and the descriptors *angry* and *anger*. Threads containing these words were downloaded and individual posts were examined to decide if they were related to the child’s angry emotions, behaviours, and cognitions; if the author was the parent, step-parent or adoptive parent of the child being discussed; if the child discussed had a confirmed diagnosis of ASD; and if the post was based on the author’s first-hand experience or knowledge.

One hundred and twenty two threads were retrieved between August 19, 2009, and September 1, 2009. The content of every appropriate post for each suitable thread was decomposed into meaningful units corresponding to answers for each of the research questions. These data units were grouped under each child discussed to avoid duplication. The children were then grouped into four age groups based on their ages as at the date of the last report made by their parents. There were four age-related groups: 3 to 6 years old, 7 to 10 years old, 11 to 15 years old and, 16 years old and above. Further, for each individual child, only behaviours and other related issues reported within two years of the last report were included. This was to minimise the chance of having the same child exhibiting differing characteristics over time and masking any potential age patterns in the analysis. The authors agreed on the initial categorisations, and ongoing review on the categorised data by the authors resulted in the final categories used to organise the data.

**Results**

A total of 1,469 posts dated July 2005 to July 2009 in the first 100 relevant threads meeting inclusion criteria were analysed. Not every parent posted reports that contained information relevant to each of the four research questions.

*Authors of Posts and their Children*

The 120 parents composing the selected posts were mostly mothers (n=111, 92%), and one of them discussed two children. The children discussed were mostly boys (n=107, 88%). The majority of them were aged 7 to 10 years (n=53, 44%), followed by aged 11 to15 years (n=36, 30%), some aged 3 to 6 years (n=22, 18%), and only a few aged 16 to 20 years (n=10, 8%). The most commonly reported co-morbid mental disorder was ADHD (n=24, 20%), followed by ODD (n=6, 5%), OCD (n=5, 4%) and anxiety issues (n=4, 3%).

*Angry Behaviours and Episode Details*

The anger-related behaviours displayed by the children are categorised and summarised in Table 1. Most of the behaviours reported by parents during their children’s angry episodes were classified into six categories: physical aggression, verbal aggression, use of threats, self-injurious behaviours, other disruptive behaviours (e.g. spitting, hiding under furniture), and socially appropriate behaviours (e.g. move away, retreat into own room, request others to avoid triggering conversation topic). The oldest children displayed fewest problematic behaviours and the most socially appropriate behaviours. Children under the age of 11 years displayed most physical aggression, threatening behaviours, and disruptive behaviours; and were most likely to throw or use objects (e.g. toys, tools, appliances, and cutlery) as weapons.

Parents reported behaviour changes of their children over time, with more angry behaviours around 7 to 8 years old and 11 to 13 years old (mean age = 9 years old) and improvement occurring only after age 8 years old (mean age = 13.5 years old) with more socially acceptable behaviours, such as physical aggression being replaced by verbal aggression or moving away, and aggression at people being replaced by aggression directed at objects. Parents attributed improvement in behaviour to increased emotional maturity, improvement in speech, and improvement in the ability to express feelings. Events related to the worsening of angry episodes often mentioned by parents were transition periods, emotional and behaviour problems and sleep problems.

Around a third of the parents described their child’s episodes as constant or with other similar descriptors (e.g. regular, a lot, frequent, all the time, daily); but the use of these descriptors decreased with the older children. A few parents of the older children described their children’s episodes as being occasional, few, and far and few between. Most angry behaviours reported were being displayed at home, with nearly twice as many episodes as at school. Parents also reported that behaviours were displayed outside home and school environments, nearly as frequently as at school. The most frequently reported target of the behaviours was the mother. The youngest children targeted their mothers most often and displayed most aggression towards persons. The oldest children displayed the least aggression towards persons and only directed aggression at their own immediate family members, equally at either parent.

**Table 1. Details of Angry Behaviours Displayed by Children in Different Age Groups as Reported by Parents**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Age n (%) | | | | Total no. of children exhibiting the behaviour n (%) |
|  | 3 to 6 | 7 to 10 | 11 to 15 | 16 to 20 |
| Categories of behaviour |  |  |  |  |  |
| Physical aggression | 16 (73) | 39 (74) | 19 (53) | 3 (30) | 77 (64) |
| Verbal aggression | 11 (50) | 27 (51) | 19 (53) | 5 (50) | 62 (51) |
| Threats | 4 (18) | 10 (19) | 5 (14) | 1 (10) | 20 (17) |
| Self injurious behaviours | 3 (14) | 7 (13) | 6 (17) | 0 (0) | 16 (13) |
| Throwing or using objects as weapons | 5 (23) | 18 (34) | 4 (11) | 2 (20) | 29 (24) |
| Other disruptive behaviours | 10 (45) | 11 (21) | 4 (11) | 0 (0) | 25 (21) |
| Socially appropriate behaviours | 0 (0) | 2 (4) | 4 (11) | 2 (20) | 8 (7) |
| Changes of behaviours over time when angry |  |  |  |  |  |
| Worsening | 0 (0) | 11 (21) | 8 (22) | 1 (10) | 20 (17) |
| Improving | 0 (0) | 4 (8) | 6 (17) | 3 (30) | 13 (11) |

*Cognition and Reactions of Children Related to the Angry Episodes*

The parents reported on their perceptions of the cognition of their children related to their angry episodes as summarised in Table 2. These included the children’s cognitive difficulties or insightful cognitive abilities in managing situations during their angry episodes, and their various reactions after their angry episodes.

The most often reported cognitive difficulties displayed by the children were being unable to control their own behaviours or for their behaviours to be controlled by others; followed by children being unable or finding it difficult to reason about anger and to communicate or express themselves. Most of these cognitive difficulties were observed in children aged 7 to 15 years. A few parents (n=6, 5%) reported that their children, mostly the oldest children and none under the age 7 years, did have some insight and were able to recognise and deal with the triggers for their anger, recognise their own anger and communicate about their feelings.

About a quarter of parents reported that after the angry episodes their children realised their behaviours were unacceptable and were apologetic, showing sorrow and shame. Smaller numbers of parents indicated that their children denied or forgot the events, while other parents reported that their children did not realise their behaviours were unacceptable and thus were not concerned. A few children were able to discuss their behaviours and understood that some behaviours were unacceptable.

