

The Effectiveness of a Training Program Based on Social Skills in Raising Awareness among Mothers to Reduce the Symptoms of Sexual Problems among their Girls with Autism Spectrum Disorder after Puberty

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Abstract

The current study aimed to identify the effectiveness of a training program in educating mothers to reduce the symptoms of sexual problems in their adolescent girls with autism spectrum disorder after puberty among a sample of mothers of adolescent girls with autism spectrum disorder in Zarqa Governorate, the sample consisted of (30) mothers of adolescent girls with autism spectrum disorder who suffer from sexual problems. The mothers were randomly distributed into two experimental groups (n=15) mothers. For those who participated in the training program designed for the current study and the control group, which consisted of (n=15) mothers, as it was not exposed to any training intervention, for this study, the following tools were prepared: The Sexual Aspects Scale as a pre-and post-test procedure. A training program was also designed to educate mothers about sexual problems among their adolescent girls with autism spectrum disorder after puberty, which took two months to implement. The results of the study indicated that there were statistically significant differences ($\alpha = 0.05$) in the effectiveness of the training program in reducing the level of sexual problems suffered by adolescent girls with autism spectrum disorder among the mothers of the experimental group that underwent the training program. The study concluded that there were statistically significant differences at the significance level ($\alpha = 0.05$) in the scores of mothers of adolescent girls with autism spectrum disorder on the sexual aspects scale according to the group (experimental, control). The differences were in favor of the experimental group who were exposed to the training program compared to members of the control group; the results also found that the size of the impact of the treatment program was significant in the dependent variable, which is a measure of sexual aspects.

Keywords: *Girls With Autism Spectrum Disorder, Sexual Aspects, Mothers of Girls with Autism Spectrum Disorder, Sexual Problems, Social Skills, Puberty.*

Introduction

Adolescence is a transitional stage in life in which psychosexual development accelerates (Edelstein, 2010). This leads to many challenges for adolescents with autism spectrum disorder (ASD). In the past, It was believed that people with autism spectrum disorder had no desire to have relationships and were asexual (Hellemans, 2010). Recently, the literature (Jason, Matt, 2010) has indicated that most adolescents with autism spectrum disorder have an interest in social relationships and sex. They have psychosexual needs and want to engage in sexual behavior. However, deficits in social perception and communication can make understanding, developing, and maintaining close interpersonal relationships complex for people with ASD (American Psychiatric Association, 2013; Byers & Nichols, 2014; Mehzaibin, Stokes, 2011).

Both (Murrie et al., 2002), (and Coskun, Karakoc, Kircelli, and Mukaddes, 2009) believe that adolescents with autism spectrum disorder have fewer intimate and sexual experiences and more unfulfilled desires. They also suffer from sexual frustration. On the other hand, difficulties in the psychosexual functioning of adolescents with autism are not limited to sexual behavior problems only. Still, they can also lead to problematic sexual behavior, for example, touching others inappropriately, stalking, or even sexual deviance (Chan & Saluja, 2011). In addition, because adolescents with ASD often tend to repetitive and stereotyped behavior and often suffer from hypersensitivity or lack of sensitivity, they are more likely to have sexual preoccupations or homosexuality, such as sexual lust or arousal (Fernandes et al., 2016).

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Furthermore, difficulties in understanding the intentions of others and the desire to be socially accepted can put adolescents with autism at greater risk of becoming victims of sexual coercion. Or sexual bullying or sexual assault (Visser et al. & van der, 2015). Therefore, there is great importance for psychosexual guidance and training programs specifically designed for adolescents with autism spectrum disorder (Koller, 2000).

As for adolescent girls with autism spectrum disorder, they show the same problems, as it is observed that their menstrual cycle begins at the same period as it occurs in ordinary girls. This poses an additional challenge for mothers, as social interaction at this stage requires greater emotional understanding and understanding of body signals as well as verbal and non-verbal communication. Adolescent girls with autism spectrum disorders are also at risk for a range of sexual behavior outcomes.

The relevant literature in this field indicates mothers' concern about explaining the concept of menstruation in a manner appropriate to their mental age, managing the practical aspects of menstruation, and how to maintain personal hygiene, in addition to their concerns about physical appearance, relationships, and preparing for the future. There is also concern among mothers about the sexual exploitation of their adolescent girls with autism spectrum disorder as a result of incautious interactions with the environment and the difficulty of reporting any sexual abuse. Anxiety increases as adolescence progresses, as social challenges become more complex and stresses increase. (Donald, Strassberg1, M., Him Donald, Strassberg1, M., Himlele, 2019).

In addition to the above, this study provides a comprehensive vision of the problems of sexual development among adolescent girls with autism spectrum disorder based on the results of previous research. Abdel-Aty's study (2009) showed that there are significant challenges facing these adolescent girls in understanding sexual information and taking care of their hygiene during menstruation. This indicates a lack of sexual knowledge; they may not have sufficient information or may have insufficient information to meet their personal needs in this context. On the other hand, a study (Jackie, 2005) confirmed that adolescent girls with autism spectrum disorder face difficulties in learning how to care for themselves during menstruation; the mother is often the only person who guides them in this context. This highlights the importance of the role of mothers in providing the necessary guidance and support to girls at this critical stage. Kalyva Efrosini, 2010 also indicated that adolescent girls with autism spectrum disorder face challenges in understanding the concept of privacy, whether in the physical, sexual, or social realm. This includes difficulty distinguishing between public and private spaces and understanding acceptable sexual behaviors in different contexts. In addition, (Corbett et al., 2020) emphasized the need to improve understanding of the stage of puberty in individuals with autism spectrum disorder, given the essential sexual and psychological changes resulting from this stage and autism spectrum disorder; they also stressed the need to provide solutions that help parents and caregivers acceptably deal with sexual issues during puberty.

Concerning the importance of training programs in helping mothers of adolescent girls with autism spectrum disorder in reducing sexual problems, literature has indicated the importance of the current training program in raising awareness of mothers of adolescent girls with autism spectrum disorder through its influential contributions to developing their deep understanding of relevant sexual issues. The program constitutes an integrated educational platform for mothers, enhancing their understanding of the challenges their daughters may face in sexual maturity. A vital aspect of the program is providing practical tools and effective communication strategies, enabling mothers to interact positively with their daughters' needs and provide the necessary support; the program also contributes to strengthening the social and communication skills of mothers, which enhances their ability to interact in a valuable and understanding way with their daughters. Furthermore, the program highlights sexual issues specific to adolescent girls with autism spectrum disorder, which contributes to encouraging open and healthy dialogue in the family environment. This program guidance is a vital step towards enhancing mothers' understanding of their daughters' needs and helping them overcome the challenges of sexual maturation.

This research is important because it fills a gap in our understanding of nomophobia, or the fear of losing one's phone, among visually challenged Jordanian university students. Because they depend so heavily on their phones for everything from communication to navigation to accessing academic resources, this

generation is especially at risk. The study sheds light on the social and psychological obstacles encountered by visually impaired students in the modern digital era by examining the frequency and causes of nomophobia among this demographic.

For a number of reasons, it is critical to understand how dependent these students are on their smartphones:

- *Mental Health Implications:* Mental health problems like stress, despair, and reduced life satisfaction can develop as a result of anxious smartphone use (Samaha & Hawi, 2016; Wang et al., 2015). In order to prevent potential mental health issues, it is important to identify cases of severe phobia as soon as possible.
- *Academic Performance:* Student focus and performance in the classroom could suffer if they rely too much on their cellphones. There has to be more awareness and management measures used in educational institutions regarding the negative influence of nomophobia on academic performance, as demonstrated by studies such as Kraishan et al. (2024).
- *Social Integration:* For pupils who are visually challenged, smartphones are an essential tool for social contact. On the other hand, being too dependent could impede the growth of social skills and in-person encounters. The study promotes balanced social involvement by drawing attention to this issue.
- *Policy Development:* The results can help school leaders and legislators create policies and programs to help disabled students manage their smartphone addiction and stay safe online.

