Journal of Autism and Developmental Disorders (2022) 52:908–913
https://doi.org/10.1007/s10803-021-04992-z

BRIEF REPORT

Brief Report: Sources of Sexuality and Relationship Education for Autistic and Neurotypical Adults in the U.S. and a Call to Action

Eileen T. Crehan[1] · **Jessica Rocha**[1] · **Simone Dufresne**[1]

Accepted: 27 March 2021 / Published online: 1 April 2021

Abstract
Sexuality and relationship education (SRE) occurs in many formats. In order to inform best practices, current trends of SRE sources must be characterized. Using an online survey of autistic and neurotypical adults in the United States, we compared eleven potential sources of SRE across nine content areas. Source use did not differ significantly across five of the content areas. Same-aged peers were consulted less often by the autistic adults for flirting, dating, and consent. For partnered sexual behavior, neurotypical adults reported consulting romantic partners significantly more often than autistic adults. Across all groups, use of the internet as a source of information was high. The need for improving SRE access based on existing trends is discussed.

Keywords Autism · Adulthood · Sexuality · Identity · Romantic relationships · Dating

Introduction

The importance of comprehensive, accessible, and high-quality sexuality and relationship education (SRE) for autistic individuals is being increasingly recognized by self-advocates, educators, families, and providers alike (Anderson, 2015; Curtis, 2017; Hatton & Tector, 2010; Sullivan & Caterino, 2008; Swango-Wilson, 2011). SRE improves long term health outcomes and is associated with better mental health outcomes (CDC, 2020). Inversely, lack of SRE leaves individuals at higher risk of sexual abuse (Wurtele, 2009).

Unfortunately, autistic individuals are less likely to have access to SRE (Hannah & Stagg, 2016; Stokes & Kaur, 2005; Travers & Tincani, 2010). Studies have primarily focused on formal SRE programming, which is key for guiding program development and policies supporting SRE delivery. However, it is also important to consider the less structured opportunities for SRE learning, such as interacting with peers, talking with therapists and parents, or using the internet, are also normative sources of SRE information (Bleakley et.al., 2009).We do not have a good understanding of what type of sources are utilized by autistic individuals, although we do know that parental and provider comfort with discussing sexuality can limit access to information (Holmes & Himle, 2014; Holmes et al., 2014). Identifying these sources across various SRE topics is critical to building socially valid programming approaches. In these findings, utility rates of eleven sources of SRE information were compared between autistic and neurotypical (NT) adults across nine SRE topics. We hypothesized that more social sources of information, such as peers, would be accessed less frequently across SRE topics by autistic participants.

Methods

All study procedures were approved by the X IRB. United States-based adults completed an online survey about SRE experiences, characteristics related to autism, and internalizing symptoms. Recruitment was conducted through social media, our Autism Community Advisory Board, and flyers at local autism centers. Responses were collected anonymously. Participants were eligible if they were age

---

This study was funded by a Faculty Research Award and a Graduate Student Research Award both through Tufts University. We would like to thank our Autism Community Advisory Board for providing feedback on the included items and phrasing in this questionnaire.

✉ Eileen T. Crehan
Eileen.crehan@tufts.edu

[1] Eliot-Pearson Department of Child Study and Human Development, Tufts University, 105 College Ave, Medford, MA 02155, USA

18 or older, resided in the United States, and if they were able to complete an online survey independently, by their own report. Participants were also asked to self-identify as whether they had a diagnosis of autism spectrum disorder (ASD) or Asperger's disorder. Participants received $20 Amazon gift card for their time. Data were analyzed using SPSS Version 25 (IBM Corp., 2017).

Participants

A total of 144 responses were collected. Before analysis began, data were not included from participants who completed less than 50% of the survey or if their reported current location was outside of the United States (12 responses were excluded, 8.3% of total responses). A total of 132 participants were included in the final sample, of which 44 participants were previously diagnosed with ASD and 88 were neurotypical (NT). Mean age did not significantly differ by group ($M_{ASD} = 26.82$ (SD 6.80); $M_{NT} = 25.11$ (SD 4.95)). Participants represented 23 states. Average AQ-10 score was 4.77 (SD 2.29). Additional demographic information is displayed in Table 1.