**Table 2. Reported Cognition and Reactions of Children Related to their Angry Episodes**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Age n (%) | | | | Total no. of children exhibiting the behaviour n (%) |
|  | 3 to 6 | 7 to 10 | 11 to 15 | 16 to 20 |
| Children’s cognitive abilities during their angry episodes |  |  |  |  |  |
| Cognitive difficulties |  |  |  |  |  |
| Unable to control own emotion/behaviour or to be controlled | 4 (18) | 13 (25) | 8 (22) | 0 (0) | 25 (21) |
| Unable or difficult to reason, communicate or express oneself | 2 (9) | 9 (17) | 7 (19) | 0 (0) | 18 (15) |
| Biased thinking, misunderstanding, misinterpretation or lack of understanding | 2 (9) | 5 (9) | 4 (11) | 1 (10) | 12 (10) |
| Insightful cognitive abilities |  |  |  |  |  |
| Can reason, be talked to and listen | 0 (0) | 2 (4) | 1 (3) | 1 (10) | 4 (3) |
| Can recognise when getting angry or going to have angry episodes | 0 (0) | 2 (4) | 0 (0) | 0 (0) | 2 (2) |
| Able to identify trigger | 0 (0) | 0 (0) | 1 (3) | 1 (10) | 2 (2) |
| Able to remove trigger appropriately or remove oneself away from trigger | 0 (0) | 0 (0) | 0 (0) | 1 (10) | 1 (1) |
|  | Age n (%) | | | | Total no. of children exhibiting the behaviour n (%) |
|  | 3 to 6 | 7 to 10 | 11 to 15 | 16 to 20 |
| Children’s reactions after the angry episodes |  |  |  |  |  |
| Child realised their behaviours being unacceptable and were concerned | 3 (14) | 17 (32) | 7 (19) | 1 (10) | 28 (23) |
| Denial, forgetful about what happened | 2 (9) | 6 (11) | 4 (11) | 0 (0) | 12 (10) |
| Children didn't seem to realise implication of their own behaviours or were not concerned | 1 (5) | 7 (13) | 3 (8) | 0 (0) | 11 (9) |
| Children were able to discuss and understand one's own angry episodes and implication | 2 (9) | 3 (6) | 4 (11) | 1 (10) | 10 (8) |

*Impacts of Angry Episodes*

Table 3 summarises the impact on families, parents, siblings, the children with ASD themselves and the damage caused. The major impact on the whole family due to the children’s episode as reported by a quarter of parents was disturbance to family life. The major impact on individual parents as reported was actual injury and health problems, followed by emotional disturbance. The most reported impact on siblings was emotional disturbance. The most reported impact on the children themselves was exclusion from school due to their angry episodes, followed by actual injuries and health issues. A third of the parents reported damage to property, furniture or possessions caused by their children’s destructive behaviour. Overall, most reports of negative impact and damage were made by parents of children aged 11 to 15 years while fewest reports were made by parents of the oldest children.

In addition, half of the parents admitted their negative feelings towards their children’s angry episodes and aggression, and more than one third felt unable to improve the situations. These negative feelings and feelings of helplessness generally increase with children’s ages. A few parents shared their positive feelings about their children’s improvement in behaviour.

**Table 3. Reported Impact of Children’s Angry Episodes**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Age n (%) | | | | Total no. of children exhibiting the behaviour n (%) |
| Impact of the angry episodes | 3 to 6 | 7 to 10 | 11 to 15 | 16 to 20 |
| On family | 6 (27) | 12 (23) | 13 (36) | 3 (30) | 34 (28) |
| Disturbance to family life | 6 (27) | 11 (21) | 10 (28) | 2 (20) | 29 (24) |
| Parents’ marriage or relationship | 0 (0) | 1 (2) | 3 (8) | 1 (10) | 5 (4) |
| Relationship with extended family | 1 (5) | 0 (0) | 1 (3) | 0 (0) | 2 (2) |
| On individual parents | 8 (36) | 9 (17) | 13 (36) | 2 (20) | 32 (26) |
| Actual injuries or health problem | 5 (23) | 2 (4) | 8 (22) | 2 (20) | 17 (14) |
| Emotional disturbance | 2 (9) | 3 (6) | 4 (11) | 0 (0) | 9 (7) |
| Deprived of sleep | 1 (5) | 1 (2) | 2 (6) | 1 (10) | 5 (4) |
| Unpleasant experience in public | 1 (5) | 3 (6) | 0 (0) | 0 (0) | 4 (3) |
| Career or work | 0 (0) | 1 (2) | 2 (6) | 0 (0) | 3 (2) |
|  |  |  |  |  |  |
|  | Age n (%) | | | | Total no. of children exhibiting the behaviour n (%) |
| Impact of the angry episodes | 3 to 6 | 7 to 10 | 11 to 15 | 16 to 20 |
| On sibling | 3 (14) | 10 (19) | 10 (28) | 2 (20) | 25 (21) |
| Emotional disturbance | 1 (5) | 6 (11) | 5 (14) | 2 (20) | 14 (12) |
| Actual injuries | 1 (5) | 5 (9) | 1 (3) | 0 (0) | 7 (6) |
| Restricted freedom e.g. hide or lock up in separate room | 2 (9) | 3 (6) | 1 (3) | 0 (0) | 6 (5) |
| Exposed to inappropriate and / aggressive behaviours and languages | 2 (9) | 0 (0) | 3 (8) | 1 (10) | 6 (5) |
| On children with ASD | 2 (9) | 13 (25) | 9 (25) | 1 (10) | 25 (21) |
| Being excluded from school | 1 (5) | 7 (13) | 5 (14) | 1 (10) | 14 (12) |
| Other impact on school life | 1 (5) | 0 (0) | 2 (6) | 0 (0) | 3 (2) |
| Injuries or health problems | 0 (0) | 3 (6) | 3 (8) | 0 (0) | 6 (5) |
| Impact on social life | 0 (0) | 3 (6) | 1 (3) | 0 (0) | 4 (3) |
| Impact on sleep | 0 (0) | 3 (6) | 0 (0) | 0 (0) | 3 (2) |
|  |  | | | |  |
|  | Age n (%) | | | | Total no. of children exhibiting the behaviour n (%) |
| Impact of the angry episodes | 3 to 6 | 7 to 10 | 11 to 15 | 16 to 20 |
| Damage caused | 6 (27) | 20 (38) | 13 (36) | 1 (10) | 40 (33) |
| Damage to building i.e. broken windows, holes on wall etc | 6 (27) | 14 (26) | 9 (25) | 1 (10) | 30 (25) |
| Damage to furniture/fixtures | 3 (14) | 12 (23) | 4 (11) | 0 (0) | 19 (16) |
| Damage to possessions | 1 (5) | 7 (13) | 4 (11) | 1 (10) | 13 (11) |

