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Online sexual solicitation in adolescents; socio-demographic risk factors and association with psychiatric disorders, especially posttraumatic stress disorder

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ABSTRACT

Technological developments and increased use of the internet created some risks for adolescents, such as online sexual solicitation (OSS). The aim of this study is to examine the sociodemographic risk factors of OSS and the association between OSS and psychiatric disorders in a psychiatric clinical sample. The study was conducted with 189 adolescents. The psychiatric evaluation was performed with DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, 5th ed.) based psychiatric interviews and the Strengths and Difficulties Questionnaire was used. OSS was defined by questions that are used in previous studies and that predict exposure to OSS. The participants were divided into two groups and compared. In addition, the Child Post-Traumatic Stress Disorder Reaction Index was answered by the participants who exposed to OSS. The prevalence of OSS was determined as 21.1%. Depressive disorder, borderline personality disorder, and secondary psychiatric diagnosis are significantly higher in adolescents who exposed to OSS. The rate of post-traumatic stress disorder (PTSD) development after exposure to OSS was determined as 57.8%. These results indicate that OSS is a severe trauma that occurs at a high rate, and it is associated with psychiatric problems, especially PTSD.

1. Introduction

One result of the development of technologies is that the internet has become a part of life. Despite all technological developments, limited efforts have been made to control the internet and its related components or to protect users. While it has many advantages, internet use also has negative outcomes, such as online sexual solicitations (OSS).

OSS were defined as online requests of youth to engage in sexual activities or sexual talk or give personal sexual information that were unwanted or, whether wanted or not, were made by an adult (Finkelhor et al., 2000). Actions that are performed between children (who are accepted as sexually immature and unable to comprehend sexual relationships) and adults that have the aim of fulfilling adult sexual desires and involve strength, threats, or coercion are defined as sexual abuse (SA) by the World Health Organization (World Health Organization, 2003). Depending on the type of action, SA may take different forms, and Faller has identified seven subgroups: non-contact sexual abuse, fondling, digital or object penetration, oral sex, penile penetration, sexual exploitation, and sexual abuse involving other types of abuse (Faller, 2003). Based on the World Health Organization definition and Faller's classification framework, OSS may be described as a form of non-contact SA.

The prevalence of the exposure of adolescents to OSS is between 9% and 19% (Baumgartner et al., 2010; Helweg-Larsen et al., 2012; Jones et al., 2012; Livingstone et al., 2014). Many studies have determined individual and familial risk factors in relation to SA, but the number of studies focusing on risk factors for OSS is relatively low. Studies on OSS, online grooming, online victimization, sexting, and other related subjects revealed individual, behavioural, familial, and social risk factors. Female gender, adolescent age, psychological problems, risk-taking behaviors, frequent internet access, parental conflicts, poor family relations, social isolation, and school-related problems are some of these risk factors (Mitchell et al., 2007; Helweg-Larsen et al., 2012; Van Ouytsel et al., 2015; Normand et al., 2016).

The various studies showed that young people who have experienced OSS are observed to have some psychosocial difficulties. The researchers reported that adolescents who have experienced OSS, have

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high levels of parent-child conflict with weak relationships (Mitchell et al., 2007; Ybarra et al., 2007a, 2007b), depressive symptoms (Ybarra, 2004), aggressive behaviour (Ybarra and Mitchell, 2007) and substance abuse (Ybarra et al., 2007a). In addition, studies on "online grooming", "voluntary sexual exposure online" and "online sexual behaviours" suggest that some similar psychosocial difficulties may be associated with these conditions. Studies on online grooming showed that low self-esteem, social isolation/loneliness, poor peer relationship, conflict with parents, difficulties in school and mental health problems are psychosocial risk factors for online grooming (Whittle et al., 2013). Johnson et al. reported that "online sexual behaviours" and "voluntarily sexually exposed online" is associated with poor parental relationship and worse psychological health, including a lower sense of coherence and self-esteem in adolescents (Jonsson et al., 2014, 2015).