Table 1 Sociodemographic characteristics of participants by group

Self-report diagnosis	ASD (*n* = 44)		NT (*n* = 88)	
	M	SD	*M*	SD
	n	%	*n*	%
Age	26.82	6.804	25.11	4.947
	n	%	*n*	%
Gender				
Woman	20	46%	45	51%
Man	19	43%	22	25%
Non-Binary	1	2%	3	3%
Chose not to identify	4	9%	18	21%
Sexual Orientation				
Heterosexual	27	61%	64	73%
Homosexual	8	18%	19	22%
Bisexual	7	16%	4	4%
Asexual	2	5%	0	0%
Chose not to identify	0	0%	1	1%
Race				
Hispanic or Latino	7	16%	0	0%
Asian	1	2%	5	6%
White	20	46%	64	73%
Black	8	18%	2	2%
Multiracial	4	9%	2	2%
Chose not to identify	4	9%	15	17%

Questionnaires

For these analyses, items developed for the purposes of this study to explore sources of SRE information were analyzed. Participants indicated whether or not they utilized each of eleven potential sources of SRE (internet website of verifiable quality, internet website of non-verifiable quality, romantic partner, similar-age peer (e.g., within two years of own age), friend more than two years younger, friend more than two years older, parents, siblings, mentors, care providers, other) across nine SRE topics (gender identity, sexual orientation, partnered sexual acts, non-partnered sexual acts, kissing, flirting, dating, consent, assertiveness). Diagnostic group determinations were based on self-report of the participant.

The Autism Quotient-10 (AQ-10; Booth et al., 2013) is a brief self-report instrument designed to screen for autism in adults and was used to describe our participant pool since we are relying on self-reported diagnostic status. All participants completed the AQ-10 and the total score was calculated. A total AQ-10 score was missing for two participants due to skipped items and they were excluded from relevant analyses.

Analysis

Chi-square was calculated to determine if the rate of use of each source differed by diagnostic group. Bonferroni correction was used to account for multiple comparisons.

Results

Overall Findings

Figure 1 depicts break down of source usage with combined responses from both diagnostic groups. Across all nine SRE topics, the internet (both verifiable and non-verifiable quality websites) were identified as the highest rate of use as sources of SRE, with the majority of both autistic and NT respondents responding "yes" to whether they got information about an SRE topic from this source. Across topics, parents, siblings, mentors, and care providers were the least consulted sources of information.

Diagnostic Group Differences

For five of the nine SRE topics (Gender Identity, Sexual Orientation, Non-partnered Sexual Acts, Kissing, and Assertiveness; Table 2), there was no difference in utilization of