*Internal Influences and External Antecedents of the Angry Episodes*

The perceived internal influences and external antecedents for the angry emotions or behaviours of children reported are detailed in Table 4. Nearly one third of the parents mentioned children being overstimulated, being emotionally or physically unwell as precedents for angry episodes. Other reported internal influences of angry episodes were lack of understanding and skills, or misinterpretation and biased thinking in social situations. A third of the parents reported that the inaccessibility of preferred activities, items or daily routines triggered their children’s episodes. A quarter of the parents considered changes in routines or environments were antecedents. Other major antecedents reported were children losing control over a situation or resisting control by other persons.

**Table 4. Parents’ Perceived Internal Influences and Environmental Antecedents on Children’s Angry Episodes**

|  |  |
| --- | --- |
|  | No. of children n (%) |
| Children’s internal influences |  |
| Overstimulated, emotionally or physically unwell | 37 (31) |
| Lack of understanding, self control, and skills in social situations | 26 (21) |
| Misinterpretation or biased thinking regarding social situations | 24 (20) |
| Teenage issues | 11 (9) |
| Environmental antecedents leading to children’s angry episodes |  |
| Access to preferred activities /items, daily routines being denied, refused or unavailable | 39 (32) |
| Actual or expected changes in daily routines and/or physical environments | 32 (26) |
| Lose power or control over situation, or struggle not to be controlled | 26 (21) |
| Being actually provoked or agitated | 20 (17) |
| Parents used trivial, little, simplest, slightest, minor, many things, everything, anything or similar descriptors for causes of angry episodes | 18 (15) |

**Parents’ Management Strategies for Angry Episodes**

The various strategies parents reported for managing their children’s behaviours are summarised in Table 5. The most commonly reported strategies to deal with internal influences were teaching children about emotions, social situations, and teaching social skills either through informal discussions on alternative behaviours, social stories or structured anger management training. More than half of the parents who reported using these strategies considered them effective. A few parents reported the use of medication for their child and most of them observed benefits including reduction in frequency and duration of episodes. The most frequently reported strategies to manage the environmental antecedents were to change or control external environments such as placing children in schools with more intensive support, modifying daily routines and storing away valuables or dangerous items in their houses. Half of the parents who changed or controlled external environments considered this strategy effective.

In the presence of immediate antecedents, there were two basic strategies that were most frequently reported as parents’ attempts to prevent the episode. These were passively avoiding or minimising contact with the child, and actively taking steps to calm down the child. More positive effects were reported for the calming strategies than for the avoiding strategies.

During the actual episodes, there were three basic strategies that were most commonly reported for managing the situations. These were passively avoiding the children, actively calming down the children, and confronting the children. Parents reported more positive effects and fewer negative effects for avoiding than for actively calming down. More than half of the parents who confronted their child during the episodes, reported negative effects. Some parents reported the administration of punitive consequences after the episodes, and fewer parents encouraged self control with rewarding consequences. A few parents also mentioned calm talk to explain the situation to the children or giving reassurance to children that they were still loved.

**Table 5. Parent’s Management Strategies for Anger and Angry Behaviours**

|  |  |
| --- | --- |
|  | No. of children n % |
| Strategies to minimise the children’s internal arousal of anger |  |
| Teaching the children an understanding of emotions, social situations and social skills | 28 (23) |
| Using Medication | 17 (14) |
| Using Psychological or mental health consultation services | 14 (12) |
| Calming or relaxing activities | 11 (9) |
| Strategies to manage the environmental antecedents |  |
| Changing or controlling external environments | 23 (19) |
| Establishing and referring to rules | 11 (9) |
| Using visual aids for communication | 10 (8) |
| Strategies to prevent angry episodes with presence of immediate antecedents |  |
| Avoiding or minimising interaction with children | 17 (14) |
| Taking action to calm down children | 13 (11) |
| Strategies taken during the angry episodes |  |
| Avoiding or minimising interaction with children | 36 (30) |
| Confronting children | 32 (26) |
| Making active attempts to calm down children using non-confrontational approaches | 32 (26) |
|  |  |
|  |  |
|  | No. of children n % |
| Actions taken after the angry episodes |  |
| Giving punitive consequences after child has calmed down | 27 (22) |
| Giving rewarding consequences when child has demonstrated self control | 14 (12) |
| Calming talk or reassuring child after child has calmed down | 12 (10) |

Overall from the parents’ perspective, children with ASD were angry frequently, mostly with aggression, more at home, directed mostly at their mothers and more during the holidays. Parents observed that their children were unable to control their own behaviours during their episodes and were apologetic after their episodes. Parents reported that the major impact from their children’s episodes were actual injuries to themselves, emotional disturbance to sibling, exclusion of the children from school, and disturbance to family life. They reported feeling negative and helpless towards their children’s episodes. Parents reported different influences and antecedents to their children’s angry episodes includingchildren being emotionally or physically unwell, children having a poor understanding in social situations, inaccessibility of preferred activities, changes in routines or environments, as well as children losing power over a situation. Parents reported a wide range of strategies to manage their children’s anger, mostly teaching about emotions, social situations and social skills and controlling children’s environments. They also used calming down or avoiding strategies with different effects at different stages of the episodes.

# **Discussion**

This study collected information from the informal discussions in a forum for parents of children with ASD regarding the angry episodes of their children. The majority of forum participants were mothers. The children discussed were mainly aged 7 to 15 years, with gender ratio twice that reported in prevalence studies of ASD. The rates of co-morbidity with other mental disorders (20% for ADHD, 5% for ODD and 4% for OCD) as reported by parents in this forum are much lower than rates reported in other studies, which were around 30% to 40% (Leyfer et al., 2006; Mandell, 2008; Simonoff et al., 2008).

