Is There a Relation between Asperger’s Disorder and Aggression? A Cautionary Tale

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Asperger’s and Aggression

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In January, 2007, in a small Massachusetts town, a 16-year-old young man was accused of stabbing another to death in the bathroom of their high school. What would lead one to do such a thing? Whenever an act of aggression is committed, one of the first questions asked is why. In the Boston Globe report of this story, the reader quickly learns that the young man had “been diagnosed with Asperger Syndrome” (Ballou & Levenson, 2007, p. 1). Although the authors of this story did not directly blame this aggressive act on his diagnosis, it was clear they were implying the possibility. Further reading of this article revealed that this individual was suffering from several other diagnoses of psychopathology, including hyperactivity dysfunction, and that he was also on medication (Ballou & Levenson, 2007, p. 1). These factors, in addition to peer behaviors, such as bullying (see Bernstein & Watson, 1997) and parental behaviors, such as disciplinary practices (see Sheehan & Watson, 2008) have been shown to be related to aggressive behaviors in children and adolescents; however the authors put a focus on Asperger’s Disorder by mentioning it first and most prominently.

Why is Asperger’s Disorder considered such a key component in this case? It is because this young man’s diagnosis of Asperger’s Disorder is being used as a main component of his legal defense, and this is not an isolated case. According to the same Boston Globe report, Marguerite Kirst Colston, a spokesperson for the Autism Society of America, stated, “Since 2002, there have been 22 criminal cases in the United States in which the syndrome was used successfully to show diminished mental capacity and avoid a conviction.” (Ballou & Levenson, 2007, p. 2). Although 22 is a small number relative to the total number of such defenses, it supports the often-held belief that individuals with Asperger’s Disorder are inherently aggressive. This observation comes from laypersons, legal forums (e.g. Barry-Walsh & Mullen,
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2004; Schwartz-Watts, 2005) and popular media (e.g. Ballou & Levenson, 2007; Lavoie, 2008; Ryan, 2008). Unfortunately, the majority of this information, although cited as such, is not empirically supported. The purpose of this paper is to address the possible use, misuse, and misrepresentation of the extant information regarding Asperger’s Disorder and its relation to aggression. This will be accomplished by, first, defining and describing the likely incidence of Asperger’s Disorder, then defining and describing the likely incidence of clinical level aggression, and finally by examining the literature on the relation between Asperger’s and aggression, and, finally, providing some options for moving forward in research and practice.

Definitions and Prevalence of Asperger’s Disorder

First introduced to English speaking audiences by Wing in 1981, Asperger’s Disorder (also known as Asperger Syndrome and occasionally represented as “high-functioning autism,”) was first depicted in 1944 by Hans Asperger. Asperger had been studying a group of children whom he described as lacking in social abilities while otherwise displaying typical development in areas such as intelligence and communication (Frith, 1944/1991). Although Asperger called this collection of symptoms “autistic psychopathy,” Asperger’s Disorder diverges from Kanner’s (1943) concurrent diagnosis of Autism because of the individual’s potential for average or above average intelligence and communication capabilities. These differences have been known for some time; however, Asperger’s Disorder was not fully delineated as a separate disorder in the DSM-IV until 1994 (APA, 1994).

Asperger’s Disorder is characterized by deficiencies in social interaction (e.g., lack of eye-to-eye gaze, reciprocal conversation skills and flat prosody) and repetitive or stereotyped behaviors (e.g., hand flapping and restricted patterns of interest) (APA, 1994). Because of the many similarities between Asperger’s Disorder and Autism (e.g., repetitive motor behaviors, flat
prosody, and lack of eye contact), the possibility of a differential diagnosis is still questioned by many physicians, educators, and psychologists (e.g., Eisenmajer, Prior, Leekam, & Wing, 1996; Mayes, Calhoun, & Crites, 2001; Sciutto & Cantwell, 2005; Tryon, Mayes, Rhodes, & Waldo, 2006).

