

ANGER IN CHILDREN WITH AUTISM SPECTRUM DISORDER: PARENT'S PERSPECTIVE

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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, Grimmer, & 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 to 15 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 comorbid 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		18 (34)	4 (11)	2 (20)	29 (24)
Other disruptive behaviours	5 (23)				25 (21)
Socially appropriate behaviours	10 (45)	11 (21)	4 (11)	0 (0)	25 (21)
Changes of behaviours over time when angry	0 (0)	2 (4)	4 (11)	2 (20)	8 (7)
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)
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	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

Impact of the angry episodes	Age n (%)				Total no. of children exhibiting the behaviour n (%)
	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)

Impact of the angry episodes	Age n (%)				Total no. of children exhibiting the behaviour n (%)
	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 (%)
	3 to 6	7 to 10	11 to 15	16 to 20	
Impact of the angry episodes					
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)
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 including children 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 underserved 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.

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