From these parents’ perspectives, their children’s expression of anger improved over time. Parents reported both pro-active strategies and passive strategies to deal with threatened and actual episodes. Children’s anger-related behaviours were reported to impact on the whole family, causing physical injuries, emotional distress and damage to the household. The results indicated a possible gender difference in the expression of anger and that anger-related behaviours might be contextual and target specific in children with ASD, and they might reflect the characteristics of individuals with ASD.

**Angry Behaviours and Episodes Characteristics**

From their parents’ perspective, many children with ASD were angry frequently, and most of them were physically (64%) and verbally (51%) aggressive. Some of them were disruptive (21%) and a few were self-injurious (13%). This accords with other studies that reported that children with ASD were quick to become angry, and physical aggression was more common with them than with children having other disabilities (Dominick et al., 2007; Farmer & Aman, 2010). Hurtig et al. (2009) also noted that parents of high functioning adolescents with Asperger Syndrome or autism reported significantly higher level of aggressive behaviours in their children than did parents of typically developing adolescents.

Of the children being discussed in the selected posts, the gender ratio (boys : girls = 7.5 : 1) is much higher than expected from figures given in prevalence studies (boys : girls = 3:1 to 4:1) (Baird et al., 2006; U.S. Department of Health and Human Services & Centers for Disease Control and Prevention, 2009; Volkmar, Lord, Bailey, Schultz, & Klin, 2004), and there was a higher percentage of girls (29%) than boys (11%) reported as exhibiting self-injurious behaviours. This may suggest that boys with ASD display their anger externally more than girls with ASD. These findings are consistent with other studies on individuals with ASD. Hartley and Sikora (2009) found female toddlers with ASD tended to internalise their emotional problems, and Cohen et al. (2010) reported young female adults with ASD exhibited more than twice as many self-injurious behaviours as male adults with ASD.

Parents in this study reported improvement over time in their children’s behaviours during their episodes and these reports were supported by comparing the various data between different age groups, with parents of the oldest children reporting least problem behaviours, least cognitive difficulties and most insights into their angry emotions and behaviours. Similarly, Shattuck et al. (2007) noted parents’ reports of reduction over time of maladaptive behaviours of adolescents and adults with ASD. In contrast, aggressive behaviours were found to be chronic in children and adolescents with ASD based on reports from primary caregivers (Matson et al., 2010).

The most commonly reported specific cognitive deficit was children being unable to control their own emotions and/or behaviours. A possibly related observation by parents was children acknowledging their behaviours as being unacceptable and being regretful after their episodes. There appear to be no studies of parent report on the cognitive abilities of children with ASD relating to self-control during their angry episodes.

It was commonly reported that angry episodes happened more at home than at school, and aggression was mostly targeted at mothers (n=59). In two other studies on children with ASD, parents also reported more emotional and behavioural problems than teachers and themselves as being the most frequent targets of their children’s aggression (Dominick et al., 2007; Kanne, Abbacchi, & Constantino, 2009).

**Impact on Individuals and their Families**

Although emotional distress (7%) was less reported by parents than physical injuries and health problems (14%) as an immediate impact on parents when managing their children’s behaviours, many parents also expressed their emotional reactions in general. Their most frequently expressed emotional reactions (48%) were negative in nature towards their children’s behaviours, while their second most frequently expressed emotional reaction (37%) of feeling helpless, hopeless or unable to cope was shared by the participants of another study in parents of children with ASD (Sharpley et al., 1997).

Contrary to the impact on parents, the major immediate impact reported on siblings was emotional distress (12%), followed by actual injuries (6%). Some parents reported that they consciously kept siblings away from the children with ASD during their angry episodes. Although less reported, few parents (5%) were deeply concerned with the siblings being exposed to the inappropriate behaviours and language of the child with ASD. On the other hand, a few parents noted some siblings’ mature reactions during these episodes of the child with ASD.

The most commonly reported impact on the individual children was exclusion from school. Individual parents noted different reactions from children, including having no understanding of the reasons for being excluded, feeling ashamed, lowered self-esteem, and refusing school afterward. It was clear from the parents’ perspective that exclusion from school did not help their children at all and this viewpoint was supported by Skiba and Peterson (2000). A UK national survey (Batten, Corbett, Rosenblatt, Withers, & Yuille, 2006) confirmed that children with ASD were frequently excluded from school, with around 20% of them having such experience.

From the parents’ perspective, the major impact of the children’s episodes on the whole family was disturbance to family life (n=29), such as daily routines, family gatherings and outings. Similarly, the behavioural difficulties of preschoolers with ASD were reported by most families in another study as having a major impact on their family life (Cassidy, McConkey, Truesdale-Kennedy, & Slevin, 2008). Some parents discussed the unpleasant experiences when their children had an episode in public and they either had to finish the family outings earlier or found the outings less enjoyable. Families of children with high functioning autism have been found to participate less in social and recreational activities (Rao & Beidel, 2009), and this may be partly due to similar unpleasant experiences.

**Parents’ Perceived Internal Influences and External Antecedents**

Parents nominated different internal influences on their children’s angry emotions and behaviours. The most often cited internal influences on anger were children being overstimulated, emotionally or physically unwell, followed by lack of understanding, self control and skills in social situations, as well as misinterpretation or biased thinking. The most frequently reported external antecedent was denial of access to preferred activities or items. The second most common antecedent was actual or expected changes in routines or environments. This accords with the data that most episodes happened in July and August, the long summer holiday when there may have been actual changes in children’s daily routines and expected changes after the holidays. Parents of pre-schooler with ASD also reported their children’s common problems in adapting to change (Cassidy et al., 2008).

No studies based on parents’ reports or real life observations focusing on the internal influence or external antecedents of angry episodes and behaviours of children with ASD were found. Loveland and Tunali-Kotoski (2005) noted the frequent observations that children with ASD have low frustration tolerance and excessive insistence on requests be met, which may be associated with their ADHD. Matson (2009) commented that there is essentially no research on the causes of aggression in these children.

**Parents’ Management Strategies and their Effects**

Parents in this study reported a range of strategies to manage their children’s anger with the targets of minimising the children’s internal arousal, managing the external environment to prevent the episodes, managing the situation during the episodes, and giving consequences after the episodes.

