Sexual behavior and Autism Spectrum Disorders: An update and discussion

Denise C. Kellaher, D.O.
Assistant Clinical Faculty
University of California-Davis
Department of Psychiatry and Behavioral Sciences
2230 Stockton Blvd, Sacramento, CA 95817

Medical Director, Inpatient Behavioral Health Unit
VA Medical Center- Sacramento
10535 Hospital Way, 116A, Mather, CA 95665
Phone: (916) 293-8051
Fax: (916) 277-9050

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Abstract

In the last few years, we have gained a deeper understanding about sexuality among individuals with Autism Spectrum Disorder (ASD). Greater interest in this subject and improvements in the empirical study of ASD populations are driving this enlightenment. The data is dispelling antiquated notions that ASD individuals are asexual, sexually unknowledgeable and inexperienced, and/or disinterested in relationships. We still have a ways to go in examining deviant sexual behaviors among ASD individuals. This manuscript provides an update on sexuality research in ASD in the last few years. This is accompanied by a discussion of the deviant sexual behaviors observed among some ASD individuals.

Keywords: Autism Spectrum; sexuality; sensory interests; deviant sexual behaviors.

Introduction

About a decade after the official entry of Infantile Autism in the Diagnostic and Statistical Manual of Mental Disorders, Third Edition (DSM-III) in 1980 [1], research into sexual behavior and sexuality among individuals with ASD began to emerge. Children who had been newly diagnosed with Autism in the early 1980s were no longer "infantile." They were coming of age in the 1990s and this spawned an initial literature surge about sexual behaviors observed in this population [2-8]. Much of what was published, however, came from parental and custodial reports of sexuality rather than through direct inquiry of ASD individuals. Case descriptions typically noted inappropriate sexual behavior including excessive and/or public masturbation and nonconsensual groping [9-12]. There was very little published about success stories in navigating puberty, forming relationships, and attaining relationship satisfaction. As well, ASD individuals were assumed to be too disabled for, not interested in, and/or not appropriate for sexual education and romantic relationships [13-16].

The early notions of prevailing asexuality and of limited sexual experience in ASD individuals were debunked as studies began to focus on assessing sexual education, socio-sexual skills, sexual problems, and sexual experience [7,17-20]. Finally ASD individuals were given a voice to reveal their experiences and challenges in attaining satisfying sexual relationships with others. Since 2011, eight studies [21-28] have utilized direct report from ASD individuals regarding sexuality compared to two studies [29-30] which used collateral information from parents or others. Results from the early research have limited comparability and generalizability to work done today because of group size and/or heterogeneity. ASD individuals are now being studied

in subgroups that are defined by functioning, IQ, gender, and age and often they are being compared to matched control groups. No matter the limited rigor of past behavioral studies, contributors to the early literature [2-12] on ASD and sex should be regarded as pioneers who initiated a parlance on this neglected subject.

Other authors have written well informed treatises or summaries of the research on this topic [21,31-32]. This manuscript serves to complement these resources by providing an update on select published literature relevant to sexual behavior among ASD within the last three years. Topics covered will include sexuality among ASD subgroups including both high-functioning adolescents and adults and females. A discourse about sexually deviant behavior observed in ASD shall follow a presentation of the limited information on these subjects.

Sexual interest and experience

Recent research confirms that high-functioning ASD adolescents and adults have as much capacity for sexual behavior as so-called neurotypical, or non-ASD, persons [21-26]. It was formerly believed that individuals with ASD had very little socio-sexual experiences due to core social deficits and asexuality or inappropriate sexual behaviors [4,13-15,33-35]. In a recent study, high functioning ASD adolescent were not significantly different in their self-reported level of sexual interest and sexual behaviors from age-matched Caucasian neurotypical adolescents [21]. Similar percentages of adolescents in both groups viewed explicit sexual media including internet pornography and both groups started masturbating at around age 13. There was no significant difference in partnered sexual experiences between the groups. Unlike past studies, this study used direct reports from a homogenous group of high functioning ASD adolescents to obtain the data. This in and of itself was groundbreaking.