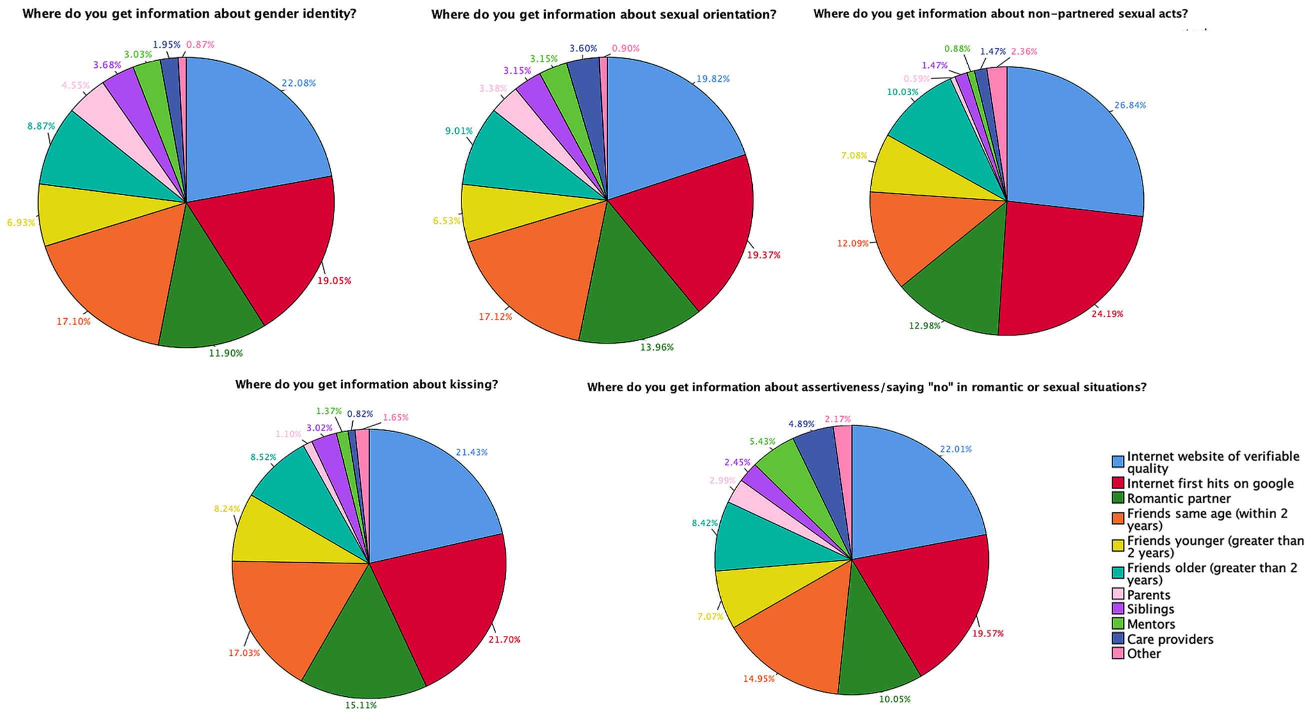

Fig. 1 Relative rates source use across diagnostic groups for content areas without group differences

sources based on diagnostic group. In other words, both autistic and NT adults reported similar rates of using the eleven sources of SRE for the above five topics.

For the SRE topic Partnered Sexual Acts, romantic partners were used as sources by a significantly lower percentage of the autistic respondents (37.7%) than of the NT participants (60.4%). The other ten sources of information for Partnered Sexual Acts were endorsed at similar rates by autistic and NT participants.

For three of the SRE topics (Flirting, Dating, and Consent), similar-age peers (within two years) were identified as a source of information by a significantly lower percentage of the autistic respondents than the NT participants [Flirting (41.5% ASD vs 65.9% NT), Dating (41.5% ASD vs 65.9% NT), and Consent (32.1% ASD vs 54.9% NT)]. Usage of the other ten sources of information for these three topics did not differ significantly between the diagnostic groups.

Discussion

There are many formal and informal sources of SRE. Queries about which sources are sought out for particular SRE topics uncovered interesting differences between diagnosis-based groups. For gender identity, sexual orientation, kissing, and assertiveness, similar sources of information are accessed by both NT and autistic adults.

Diagnostic-group based differences and similarities can inform how we conceptualize and develop SRE programming. The internet, whether a quality site or not, is most accessed by most participants for most topics. This can be a convenient, confidential way to get information, but there is also a lot of misleading information on the internet. Given the easy access to the internet via smartphones and the increasing reliance on social media to get information, integrating how to assess the quality of information a person is accessing into SRE programming is becoming a more critical skill than ever before. Although an older study, Smith et al (2000) found that of the sites identified in searches for sex education information online, 63% were classified as pornography. Safe internet use, especially for children, is a critical topic for the current day (Gallagher, 2011). Jones et al. (2014) echo the importance of these programs but note that there is room for improvement in the educational strategies existing programs use. This is especially true in the area of SRE information; unfortunately, diffusion of responsibility for SRE oftentimes results in information not being taught be a reliable source, leaving individuals at risk of accessing incorrect information.

As hypothesized, however, same age friends were utilized less as a source of information by autistic adults for three topics: flirting, dating, and consent. These topics have considerable social components. For activities such as flirting, the complexities are rarely taught in SRE and are likely even more challenging to intuit if reading social situations

Table 2 χ^2 results for diagnostic group comparisons

Topic	SRE source										
	Internet – Verifiable Quality	Internet – unverifiable quality	Romantic ppartner	Same-age peers	Friends younger > 2 years	Friends older > 2 years	Parents	Siblings	Mentors	Care providers	Other
Gender identity	.575	1.275	.293	1.884	.728	.339	.524	1.035	1.079	1.305	.629
Sexual orientation	.592	1.275	.044	1.045	.166	.476	.871	1.079	.740	1.461	.629
Partnered sex acts	2.038	.063	6.918**	3.107	1.578	2.087	.002	.804	.002	.068	.878
Unpartnered sex behaviors	.157	.489	2.335	.067	2.375	.299	.308	3.792	.247	1.092	4.933*
Kissing	.293	.170	.144	.233	.366	.010	.469	.452	.469	.247	.116
Flirting	2.829	.684	2.335	8.149**	3.724	1.139	.634	.784	.629	.878	.469
Dating	1.913	.031	.070	8.149**	.001	2.971	.740	.068	.214	.032	1.198
Consent	.002	.171	2.671	7.041**	.133	.379	.188	.383	3.333	1.079	.050
Assertiveness	2.745	.127	2.737	1.457	1.005	.039	1.784	.980	.717	.257	.050