In this study, only a relatively small portion of parents (14%) reported medicating their children to manage their behaviours, compared to one report of 35% of children with ASD being medicated (Rosenberg et al., 2010). Although a high percentage of parents using medication reported improvement in behaviour, the most commonly reported strategies were teaching children about emotions and social skills directly. An even smaller percentage of children (12%) received professional mental health services and parents raised issues of insufficient and inappropriate mental health services for their children, including a lack of understanding regarding ASD by mental health professionals. Similar views were expressed by parents in a survey carried out by The National Autistic Society (2008). Relevant to parents’ perceptions on mental health services, a survey by Bryson et al. (2008) indicated that children with ASD might be underserviced by the mental health service systems

Parents reported use of calming strategies at three stages; firstly, trying to maintain a calm mood of their child; secondly, avoiding specific antecedents that may possibly trigger episodes; and thirdly, dealing with the crisis during the episodes. According to parents’ reports, calming down was more effective when used to avoid episodes than for general mood calming, and was least effective when used to attempt to address the actual crisis. One parent recalled that with help his/her child was able to realise that he/she was getting angry at 5 years old.

Another common strategy parents used at different stages was avoiding contact with the children, both in the presence of immediate antecedents and during the actual episode. Again, this strategy was reported to be more effective when used before episodes than during episode. Parents who avoided contact with their children stated that any contact would only fuel the aggression instead of any calming effect. Confronting the children either with strong negative verbal responses or physical restraint was another commonly reported strategy used during episodes but was also not effective based on parents’ reports.

The delivery of punitive consequences was the most often reported strategy used after children’s episodes. Some parents, however, suggested that because their children were unable to control their own behaviours during the episodes and that some children might have problems in linking the behaviours with the consequence, it was meaningless to deliver any punitive consequence.

Overall, parents reported a wide range of strategies to manage their children’s anger. There appear to be no other parent reports on the strategies they used to manage the anger of their children with ASD in the literature. Relevant to the parents’ use of many strategies and their effects, medicated children with ASD gained less from social skills training than un-medicated children with ASD (Frankel, Myatt, & Feinberg, 2007), while parents’ teaching about anger emotions and appropriate strategies to cope with anger was positively correlated with socio-emotional functioning in typically developing children (Morgan, 2007).

**Strengths of the Methodology**

In this study, the absence of structured frameworks to dictate and channel information allowed free-flow reporting by parents. Accordingly, there is arguably a greater potential with this methodology to capture the issues related to the anger of children with ASD that are of most direct concern to parents. The reports were based on parental observation of behaviours spontaneously displayed in real life situations where there was natural interaction between the children and their environments. Another strength of this methodology is the immediate nature of most of the reports. Although information regarding the angry emotions and behaviours of children can be collected via interviews or questionnaires retrospectively, this data would be subject to the limitation of informants’ memories. It has been suggested that the retrospective reports by parents of children with ASD exaggerated and distorted their children’s behaviour problems (Abmayr & Day, 1992). In this study most parents posted their stories online the same day of their children’s episodes anticipating some social support from other parents; a few reports were even made during the children’s episodes.

**Limitations of the Methodology**

With the nature of the methodology employed in this study, there are some inherent limitations in the sample of parents and the data generated. All parents in the study were internet users who were willing to participate in the forum, being computer literate, and with access to internet. They formed a self-selected sample. The majority of them were mothers who may provide different perspectives from fathers.

The reported rates of medication and co-morbidity in the current sample were much lower than in other studies. This may indicate selective public disclosure of private or sensitive issues such as the diagnoses of mental issues or the parents’ perception that such information is not relevant to their post. Although parents can directly observe the externalising behaviours of their children and make instant reports, their perceptions of emotions and cognitions may be inaccurate or incomplete. It has been suggested that some emotional distress of high functioning adolescents with Asperger syndrome or autism might be hidden from their parents (Hurtig et al., 2009).

All these limitations in sampling, possible selective disclosure, and inaccurate or incomplete observations have to be considered carefully when interpreting the results. Nevertheless, many of the parent perceptions are in accordance with current literature. For example, children with ASD get angry frequently, express their anger in aggression, and their anger expressions are usually context and target specific. Parents experienced feeling of helplessness, their siblings experienced emotional stress and children with ASD experienced high rates of exclusion from school. This study also raised several issues that require further exploration such as the gender differences in children with ASD in expressing their anger; parental observation on the internal causes, environmental antecedents, and cognitive abilities of the children related to their anger; and the strategies parents used to manage their children’s anger and their effects. The study has provided further information on an issue that needs to be clarified, that is, the contradicting results from different studies regarding improvement in behaviours of children with ASD over time.

**Conclusion**

The present study of parents’ perspectives on the anger in their children with ASD provides information drawn from natural and instantaneous forum posts on the issues concerned, further enriching the current literature. Interpretation of the parents’ perspectives should, however, be treated cautiously due to the specific characteristics of the self-selected sample and other limitations in the research methodology. Although results of this study may tentatively indicate possible improvement with age and gender difference in the expression of anger by children with ASD, overall such a possibility is yet to be confirmed. In addition, it is also recommended that further research be conducted to investigate the internal influences and external antecedents of anger in children with ASD, the cognitive abilities of children with ASD in controlling their own angry behaviours, and effective strategies for parents to manage their children’s anger.

**References**

Abmayr, S. B., & Day, H. D. (1992). *Differences in retrospective and prospective parental reports of children's behaviours*. Paper presented at the Thirty-eighth Annual Convention of the Southwestern Psychological Association, Austin, TX.

Bågenholm, A., & Gillberg, C. (1991). Psychosocial effects on siblings of children with autism and mental retardation: A population-based study. *Journal of Mental Deficiency Research, 35*, 291-307.

Baird, G., Simonoff, E., Pickles, A., Chandler, S., Loucas, T., Meldrum, D., & Charman, T. (2006). Prevalence of disorders of the autism spectrum in a population cohort of children in South Thames: The Special Needs and Autism Project (SNAP). *Lancet, 368*, 210-215. doi: 10.1016/S0140-6736(06)69041-7

Bal, E., Harden, E., Lamb, D., Van Hecke, A., Denver, J., & Porges, S. (2010). Emotion recognition in children with autism spectrum disorders: Relations to eye gaze and autonomic state. *Journal of Autism and Developmental Disorders, 40*, 358-370. doi: 10.1007/s10803-009-0884-3

Banda, D. R., Grimmett, E., & Hart, S. L. (2009). Activity Schedules: Helping students with autism spectrum disorders in general education classrooms manage transition issues *Teaching Exceptional Children, 41*(4), 16-21.