Similar to the self-reports by ASD adolescents, high-functioning ASD adults living in the community exhibited levels of sexual interest and sexual experience similar to non-ASD adults [26]. High-functioning ASD adults did not significantly differ from non-ASD counterparts in their knowledge of sexual language, interest in sex, or depth of sexual experience. The authors identified self-selection as a main limitation because only those ASD participants willing to reveal their sexual interests and behaviors would be representing the group.

In contrast, a 2011 study of surveyed high-functioning ASD adults yielded findings supporting differences between non-ASD and ASD in their sexual experiences [24]. However, the authors determined that there was poor reliability of the Sexual Education and Sexual Experiences subscales in their modified version of the Sexual Behaviour Scale (SBS) [37]. The original SBS did not include questions of normative developmental sexual experiences in childhood such as kissing and petting. On the modified SBS, 21 high-functioning adults self-reported significantly less sex education, fewer sexual experiences, and greater concern about future sexual intimacy compared to 39 age-matched neurotypical adults. Poor reliability in the subscales, however, cast doubt upon the findings of actual differences between the ASD and control groups.

Both of the above studies dispel the notion that asexuality predominates, at least in high functioning ASD individuals. The high functioning ASD individuals were as interested in sex as their neurotypical counterparts. Indeed, asexuality did occur at a higher rate in the ASD group compared to the rate among the neurotypicals [26]. A 2009 study similarly found a greater presence of asexuality in the ASD group though it must be noted that "asexuality" included any failed attempts at social relationships.

Sexual knowledge

Knowing the words, however, does not equate with either qualitative or quantitative knowledge of sexual behavior. In one study of 95 young high-functioning ASD adults compared to 117 age-matched neurotypical adults, there was a significant difference in both perceived and actual sexual knowledge between the groups [23]. The ASD group had less *self-perceived* and less actual sexual knowledge about sexually transmitted diseases, contraception, and reproduction compared to controls. ASD adults were two times less likely to obtain sexual knowledge from parents, teachers, and peers and four times more likely to obtain sexual knowledge from television, the internet, and other forms of non-social media. In the previously discussed 2011 study using the SBS [24], young adults with high-functioning ASD specifically reported that they obtained sexual knowledge more frequently through trial by error experiences and from watching television rather than through social connections with peers.

In the above mentioned study of actual and perceived sexual knowledge, a stunning number experienced sexual victimization [23]. This finding partially correlated with having less *actual* sexual knowledge. Compared to 47% in the control group, 78% of ASD adults reported sexual victimization in the form of unwanted sexual contact, sexual coercion, and rape. In this study, the authors point out how deficits in core social skills deficits along with deficits in sexual knowledge may make ASD individuals more vulnerable to victimization.

Sexual Education

Sexual education for ASD individuals has generally been characterized as insufficient per research. As noted in the above mentioned studies, high-functioning ASD adults have reported less sexual education compared to non-ASD adults [24] while at the same time they demonstrate comparable sexual knowledge [26] that is obtained more regularly from non-social sources [23]. Parents have generally been reluctant to provide comprehensive sexual education to children with ASD [2,4,15,30]. One 2014 study surveyed differences in the sexual education provided by parents to low IQ versus average to higher IQ children with ASD [29]. Parents of adolescents with high-functioning ASD were more likely to discuss a greater number of sexual topics compared to the parents of the lower functioning group. However, the majority of parents of the

high-functioning group still omitted information about courtship, birth control, sexually transmitted diseases, and diverse sexual activities. Parents communicated significantly more sexual topics based upon how well they perceived their children's levels of social cognition and social interaction. Parents of the lower functioning group fell short in providing even basic education on puberty, sexual reproduction, and reporting sexual victimization. The majority of parents in both groups did not teach their children that it was wrong to engage in sexually coercive behaviors- this in spite of the majority of parents having acknowledged their children's sexual attraction to others. Compared to the high functioning group, lower functioning adolescents were reported to engage in several inappropriate behaviors that included undressing in public, touching others inappropriately, and masturbating in the presence of others.

Gender differences

Study of gender differences among males and females is another nuance in the recent literature. In a comparison of high-functioning adults with ASD living in the community, 68 females and 61 males showed no significant difference in their level of sexual knowledge [22]. The females had almost twice as many prior romantic relationships compared to males, but they reported more sexual anxiety and sexual problems. Commensurate with prior sexology research, general gender differences amongst female and male participants were observed [37]. Specifically, the males with ASD have a broader range of sexual experience compared to the females with ASD [26]. Males with ASD also reported greater desire and masturbation while the females with ASD showed greater sexual knowledge [22].