Importance of Learning

Learning is crucial in several important ways, as the study also shows:

- *Digital Literacy Education:* Students must be taught responsible technology usage through digital literacy programs. Reducing Nomophobia and promoting healthier digital habits can be achieved by educating visually impaired students on how to manage their smartphone use.
- *Adaptive Learning Strategies:* Gaining insight into the utilization of cellphones by visually impaired students for educational purposes might facilitate the creation of customized educational tools and resources that improve learning outcomes without fostering reliance patterns.
- *Emotional Intelligence and Coping Skills:* Integrating cognitive-emotional intelligence training can provide students with effective strategies to manage anxiety associated with smartphone use. These findings are consistent with the research conducted by Park (2021), which highlighted the impact of cellphones on the emotional well-being of persons with visual impairments.
- *Inclusive Education Policies:* The report emphasizes the significance of implementing inclusive education principles that take into account the distinct requirements of visually impaired students. By recognizing the significance of smartphones in their educational setting, institutions can establish conducive learning settings that reduce the potential dangers of Nomophobia.

Study Problem

The sexual problem among some mothers of autistic children constitutes the essential obstacle that deprives these adolescent girls of obtaining appropriate rehabilitation and training treatment. It eliminates their right to enjoy public life, just like their typical peers, as some families consider the fact that one of their children

has autism to be a shameful matter that should be kept secret and not revealed. Concealing the sexual problems of her girls who have autism spectrum disorder avoids the look of pity and sympathy from others.

The problem of the study arises through its attempt to shed light on the phenomenon of sexual problems among adolescent girls who have the autism spectrum. There are many disorders and psychological, emotional, and social problems that these families suffer from, whereas, through the work of researchers in the field of special Education, specifically in the field of autism, and interviewing many mothers who have adolescents with an autistic spectrum, researchers found that the problem of families feeling frustrated and embarrassed by the sexual problems their girls with autism spectrum disorder develop after puberty, and the unacceptable behaviors they exhibit.

Despite the seriousness of this phenomenon for all family members, the adverse effects and psychological and social difficulties it leaves, as well as a decline in social skills among these families that enable them to adapt to these difficulties and maintain appropriate social relationships with others. It was not the focus of attention of researchers, and there was insufficient interest in addressing such a problem among these families. This encouraged the researchers to conduct this study to determine the effectiveness of a training program in educating mothers about sexual issues among their girls with autism spectrum disorder after puberty.

The problem of the study appears to be the answer to the following central question:

“How effective is a training program based on social skills in educating mothers about sexual issues among their adolescent girls with autism spectrum disorder after puberty?”. Specifically, this study aimed to test the following hypotheses:

The First Hypothesis: There are no statistically significant differences at the significance level ($\alpha = 0.05$) between the average scores of the members of the experimental group to whom the training program was applied in educating mothers about sexual issues among their adolescent girls with autism spectrum disorder after puberty, and the average scores of the members of the control group to whom no program was applied, in the post-test, on the sexual problems scale for adolescent girls with autism spectrum disorder directed to mothers.

The Second Hypothesis: There are no statistically significant differences at the significance level ($\alpha = 0.05$) between the average scores of the experimental group members on the post and follow-up tests of the sexual aspects scale for adolescent girls with autism spectrum disorder addressed to mothers.

The Third Hypothesis: There are no statistically significant differences at the significance level ($\alpha = 0.05$) between the average scores of the experimental group members on the sexual problems scale (sub- and total scores) in the post-test and their average scores in the follow-up test on this same scale.

Within the limits of researchers' knowledge, it has been noted that there is a lack of awareness among mothers of adolescents with autism spectrum disorder, as talking about sexual issues in these girls is considered necessary. This deficiency is partly due to the lack of Arab studies addressing this topic, specifically regarding girls. Also, the researchers noted that some mothers tend to avoid talking about sexual issues with their girls, which leads to girls engaging in socially unacceptable sexual behaviors or being exposed to sexual abuse.

Study Objective

The study aims to raise awareness among mothers of girls with autism spectrum disorder by designing and implementing a training program to improve social skills and sexual understanding among girls. The sub-goals focus on evaluating the program's impact on mothers' awareness, reducing unacceptable sexual behaviors in girls, and the extent to which the program's impact continues over time.

The Importance of The Study

The importance of the study is highlighted through the following:

First, At the level of Arab and Jordanian studies and research, there is a scarcity of studies that have addressed the effectiveness of a training program in educating mothers about sexual issues among their girls with autism spectrum disorder after puberty; the researchers did not monitor any study conducted related to this topic in the Arab or local environment.

Second, identifying sexual problems is a necessary step for developing the necessary programs and plans to address this type of psycho-emotional problem among girls with autism spectrum disorder. Therefore, training in social skills is necessary for educating mothers about the sexual issues of their girls with autism spectrum disorder and for successful performance in life and thus contributes to achieving mental health.

Third: The study attempted to obtain some information regarding methods that can be used to treat sexual problems in families of girls with disabilities in general and those with autism spectrum disorder in particular.

Fourth: The importance of the study also lies in the training program used to help families of girls with autism spectrum disorder deal with behavioral, psychological, emotional, and social problems.

Study Limitations

This study was limited to families of girls with autism spectrum disorder who suffer from problems related to the sexual aspect enrolled in special education centers in Zarqa Governorate for the year 2024/2025.

Study Determinants

This study was limited to mothers of adolescent girls with autism spectrum disorder who suffer from problems related to the sexual aspect who are enrolled in special education centers in Zarqa Governorate for the year 2024/2025; therefore, the possibility of generalizing the results of this study is determined according to the demographic, social, and psychological characteristics of the mothers participating in this study, as well as according to the type and characteristics of the study tool.

Study Terminology

Training Program: A planned and organized program (educational system) that includes a group of educational units designed according to scientific principles to provide direct and indirect guidance services and develop some skills for all those included in the institution to help them achieve proper growth and make a conscious, rational choice, and to achieve psychological compatibility inside and outside the organization, and it includes goals, content, and means to achieve it. (Al-Rehaili, 2019).

Autism Spectrum Disorder: The fifth Diagnostic and Statistical Manual of Mental Disorders (DAM5, 2013) defines autism spectrum disorder (ASD) as “A disorder characterized by a deficit in two primary dimensions: a deficit in communication and social interaction, and limited behavioral patterns and activities. It includes three levels, with symptoms appearing in an early developmental period, causing severe impairment in social and professional performance (Salim, 2014).

Social Skills: Goleman (2006) defines social skills as “a set of abilities and skills that an individual possesses to interact effectively with others in various social contexts.”. These skills include understanding and expressing emotions correctly, developing positive friendships and social relationships, understanding social and cultural norms, and resolving conflicts constructively. Social skills also include communicating effectively verbally and non-verbally and interacting with others appropriately and flexibly.

The Sexual Aspect: the basic drives, or what is known as primary, hereditary, or innate, which are shared by the world of humans and all other creatures; it is a necessity for all human beings, whether they are normal or abnormal, as satisfying it represents a vital matter for the individual, as it occurs through mating, offspring and the continued survival of the human race. (Abdel-Ati, 2019).

Mothers Of Girls with Autism Spectrum Disorder: They are a group of mothers visiting autism care centers in the city of Zarqa, Jordan, who sought specialized assistance for themselves and their girls with autism spectrum disorder. (Al-Sharaa, 2020).