Barbaro, J., & Dissanayake, C. (2007). A comparative study of the use and understanding of self-presentational display rules in children with high functioning autism and asperger's disorder. *Journal of Autism and Developmental Disorders, 37*, 1235-1246. doi: 10.1007/s10803-006-0267-y

Batten, A., Corbett, C., Rosenblatt, M., Withers, L., & Yuille, R. (2006). *Autism and education: The reality for families today*. London, UK: The National Autistic Society.

Bishop, S., Gahagan, S., & Lord, C. (2007). Re-examining the core features of autism: A comparison of autism spectrum disorder and fetal alcohol spectrum disorder. *Journal of Child Psychology and Psychiatry, 48*, 1111-1121. doi: 10.1111/j.1469-7610.2007.01782.x

Blair, R. J. R., & Coles, M. (2000). Expression recognition and behavioural problems in early adolescence. *Cognitive Development, 15*, 421-434. doi: 10.1016/S0885-2014(01)00039-9

Brereton, A. V., Tonge, B. J., & Einfeld, S. L. (2006). Psychopathology in children and adolescents with autism compared to young people with intellectual disability. *Journal of Autism & Developmental Disorders, 36*, 863-870. doi: 10.1007/s10803-006-0125-y

Bryson, S. A., Corrigan, S. K., McDonald, T. P., & Holmes, C. (2008). Characteristics of children with autism spectrum disorders who received services through community mental health centers. *Autism, 12*, 65-82. doi: 10.1177/1362361307085214

Carver, C. S., & Harmon-Jones, E. (2009). Anger is an approach-related affect: Evidence and implications. *Psychological Bulletin, 135*, 183-204. doi: 10.1037/a0013965

Cassidy, A., McConkey, R., Truesdale-Kennedy, M., & Slevin, E. (2008). Preschoolers with autism spectrum disorders: The impact on families and the supports available to them. *Early Child Development and Care, 178*, 115-128. doi: 10.1080/03004430701491721

Cederlund, M., Hagberg, B., & Gillberg, C. (2010). Asperger syndrome in adolescent and young adult males. Interview, self - and parent assessment of social, emotional, and cognitive problems. *Research in Developmental Disabilities, 31*, 287-298. doi: 10.1016/j.ridd.2009.09.006

Channon, S., Charman, T., Heap, J., Crawford, S., & Rios, P. (2001). Real-life-type problem-solving in asperger's syndrome. *Journal of Autism and Developmental Disorders, 31*, 461-469.

Cheng, H.-L., Mallinckrodt, B., & Wu, L.-C. (2005). Anger expression toward parents and depressive symptoms among undergraduates in Taiwan. *The Counseling Psychologist, 33*, 72-97. doi: 10.1177/0011000004270343

Chipperfield, J. G., Perry, R. P., Weiner, B., & Newall, N. E. (2009). Reported causal antecedents of discrete emotions in late life. *The International Journal of Aging and Human Development 68*, 215-241. doi: 10.2190/AG.68.3.c

Cohen, I., Tsiouris, J., Flory, M., Kim, S.-Y., Freedland, R., Heaney, G., . . . Brown, T. W. (2010). A large scale study of the psychometric characteristics of the IBR modified overt aggression scale: Findings and evidence for increased self-destructive behaviours in adult females with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 40*, 599-609. doi: 10.1007/s10803-009-0908-z

Dabrowska, A., & Pisula, E. (2010). Parenting stress and coping styles in mothers and fathers of pre-school children with autism and down syndrome. *Journal of Intellectual Disability Research, 54*, 266-280. doi: 10.1111/j.1365-2788.2010.01258.x

De Bildt, A., Serra, M., Luteijn, E., Kraijer, D., Sytema, S., & Minderaa, R. (2005). Social skills in children with intellectual disabilities with and without autism. *Journal of Intellectual Disability Research, 49*, 317-328. doi: 10.1111/j.1365-2788.2005.00655.x

DeMyer, M. K. (1979). *Parents and children in autism*. Washington, D.C.: V. H. Winston & Sons.

Dennis, M., Lockyer, L., & Lazenby, A. L. (2000). How high-functioning children with autism understand real and deceptive emotion. *Autism, 4*, 370-381. doi: 10.1177/1362361300004004003

Dominick, K. C., Davis, N. O., Lainhart, J., Tager-Flusberg, H., & Folstein, S. (2007). Atypical behaviours in children with autism and children with a history of language impairment. *Research in Developmental Disabilities, 28*, 145-162. doi: 10.1016/j.ridd.2006.02.003

Eisenberg, L., & Kanner, L. (1956). Childhood schizophrenia symposium, 1955. 6. Early infantile autism, 1943-55. *American Journal of Orthopsychiatry, 26*, 556-566. doi: 10.1111/j.1939-0025.1956.tb06202.x

Embregts, P., & Van Nieuwenhuijzen, M. (2009). Social information processing in boys with autistic spectrum disorder and mild to borderline intellectual disabilities. *Journal of Intellectual Disability Research, 53*, 922-931. doi: 10.1111/j.1365-2788.2009.01204.x

Farmer, C. A., & Aman, M. G. (2010). Psychometric properties of the children's scale of hostility and aggression: Reactive/proactive (C-SHARP). *Research in Developmental Disabilities, 31*, 270-280. doi: 10.1016/j.ridd.2009.09.014

Fleischmann, A. (2004). Narratives published on the internet by parents of children with autism: What do they reveal and why is it important? *Focus on Autism & Other Developmental Disabilities, 19*, 35-43.

Frankel, F., Myatt, R., & Feinberg, D. (2007). Parent-assisted friendship training for children with autism spectrum disorders: Effects of psychotropic medication. *Child Psychiatry and Human Development, 37*, 337-346. doi: 10.1007/s10578-007-0053-x

Fung, A. L. C. (2007). A qualitative evaluation of social-cognitive changes in children with reactively aggressive behaviours. *Journal of School Violence, 6*, 45-64. doi: 10.1300/J202v06n01\_04

Fung, A. L. C. (2008). Developing prosocial behaviours in early adolescence with reactive aggression. *International Journal of Progressive Education, 4*(3), 34-52.

