

## 1. Introduction

The diagnosis of autism spectrum disorder, the prevalence of which is growing in Ukraine, is actual not only in childhood. Core symptoms of the disorder are displayed in puberty, affecting all the spheres of life of adolescents with ASD, complicating the process of psychosexual development, socialization and interpersonal interaction [1]. Complex research of sexuality of individuals with autism spectrum disorder is necessary, considering the need of psychological prevention and intervention programs development, which are aimed to improve the adequacy of socio-sexual functioning and quality of lives of adolescents with ASD.

The early research stated that individuals with autism spectrum disorder were sexually immature [2], had no sexual interests and needs [3]. However, further studies indicated that the sexual development of individuals with ASD is not significantly different from that of the general population; moreover, individuals with ASD demonstrate the same social interests and sexual needs as their peers [4–6]. Though their experience and knowledge in the sphere of sexuality are quite limited [7, 8]. On the other hand, investigations revealed that inappropriate sexual behavior is more common among individuals with ASD than in the general population [9–11]. Such behavioral displays, as: touching oneself in the presence of others, undressing in front of other people, masturbating in the presence of others, touching private parts of another's body (including individuals of the opposite sex), staring, and discussing inappropriate topics in the presence of other people are more common among individuals with ASD, compared to their peers without developmental disorders [12].

The core symptoms of autism spectrum disorder significantly influence the quality and quantity of social contacts of individuals with ASD. The difficulties in communication and lack of social skills affect their ability to establish interpersonal, friendly and romantic relationships, which in turn increases the appearance of inappropriate behavior of individuals with ASD [3]. The deficit in the sphere of socialization significantly determines the features of sexual functioning of individuals with ASD [11].

It was observed, that adolescents with ASD may even have an appropriate theoretical understanding of sexual behavior and sexual hygiene, despite that, there are some disturbances in practice [13]. From the other side, there is a link between the level of intellectual development and the level of knowledge in the sexual sphere [14].

Therefore, the essential features of ASD affect all spheres of lives of individuals with ASD, including the area of sexuality. In

## FACTORS OF SEXUAL BEHAVIOR IN ADOLESCENTS WITH AUTISM SPECTRUM DISORDER

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**Abstract:** This study is devoted to the problem of sexual functioning among adolescents with autism spectrum disorder. The main goal of the current research is to explore the factors, related to behavioral displays of sexuality of adolescents with ASD. The theoretical analysis of causes that may provoke inappropriate sexual behavior of individuals with ASD is given. The hypothesis that such factors as intelligence level, social functioning level, sexual knowledge and parenting style can be related with sexual behavior of adolescents with ASD is tested in the current study.

The adolescents with ASD and their peers without the developmental disorder were found to be significantly different at the displays of inappropriate sexual behavior, the factor of diagnosis showed a great impact. The current study also reveals that higher levels of social functioning and sexual education of individuals with ASD are related to more adequate sexual behavior. As for the intelligence level, it did not show a significant effect on the displays of sexual behavior among individuals with ASD. The relation between parenting styles, which are common in families with individuals with ASD, and sexual behavior displays were also discussed in the article.

In conclusion, the author outlines the importance of adequate sexual education and healthy parenting styles for an appropriate sexual functioning of adolescents with ASD.

**Keywords:** autism spectrum disorder; sexual behavior; social functioning; parenting styles; sexual education; intelligence level.

this study, we focus on analyzing the factors, which are related to sexual behavior displays of adolescents with ASD.

The purpose of this study is to investigate how the factors of intelligence, the level of social functioning, the adequacy of sexual knowledge, and different parenting styles influence the behavioral displays of sexuality of adolescents with ASD.

## 2. Methods

The research was conducted in 2015–2017. The total sample contains 182 subjects. Among them, 43 individuals with autism spectrum disorder (F 84.0 – F 84.9 according to ICD-10), including 6 females and 37 males, who were included into the main group. 66 people without any developmental disorder (21 females and 45 males) were included into the group of comparison. Also 73 parents or caregivers of children who belong to both groups were examined. The average age of individuals with autism spectrum disorder is 13.8 years; the average age of individuals without developmental disorder is 13.7 years.