Previous Studies

Elsaid's (2024) research aimed to raise sexual awareness among moms whose children have mental retardation and are between the ages of 9 and 14. Based on the Stanford Binet Scale, their IQ values range from 55 to 79. The Suez Canal Authority hospital in Ismailia city is a regular stop for these kids. Moms recorded in the study ranged from thirty to fifty years old. The average age of the moms was 38.7 years, with a standard deviation of 10.98 (N = 10). Results from a researcher-conducted questionnaire showing a decrease in sexual awareness were found in both the experimental group (N=10) and the control group (N=10). The researcher used a sexual awareness questionnaire developed by Mahmoud (2023) and the SETION Sexual Awareness program (2023). The study's findings highlight the efficacy of the rational emotive behavior program in helping the moms of children with mental retardation establish sexual awareness.

Ragaglia et al. (2023), in their systematic review, aimed to identify successful methods and describe current programs that provide psycho-educational interventions on Sexuality to individuals with autism spectrum disorder (ASD). The PRISMA-P protocol was adhered to in the systematic review. In June 2022, Education Source, PubMed, PsycINFO, and PsycArticle were searched for relevant literature. After removing 22 duplicates and 510 papers that did not meet the criteria, the search technique yielded 550 publications; 18 of these were ultimately included. Intervention validation was the subject of eight articles, with ten detailed best practices. According to the results, the intervention studies mainly used the best practices. Additional research is necessary because no intervention was found to be effective in enhancing psychosexual knowledge and fostering healthy sexual behaviors simultaneously.

Shakuri & Alzahrani's (2023) study set out to examine parental experiences with sex and reproductive health education for teenagers with autism spectrum disorder (ASD) in order to identify barriers to and strategies for overcoming these experiences. Interviews and document analysis were part of a qualitative multiple-case study approach to address the research objectives. Nine parents, four of whom were fathers and five of whom were moms, participated, all of whom had teenagers diagnosed with ASD. Their children were between the ages of thirteen and nineteen. Inductive coding was used to examine the data collected. According to the results, there are several obstacles, such as parents who are uninformed about sex and reproductive health education and who do not receive enough training to educate their children. Another difficulty parents face is the possibility that their child with ASD may engage in socially unacceptable displays of Sexuality due to their lack of understanding. Results from the second study question pointed to the need for more excellent information and understanding among ASD families, especially about the best ways to teach their children about Sexuality. School and community-based sexuality education for people with ASD was also identified as an essential need. In order to guarantee that schools are prepared to educate individuals with ASD on sexual problems, the results could assist the Ministry of Education in developing educational programs. If the programs also taught parents how to talk to their teenagers about sexual health, that would be a massive win for everyone involved. The significance of sex and reproductive health education for children with ASD may be better understood by parents, regular education instructors, and special education teachers based on the results of this study.

Maggio et al. (2022) made a review aimed to shed light on this crucial yet frequently disregarded topic by assessing sexual behavior and function in people with autism spectrum disorder. To compile this review, researchers combed through PubMed, Embase, the Cochrane Database, and Web of Science for peer-reviewed articles published between June 1, 2000, and May 31, 2022. Various search terms were used,

including "Autism," "ASD," "Sexuality," "Romantic relation," "sexual behavior," and "sexual awareness," to conduct a thorough search. Eleven papers met the inclusion/exclusion criteria after 214 entire manuscripts were accurately revised. Despite sexual functionality, this review indicated that gender dysphoria and inappropriate sexual conduct are more common among those with ASD. In addition, compared to their non-autistic counterparts, adolescents with ASD have a higher prevalence of various forms of sexual orientation, such as bisexuality, asexuality, and homosexuality, and a lower level of sexual awareness overall. Patients with ASD should get sexual health and Education as part of their treatment plan to help them lead healthier lives and lessen the likelihood that they may engage in harmful sexual practices.

Hamdan's (2022) study aimed to reveal the changes and challenges facing adolescents with autism spectrum disorder at puberty; the study indicated that most parents have noticed that puberty has appeared early in their adolescent children with autism spectrum disorder, especially among adolescent girls. Parents also indicated that most behaviors, such as stereotypic and repetitive behaviors, decreased or stopped in their children during adulthood, including anger, social withdrawal, sexual behaviors, menstruation, daily life skills, and eating. The study recommended the necessity of providing guidance and training programs directed at individuals with autism spectrum disorder during puberty and directed at parents to deal with the challenges of adulthood.

Akrami et al. (2021) study aimed to examine how an educational program affected the development of social skills (SS) and sexual knowledge (SK) in teenage boys diagnosed with high-functioning autism spectrum disorder (HFA). A single-subject design was used to perform this investigation. Three boys, chosen through purposive selection, were diagnosed with HFA condition and participated in the study. To measure SS and SK, the sexual knowledge questionnaire and the social skills improvement system scale were utilized. There were 49 sessions in all of the training. Testing the hypothesis that the training program will improve SS and SK by comparing pre-and post-intervention scores yielded positive results.

Corbett et al. (2020) also conducted a study that aimed to measure the period of onset of puberty in males and females with normal development and those with autism spectrum disorder; the study focused on the main effects of gender and age interactions at the beginning of adulthood. The results of the study showed that there are significant differences in the timing of the onset of puberty in females with autism spectrum disorder more than in males.

Jalal (2020) aimed to identify the sexual behavior of (32) adolescents with autism spectrum disorder, aged between (12-21) years, enrolled in autism centers in the city of Jeddah, Riyadh, and Mecca in the Kingdom of Saudi Arabia, from the point of view of teachers and parents using a measure of the characteristics of sexual behavior and social sexual skills. The study sample consisted of (17) low-performing individuals with autism spectrum disorder and (15) high-performing individuals. The results of the study showed the presence of problems in sexual behavior, such as taking off clothes in front of people, using tools to achieve sexual arousal, kissing others, looking under their clothes, and looking at specific parts of others' bodies, the results also revealed significant differences in some characteristics of sexual behavior in favor of people with high-performance autism spectrum disorder.

In a study by Ismiarti et al. (2019) that aims to identify methods of sound sexual Education for adolescents with autism spectrum disorder, the results of the study found that adolescents with autism spectrum disorder do not like adolescence, and parents who have children with autism spectrum disorder face different challenges, especially regarding sexual Education. In light of this, the study recommended teaching the child to use the toilet and shower independently, to be independent in using water, and not to waste it.

Jocelyn et al. (2019) aimed to prepare a cultural program to increase parents' skills in sexual topics and their readiness to support their children with autism spectrum disorder in the transition to adulthood; the program's topics focused on puberty for individuals with autism spectrum disorder, their sexual problems, and how to achieve independence during puberty. The study's results confirmed the effectiveness of early intervention before puberty. It also emphasized the role of cultural and social harmony between parents and children when implementing these programs.

Rimmington's (2019) study aimed to identify puberty Challenges facing adolescents on the autism spectrum. The study sample consisted of (150) families who have an adolescent on the autism spectrum and (141) families who do not have an adolescent on the autism spectrum. This study discussed the problems faced by girls on the autism spectrum who are experiencing puberty. Particular emphasis is placed on the problematic sexual behavior of adolescents with autism and coping strategies, including educational programs covering sexual awareness and social skills training with healthcare professionals providing support to families.

Schöttle et al. (2017) stated that people with autism spectrum disorders (ASDs) exhibit all sexual behaviors, just like those without the disorder. In spite of this, some people with ASD may exhibit numerically above-average or nonnormative sexual interests and behaviors as a result of the disorder's basic symptoms, which include difficulties with social skills, sensory hypo- and hypersensitivities, and repetitive behaviors. Following a literature analysis on Sexuality in high-functioning ASD individuals, the researchers report new data on the prevalence of typical sexual behaviors, as well as findings regarding the evaluation of hypersexual and paraphilic fantasies and behaviors in ASD individuals. Contrary to what research on the general population implies, people with ASD have a higher prevalence of hypersexual and paraphilic fantasies and behaviors. Nevertheless, this discrepancy is primarily caused by the findings for male participants who have ASD. This may be because women with ASD tend to have fewer symptoms and have a higher level of social adaptation. When designing sexual education programs and therapies for people with ASD, it is essential to keep their unique sexual behaviors in mind.