Hale, C. M., & Tager-Flusberg, H. (2005). Brief report: The relationship between discourse deficits and autism symptomatology. *Journal of Autism and Developmental Disorders, 35*, 519-524. doi: 10.1007/s10803-005-5065-4

Hamlyn-Wright, S., Draghi-Lorenz, R., & Ellis, J. (2007). Locus of control fails to mediate between stress and anxiety and depression in parents of children with a developmental disorder. *Autism, 11*, 489-501. doi: 10.1177/1362361307083258

Hartley, S., & Sikora, D. (2009). Sex differences in autism spectrum disorder: An examination of developmental functioning, autistic symptoms, and coexisting behaviour problems in toddlers. *Journal of Autism and Developmental Disorders, 39*, 1715-1722. doi: 10.1007/s10803-009-0810-8

Heerey, E. A., Capps, L. M., Keltner, D., & Kring, A. M. (2005). Understanding teasing: Lessons from children with autism. *Journal of Abnormal Child Psychology, 33*, 55-68. doi: 10.1007/s10802-005-0934-z

Herring, S., Gray, K., Taffe, J., Tonge, B., Sweeney, D., & Einfeld, S. (2006). Behaviour and emotional problems in toddlers with pervasive developmental disorders and developmental delay: Associations with parental mental health and family functioning. *Journal of Intellectual Disability Research, 50*, 874-882. doi: 10.1111/j.1365-2788.2006.00904.x

Holden, B., & Gitlesen, J. P. (2006). A total population study of challenging behaviour in the county of Hedmark, Norway: Prevalence, and risk markers. *Research in Developmental Disabilities, 27*, 456-465. doi: 10.1016/j.ridd.2005.06.001

Honig, A. S. (2007). Ages & stages: Understanding children's anger. *Early Childhood Today, 21*(4), 27-28. Retrieved from http://teacher.scholastic.com/products/ect/

Horner, R. H., Carr, E. G., Strain, P. S., Todd, A. W., & Reed, H. K. (2002). Problem behaviour interventions for young children with autism: A research synthesis. *Journal of Autism and Developmental Disorders, 32*, 423-446.

Horner, R. H., Diemer, S. M., & Brazeau, K. C. (1992). Educational support for students with severe problem behaviours in Oregon: A descriptive analysis from the 1987-1988 school year. *Journal of The Association for Persons with Severe Handicaps, 17*, 154-169.

Hubbard, K., & Trauner, D. (2007). Intonation and emotion in autistic spectrum disorders. *Journal of Psycholinguistic Research, 36*, 159-173. doi: 10.1007/s10936-006-9037-4

Hurtig, T., Kuusikko, S., Mattila, M.-L., Haapsamo, H., Ebeling, H., Jussila, K., . . . Moilanen, I. (2009). Multi-informant reports of psychiatric symptoms among high-functioning adolescents with asperger syndrome or autism. *Autism, 13*, 583-598. doi: 10.1177/1362361309335719

Izard, C., Fine, S., Schultz, D., Mostow, A., Ackerman, B., & Youngstrom, E. (2001). Emotion knowledge as a predictor of social behaviour and academic competence in children at risk. *Psychological Science, 12*, 18-23. doi: 10.1111/1467-9280.00304

Kanne, S. M., Abbacchi, A. M., & Constantino, J. N. (2009). Multi-informant ratings of psychiatric symptom severity in children with autism spectrum disorders: The importance of environmental context. *Journal of Autism and Developmental Disorders, 39*, 856-864. doi: 10.1007/s10803-009-0694-7

Kelly, A., Garnett, M., Attwood, T., & Peterson, C. (2008). Autism spectrum symptomatology in children: The impact of family and peer relationships. *Journal of Abnormal Child Psychology, 36*, 1069-1081. doi: 10.1007/s10802-008-9234-8

Kooij, J. J. S., Boonstra, A. M., Swinkels, S. H. N., Bekker, E. M., De Noord, I., & Buitelaar, J. K. (2008). Reliability, validity, and utility of instruments for self-report and informant report concerning symptoms of ADHD in adult patients. *Journal of Attention Disorders, 11*, 445-458. doi: 10.1177/1087054707299367

Leekam, S., Tandos, J., McConachie, H., Meins, E., Parkinson, K., Wright, C., . . . Le Couteur, A. (2007). Repetitive behaviours in typically developing 2-year-olds. *Journal of Child Psychology and Psychiatry, 48*, 1131-1138. doi: 10.1111/j.1469-7610.2007.01778.x

Leyfer, O. T., Folstein, S. E., Bacalman, S., Davis, N. O., Dinh, E., Morgan, J., . . . Lainhart, J. E. (2006). Comorbid psychiatric disorders in children with autism: Interview development and rates of disorders. *Journal of Autism and Developmental Disorders, 36*, 849-861. doi: 10.1007/s10803-006-0123-0

Long, C. R., & Averill, J. R. (2002). Anger. In V. S. Ramachandran. (Ed.), *Encyclopedia of the human brain* (Vol. 1, pp. 131-136). San Diego: Academic Press.

Loveland, K. A., & Tunali-Kotoski, B. (2005). The school age child with an autistic spectrum disorder. In F. R. Volkmar, R. Paul, A. Klin & D. Cohen (Eds.), *Handbook of autism and pervasive developmental disorders: Diagnosis, development, neurobiology, and behaviour* (3rd ed., Vol. 1, pp. 247-287). Hoboken, NJ: John Wiley & Sons.

Mackintosh, V. H., Myers, B. J., & Goin-Kochel, R. P. (2005). Sources of information and support used by parents of children with autism spectrum disorders. *Journal on Developmental Disabilities, 12*, 41-51.