$^*p < .05$, $^{**}p < .01$

is not a strong suit. Many individuals navigate through flirting and dating through a process of trial and error, honing their skills through experience. If autistic individuals are more socially isolated (Orsmond et al., 2013), they have less access to first hand experience, or from watching the success (or attempts)at flirting and dating by their friends. Finding ways to either support these conversations with peers or to access the socially salient information (e.g., peer-led sex ed groups, updated video modelling) could help bolster whether these social sources of information are used (Stephenson et al., 2008; Strange et al., 2002). However, the promotion of such supports is limited by the efficacy of peer-mediated interventions and how these skills are taught in the first place (Płatos & Wojaczek, 2018).

Learning about consent from romantic partners was also endorsed less by autistic participants in comparison to NT peers. This is especially concerning given that conversations about consent and proactive discussions about how to navigate these conversations is an area of weakness in SRE in the US (Willis et al., 2019). Providing and recognizing consent, or lack thereof, demands complex detection of verbal, nonverbal, direct,indirect communication, gender dynamics (Jozkowski & Peterson, 2013; Jozkowski et al., 2014); traditional "just say no" models do not reflect the true behaviors of young adults. The heavy social load of learning consent without peer experiences in combination with the negative consequences of violating boundaries or having one's own boundaries violated highlights how critical it is that comprehensive and accessible methods of teaching consent are developed.

Some sources were utilized at lower rates than would be expected. These results do not indicate what motivates individuals to use certain resources over others. When parents and trusted adults are consulted as resources, this often leads to delayed sexual activity for adolescents (Bleakley et al., 2009). Given past studies that suggest that some topics can be challenging for care providers and parents of autistic individuals to discuss (Holmes & Himle, 2014; Nichols & Blakeley-Smith, 2009), we interpret these low utilization rates as a call to action. Providers and parents who oftentimes want to have these teaching moments but either due to time, resources, or comfort, feel limited in their capacity to effectively do so. Travers and Tincani (2010) outline recommendations to support parents as well as medical and educational professionals seeking to provide more SRE to autistic individuals. Additional training and support geared toward people in these roles could lead to improvements in quality sources that individuals consult for SRE information.

Similarities in how diagnostic groups seek out SRE information is helpful to inform how to maximize accessibility of quality information in those spaces (e.g., the internet). For some topics, such as gender identity and sexual orientation, we know that SRE programming for

NT students in the US is severely lacking (Fuzzell et al., 2016; GLSEN, 2014). Our data suggest that these trends are likely also apparent in the autistic community and thus improving these resources for all learners is recommended. The overall low rates of accessing information from parents and professionals in particular highlights a need for training and support. Differences in accessing information from peers suggests that creative ways of teaching SRE that are rooted in social models may be effective for autistic leaners. Modeling by peers and siblings is an effective teaching tool for autistic learners in other areas of education, such as language, and may be a promising avenue to capitalize on for SRE (C. D. Jones & Schwartz, 2004).

Limitations

There are limitations to this study. First, an increased sample size would increase power to detect additional effects. For example, although it did not reach significance once multiple comparisons were accounted for, autistic participants endorsed utilizing peers younger than two years as a source of information more often than NT peers (30.2% vs 16.5%). An increased sample size will help us to determine whether this is a true effect or variability.

Second, our participant pool lacks diversity. More racial, gender and orientation diversity would better represent the demographics of our target population. Sexuality is also extremely culturally bound and having information on how culture factors into SRE learning goals will add an important dimension to our knowledge. Future waves of data collection will help diversify our overall sample.

Third, diagnostic status was based entirely on self-report. The collection of anonymous responses was an intentional design decision to allow participants to feel safe answering personal questions about sexuality, identity, and their experiences freely. Thus, we have no way of confirming diagnosis or following up with participants with elevated AQ-10 scores. In future groups, we will have sufficient power to explore if there are differences between the confirmed diagnosis & elevated AQ-10 and no confirmed diagnosis & elevated AQ-10 participants.

Finally, the length, online format, and English-only version of this survey mean that some individuals may not be able to complete the questionnaire or to access it. We are seeking funding to translate this survey in Spanish as a first step. Our goal is to create an additional adapted version that is accessible for a broader range of reading abilities and in more languages. At this stage, this limits the generalizability of our results.