According to the 2007 Center for Disease Control (CDC) morbidity and mortality weekly report (MMWR), Autism, including Asperger’s Disorder, Pervasive Developmental Disorder (PDD) and Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS), affects on average 1 in 150 children in the United States (Surveillance Summaries MMWR, 2007). Unfortunately, few studies have investigated prevalence rates for Asperger’s Disorder as a separate diagnosis. One exception (Gillberg I.C. & Gillberg C. 1989) found a rate of .36 % in the general population; however, this study used Gillberg and Gillberg criteria now considered by many psychologists to be less rigorous than the more current DSM-IV criteria (APA, 1994). Additionally, although the current review is not specifically concerned with gender differences, it is important to note that Asperger’s Disorder is diagnosed in more males than females, at a ratio of approximately 4:1 (Ehlers & Gillberg, 1993) but that this may be due to differences in presentation of symptoms (Attwood, 1999) not in actual prevalence of the disorder.

Definitions and Prevalence of Aggression

Aggression is a complex behavior that has been defined in many different ways. Physical, relational, overt, covert, proactive, and reactive are some of the many categories of aggression (Card & Little, 2006; Shahim, 2006). For the purpose of this literature review, we will focus on physical aggression, defined as behavior that is intended to cause physical harm to others. Physical aggression is more obvious than other types of aggression, such as covert and relational, and often leads to more severe consequences (e.g. severe physical injury) for both the aggressor
and the victim. Physical aggression also comes with greater consequences in school-age children and later in adults (e.g. incarceration).

Nearly all individuals commit aggressive acts at some point in their lives, but media coverage (Ballou & Levenson, 2007), empirical studies (Marcus, Vollmer, Swanson, Roane, & Ringdahl, 2001), and even our own experiences indicate that there are individuals who exhibit more aggressive behaviors than the general population. According to normative studies conducted using the Child Behavior Checklist (CBCL; Achenbach, 2001), a commonly used survey measure of the incidence of aggression, the clinical threshold for externalizing problem behaviors is a t score on the CBCL aggression subscale of 60 or greater. A recent study (Andreas Burdzovic & Watson, in press) looking at the effects of family environment on aggression in a normative sample of 440, typically developing children and adolescents, found that 8.7 – 10.7% of these children displayed rates of aggression at or above the clinical level, as measured by the CBCL.

Numerous studies of aggression in children and adolescents indicate that physical aggression can be connected to many underlying factors (Watson, Fischer, Andreas, & Smith, 2004), such as relationships with parents (Casas et al., 2006; Harachi et al., 2006), relationships with peers (Guo & Zhang, 2003), and difficulty with certain psychological disorders (Hiday, 1995). There are also contributions from biological factors (Van Coillie, 2006) and gender (Burton, Hafetz, & Henninger, 2007). Burton et al., and others (Bowie, 2007; Burton, et al. 2007; Harachi, 2006) have found that often females exhibit less physical aggression, but more relational aggression, whereas males exhibit more physical aggression and less relational. As the current literature review is focused solely on physical aggression, there may be some gender bias
present; however, it is important to remember the aforementioned ratio of male to female
individuals diagnosed with Asperger’s Disorder.

Prevalence of Aggression Connected with Asperger’s Disorder

An internet search for articles and websites that discuss both Asperger’s Disorder and
aggression reveals numerous websites with information for parents and teachers of children with
Asperger’s Disorder (e.g., Klin & Volkmar, June 1995; WebMD, 2006), and these sites often list
suggestions for techniques of behavioral modification and other ways to handle aggressive
behavior in children with Asperger’s Disorder (Moynahan, 2003). Nevertheless, most of these
references and sites lack information on or citations regarding the existence of clinical levels of
aggression in children with Asperger’s Disorder. When a child with Asperger’s Disorder is
aggressive, the aggression has often been blamed on Asperger’s Disorder. However, empirical
evidence for aggression as an important component of Asperger’s Disorder is missing. Despite
descriptions implying a relation, currently no controlled studies investigating the prevalence of
aggression in children with Asperger’s Disorder have been published, with the exception of
scattered case studies, which will be discussed below.