Mandell, D. S. (2008). Psychiatric hospitalization among children with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 38*, 1059-1065. doi: 10.1007/s10803-007-0481-2

Matson, J. (2009). Aggression and tantrums in children with autism: A review of behavioural treatments and maintaining variables. *Journal of Mental Health Research in Intellectual Disabilities, 2*, 169-187. doi: 10.1080/19315860902725875

Matson, J. L., Mahan, S., Hess, J. A., Fodstad, J. C., & Neal, D. (2010). Progression of challenging behaviours in children and adolescents with autism spectrum disorders as measured by the autism spectrum disorders-problem behaviours for children (ASD-PBC). *Research in Autism Spectrum Disorders, 4*, 400-404. doi: 10.1016/j.rasd.2009.10.010

Morgan, J. K. (2007). *Parental discipline style: Relation of physical punishment and emotion socialization to adaptive and maladaptive child outcomes.* (Master's thesis). Available from ProQuest Dissertations and Theses database. (UMI No. 1444647)

Murray, D. S., Ruble, L. A., Willis, H., & Molloy, C. A. (2009). Parent and teacher report of social skills in children with autism spectrum disorders. *Language, Speech & Hearing Services in Schools, 40*, 109-115. doi: 10.1044/0161-1461(2008/07-0089)

Myrbakk, E., & Von Tetzchner, S. (2008). The prevalence of behaviour problems among people with intellectual disability living in community settings. *Journal of Mental Health Research in Intellectual Disabilities, 1*, 205-222. doi: 10.1080/19315860802115607

Norton, P., & Drew, C. (1994). Autism and potential family stressors. *The American Journal of Family Therapy, 22*, 67-76. doi: 10.1080/01926189408251298

Rao, P. A., & Beidel, D. C. (2009). The impact of children with high-functioning autism on parental stress, sibling adjustment, and family functioning. *Behaviour modification, 33*, 437-451. doi: 10.1177/0145445509336427

Rieffe, C., Terwogt, M. M., & Kotronopoulou, K. (2007). Awareness of single and multiple emotions in high-functioning children with autism. *Journal of Autism and Developmental Disorders, 37*, 455-465. doi: 10.1007/s10803-006-0171-5

Rieffe, C., Terwogt, M. M., & Stockmann, L. (2000). Understanding atypical emotions among children with autism. *Journal of Autism and Developmental Disorders, 30*, 195-203.

Rosenberg, R., Mandell, D., Farmer, J., Law, J., Marvin, A., & Law, P. (2010). Psychotropic medication use among children with autism spectrum disorders enrolled in a national registry, 2007-2008. *Journal of Autism and Developmental Disorders, 40*, 342-351. doi: 10.1007/s10803-009-0878-1

Ross, P., & Cuskelly, M. (2006). Adjustment, sibling problems and coping strategies of brothers and sisters of children with autistic spectrum disorder. *Journal of Intellectual and Developmental Disability, 31*, 77-86. doi: 10.1080/13668250600710864

Schreibman, L., Whalen, C., & Stahmer, A. C. (2000). The use of video priming to reduce disruptive transition behaviour in children with autism. *Journal of Positive Behaviour Interventions, 2*, 3-11.

Sharpley, C. F., Bitsika, V., & Efremidis, B. (1997). Influence of gender, parental health, and perceived expertise of assistance upon stress, anxiety, and depression among parents of children with autism. *Journal of Intellectual and Developmental Disability, 22*, 19-28. doi: 10.1080/13668259700033261

Shattuck, P., Seltzer, M., Greenberg, J., Orsmond, G., Bolt, D., Kring, S., . . . Lord, C. (2007). Change in autism symptoms and maladaptive behaviours in adolescents and adults with an autism spectrum disorder. *Journal of Autism and Developmental Disorders, 37*, 1735-1747. doi: 10.1007/s10803-006-0307-7

Simonoff, E., Pickles, A., Charman, T., Chandler, S., Loucas, T., & Baird, G. (2008). Psychiatric disorders in children with autism spectrum disorders: Prevalence, comorbidity, and associated factors in a population-derived sample. *Journal of the American Academy of Child & Adolescent Psychiatry, 47*, 921-929. doi: 10.1097/CHI.0b013e318179964f

Skiba, R. J., & Peterson, R. L. (2000). School discipline at a crossroads: From zero tolerance to early response. *Exceptional Children, 66*, 335-347.

Tam, K. Y., Heng, M. A., & Bullock, L. M. (2007). What provokes young people to get into trouble: Singapore stories. *Preventing School Failure, 51*(2), 13-17.

Tesink, C. M. J. Y., Buitelaar, J. K., Petersson, K. M., Van der Gaag, R. J., Kan, C. C., Tendolkar, I., & Hagoort, P. (2009). Neural correlates of pragmatic language comprehension in autism spectrum disorders. *Brain, 132*, 1941-1952. doi: 10.1093/brain/awp103

The National Autistic Society. (2008). *Our response to the child and adolescent mental health services review*. Retrieved from http://www.autism.org.uk/get-involved/campaign-for-change/our-work-with-government/westminster/consultation-responses-to-westminster/consultation-responses-to-westminster-on-health-and-mental-health/our-response-to-the-child-and-adolescent-mental-health-services-review.aspx

Uphill, M. A., & Jones, M. V. (2007). Antecedents of emotions in elite athletes: A cognitive motivational relational theory perspective. *Research Quarterly for Exercise and Sport, 78*, 79-89.

U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. (2009). Prevalence of autism spectrum disorders: Autism and Developmental Disabilities Monitoring Network, United States, 2006. *Surveillance Summaries, Morbidity and Mortality Weekly Report, 58 (No. SS10)*, 1-24. Retrieved from http://www.eric.ed.gov/PDFS/ED508122.pdf

VandenBos, G. R. (Ed.). (2007). *APA dictionary of psychology.* Washington, DC: American Psychological Association.

Volker, M. A., Lopata, C., Smith, D. A., & Thomeer, M. L. (2009). Facial encoding of children with high-functioning autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities, 24*, 195-204. doi: 10.1177/1088357609347325

Volkmar, F. R., Lord, C., Bailey, A., Schultz, R. T., & Klin, A. (2004). Autism and pervasive developmental disorders. *Journal of Child Psychology & Psychiatry, 45*, 135-170. doi: 10.1046/j.0021-9630.2003.00317.x

Wing, L., & Gould, J. (1979). Severe impairments of social interaction and associated abnormalities in children: Epidemiology and classification. *Journal of Autism and Developmental Disorders, 9*, 11-29.