Future Directions

Another round of data collection will be conducted to increase the participant pool. Specifically, we are interested in how identity impacts SRE experiences, use of SRE sources, or desire for more information on certain SRE topics. With additional power to explore how identify and SRE are connected, we hope to better understand how diagnostic group impacts information seeking, as well as other personal characteristics such as gender identity, sexual orientation, race, and age. We are also interested in how adolescents would respond to these questions, providing even more timely updates on what sources of information are being used to better mirror and support how adolescents are getting SRE information. As mentioned above, circulating this survey in additional languages would help us get a more complete picture of access to SRE for autistic adults in the US.

Although these findings are preliminary, they signal to research and clinical communities important messages for future study and program dissemination. The first is that computer and internet literacy should be part of comprehensive SRE programming. Given the speed at which technological tools and platforms emerge, guidance on how to use these tools for both adolescents and adults would be most useful. The second is that we need to find ways to promote the use or availability of informal sources of information, such as parents and other trusted adults, to support the learning needs of students in order to increase the use of these sources. Especially for adults who are beyond a school setting, we need to be equipping medical practitioners, therapists, mentors, and other potential support providers with the knowledge and tools to provide SRE information. Finally, identifying ways that informal SRE is accessed across the lifespan broadly as well as relative to diagnostic groups would be helpful for planning future educational programming.

Author's Contribution Dr. ETC contributed to the conception, design, acquisition, and analysis of the work, as well as substantial drafting and revision of the submitted manuscript. She approved the version to be published. Ms. JR contributed to the acquisition and analysis of the work and approved the version to be published. Ms. SD contributed to the analysis of the work, drafting and revision of the submitted manuscript, and approved the version to be published. All authors agree to be accountable for all aspects of the work.

Funding This study was funded by a Faculty Research Award and a Graduate Student Research Award through Tufts University.

Declarations

Conflict of interest Dr. Crehan, Ms. Rocha, and Ms. Dufresne declare they have no financial or non-financial interests.

Ethical approval All procedures were reviewed and approved by the Tufts University Social, Behavioral, and Educational IRB.

References

Anderson, S. (2015). Sex education programs focused on “protection” and “prevention” with little attention given to supporting people to develop healthy, positive sexual relationships. *Research and Practice in Intellectual and Developmental Disabilities, 2*(1), 98–100. https://doi.org/10.1080/23297018.2015.1021740.

Bleakley, A., Hennessy, M., Fishbein, M., & Jordan, A. (2009). How sources of sexual information relate to adolescents’ beliefs about sex. *American Journal of Health Behavior, 33*(1), 37–48.

Booth, T., Murray, A., Mckenzie, K., Kuenssberg, R., O’Donnell, M., & Burnett, H. (2013). Brief Report: an evaluation of the AQ-10 as a brief screening instrument for ASD in adults. *Journal of Autism and Developmental Disorders*. https://doi.org/10.1007/s10803-013-1844-5.

Curtis, A. (2017). Why sex education matters for adolescents with autism spectrum disorder. *AJN The American Journal of Nursing, 117*(6), 11. https://doi.org/10.1097/01.NAJ.0000520233.91525.1f.

Fuzzell, L., Fedesco, H. N., Alexander, S. C., Fortenberry, J. D., & Shields, C. G. (2016). “I just think that doctors need to ask more questions”: Sexual minority and majority adolescents’ experiences talking about sexuality with healthcare providers. *Patient Education and Counseling, 99*(9), 1467–1472. https://doi.org/10.1016/j.pec.2016.06.004.

Gallagher, F. (2011). Hand in Hand: Media Literacy and Internet Safety. *Library Media Connection, 29*(4), 16–18.

GLSEN. (2014). *2013 National School Climate Survey*. GLSEN. https://www.glsen.org/research/2013-national-school-climate-survey.

Hannah, L. A., & Stagg, S. D. (2016). Experiences of sex education and sexual awareness in young adults with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 46*(12), 3678–3687. https://doi.org/10.1007/s10803-016-2906-2.

Hatton, S., & Tector, A. (2010). Focus on practice: sexuality and relationship education for young people with autistic spectrum disorder: curriculum change and staff support. *British Journal of Special Education, 37*(2), 69–76. https://doi.org/10.1111/j.1467-8578.2010.00466.x.

Holmes, L. G., & Himle, M. B. (2014). Brief report: parent-child sexuality communication and autism spectrum disorders. *Journal of Autism and Developmental Disorders, 44*(11), 2964–2970. https://doi.org/10.1007/s10803-014-2146-2.