What is the evidence for a relation between Asperger’s Disorder and physical aggression?
What is the incidence of clinical levels of aggression (such as that measured by the CBCL or
BASC) in those individuals with Asperger’s Disorder? Does the level of physical aggression in
this population differ from the general population? Unfortunately, current literature lacks
empirical evidence to answer these questions. A comprehensive review of the current literature
will follow to allow researcher, clinicians, and parents to determine what information is available
and what information is still needed. Articles chosen for this literature review include those
published after 1994 (when the DSM-IV first delineated Asperger’s Disorder), from peer
reviewed journals, written in English, and including observations of children aged 3-22 years (the range for which children are considered eligible for services due to their disability). Citations in the chosen articles were then followed back to the original sources when applicable; thus, several of the articles presented here were published before 1994.

Some of the studies reported below presented observations of large behavior sets associated with Asperger’s Disorder that might include aggressive behavior, though aggression was not specifically addressed. When aggression was noted, much of the information had been extrapolated incorrectly. Thus, another purpose of this review is to examine the extant quantitative data and see how it has been used in general literature, whether in a validly justified manner or not.

A major limit of the findings presented in the originally selected studies concerning Asperger’s Disorder and aggression is that they have been largely based on case studies or samples that consisted entirely of individuals with Asperger’s Disorder, without the inclusion of any comparison or control samples. These case studies have also been quite small, with sample sizes typically including 1 – 2 cases (see Barry-Walsh & Mullen, 2004; Fitzgerald, 2007; Frazier, Doyle, Chiu, & Coyle, 2002, and few with 10 or more (M. Ghaziuddin, Tsai, & N. Ghaziuddin, 1991). In light of the nature of case studies, they cannot address how often Asperger’s Disorder and aggression co-occur, let alone how they are connected and can be generalized to the greater population.

Although published in 1991, the literature review by Ghaziuddin et al. (1991) has been cited so often, that it was necessary to begin with a review of this article. The review by Ghaziuddin et al. (1991) was based on 21 case studies, one dating as far back as 1971 (from Van Krevelen, 1971). In this review, aggression (violence) was defined as “any act for which the
person could be charged for criminal behavior (such as murder, arson, etc.)” (Ghaziuddin et al., 1991, p. 350) and Asperger syndrome was defined as having the presence of the ‘clinical features’ of Asperger’s syndrome, using the Gillberg and Gillberg criteria (Gillberg & Gillberg, 1989 [the only available clinical criteria at that time]).

Ghaziuddin and colleagues were cautious in their selection of appropriate studies and their implications based on the data. For example, specific cases that were missing information regarding aggressive behavior or a differential diagnosis were excluded from the overall results. The final finding of this literature review, based on 21 case studies, was that, among individuals with Asperger’s Disorder, the prevalence of violence was approximately 2.27%; a figure not considered high, given that the then current prevalence of violent behaviors in the US ranged from 6-7%, depending on age (U.S. Bureau of Statistics, 1989, as cited in Ghaziuddin, 1991). (Note that Andreas Burdzovic and Watson, in press, also found a higher rate of clinical aggression of 8.7-10.7 %.) The Ghaziuddin et al. review was published several years before Asperger’s Disorder became an accepted DSM-IV (1994) diagnosis and before it became so prevalent in the media coverage. (This recent prevalence in media coverage may be because many children with Asperger’s Disorder are able to function on a higher level and, therefore, are more often mainstreamed in schools (Betts, Betts, & Gerber-Eckard, 2007; Connor, 1999; Wilkinson, 2005). Given the limitations and age of this study, it is surprising to note that this literature review is one of the most cited as evidence of a relation between Asperger’s Disorder and aggression. Also surprising, the findings of this one review have been represented differently, depending on the agenda of the authors or the intended audience.