In terms of sexual orientation, males more often self-identified as heterosexual compared to females [26]. Twenty-four females with ASD were four times more likely to characterize themselves as bisexual compared to 25 neurotypical females [38]. In a 2013 study, females with ASD more frequently reported gay and bisexual orientation compared to males with ASD and 55% of ASD adults versus controls reported having sexual attraction to both males and females [22]. While ASD adolescents showed no significant difference in same sex interest or experiences, collectively, they did demonstrate a more tolerant attitude towards homosexuality compared to their control counterparts [21].

Deviant sexual behavior

Several cases of deviant sexual behavior by ASD individuals have been published over the years, yet formal study of deviant sexual behavior in this group is lacking. One might say we are not there yet because we are still in an enlightenment era of collecting normative sexual data on ASD individuals. In due time, specific studies of deviant sexual behavior in ASD may yield information on the prevalence/epidemiology. The present discussion will review published case reports of deviant sexual behavior in ASD and will proffer hypotheses regarding such behaviors observed among ASD individuals. For the purpose of this discussion, deviant sexual behavior is that which may be categorized qualitatively as paraphilic behavior. Paraphilic terms such as

pedophilic and fetishistic are also used to describe behaviors qualitatively. In some of the cases, individuals were clinically diagnosed with a paraphilia as defined by past editions of the DSM. In the current DSM5, the diagnosis of paraphilia disorder supplants the former use of "paraphilia" while the term paraphilia itself has been redefined to represent aberrant sexual arousal without impairment in life functioning. That is, now the DSM distinguishes between having a disorder and having non-disordered yet aberrant, recurrent sexual interests. For the purposes of clarity in this the discussion, past diagnoses of a paraphilia shall be regarded qualitatively as paraphilic disorders when the original diagnostic terms are mentioned. This writer does not imply that non-diagnosed individuals described with paraphilia or paraphilic disordered behaviors either have a formal diagnosis of or is being diagnosed by this writer in the course of this discussion.

Published cases or studies of deviant sexual behaviors by adolescents and adults who were clinically diagnosed with ASD are listed in Table 1. There were no case reports of ASD females engaging in deviant sexual behaviors characterized as paraphilic or paraphilic-like. The existing case reports on females focused on gender dysphoria or a problem with masturbation- both issues which do not represent deviant sexual behavior in this discussion. Cases involving prepubescent males [10] are excluded from this analysis so as not to inadvertently pathologize childhood gender dysphoria or normative sexual behaviors seen in children. Touching, cross-dressing, or specific object fascination (e.g., shoes, hair on dolls) are some behaviors in children which are likely to be non-sexually motivated and/or may represent non-sexual restrictive interests associated with ASD.

Deviant sexual behavior includes two categories of deviant sexual behavior: (1) autoerotic behaviors like object fetishism, transvestism, and self-bondage or asphyxial masochism that typically do not lead to legal infractions and (2) other person-oriented behaviors seen in body part fetishism, voyeurism, frottage, and pedophilia which are associated with sexual offending when it involves non-consenting persons and pre-pubescent children. Arguably, body part fetishism, or partialism, could be viewed as autoerotic-like deviant sexual behavior in rare cases. For instance, a hair fetishist may collect sheared black hair from a beauty salon without associating directly with other persons to obtain and to use the hair for sexual arousal. Like object fetishism, partialism is 'part'-oriented rather than 'whole' other person-oriented such that the erotic focus remains with the nongenital 'part' as opposed to 'the whole' of that person possessing the sought after 'part' (conceptually reminiscent of restrictive, repetitive behaviors seen in ASD children). Partialism nevertheless requires another person in part to achieve the fetishist's sexual fulfillment. DSM-5 [40] reunited partialism with inanimate object fetishism under the Fetishistic Disorder diagnosis after having been divided into different recognized conditions in DSM-III [1] through DSM-IV-TR [41]. For the purposes of the present analysis, object fetishism and body part fetishism are distinguished from each other as autoerotic and other person-oriented deviant sexual behaviors.