The study conducted by Lucrecia Cabral Fevnandse (2016) showed a limited relationship between sexual behaviors, age, verbal ability, symptom severity, and mental ability or adaptive function in adults with autism spectrum disorder. The study also showed that most adults who suffer from this disorder, whether low or high, show sexual interest. The study also showed that a quarter of the sample showed inappropriate negative sexual behaviors such as gender identity disorder, sexual behavior disorder, homosexuality, and a tendency to expose sexual organs in places, in a study conducted by (Holmes et al., 2019); it aimed for parents to educate their adolescent girls with autism spectrum disorder, as a questionnaire was distributed about sexual issues to the study sample, which consisted of (141) families with a girl with autism spectrum disorder, the study results indicate that most families refrained from topics related to Sexuality and that the few who discussed these topics used visual support and social stories in their expression, the study also indicated that individuals with autism spectrum disorder face difficulty in accessing sources of information related to Sexuality, and therefore they may rely more on their parents to obtain this knowledge. The study also showed that individuals with autism spectrum disorder are more vulnerable than their peers without autism spectrum disorder to sexual exploitation; this study provided information about the techniques and strategies that parents must use to teach their sons with autism spectrum disorder in general and their girls in particular how to deal with different situations related to the sexual aspect, whereas, parent discussions covered the following basics (privacy, learning about sexual behavior, sexual assault, hygiene, and menstruation).

Visser et al. (2015) examined how the Tackling Teenage Training (TTT) program influences the psychosexual development of ASD teenagers, this randomized controlled trial seeks to shed light on the topic. Two hundred teenagers, spanning the ages of twelve to eighteen, with autism spectrum disorder (ASD) as defined by DSM-IV, were recruited from several locations in the southwest of the Netherlands for the research. This approach used randomized controlled trials that ran in tandem and assigned participants to either an intervention group or a control group that sat on a waiting list. At baseline, after therapy, and at follow-up intervals, participants and their parents filled out questionnaires that measured psychosexual knowledge, interpersonal skills, and behavioral adaptations. To increase psychosexual knowledge, improve relational skills, and decreasing improper behaviors, the TTT program sought to address a broad variety of psychosexual issues throughout 18 individual sessions. Participants in the intervention group reported less inappropriate conduct and improved psychosexual understanding compared to controls, according to preliminary results. This study highlights the importance of psychosexual education programs specifically designed to help adolescents with ASD establish their sexual identities and prepare them for adulthood.

A study by Kellaher (2015) aimed to identify unacceptable sexual behaviors among individuals with autism spectrum disorder. The study showed that females with autism spectrum disorder suffer from weakness in building romantic relationships at a higher rate than males. The study also revealed a significant increase in levels of sexual anxiety and sexual problems among females. The study recommended the need to carefully evaluate the nature of unacceptable sexual behaviors among individuals with autism spectrum disorder. It also stresses the importance of conducting more research to understand the depth of these behaviors better and determine the factors influencing them.

Commenting On Previous Studies

The overarching goal of this research is to provide a curriculum to help moms better understand the unique sexual challenges that their teenage daughters with Autism Spectrum Disorder (ASD) face when they enter puberty. According to previous studies that have addressed the sexual health of adolescents with ASD through training interventions for moms, this falls in line with those findings (Hamdan, 2022; Corbett et al., 2020; Jalal, 2020; Rimmington, M., 2019; Holmes et al., 2019; Kellaher, 2015; Jocelyn et al., 2019). Our research draws on the results of studies that have included both males and females (Hamdan, 2022; Jalal, 2020; Corbett et al., 2020) as well as studies that have only included females (Rimmington, M., 2019; Holmes et al., 2019). We follow the methods used by Holmes, Strassberg, Himle (2019), and Hamdan (2022) to emphasize parental involvement in the educational process.

Additional evidence for the necessity of focused educational interventions comes from studies conducted in 2023 and 2024. Some studies that shed light on the more significant implications of educational and governmental frameworks that might affect these training programs include Swathi & Pahuja (2024) and Bukari et al. (2024). To effectively support adolescents with ASD, it is crucial to provide comprehensive parental Education about Sexuality (Shakuri & Alzahrani, 2023; Maggio et al., 2022). This study's methodology and expected results are based on the methods and conclusions of these more recent investigations.

This study's approach is based on prior research that has used a combination of survey questionnaires and interactive training sessions to draw on the successful tactics described in works such as Al-Sadi (2022) and Salem (2015). The results support the findings of Jocelyn et al. (2019) that these programs effectively raise awareness among mothers about sexual health. As a result, we hope that fewer girls with ASD may experience sexual health concerns throughout puberty. By incorporating current research findings and resolving the identified obstacles to starting and continuing these vital discussions, this study aspires to broaden the discourse on effective educational methods.

Method and Procedures

The current study is considered a quasi-experimental study. The study aimed to identify (the sexual problems facing adolescent girls with autism spectrum disorder after puberty and the accompanying social problems for mothers) enrolled in special education centers in Zarqa Governorate; the study examined the effect of the independent variable, which is: (the training program based on social skills) on the dependent variable, which is mothers' awareness of sexual issues among their adolescent girls with autism spectrum disorder after puberty, according to the following design:

The non-equivalent control group design can be expressed as follows:

Experimental group: (O X O)

Control group: (O O)

Where (O) means test and (X) means processing.

Study Population and Sample

The study population consisted of mothers of adolescent girls who suffer from sexual problems and are enrolled in special education centers in Zarqa Governorate for the year (2024/2025). The researchers reached out to the members of the study population and to reach the targeted cases of mothers of adolescent girls who suffer from sexual problems on the autism spectrum by conducting an exploratory field study of several centers affiliated with the special education centers in Zarqa Governorate, which expressed a profound desire to improve levels of psychological adaptation and participate in the training counseling program.

The Study Sample

The study used deliberate sampling as its sampling strategy. In order to find possible subjects, the researchers first performed an exploratory investigation among various special education centers in Zarqa Governorate. Forty moms whose daughters had sexual issues after reaching puberty were chosen for the study because they all had Autism Spectrum Disorder (ASD). The "Sexual Aspects Scale" for girls with ASD was used to intentionally choose a final sample of 30 mothers from this group. The women were then split evenly into two groups: one that got no intervention and the other that participated in a training program. Fifteen mothers were in the experimental group.

The study sample was selected by applying the scale (Sexual Aspects of Adolescent Girls with Autism Spectrum Disorder) to a survey sample of (40) mothers who have girls who have autism enrolled in special education centers, where they were selected from the original study population, (30) mothers were selected - in an intentional way - who obtained high scores on the scale (sexual aspects of adolescent girls with autism spectrum disorder), the mothers were distributed equally into two groups: an experimental group consisting of (15) mothers, and a control group consisting of (15) mothers. Accordingly, the purposeful study sample consisted of a group (n = 40) of mothers of adolescent girls with autism spectrum disorder who were enrolled in (Zarqa Autism Center, Malak Al Nour Autism Center, and Steady Steps Autism Center), those who have been suffering from sexual problems after puberty since the year 2024/2025, and whose ages range from (12-15) years, who meet the conditions for participating in the study and who have expressed their willingness to participate, after obtaining written approval and knowledge to participate in the study procedures, including applying the two study measures and attending the training counseling program sessions, the sample was divided randomly (after taking into account the equality of their random distribution (n=30) mother), by lottery into two groups: experimental and control, so that the first group includes the experimental group (n=15), which participated in the counseling program designed for the current study. The second control group (n=15) was not exposed to any counseling intervention and was on a waiting list (Table 1). Table No. (1) shows the distribution of the study sample members according to the type of group and scale in the pre-and post-tests.