As seen in the shared studies, most of the studies reported general psychosocial difficulties and psychiatric symptoms. There are limited number of studies evaluating the relationship between OSS and psychiatric disorders (Ybarra, 2004; Ybarra et al., 2007a). However, many studies have shown the relationship between SA (offline) and various psychiatric disorders. (Chen et al., 2010).

Prior research has confirmed a causal link between SA and post-traumatic stress disorder (PTSD) within adolescent populations. The clinical characteristics of children vary depending on their age, with the most common psychopathology observed in children and adolescents subsequent to SA being PTSD (Famularo et al., 1992; Kaufman, 1991). Accepted as a psychiatric problem with a chronic progression that causes disability, PTSD has been reported at rates between 44% and 71% among children and adolescents exposed to SA (Kaplan, 2002; Glaser et al., 2002). However, only one study has been found in the literature examining the relationship between OSS and PTSD. The study was conducted by McHugh et al., and it reported that online risk experiences (explicit content exposure, cyberbullying, and sexual solicitations) evoked symptoms of PTSD in adolescents. In the study, the teens reported 222 online risk events (11% of the events were sexual solicitations). The authors reported that 36.4% of online risk incidents resulted in clinically diagnosable PTSD (McHugh et al., 2018). Nevertheless, these results not specific to OSS, and the study was a web-based diary study.

With the rise of adolescent internet use, more research is needed to understand the potential negative effects of OSS, which is a form of non-contact SA. In this paper, we examine the sociodemographic risk factors for OSS and the association between OSS and psychiatric disorders. Through this research, we address the following high-level research questions: 1. What is the prevalence of OSS in the clinical sample of adolescents? 2. Which sociodemographic factors are associated with OSS? 3. Is there an association between OSS and psychiatric problems, especially PTSD?

To answer these questions, research was conducted with 189 volunteer adolescents aged 12–16 years. A psychiatric evaluation of the participants, whose sociodemographic characteristics were recorded, was performed with Diagnostic and Statistical Manual of Mental Disorders, 5th ed (DSM-5; American Psychiatric Association, 2013). based psychiatric interviews and the Strengths and Difficulties Questionnaire (SDQ). The participants completed the OSS identification form, which consisted of questions used in the various studies in the literature and predicted exposure to OSS. The participants were divided into two groups: those who had been exposed to OSS and those who had not been exposed. The groups were compared in terms of sociodemographic data and psychiatric problems. In addition, the participants who were exposed to OSS answered the Child Post-Traumatic Stress Disorder Reaction Index (CPTS-RI).

In the clinical sample, we found that the prevalence of OSS was 21.1% and that OSS was associated with depressive disorder, borderline personality disorder, and secondary psychiatric diagnosis. Most importantly, the rate of PTSD development after exposure to OSS was determined as 57.8%.

The key contributions of the current study are as follows. It was conducted with a clinical sample, and it was found that the prevalence of OSS was higher than in socially-based studies. Often, OSS and SA co-occur within adolescent populations (Mitchell et al., 2011), and it is unclear whether OSS by itself can have a negative effect. Therefore, the victims of SA (offline) were not included in this study, and the negative effects of OSS were isolated. In addition, the relationship between OSS and PTSD was examined specifically.

2. Methodology

This study was conducted at the Child and Adolescent Psychiatry Clinic of the Inonu University Faculty of Medicine between June 2016 and December 2016. Approval for this cross-sectional study was obtained from the Malatya Clinical Trials Ethics Committee.

2.1. Participants

A power analysis conducted by the Biostatistics Department of the Inonu University Faculty of Medicine found that by assuming the prevalence of exposure to OSS in the general population to be 10% and the estimated prevalence of OSS in the child and adolescent psychiatric patient population to be 20%, with $\alpha = 0.05$ and $1\text{-}\beta$ (power) $= 0.95$, at least 155 children would be required to participate in this study. In light of this recommendation, the research was conducted with 189 volunteer adolescents.