Holmes, L. G., Himle, M. B., Sewell, K. K., Carbone, P. S., Strassberg, D. S., & Murphy, N. A. (2014). Addressing sexuality in youth with autism spectrum disorders: current pediatric practices and barriers. *Journal of Developmental & Behavioral Pediatrics, 35*(3), 172–178. https://doi.org/10.1097/DBP.0000000000000030.

Jones, C. D., & Schwartz, I. S. (2004). Siblings, peers, and adults: differential effects of models for children with autism. *Topics in Early Childhood Special Education, 24*(4), 187–198. https://doi.org/10.1177/02711214040240040101.

Jones, L., Mitchell, K., & Walsh, W. (2014). A Content Analysis of Youth Internet Safety Programs: Are Effective Prevention Strategies Being Used? *Crimes Against Children Research Center*. https://scholars.unh.edu/ccrc/41.

Jozkowski, K. N., & Peterson, Z. D. (2013). College students and sexual consent: unique insights. *The Journal of Sex Research, 50*(6), 517–523. https://doi.org/10.1080/00224499.2012.700739.

Jozkowski, K. N., Peterson, Z. D., Sanders, S. A., Dennis, B., & Reece, M. (2014). Gender differences in heterosexual college students’ conceptualizations and indicators of sexual consent: implications for contemporary sexual assault prevention education. *The Journal of Sex Research, 51*(8), 904–916. https://doi.org/10.1080/00224499.2013.792326.

Nichols, S., & Blakeley-Smith, A. (2009). “I’m not sure we’re ready for this …”: Working with families toward facilitating healthy sexuality for individuals with autism spectrum disorders. *Social Work in Mental Health, 8*(1), 72–91. https://doi.org/10.1080/15332980902932383.

Orsmond, G. I., Shattuck, P. T., Cooper, B. P., Sterzing, P. R., & Anderson, K. A. (2013). Social participation among young adults with an autism spectrum disorder. *Journal of Autism and Developmental Disorders, 43*(11), 2710–2719. https://doi.org/10.1007/s10803-013-1833-8.

Płatos, M., & Wojaczek, K. (2018). Broadening the Scope of Peer-Mediated Intervention for Individuals with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders, 48*(3), 747–750. https://doi.org/10.1007/s10803-017-3429-1.

Smith, M., Gertz, E., Alvarez, S., & Lurie, P. (2000). The content and accessibility of sex education information on the internet. *Health Education & Behavior, 27*(6), 684–694. https://doi.org/10.1177/109019810002700603.

Stephenson, J., Strange, V., Allen, E., Copas, A., Johnson, A., Bonell, C., Babiker, A., & Oakley, A. (2008). The long-term effects of a peer-led sex education programme (RIPPLE): A cluster randomised trial in schools in England. *PLoS Medicine*. https://doi.org/10.1371/journal.pmed.0050224.

Stokes, M. A., & Kaur, A. (2005). High-functioning autism and sexuality: A parental perspective. *Autism: The International Journal of Research and Practice, 9*(3), 266–289. https://doi.org/10.1177/1362361305053258.

Strange, V., Forrest, S., & Oakley, A. (2002). What influences peer-led sex education in the classroom? A view from the peer educators. *Health Education Research, 17*(3), 339–349. https://doi.org/10.1093/her/17.3.339.

Sullivan, A., & Caterino, L. C. (2008). Addressing the sexuality and sex education of individuals with autism spectrum disorders. *Education and Treatment of Children, 31*(3), 381–394.

Swango-Wilson, A. (2011). Meaningful sex education programs for individuals with intellectual/developmental disabilities. *Sexuality and Disability, 29*(2), 113–118. https://doi.org/10.1007/s11195-010-9168-2.

Travers, J., & Tincani, M. (2010). Sexuality Education for Individuals with Autism Spectrum Disorders Critical Issues and Decision Making Guidelines. *Education and Training in Autism and Developmental Disabilities, 45*(2), 284–293.

What Works: Sexual Health Education | Adolescent and School Health | CDC. (2020, February 4). https://www.cdc.gov/healthyyouth/whatworks/what-works-sexual-health-education.htm.

Willis, M., Jozkowski, K. N., & Read, J. (2019). Sexual consent in K–12 sex education: An analysis of current health education standards in the United States. *Sex Education, 19*(2), 226–236. https://doi.org/10.1080/14681811.2018.1510769.

Wurtele, S. K. (2009). Preventing sexual abuse of children in the twenty-first century: preparing for challenges and opportunities. *Journal of Child Sexual Abuse, 18*(1), 1–18. https://doi.org/10.1080/10538710802584650.