Upon receiving the ethical approval for the research from Faculty of Psychology Scientific Council of Taras Shevchenko National University of Kyiv, individuals were approached to participate. Those interested were asked to complete questionnaires and were provided with information on the research. Each completed questionnaire contained the informed consent for taking part in the research.

The instrument, used in this study, was an adapted version of the Sexual Behavior Scale (SBS), developed by M. Stokes and A. Kaur [11, 15]. The level of intellectual development was measured using Raven's Standard Progressive Matrices [16]. The Social Communication Questionnaire (SCQ) was applied to the group of individuals with ASD to evaluate the level of social functioning [17]. In order to explore the parenting styles, the Family Relationship Questionnaire (FRQ), developed by E. G. Eidemiller, was used [18].

One-way ANOVA and multiple regression analysis were applied for the statistical analysis of the data.

## 3. Results

The results of one-way ANOVA (Table 1), including the analysis of age and intelligence level as covariates, indicated the significant difference on the sexual behavior variable ( $F=2.954$ ,  $p<0.05$ ) between the two groups (adolescents with ASD and their neurotypical peers), which was explained by the contribution of such factors: the diagnosis of ASD ( $F=5.954$ ,  $p<0.05$ ), gender ( $F=6.028$ ,  $p<0.05$ ), and common influence of diagnosis and gender ( $F=4.908$ ,  $p<0.05$ ).

According to the results, inappropriate sexual behavior displays depend on the presence or absence of a diagnosis of ASD, as well as on the interplay of gender and diagnosis.

**Table 1**

Results of one-way ANOVA for the Sexual Behavior Scale distribution among the group of adolescents with ASD and the group or their peers without developmental disorders

Factors	Sum of Squares	F	Significance level
Factor model	9.838	2.954	0.017
Age	0.360	0.108	0.744
IQ	2.172	0.652	0.424
Diagnosis	19.831	5.954	0.019
Gender	20.077	6.028	0.018
Comorbid Disorders	9.912	2.976	0.092
Diagnosis Gender	16.346	4.908	0.032

In the previous research, using the factor analysis of 20 scales of the Family Relationship Questionnaire, the parenting style factors among families with children with ASD were explored, they were:

- Factor 1 “Hyperprotection with female character traits encouragement”;
- Factor 2 “Restrictions”;
- Factor 3 “Coldness”;
- Factor 4 “Hypercontrol and anxiety”;
- Factor 5 “Hyporprotection with male character traits encouragement” [19].

Extracted parenting style factors were included to the further analysis of factors, related to the sexual behavior of adolescents with ASD.

Multiple regression analysis (MRA) was employed to determine variables, which significantly contribute to the distribution of the Sexual Behavior Scale. These variables included: the level of intellectual development (the Raven's Standard Progressive Matrices data), the social functioning level (the Social Communication Questionnaire data), the level of adequacy of sexual knowledge (the sexual education scale from the Sexual Behavior Scale questionnaire), and the parenting styles factors (revealed from the Family Relationship Questionnaire).

The regression model, which was chosen for the analysis, included variables that explain more than 60 % of the variance of the Sexual Behavior Scale at a significance level of  $p < 0.005$  ( $R^2 = 0.610$ ,  $F = 4.689$ ,  $p < 0.005$ ). **Table 2** shows the contribution effect of each variable.