Table 1. Distribution Of Study Sample Members According to Group Type and Scale in Pre-and Post-Tests

Group type	Scale type		
	Pre-test	Post-test	Tracing test
Experimental group	15	15	15
Control group	15	15	-
Total	30	30	15

The study sample members were selected based on their desire to participate in the guidance program, which they also confirmed during the stage of forming the guidance group when they were interviewed inside the centers to fill out the initial information data, get to know them, and introduce them to the program. It is the first stage of the group's development in group counseling.

Group Equivalence

To verify the equality of the groups, the arithmetic means, and standard deviations of the dimensions and the total score of the scores of mothers of adolescent girls with autism spectrum disorder on the pre-test sexual aspects scale were extracted according to the group variable (experimental, control), and to show the statistical differences between the arithmetic means, the “t” test was used, and Table (2) shows this.

Table 2. The Results of Applying The “T” Test and The Arithmetic Means And Standard Deviations For The Experimental (N=15) And Control (N=15) Groups In The Pre-Test On The Two Sexual Problems Scales (Sub-Score And Total) According To The Group Variable

Group	Number	Arithmetic average	standard deviation	"T" value	Degrees of freedom	Statistical significance
Experimental	15	3.31	.269	.399	28	.693
Control	15	3.27	.255			

It is clear from Table (2) that there are no statistically significant differences ($\alpha = 0.05$) attributed to the gender aspects of the Pre-test scale, and this result indicates the equality of the groups.

Study Tool

The current study used the (Sexual Aspects among Adolescent Girls with Autism Spectrum Disorder) scale to achieve the study objectives; the researchers prepared it as a pre-and post-measure after reviewing several measures that were used in many previous studies (such as Al-Sadi's study, 2022). The scale consists of a group of (49) items. The Likert method was used to measure the sample members' responses to the questionnaire items as follows: (1) to a small extent, (2) to a very slight extent, (3) to a moderate extent, (4) to a great extent, (5) to a very great extent.

Construct Validity: A Measure of Sexual Aspects

To extract the implications of the scale's construct validity, the item correlation coefficients with the scale's total score were extracted in an exploratory sample from outside the study sample consisting of (30) mothers. The item correlation coefficients with the scale's total score ranged between (0.53-0.89); the following Table shows this.

Table 3. Correlation Coefficients Between the Item and The Total Score of The Scale

Item number	Correlation coefficient	Item number	Correlation coefficient	Item number	Correlation coefficient
1	.78**	18	.79**	35	.67**
2	.77**	19	.82**	36	.83**
3	.73**	20	.72**	37	.68**
4	.77**	21	.75**	38	.66**
5	.66**	22	.73**	39	.77**
6	.67**	23	.79**	40	.75**
7	.73**	24	.65**	41	.78**
8	.63**	25	.56**	42	.81**
9	.86**	26	.73**	43	.70**
10	.89**	27	.56*	44	.87**
11	.67**	28	.78**	45	.64**
12	.74**	29	.56*	46	.86**
13	.76**	30	.63**	47	.82**
14	.88**	31	.73**	48	.77**
15	.53*	32	.78**	49	.82**

Item number	Correlation coefficient	Item number	Correlation coefficient	Item number	Correlation coefficient
16	.70**	33	.66**		
17	.74**	34	.76**		

*Statistically significant at the significance level (0.05).

** Statistically significant at the significance level (0.01).

It should be noted that all correlation coefficients were of acceptable and statistically significant degrees, and therefore, none of these items were deleted.

Reliability Of the Study Tool: Sexual Aspects Scale

To ensure the reliability of the study tool, it was verified using the test-retest method by applying the scale and re-applying it after two weeks to a group from outside the study sample (30). Then, the Pearson correlation coefficient was calculated; between their estimates on both occasions, it reached (0.88). The reliability coefficient was also calculated using the internal consistency method according to the Cronbach Alpha equation, reaching (0.83), and these values were considered appropriate for this study.

Normality Test

It was confirmed that the data followed a normal distribution using the one-sample Kolmogorov-Smirnov and Shapiro-Wilk tests, and Table 4 shows this.

Table 4. One Sample Kolmogorov-Smirnov and Shapiro-Wilk Test for Study Variables

		Test value (One Sample Kolmogorov- Smirnov test)	Statistical significance	Shapiro- Wilk	Statistical significance
Experimental	Pre-test sexual aspects scale	.103	.200	.976	.935
	Post-test sexual aspects scale.	.124	.200	.967	.813
	Traceable sexual aspects scale.	.096	.200	.987	.997
Control	Pre-test sexual aspects scale	.128	.200	.977	.948
	Post-test sexual aspects scale.	.165	.200	.925	.227

It can be seen from Table No. (4) that the statistical significance value of the One-Sample Kolmogorov-Smirnov test and the Shapiro-Wilk test for all variables was not statistically significant ($\alpha \leq 0.05$), which indicates that these variables follow a normal distribution.

Statistical Methods

Statistically, the research analyzed the data using both descriptive and inferential statistics. Specifically:

- *A One-Way Analysis of Covariance (ANCOVA)* was used to evaluate the disparities in post-test scores on the sexual aspects scale between the experimental and control groups, while accounting for pre-test scores. This assessment facilitated the evaluation of the training

program's efficacy. The results demonstrated statistically substantial disparities in favour of the experimental group, indicating the considerable influence of the programme.

- *T-tests* for correlated data were utilized to compare the experimental group's post-test and follow-up test scores, analyzing the program's long-term impacts. There was no discernible change in performance between the pre- and post-tests, suggesting that the program had the desired impact.

The researchers were able to conduct a thorough evaluation of the training program's efficacy and long-term effects by using these methodologies.

The Training Program

The social skills-based training program consisted of educating mothers about sexual issues such as discussing puberty and its manifestations, physical and emotional developments in adolescence, friendships, falling in love and dating, Sexuality and gender (such as sexual orientation), pregnancy, and setting and respecting boundaries among their girls with autism spectrum disorder after puberty in (13) sessions, in addition to a final session devoted to applying the post-test to the experimental and control group. Another session a month after the end of the program, in which the tracking test was applied to only experimental group members. The program sessions were implemented over four (4) weeks, at a rate of three sessions per week, and the session time ranged from (40-50) minutes depending on the content and circumstances of each session and Table No. (5) shows this:

Table 5. Program Sessions to Improve Mothers' Awareness About the Sexual Problems Faced by Their Adolescent Girls Who Have Autism Spectrum Disorder

Session number	Session title	Session objectives	Session procedures	Techniques used
2-1	Relationship building	<ul style="list-style-type: none"> ▪ We welcome the treatment group and the reasons for choosing them to participate in the program. ▪ Introduction between members of the therapeutic group. ▪ We are establishing a positive attitude towards the treatment program and creating an atmosphere of trust and familiarity. ▪ Clarify the goals and content of the treatment program and urge them to cooperate, participate positively, and spend on the number and dates of sessions. 	<p>1- The researchers began the therapeutic session by welcoming the members of the therapeutic group. The therapist introduced himself to the group and asked them to mention their names and for each person to overview his personality, opinion on the form of the therapeutic sessions, and hobbies.</p> <p>2- The researchers established a positive orientation towards the program through the benefits and fruits that will accrue to them due to their participation in the therapeutic sessions and the experiences and activities they will provide them.</p> <p>3- I agree with members of the therapeutic group on the dates and number of sessions and the importance of commitment and participation in activities and homework.</p>	Lecture and discussion