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Table 1 lists a total of 15 individual cases consisting of at least four cases of autoerotic deviant sexual behavior, nine cases of other person-oriented deviant sexual behavior, and two [11, 43] featuring both types. In their study, Van Bourgondien et al. referenced multiple ASD individuals who were sexually aroused by different commonplace objects [3]; however, it is not clear how many individuals exhibited this type of autoerotic fetishism so only one case is counted from this report.

Both other person-oriented deviant sexual behaviors and autoerotic deviant sexual behaviors are represented among the published cases. The other person-oriented cases outnumbered the known autoerotic cases. This does not imply a propensity for other person-oriented deviant sexual behavior or for sexual offending compared to the autoerotic behaviors. Other person-oriented deviant sexual behaviors are more likely to be discovered and written about compared to autoerotic activities *because of* its involvement of others. Typically, autoerotic deviant sexual behaviors are not detected unless the individual sustains a health issue from an activity, the individual gets caught stealing a fetish object, or the activity is observed by intimate partners, caregivers, or parents.

Criminal charges were observed amongst the seven individuals with person-oriented deviant sexual behaviors and one with autoerotic behavior. Chesterman and Rutter describe a male who got charged with theft for breaking into houses to steal women’s panties with which he would use to masturbate while he watched clothes spinning in a washing machine [9]. All of the other person-oriented deviant sexual behavior cases involved physical contact or attempted physical contact with victims. Of the remaining other person-oriented cases that did not involve criminal charges, two were foot fetishists and one exhibited pedophilic interests. In these latter cases, the teachers or administrators appeared to be familiar with and somewhat understanding about the behaviors of the three individuals. This may be why these ASD individuals did not experience legal ramifications for their other person-oriented sexual behaviors.

A Sensory Connection

Now more than ever, the presence of sensory abnormalities in ASD is relevant in the discussion of sexually deviant behaviors. Sensory oddities have been recognized and studied in ASD since the late 1960s [49, 50]. In the DSM-5 [47], sensory abnormalities became officially recognized among the diagnostic criteria for ASD. More specifically, hyper- or hypo-reactivity to sensory stimuli and unusual interest in sensory aspects of the environment may represent manifestations of restricted, repetitive patterns of behaviors, interests, or activities when making a diagnosis of ASD. By the same token, some deviant sexual behaviors like in masochism, transvestism, sadism, and fetishism also have an implicit sensory component. For instance, the masochist may experience noxious or uncomfortable tactile stimuli like pin pricks or being bound tightly as pleasurable and necessary for sexual climax. Some individuals with ASD may be initially drawn to pain-inducing stimuli and deep tactile pressure during masturbation because of their hypo-sensitivity issues. Soon enough, these ASD sensory seeking behaviors become patterned pleasure-seeking behaviors for sexual gratification. In this way, a bona fide masochistic disorder may be cultivated in an otherwise socio-sexually naïve adolescent or young adult with ASD due his sensory vulnerability.

Table 1: Published cases of ASD individuals with deviant sexual behaviors

Study	Autoerotic or other person-oriented	Deviant sexual behavior	Specific attraction	Offense charged	Sensory interests identified[a]
Chan et Saluja, 2011 [39]	Other person	Pedophilia & Voyeurism (diagnosed)	Females	Yes	Visual
Chesterman & Rutter, 1992 [9]	Autoerotic	Object fetishism	Lingerie, washing machine	Yes	Visual, tactile, olfactory
Cooper, Mohamed, & Collacott, 1993 [11]	Autoerotic & Other person	Transvestism (diagnosed) & Frottage	Lingerie Arms, breasts, buttocks	 Yes	Tactile Tactile
Coskun & Muskaddes, 2008 [40]	Autoerotic	Object fetishism	Blue and black pants worn by others	No	Visual
Dozier et al, 2011 [41]	Other person	Body part fetishism	Female feet	No	Visual
Early et al, 2012 [42]	Other person	Body part fetishism	Female feet	No	Visual, tactile
Hellemans et al, 2007 [17]	Autoerotic Other person	1: Object fetishism & self-bondage 2: Pedophilia (diagnosed)	1: leather, strapping self with belts while masturbating 2: Females	No Yes	Tactile, possible deep pressure tactile/pain Not determined