An article investigating one case-report of a 16-year-old male with Asperger’s Disorder (Kohn, Fahum, Ratzoni, & Apter, 1998), wherein the authors suggest that the prevalence of
aggression in individuals with Asperger’s Disorder is 20%, cites the 1991 Ghaziuddin et al. article. The authors manipulated the original selection criteria from the Ghaziuddin et al. article by including case studies that had been excluded by Ghaziuddin and colleagues for reasons such as lack of a differential diagnosis of Asperger’s or an unclear history of violence. Kohn and colleagues infer that the original criteria were “very strict.” Yet, in the original article, Ghaziuddin et al. explained why they were careful to exclude studies that were not clear cases involving aggression or Asperger’s Disorder. Their sample did include cases in which the children clearly demonstrated problematic aggression and symptoms of Asperger’s Disorder; however, it excluded those lacking such evidence. Kohn et al.’s (1998) manipulation of these criteria included adding three of Wing’s (1981) case studies into the group, which had been excluded by Ghaziuddin et al. because these children were only purported to have had “a history of rather bizarre antisocial acts” (Wing, 1981, para. 11) rather than violent behavior. Additionally, Kohn et al. added two case studies of individuals described as having “aggressive outbursts” (from Littlejohns, Clarke, & Corbett, 1990; Mnukhin & Isaev, 1975). Nevertheless, these cases lacked any specific details regarding their putative aggression. Three additional cases studies included in Kohn et al. were not available to Ghaziuddin and colleagues: one published in a British journal (Everall & LeCouteur, 1990) that perhaps should have been included, and two others that were not yet published at that time (Cooper, Mohamed, & Collacott, 1993; Eaves & Ho, 1994). By manipulating rather spurious data in this way, Kohn et al. gave the impression that the incidence of aggression in those with Asperger’s Disorder was rather high (20 %) and was backed by Ghaziuddin et al.’s analyses, when in fact the more careful analyses showed a much lower rate (2.27%).
Continuing to follow the citations leads one to an article by Barry-Walsh & Mullen (2004). In this article, the rate of aggression in Asperger’s Disorder (2.7%) from the Ghaziuddin et al. (1991) article and that of the Kohn et al. (1998) article (20%) were combined to infer that the range of physical aggression prevalence in individuals with Asperger’s Disorder is between 2.7% - 20%. This range was presented as if it were a fully supported fact. The authors then use this range of prevalence of aggression in Asperger’s Disorder to build a case attempting to support a causal relation between Asperger’s Disorder and the aggressive acts these individuals might commit. This supposed causal relation then becomes evidence for individuals suffering from Asperger’s Disorder as having a lack of culpability in violent crimes, as was argued in the aforementioned case in Massachusetts.

An article by Katz and Zemishlany (2006) also cites the Ghaziuddin et al. (1991) study. This article begins and ends with sweeping claims that individuals with Asperger’s Disorder display physical aggression directly stemming from the disorder, but these claims are supported exclusively by case study evidence. Katz and Zemishlany state, “When using the widest possible definition of AS, they [Ghaziuddin et al.] found 11 cases of violence out of a total of 197 reported cases of AS (i.e., 5.6%) . . .” (p.167). The figure of 5.6% came from the Ghaziuddin et al. article during the explanation of data exclusion. The larger figure (as opposed to the result of 2.7%) was derived when case studies, lacking in clear diagnosis of Asperger’s Disorder or aggressive behavior, were included in the original analyses.

The Ghaziuddin et al. (1991) article is also referenced in informal settings, such as internet resources, as well. The website, www.reasearchautism.net (2007) includes information on Asperger’s Disorder, as well as a subheading entitled “Prevalence.” Under this subheading is the following statement, “We have yet to identify any research which identifies the prevalence of
aggression in people with autism, although one study (Ghaziuddin, 1991) suggests it is less common in people with Asperger syndrome than most people suppose.” Although this statement is not from an empirical study, it is a good example of the information that is readily available to parents, teachers, and other professionals. Tantam (2003) listed eight challenges faced when dealing with individuals with Asperger’s Disorder, and one of these challenges was stated, “people with AS as aggressors, not just victims.” (p. 158). The evidence for this aggression that Tantam offers was in the form of his own experience as a clinician and clearly noted as such. In his accounts, Tantam shares the following statement: “Aggression is a common problem, however, as parents will privately admit: out of 262 patients with AS that the author has seen, 40% of parents reported “hitting people” to be a problem” (Tantam, p. 158). First, Tantam does not give information about the context in which he saw these patients with Asperger’s Disorder. Was he in a clinic wherein behavior issues were a main characteristic of the patients? Second, the report from parents cannot be verified since it was “privately admit(ted).” Third, one could visit any clinic for children with disabilities and ask, “Do you think that hitting people is a problem?” This question would likely be answered in the affirmative. In Tantam’s article, this evidence was presented as anecdotal; yet it was cited, by other authors, as if it was supported by controlled and representative empirical data and could thus be generalized to the greater population.