			4- We are clarifying the nature and objectives of the training program.	
4-3	Improving the relationship between adolescent girls and their mothers	<ul style="list-style-type: none"> Learn communication strategies with girls with autism spectrum disorder. Focus on verbal and non-verbal expression. 	<ol style="list-style-type: none"> I was explaining the basics of autism spectrum disorder. I was explaining the basics of autism spectrum disorder. We are emphasizing that there are individual differences between girls. Start by determining the appropriate method of communication with girls (verbal or non-verbal). Focus on understanding psychological emotions and psychological changes that may indicate the presence of some sexual problems. 	Invite psychologists to provide advice and guide the discussion.
5-4	Introducing mothers to sexual problems in general	<p>Discuss physical and hormonal changes</p> <p>Dealing with challenges associated with mental development</p> <p>Encouraging mothers to have an open and healthy dialogue with their daughters about sexual issues</p>	<ol style="list-style-type: none"> Welcoming and providing comfort and safety. Identify the sexual challenges that girls with autism spectrum disorder may face. Understand how autism spectrum disorder affects sexual relationships. Clarify basic information about sexual health and physical development. Simulate practical cases to enhance practical interaction. 	Dialogue Discussion lecture
7-6	Raising awareness of the importance of sexual drive	<p>Understanding the sexual needs of girls with autism spectrum disorder.</p> <p>Provide strategies to enhance communication about sexual issues.</p>	<ol style="list-style-type: none"> We welcome attendees and explain the purpose of the session. Focus on sensory and emotional factors. Explain how autism spectrum disorder affects sexual experiences. I am providing the reasons for enhancing the sexual drive for mental health and social relationships and explaining the health benefits of the sexual drive. They are providing strategies for mothers to promote effective communication with their daughters. 	Dialogue lecture Hosting psychologists

9	Introducing mothers to the effects related to adolescence and their memory of multiple sexual scenes	<ul style="list-style-type: none"> • It is essential to understand how sex scenes can affect girls with autism spectrum disorder. • Promote effective communication with girls to understand their needs and stimulate open dialogue. • It supports and guides mothers on how to deal with these issues properly. 	<ol style="list-style-type: none"> 1- They were welcoming and creating an atmosphere of comfort and safety. 2- Explain how sexual scenes affect girls with autism spectrum disorder. 3- Focus on social interaction. 4- They are opening the way for mothers to discuss their experiences and challenges. 5- We are training mothers on how to deal with specific situations. 	Open dialogue Practical strategies Discussion
10	The importance of healthy sexual behavior	<ul style="list-style-type: none"> • Explains the importance of understanding normal sexual behavior for girls with an autism spectrum disorder. • We are encouraging awareness of the positive impact on psychological and social health. • They are providing strategies to enhance mothers' understanding and awareness of the needs of their girls with autism spectrum disorder. 	<ol style="list-style-type: none"> 1- They were welcoming and explained the importance of the session. 2- Explain how healthy sexual behavior contributes to improving mental health and social relationships. 3- They are inviting mothers to participate in exchanging experiences about the challenges of their children's sexual development. 4- They are providing practical strategies to improve understanding and communication between mothers and girls with autism spectrum disorder. 5- Training on how to enhance confidence and independence in this context. 	Dialogue Discussion
11	Cleansing treatment	<ul style="list-style-type: none"> • It is understanding the concept of clearance therapy in the gender context of girls with autism spectrum disorder. • Promote awareness of individual needs and potential concerns. • We are providing strategies to support mothers in correctly providing cleansing treatment. 	<ol style="list-style-type: none"> 1- Explain the concept of purification therapy and how it can be integrated into the gender context for girls with autism spectrum disorder. 2- Understand how autism spectrum disorder affects sexual and sensory experiences. 3- Focus on the individual needs of girls. 4- We are providing practical strategies for providing antiseptic treatment. 5- They are training mothers to understand and deal with their daughters' needs. 	Additional resources for guidance Continuous emotional support Individual guidance

12	Alienation therapy	<ul style="list-style-type: none"> • It is understanding the concept of alienation therapy and how it can be integrated into treating the sexual problems of girls with autism spectrum disorder. • We are providing strategies for implementing effective and appropriate alienation therapy for girls with autism spectrum disorder. • We are encouraging parents to participate actively in the treatment process. 	<ol style="list-style-type: none"> 1- We welcome attendees and explain the importance of the session. 2- I was explaining the concept of alienation therapy and how it is applied in treating sexual problems. 3- It highlights its importance in relieving stress and increasing self-control. 4- We are examining common sexual problems facing girls with autism spectrum disorder. 5- We provide practical strategies for implementing alienation therapy and training on applying these strategies in the family context. 	Dialogue Discussion Lectures
13	Final session	<ul style="list-style-type: none"> • Reviewing the goals achieved during the program in previous sessions. • Share the improvements and changes mothers have noticed in their interactions with their girls. 	<ol style="list-style-type: none"> 1- Welcome attendees. 2- They invite mothers to share their stories and successful experiences applying the learned strategies. 3- We encourage the exchange of experiences and learning from each other's experiences. 4- Conduct an evaluation of the program and training sessions in general. 5- Receive mothers' feedback about what can be improved in the future. 6- Thanks to the mothers for their effective participation in the program and an invitation to continue communicating and extending invitations to future programs if available. 	lecture Discussion

The researchers prepared a training program in social skills for this study according to the following steps:

It is procedurally defining the sexual aspect and determining the social skills used effectively with mothers of adolescent girls with autism spectrum disorder, using previous literature.

The researchers surveyed previous literature, such as programs on social skills developed by (Al-Sadi, 2022) and (Salem, 2015), to determine the social skills that mothers of adolescent girls with autism spectrum disorder would be trained in.

The training program included many topics, activities, exercises, and assignments in the following social skills: Defining social skills and their importance in family life, constructively expressing feelings, developing social participation skills, giving mothers social communication skills, the sexual aspect and its relationship to social skills, Introducing families to the concept of the sexual aspect, its treatment, and its adverse effects on families in general and mothers in particular, developing and improving the skills of talking to others without shame, developing mothers' awareness, increasing self-confidence, eliminating the sexual problems that adolescent girls suffer from, and interacting with others.

The logical validity of the training program based on social skills in educating mothers about sexual issues among their adolescent girls with autism spectrum disorder after puberty used in the current study was verified by presenting it to a group of specialized arbitrators who hold doctorates in psychological and educational counseling and test, their number was (10) arbitrators from professors at public and private Jordanian universities, to determine its suitability for the objectives for which it was prepared. The arbitrators' committee deemed the program appropriate with some modifications, and in light of this, the program was implemented after making the required modifications.

Study Procedures

The researchers made field visits to several special education centers in Zarqa Governorate, conducted interviews with the autism specialist present there, and arranged through this with the mothers of adolescent girls with an autism spectrum disorder.

I am applying a measure of sexual aspects among adolescent girls with autism spectrum disorder to mothers.

Ensure that the characteristics of the sample to be subjected to the program are that they suffer from problems related to the sexual aspect, especially after puberty.

The program objectives, sessions, and duration of application were discussed with the mothers.

Using the random numbers method, the study participants were randomly distributed into two groups (experimental and control).

The experimental group included (15) mothers who were involved in a training program on sexual aspects directed at adolescent girls with autism spectrum disorder, consisting of (13) training sessions. As for the control group, it included (15) mothers, and they did not undergo any training program during the study period. Instead, a pre-test, a post-test, and a follow-up test were administered to measure the sexual aspects of adolescent girls with autism spectrum disorder after puberty for this group.

They were implementing counseling program sessions. The program was applied over two months, and a pre-test - before implementing the program - and a post-test were applied to this group. Then, there was a follow-up to measure the sexual aspects of this group.

After completing the program application period, the post-application of the scale was conducted as a post-evaluation and conclusion.

Study Results

The First Hypothesis: There are no statistically significant differences at the significance level ($\alpha = 0.05$) between the average scores of the members of the experimental and control groups to whom the training program was applied to raise awareness among mothers about sexual issues among their adolescent girls with autism spectrum disorder after puberty?