[a] Identified by original author or determined by Dr. Kellaher according to the description of implied interest in the object/behavior

Milton et al, 2002 [43]	Other person	Body part fetishism, scattologia & frottage	Hearing/talking about gynecological exams, touching thighs	Yes	Specific auditory, tactile
Mŭller, 2011 [44]	Autoerotic & Other person	Masochism (diagnosed) & Sadism (diagnosed)	Autoerotic asphyxia (nylon, barrier tape, plastic bags) Bondage, aggression	 Yes	Tactile Not determined
Murrie et al, 2002 [45]	Other person Other person	Case GH: Pedophilia (diagnosed) Case JL: Sadism (diagnosed)	Females Binding females, fantasies of stabbing	Yes Yes	Not determined Visual, tactile
Ray et al, 2004 [46]	Other person	Body part fetishism & sadism	Feet & other person bondage	Unclear	Visual, tactile
Realmuto & Ruble, 1999 [5]	Other person	Pedophilia	Males and females	No	Not determined
Van Bourgondien et al, 1997 [3]	Autoerotic	Object fetishism by multiple individuals	Objects for sexual arousal: suitcase, black objects, legs, books, shoes, shampoo bottles	No	Visual and other possible sensory attractions

A relationship between sensory interests in ASD and some of the observed sexual behavior has been suggested though it has not been specifically studied yet. Sensory input need was suggested for why some ASD children cross-dress and were preoccupied with silky, shiny, and feminine objects [10]. Hellemans et al. noted that sensory fascinations may influence sexual development based upon observed self-stimulatory sexual behaviors of institutionalized ASD individuals [17]. Singh and Coffey postulated that tactile sensitivities may alter the perception of pleasure and this could result in excessive masturbation [51]. Dewinter et al. similarly suggested that specific sensory interests may influence sexual behaviors in individuals with ASD [21].

In Table 1, the types of sensory interest(s) that appear to be associated with the published cases of deviant sexual behaviors are listed. This information was culled from the original authors' descriptions of the deviant sexual behaviors. Visual and tactile attractions were most commonly identified and "not determined" was rendered in cases without apparent sensory-seeking behavior. For example, in the Early et al. case description, the individual shows strong sexual attraction to tactile and visual engagement of female feet [42]. In the Hellemans et al. study, one individual with "an obsessive interest in shoes and leather" would occasionally injure himself during masturbation when he strapped himself up tightly with leather belts [17]. This individual repeatedly engaged in apparent self-bondage while masturbating and to the point of harm. This behavior suggests that he is attracted to certain tactile- and possible pain/discomfort stimulation during sexual behavior. His case is also an example of how autoerotic deviant sexual behavior may go undetected until an individual is compelled to disclose his behaviors when he seeks medical attention for consequential injuries.

Given sensory fascinations in ASD, a potential for fetishism seems fairly conceivable. The DSM-5 notes how Fetishistic Disorder can be a "multisensory experience" in which "holding, tasting, rubbing, inserting, and smelling the fetish object while masturbating" is common [47, p.701]. Under the ASD criterion, atypical sensory manifestations include examples such as "apparent indifference to pain/temperature" and "excessive smelling or touching of objects" [p.50]. Indeed, fetishism has been commonly observed or referenced in the literature among individuals with ASD [2, 17]. Hellemans et al. even referred to "autistic fetishism" as the ritual use of objects and sensory fascinations with sexual connotation in a study of institutionalized ASD males [17].

Having highly restricted interests and having sensory peculiarities in ASD may possibly set the stage for developing fetishism and other paraphilias in individuals with certain sensory profiles among other factors. Non-sexual restricted, repetitive interests and behaviors in childhood may morph into sexualized, if not frank sexual, restricted, repetitive interests in adolescence. The same tactile or olfactory peculiarities manifested by various stereotypic behaviors seen in childhood may similarly influence the development of sexual behaviors later on. That is, early, inadvertent conditioning to sensory stimuli that is appealing during pre-puberty may lead to a powerful union between specific ASD sensory-seeking and sexual arousal through masturbation. This notion of early conditioning to deviant stimuli is not a new concept [51]; it just has not been isolated as a factor and empirically studied.