One example of such a citation can be found in an article by, Silva, Leong, and Ferrari (2004), which hypothesized a link between individuals with “high-functioning autism” and aggressive behavior in the form of sexual serial homicide. As support for this hypothesis, they cited Tantam’s (2003) article, stating, “Aggressive behaviors among children and adolescents
with higher functioning autism are not rare.” (p. 788). This is a gross over-generalization of the Tantam article and should not go unnoticed.

Also cited in this study were two articles supposedly confirming a higher prevalence rate for physical aggression in individuals with Asperger’s Disorder; however, both articles have limitations not noted in the Silva et al. (2004) article. First, Silva et al. (2004) cited an article by Siponmaa, Kristiansson, Jonson, Nyden, & Gillberg (2001). These authors found a 3% rate for Asperger’s in a forensic setting, but also found higher rates of attention-deficit hyperactivity disorder (ADHD [15%]), pervasive developmental disorder (PDD [15%]), and deficits in attention motor control and perception (DAMP [ADHD plus motor control and perception issues; 10%]). Thus, the incidence of Asperger’s was quite low relative to the other disorders, and the incidence of co-morbidity was likely quite high but unclear from these reports.

Second, is a study of the prevalence of Asperger’s Disorder in the Broadmoor Hospital, a high-security psychiatric facility in England (Scragg & Shah, 1994). Scragg and Shah found aggression rates between 1.5% and 3.3%. Not mentioned is the caveat that psychopathy has been found to be higher in psychiatric hospitals and forensic settings than in the general population (James & Glaze, 2006) and therefore cannot be generalized to the greater population. Additional limitations as stated in Scragg and Shaw (1994) were small sample size and lack of generalizability. Nevertheless, Silva et al. (2004) cited this study and grouped Asperger’s Disorder with PDD-NOS (pervasive developmental disorder-not otherwise specified), which resulted in a report of a relation between Asperger’s and aggression being “not rare.”

Fombonne (2003) attempted to determine the prevalence of certain developmental disorders by reviewing 32 prevalence studies for Autism (including Asperger’s Disorder). Recognizing that this would be a difficult task, given the wide ranges of prevalence rates for
Asperger’s Disorder, as well as Autism, Fombonne “arbitrarily adopted the mid-point” (Fombonne p. 370) of these ranges. To complete the calculations for the prevalence of Asperger’s Disorder, Fombonne derived a figure of 2.5/10,000 by inferring a ratio of 1:4, between Asperger’s Disorder and autism (10/10,000; Fombonne, p. 370). Fombonne is clear about his calculations leading to these figures and the reader is encouraged to see his original paper (Fombonne 2003). The calculations that Fombonne utilized present a limitation to the results of his study, but, nonetheless, it is an identified and understandable one.

Schwartz-Watts (2005) cited Fombonne’s incidence ratio of 2.5/10,000 as fact, without noting the limitation or inferences in Fombonne’s (2003) calculation. Schwartz-Watts also states, “This same review of epidemiologic studies in 2003 cited rates of aggression in autism as high as 38 percent” (p. 390). The assumption was that Schwartz-Watts was referring to some finding in Fombonne’s article; however, there is no mention of aggression in the Fombonne article, and Fombonne (personal communication, April 22, 2008) has stated that he has not cited rates of aggression in autism in his published articles.