**Table 2**

Multiple regression analysis of the contribution effect of each variable to the Sexual Behavior Scale distribution

Regression Model	Standardized Coefficient	T	Significance level
(Constant)		1.480	0.053
Social functioning	0.324	1.915	0.072
Sexual knowledge	0.402	2.152	0.045
Factor 1 “Hyperprotection with female character traits encouragement”;	-0.468	-2.923	0.009
Factor 3 “Coldness”;	0.282	1.748	0.098
Factor 5 “Hyporprotection with male character traits encouragement”	-0.209	-1.375	0.186

The largest contribution to the Sexual Behavior Scale distribution is made by the variables Factor 1 “Hyperprotection with female character traits encouragement” ( $p < 0.01$ ) and the scale “Sex education” ( $p < 0.05$ ). While the variables of

Factor 3 “Coldness” and the social functioning level have less significant influence, at the trend level ( $p < 0.1$ ). The Factor 5 “Hyporprotection with male character traits encouragement” does not reach the significance level of influence on the Sexual Behavior Scale distribution. The level of intellectual development was the first to be excluded from the regression analysis, followed by the age factor, followed by other parenting style factors.

The most significant contribution to the Sexual Behavior Scale distribution is made by Factor 1 “Hyperprotection with female character traits encouragement” (inverse relation). The factor describes the tendency to hyperprotection, unstable parenting style, which include the ignorance of the growing up process, as well as encouragement of female character traits in an adolescent. The more expressed such tendencies in family relationships are, the more problematic sexual behavior of adolescents with ASD becomes. The variable “Sex education” reflects the level of knowledge in the sphere of human sexuality. The MRA shows that the more appropriate and consistent sexual knowledge of adolescents with ASD is, the more appropriate their sexual behavior becomes.

#### 4. Discussion

One-way ANOVA revealed the significant influence of the ASD diagnosis on the Sexual Behavior Scale distribution, therefore individuals with ASD significantly differ from their peers without developmental disorders in the level of problematic sexual behavior. These findings confirm data from foreign researchers who also found that inappropriate sexual behavior is more common among adolescents and adults with ASD, comparable to their neurotypical peers [2, 5, 6, 9].

When comparing the results of the Sexual Behavior Scale of the main group of adolescents with ASD and their peers without developmental disabilities significant differences were investigated. It was revealed, that adolescents with ASD have fewer social contacts outside the family, feel difficulty with the distinction of “public” and “private” social context, have a lower level of sexual knowledge, significantly more often demonstrate sexual behavior in public, that makes such behavior inappropriate and problematic, moreover, parents and caregivers of individuals with ASD report much higher level of concerns regarding an opportunity of their children to find a life partner. The revealed data corresponds with previous studies results [11].

It is revealed, that sexual behavior of adolescents with ASD is caused by the effect of such factors: the diagnosis, the level of social functioning, the degree of sexual knowledge completeness, and parenting style features.

The multiple regression analysis showed that sexual behavior displays in adolescents with ASD are more strongly related to the factors of family relationships and parenting strategies, than to intelligence level and age. The most significant influence on sexual behavior of adolescents with ASD is caused by two factors: the adequacy and completeness of knowledge about sexuality; and parenting style factor “Hyperprotection with female character traits encouragement”. The results of multiple regression analysis confirmed that adequate sexual education promotes more typical sexual behavior in adolescents with ASD [7, 9]. While the tendency to over-care and ignore the maturation process during adolescence causes inappropriate displays of sexual behavior among adolescents with ASD.

The practical importance of the revealed results consists in the development of recommendations on the sexual education program. As it was investigated that complete and adequate

sexual knowledge promotes the proper sexual functioning for individuals with ASD.

Another important outcome of the current study concerns the intervention strategies for families with children with ASD. Providing psychoeducational assistance for families with ASD and supporting the healthy parenting styles improves not only sexual functioning for adolescents with ASD, but also the quality of their lives in general.

The current study has some limitations. First, there is a lack of information on the sexual behavior displays among females with ASD. The sample included 6 females with ASD, which is not enough to extrapolate the results of the study on both male and female adolescents with ASD.

The further studies might focus on investigation of sexual behavior in females with ASD to have more complete information on the issue of sexuality and autism spectrum disorder.

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