For example, I evaluated a young man with ASD whose interest in wolves as a child transformed into a preferential canine zoophilia as an adolescent. During puberty, he began masturbating to depictions of females dressed up like wolves, known as "furries," and shortly thereafter he switched to viewing online hardcore bestiality videos featuring dogs. One day he was arrested for climbing into a stranger's yard and masturbating while touching a dog. This young man revealed his insatiable interest in wolves as a child and how he was drawn to the appearance of their soft fur. In adolescence, he began noticing the scrotums of large dogs and felt urges to touch them. He admitted that seeing and touching the fur and scrotum of a large wolf-like dog sexually excited him. As commonly observed among ASD individuals, he was particularly interested in sensory parts of 'the whole' for his sexual arousal. Eventually this led to his offending behavior.

Partialism, or body part fetishism, also conjures up associations with ASD. Like object fetishism, partialism is 'part'-oriented rather than 'whole' person-oriented. That is, just as an ASD individual may be interested in the wheels of a car, he may also be drawn sexually to the feet or hair of another person. The erotic focus remains with the non-genital "part" (e.g., hair or feet) as opposed to "the whole" of that person possessing the sought after "part." A potential for object fetishism in ASD individuals may be easily expected because it is wholly autoerotic and without any "part" needed from others persons. ASD individuals who develop true fetishism

may have stumbled upon sensory reinforcements to eroticize hair, feet, etc., during adolescence. In turn, the fetishism may alleviate any demands on them to build social skills in the long run.

Counterfeit Deviance

In the ASD population, deviant sexual behavior could stem from a paraphilia or it may represent "counterfeit" deviant sexual behavior. Counterfeit deviance characterizes sexual behavior that may appear to arise from a paraphilia but instead it originates from a lack of sexual knowledge and experience and from poor social skills [52]. Counterfeit deviant sexual behavior resulting from core social skills deficits has been discussed in the literature, most commonly discussed in the context of sex offending behavior [53]. For example, some ASD individuals who obsessively collect garter belts may not have a sexual interest in the items, though others may automatically interpret the behavior as having sexual motivation.

Counterfeit deviant behaviors related to motor limitations and/or sensory abnormalities of ASD have not been given attention. For instance, it is important to distinguish the use of objects to facilitate the act of masturbation versus to facilitate sexual arousal during masturbation. Use of non-eroticized objects to facilitate masturbation such as pillows, stuffed animals, or condiments for lubrication have been reported in multiple studies [3, 4, 17]. Due to problems with fine motor skills (e.g., grip) or with tactile sensitivity (e.g., hyposensitivity to genital stimulation) some ASD individuals may use everyday objects to facilitate masturbation but these objects are not eroticized by the user like fetish objects are. Fetishists generally focus intently upon the fetish object during masturbation by holding it, rubbing it, smelling it, etc., and they tend to have collections of the fetish object. This is not the case for objects that may be used repeatedly as physical or sensory masturbatory aids but are not specially regarded by the ASD user otherwise.

Deciphering between paraphilic versus non-paraphilic inappropriate sexual behavior is key for providing appropriate treatment to individuals. It is also important for consultation in forensic mental health evaluations. In the U.S states that have Sexual Violent Predator (SVP) laws, ASD individuals may face civil commitment in forensic psychiatric institutions based upon 'counterfeit' paraphilic diagnoses. Though SVP civil commitment is intended to rehabilitate sex offenders who usually have a diagnosed paraphilia, these facilities and the therapeutic programming are generally not designed to address the special needs of ASD individuals who may fall prey to neurotypical offenders in these settings.

Conclusion

Better designed research studies have advanced our understanding of sexuality in ASD now more than ever. Research on aged adults, ethnic minorities, and non-heterosexual groups remain scant, however. Similarly, systematic study of deviant sexual behaviors has yet to be

accomplished. The available literature on deviant sexual behaviors in ASD may shed light about characteristics like offense type and sensory vulnerabilities that may be worthy of future investigation. Lastly, given their innate socialization and sensory challenges, careful assessment of the nature of deviant sexual behaviors is strongly recommended in research, clinical treatment, and criminal justice proceedings involving ASD individuals.

Compliance with Ethics Guidelines

Conflict of Interest Denise C. Kellaher declares that she has no conflict of interest.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by the author.

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