To verify the validity of the hypothesis, the arithmetic averages, standard deviations, and adjusted arithmetic mean were calculated for the scores of mothers of adolescent girls with autism spectrum disorder on the sexual aspects scale in the pre-and post-tests according to the group (experimental, control), as shown in Table No. (5):

Table 5. The Arithmetic Averages, Standard Deviations, And Adjusted Arithmetic Averages of The Scores of Mothers of Adolescent Girls with Autism Spectrum Disorder on The Sexual Aspects Scale as A Whole for The Pre-and Post-Tests According to The Group (Experimental, Control)

Group	N	Pre-test		Post-test		Adjusted arithmetic average	Standard error
		Arithmetic average	Standard deviation	Arithmetic average	Standard deviation		
Experimental	15	3.31	.269	3.92	.215	3.909	.050
Control	15	3.27	.255	3.62	.206	3.624	.050

It is clear from Table (5) that there are apparent differences between the arithmetic averages and the adjusted arithmetic average of the scores of mothers of adolescent girls with autism spectrum disorder on the sexual aspects scale in the pre-and post-tests according to the group (experimental, control). To determine whether these apparent differences were statistically significant, a one-way ANCOVA was used for the post-test of the sexual aspects scale as a whole according to the group (experimental, control) after neutralizing the effect of their pre-test.

Table 6. Results Of the Associated One-Way ANCOVA For the Post-Test of The Scores of Mothers of Adolescent Girls with Autism Spectrum Disorder on The Sexual Aspects Scale as A Whole According to The Group (Experimental, Control) After Neutralizing the Effect of The Pre-Test for Them

Source of variance	Sum of squares	Degrees of freedom	The average sum of squares	F value	Significance level	Eta square η^2
Pre-test	.242	1	.242	6.517	.017	.194
Group	.603	1	.603	16.222	.000	.375
Error	1.004	27	.037			
Total	1.912	29				

It is clear from Table (6) that there are statistically significant differences at the significance level ($\alpha = 0.05$) in the scores of mothers of adolescent girls with autism spectrum disorder on the sexual aspects scale according to the group (experimental, control). The value of (F) was (16.222) with a statistical significance of (0.000), which is a statistically significant value, and the differences were in favor of the experimental group who were exposed to the training program compared to members of the control group.

It is also clear from Table (6) that the effect of the treatment program was significant. The Eta square value (η^2) explained (37.5%) of the explained (predicted) variance in the dependent variable, which is the measure of sexual aspects.

This result indicates the rejection of the null hypothesis and the acceptance of the alternative, which reads: "There are statistically significant differences at the level of significance ($\alpha = 0.05$) between the average scores of the members of the experimental and control groups to whom the training program was applied to raise mothers' awareness about sexual issues among their adolescent girls with autism spectrum disorder after puberty?"

The Second Hypothesis: There are no statistically significant differences at the significance level ($\alpha = 0.05$) between the average scores of the experimental group members on the post and follow-up tests of the sexual aspects scale for adolescent girls with autism spectrum disorder directed to mothers.

To verify the validity of the hypothesis, the arithmetic means and standard deviations of the scores of mothers of adolescent girls with autism spectrum disorder on the sexual aspects scale were extracted in the post and follow-up applications to show the statistical differences between the arithmetic means, the “t” test was used for correlated data, and the Table below shows this.

Table 7. Arithmetic Means, Standard Deviations, And The “T” Test for The Scores of Mothers of Adolescent Girls with Autism Spectrum Disorder on The Sexual Aspects Scale in The Post and Follow-Up Applications

Application	Number	Arithmetic average	Standard deviation	"T" value	Degrees of freedom	Statistical significance
Post	3.92	15	.215	1.382	14	.189
Follow-up	3.89	15	.202			

It is clear from Table (7) that there are no statistically significant differences ($\alpha = 0.05$) for the scores of mothers of adolescent girls with autism spectrum disorder on the sexual aspects scale in the post and follow-up applications. This result indicates acceptance of the null hypothesis.

Results Discussion

Two hypotheses concerning the efficacy of a program designed to educate moms about the sexual concerns that their teenage daughters with Autism Spectrum Disorder (ASD) encounter after reaching puberty are examined in the study's findings analysis.

First Hypothesis Discussion

The first hypothesis examined the effects of a sexual awareness training program on two groups, one that received the program and another that did not. The results demonstrated that the experimental group outperformed the control group on the post-test; this was supported by a very significant difference ($F = 16.222$, $p = .000$), suggesting that the experimental group benefited more from the intervention. This provides more evidence that the training program was successful in raising moms' sexual awareness about their autistic teenage daughters. The results are in line with what Shakuri and Alzahrani (2023) found, which is that sexual Education for adolescents with ASD is best addressed with the informed participation of parents. The results of sexual awareness programs may differ greatly depending on the demographic being targeted and the unique obstacles they encounter; this goes against the findings of Elsaid (2024), whose intervention failed to significantly increase sexual awareness among mothers of children with mental retardation.

Second Hypothesis Discussion

The second hypothesis compared post- and follow-up test scores to determine if the training had lasting benefits on the experimental group. The gains in sexual awareness among mothers were sustained throughout time since there were no statistically significant differences (t -value = 1.382, $p = .189$) between these two time points. This proves that the training program was successful initially and in the long run. Maggio et al. (2022) showed that continuing sexual Education is critical for retaining knowledge and healthy sexual practices among individuals with ASD, which is consistent with our findings. Nevertheless, it contradicts the results of Corbett et al. (2020), who pointed out that different people reach puberty at different ages and that this could affect the efficacy and long-term retention of training effects differently.

Comparative Analysis with Related Studies

These findings highlight the importance of tailored educational interventions for parents of autistic children, which are in line with those of Jocelyn et al. (2019), who discovered that parents could be better prepared to handle their children's puberty if they participated in structured educational programs before it began. Results from this study provide credence to the idea that educating parents is an essential step in assisting their children with autism spectrum disorder (ASD) during puberty (Hamdan, 2022).

In sum, the findings of this study add to the expanding corpus of evidence supporting the idea that parents juggling the many demands of raising an adolescent with autism spectrum disorder (ASD) need access to individualized educational programs. It emphasizes the need for ongoing and targeted interventions to help this vulnerable population by showing how these programs work both now and in the future. The results of this study, when combined with those of previous research, shed light on the crucial role of parental Education in Sexual Education for adolescents with ASD and provide a more comprehensive picture of the dynamics at play in this area.

Conclusion

The research proved that moms' knowledge of sexual concerns pertaining to their autistic daughters during puberty can be greatly enhanced by a social skills-based training program. When it comes to raising teenagers with autism spectrum disorder (ASD), one of the most difficult aspects is helping moms understand and regulate their daughters' sexual habits. This program was successful in doing just that. Compared to the control group, who did not receive any intervention, the experimental group showed a significant improvement in sexual behavior awareness and control after receiving the training.

In addition, the results show that the program had both short-term and long-term positive effects, since the improvements were still there when the participants took the follow-up tests. This ability to retain information over time is a testament to how effective the training program was.

The findings highlight the significance of mothers' roles in helping their daughters with ASD overcome obstacles to sexual development. The study emphasizes the possibility of reducing undesirable behaviors and enhancing the social and emotional health of adolescent girls by empowering moms through organized training programs. To make sure parents are ready to handle the complicated developmental challenges related to ASD, especially during the crucial teen years, our results highlight the necessity of incorporating comparable educational programs within larger autistic support initiatives.

This study provides important information about how autism, puberty, and sexual development interact with one another, and it can be used as a template for treatments that will hopefully improve family relationships and the lives of people with autism spectrum disorder in the future.