Continuing this thread of citations, Silva and Haskins (2006) responded to Schwartz-Watts (2005) by stating that “Also, the most technically sound work concerning the epidemiology of Asperger’s Disorder provides a prevalence of pervasive developmental disorders other than Autistic Disorder of 0.367% (or 36.7 per 10,000)” (Silva, 2006, para. 3). The citation referred to here is from a 2005 study of pre-school cohorts in England (Chakrabarti & Fombonne, 2005). It is an extensive study of the prevalence of developmental disorders in preschoolers and does cite a rate of 36.7 per 10,000 for non-autistic pervasive developmental disorders. It should be noted, however, that Chakrabarti & Fombonne (2005) also provided a more specific rate of Asperger’s Disorder: 12 per 10,000; a prevalence rate much higher than
previously found (Ehlers & Gillberg, 1993; Fombonne, 2003), but calculated with respectable methods and sample size. It would seem that this incidence rate for Asperger’s Disorder would be the most valid and should have been used. And even with these rates of Asperger’s Disorder, no recent studies provide rates of the co-occurrence of Asperger’s and clinical levels of physical aggression.

Conclusions and Recommended Research

What can we learn from these mistakes and inconsistencies in citations and claims made for the results of empirical studies? The biggest problem is a lack of empirical data coming from well controlled studies using samples that represent large populations. Without this valid evidence, both researchers and those who use the research are susceptible to speculation and questionable interpretations, inferences, and generalizations. As should be evident from this review of the trail of research and subsequent citations, one must be careful that the findings claimed in one study as being shown in a previous study are indeed accurately presented. The onus lays on researchers to be more precise in their reporting. This review should also make clear that when the actual evidence is ambiguous, researchers and those who use the research are more prone to add interpretations and conclusions that meet their own expectations and needs rather than being constrained by the data. It is easier, for example, to claim a higher or a lower incidence rate of aggression in those suffering from Asperger’s Disorder than is justified when the actual rates are unknown or ambiguous.

With the literature in its current state, we may be doing individuals with Asperger’s Disorder an injustice by assuming that physically aggressive behavior is a direct symptom of the disorder or that it is a necessarily essential component. However, we would be even more remiss if we just dropped the topic all together. Despite the biases and inconsistencies shown in the
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research on Asperger’s Disorder and aggression, the various surveys do provide some
information leading to a conclusion that aggression may be at times a co-morbid condition with
Asperger’s Disorder, though the actual incidence may be low and the causal direction and
antecedents of this relation cannot be determined from the extant studies. Causal claims are not
currently justified.

The gaps in the research, as manifested in this literature review, call for further empirical
research examining the relation between Asperger’s Disorder and physical aggression. In
addition, the extensive citations of limited existing data show clear interest in this relation.
Empirical research is needed to determine the true prevalence of Asperger’s Disorder among the
general population and determine the type of relation between Asperger’s Disorder and
aggression. Such research should include larger, randomly selected samples of individuals, aged
3 – 22 years, representing various ethnicities, SES levels, and both sexes, and, importantly,
participants who have Asperger’s Disorder and those who do not. To assure that Asperger’s
Disorder is actually present in study participants, clinical or standard and objective screening for
Asperger’s Disorder adhering to the DSM-IV-TR criteria is necessary. Screening for physical
aggression using a valid and reliable assessment, such as the CBCL or the BASC, or ideally,
developing a new assessment specifically designed to measure physical aggression with intent to
harm, is also essential. Assessments of aggression should include aggression ratings from
parents, teachers, and when available, peers or siblings to ensure that each piece of the puzzle is
placed appropriately. Researchers should also collect information on other factors that might
possibly contribute to aggressive behavior, such as parenting style, parental warmth, peer-
relations (e.g., bullying and victimization), and co-morbid disorders. These factors will allow
researchers to investigate actual antecedents of a possible relation between Asperger’s and
aggression. Researchers should also follow samples longitudinally to analyze data for possible causal relations.

Until such research is conducted, the findings of this review are a reminder to researchers and consumers of research to be diligent and careful in reporting cited research and follow citations to the original source, as often as possible. Misusing information will continue to generate incorrect assumptions about individuals with Asperger’s Disorder. Returning to cases such as the legal example presented at the beginning of this article, we cannot begin to evaluate how culpable someone with Asperger’s Disorder is until we have established the extent of this relation of Asperger’s with aggression, whether aggression levels in these individuals differ from those of the general population, and what the likely causes are of this relation.
References