References

- Abdel-Ati, Mona (2019). Problems of physical and sexual development among people with intellectual disabilities. Journal of Special Needs Sciences, Beni Suef University.
- Akrami, L., Malekpour, M., Faramarzi, S., & Abedi, A. (2021). Effect of a training program on sexual knowledge and social skills of adolescents with high-functioning autism in puberty. *Advances in Autism*, 9(4), 309–321. <https://doi.org/10.1108/aia-07-2020-0045>
- Al-Rahili, Abdul Rahman bin Salman Bashaibish. (2019). The effectiveness of a training program in developing skills for secondary school teachers using virtual classrooms. *Journal of Reading and Cognition*, 217, 153-180.
- Al-Sadi, Enas Sibai Suleiman Salem (2022). Psychometric properties of the sexual orientation scale for people with autism spectrum disorder in early childhood. *Journal of psychological counseling*, 70(3), 87-123.
- Al-Sharaa, Faisal Khalif Nasser. (2020). The effectiveness of a cognitive-behavioral counseling program for mothers in reducing symptoms of stubborn behavior in their autistic children in Zarqa Governorate. *Al-Mishkat Journal for Humanities and Social Sciences*, 7 (1), 79-106.
- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub. Arlington, VA: American Psychiatric Association Publishing.

- Byers, E.S., & Nichols, S. (2014). Sexual satisfaction of high-functioning adults with autism spectrum disorder. *Sexuality and Disability, 32*(1), 365 – 382.
- Chan, L.G., & Saluja, B. (2011). Sexual offending and improvement in autistic characteristics after acquired brain injury: A case report. *Australian and New Zealand Journal of Psychiatry, 45*, 902 – 903.
- Corbett, B. A., Vandekar, S., Muscatello, R. A., & Tanguituri, Y. (2020). Pubertal timing during early adolescence: Advanced pubertal onset in females with autism spectrum disorder. *Autism Research, 13*(12), 2202–2215.
- Coskun, M., Karakoc, S., Kircelli, F., & Mukaddes, N.M. (2009). Effectiveness of mirtazapine in the treatment of inappropriate sexual behaviors in individuals with autistic disorder. *Journal of Child and Adolescent Psychopharmacology, 19*, 203 – 206.
- Edelson, M. G. (2010). Sexual abuse of children with autism: Factors that increase risk and interfere with recognition of abuse. *Disability Studies Quarterly, 30*(1). Retrieved from <http://www.ds-qds.org/>.
- Elsaid, A. (2024). Developing Sexual Awareness for Mothers of Mentally Retarded Children. *Journal of Sustainable Development in Social and Environmental Sciences, 3*(1), 7–12. <https://doi.org/10.21608/jsdses.2024.252009.1023>
- Fernandes, L.C., Gillberg, C.I., Cederlund, M., Hagberg, B., Gillberg, C., & Billstedt, E. (2016). Aspects of Sexuality in adolescents and adults diagnosed with autism spectrum disorders in childhood. *Journal of Autism and Developmental Disorders, 46*, 3155 – 3165.
- Goleman, D. (2006). *Social Intelligence: The New Science of Human Relationships*. Bantam.
- Hamdan, M. (2022). Changes and Challenges of puberty in Adolescents with Autism Spectrum Disorder; *49* (4): 447–459.
- Hellemans, H., Roeyers, H., Leplae, W., Dewaele, T., & Deboutte, D. (2010). Sexual behavior in male adolescents and young adults with autism spectrum disorder and borderline/mild mental retardation. *Sexuality and Disability, 28*(2), 93–104.
- Holmes, L., Strassberg, D., Himle, M. (2019). Family Sexuality Communication for Adolescent Girls on the Autism Spectrum, *49*; 2403–2416.
- Ismiarti et al. (2019). Effective Methods of Sexual Education for Adolescents with Autism Spectrum Disorder.
- Jackie, A. (2005). Challenges Faced by Adolescent Girls with Autism Spectrum Disorder in Learning Self-Care during Menstruation.
- Jalal, Salam. (2020). Behavioral problems of children with autism spectrum disorder in the Kingdom of Saudi Arabia in light of some demographic variables from the point of view of the trainee students. *Islamic University Journal for Educational and Psychological Studies, 28* (1), 108–140.
- Jocelyn, L., Sandra, B. & Rod Salgado (2019). The Cultural adaption of a Transition Program for Latino families of Youth with Spectrum Disorder. Early view online version of Record before inclusion. 1 Published. P 123- 439.
- Kalyva, E. (2010). Teacher's perspectives of the Sexuality of children with autism spectrum disorders. *Research in Autism Spectrum Disorders, Vol. 4, No 3*, pp 433–437.
- Kellaher, J. (2015). "Understanding Unacceptable Sexual Behaviors Among Individuals with Autism Spectrum Disorder.
- Koller, R.A. (2000). Sexuality and adolescents with autism. *Sexuality and Disability, 18*, 125 – 135.
- Laura Graham Holmes, Donald S. Strassberg, M. B. Himle. (2019), Family Sexuality Communication for Adolescent Girls on the Autism Spectrum, *Journal of Autism and Developmental Disorders* (2019) 49:2403–2416
- Maggio, M. G., Calatozzo, P., Cerasa, A., Pioggia, G., Quartarone, A., & Calabrò, R. S. (2022). Sex and Sexuality in autism spectrum disorders: A scoping review on a neglected but fundamental issue. *Brain Sciences, 12*(11), 1427. <https://doi.org/10.3390/brainsci12111427>
- Mehzabin, P., & Stokes, M.A. (2011). Self-assessed Sexuality in young adults with high-functioning autism. *Research in Autism Spectrum Disorders, 5*, 614 – 621.
- Murrie, D.C., Warren, J.I., Kristiansson, M., & Dietz, P.E. (2002). Asperger's syndrome in forensic settings. *International Journal of Forensic Mental Health, 1*, 59 – 70.
- Ragaglia, B., Caputi, M., & Bulgarelli, D. (2023). Psychosexual education interventions for autistic youth and adults—A systematic review. *Education Sciences, 13*(3), 224. <https://doi.org/10.3390/educsci13030224>
- Rimington, M.. (2019). Puberty: Challenges for adolescents on the autism spectrum, *Learning Disability Practice (LEARN DISABIL PRACT)*, 7/30/2019; 22(4): 18–24. (7p).
- Salem, Osama F. M. (2015). The effectiveness of a training program in reducing anxiety and its effect in reducing stereotypical repetitive behavior in children with autism disorder. *Journal of Special Education, 10*, 63–116.
- Schöttle, D., Briken, P., Tüscher, O., & Turner, D. (2017). Sexuality in autism: Hypersexual and paraphilic behavior in women and men with high-functioning autism spectrum disorder. *Dialogues in Clinical Neuroscience, 19*(4), 381–393. <https://doi.org/10.31887/DCNS.2017.19.4/dschoettle>
- Selim, D. (2014). Psychological pressures in families of autistic children and their relationship to parental attitudes towards the autistic child. Suez Canal University.
- Shakuri, M. A., & Alzahrani, H. M. (2023). Challenges of sex education for adolescents with autism spectrum disorder from the Saudi family's perspective. *Frontiers in Education, 8*. <https://doi.org/10.3389/feduc.2023.1150531>
- Visser, K., Greaves-Lord, K., Tick, N. T., et al. (2015). Study protocol: A randomized controlled trial investigating the effects of a psychosexual training program for adolescents with autism spectrum disorder. *BMC Psychiatry, 15*(1), 207. <https://doi.org/10.1186/s12888-015-0586-7>
- Visser, K., Greaves-Lord, K., Tick, N.T., Verhulst, F.C., Maras, A., & van der Vegt, E.J.M. (2015). Study protocol: A randomized controlled trial investigating the effects of a psychosexual training program for adolescents with autism spectrum disorder. *BMC Psychiatry, 15*, 1 – 10.