Adolescents aged 12–16 years who were admitted to child and adolescent psychiatry outpatient clinics with any psychiatric symptoms and agreed to participate were included in the study. The aim and methods of the study were explained in detail to the adolescents and their families, who both signed a consent form before participating in the study. Individuals with a psychiatric problem involving disrupted judgment, such as an intellectual disability (IQ $<$ 70 on the Wechsler Intelligence Scale for Children-Revised), psychotic disorder, or bipolar disorder were not included in the study. Those who had experienced physical, sexual, or emotional abuse other than OSS, or who had a history of other trauma, were also excluded from the study.

2.2. Evaluation and measurements

Individuals applying to the Child and Adolescent Psychiatry Clinic of Inonu University Faculty of Medicine for any reason are assessed by child and adolescent psychiatrists, and psychiatric interviews are completed in accordance with the DSM-5. The interviews for the psychiatric diagnoses of the participants were completed by child and adolescent psychiatrists in the clinic who were not specifically involved in this study. After this initial psychiatric assessment, all potential participants were given a socio-demographic data form, the self-report version of the SDQ, and an OSS identification form. The participants completed these forms under the observation of the study researchers. Participants who answered "yes" to at least one of the three questions on the OSS identification form were considered to have been exposed to OSS. Participants who answered "no" to the all three questions were considered not to have been exposed to OSS. The CPTS-RI was given to participants who had been exposed to OSS.

Socio-Demographic Data Form: Prepared by the researchers, the form asked questions regarding gender, age, place of residence, parental relationship, family structure, economic level, presence of a disease requiring continuous treatment, and family psychiatric disease history.

OSS Identification Form: This form asked questions regarding exposure to OSS and was comprised of the three following questions. 1) In the past year, did anyone on the internet ever try to get you to talk about sex when you did not want to? 2) In the past year, did anyone on the internet ask you for sexual information about yourself when you did not want to answer such questions? (I mean very personal questions,

like what your body looks like or sexual things you have done.) 3) In the past year, did anyone on the internet ever ask you to do something sexual that you did not want to do? These questions were taken from the literature, especially from the Youth Internet Safety Surveys (YISS) studies researching OSS (Mitchell et al., 2013). The questions were translated from the original English into Turkish by the researchers, taking care not to corrupt the meaning of the questions.

Strengths and Difficulties Questionnaire (SDQ): This form was developed by the psychiatrist Robert Goodman in 1997 (Goodman, 1997; Goodman et al., 1998). The scale includes 25 questions inquiring about both positive and negative behaviours. These questions are grouped under five headings according to diagnostic criteria and factor analysis results. The sub-headings include SDQ 1: emotional symptoms, SDQ 2: conduct problems, SDQ 3: attention deficit and hyperactivity, SDQ 4: peer problems, and SDQ 5: social behavioural problems. Each sub-heading can be assessed separately, or the total of the five sub-headings can be used to calculate a total difficulties score. The present study used the self-report version developed by Goodman for ages 11–16, and it was completed by all of the adolescents. A Turkish adaptation and a validity-reliability study of the Turkish SDQ were completed by Güvenir et al., in 2008. The scores of the questionnaires were interpreted by the using "www.sdqscore.com" website.

Child Post-Traumatic Stress Disorder Reaction Index (CPTS-RI): Developed by Pynoos et al., in 1987, this index is used to assess the specific stress reactions occurring in individuals after experiencing a trauma. The scale is comprised of 20 items and points are given on a five-point likert-type scale ranging from “never” to “always”. The resulting scores are classified as follows: 12–24 points indicate mild PTSD; 25–39 points indicate moderate PTSD; 40–59 points indicate severe PTSD; and 60 points or more indicate very severe PTSD. A score of 40 points or more is accepted as indicative of clinical PTSD (Pynoos et al., 1993). The validity and reliability of the Turkish version of the CPTS-RI was confirmed by Erden et al., in 1999. All items in the CPTS-RI ask about a specific traumatic event, and the traumatic event for this study was OSS. None of the participants had a history of trauma other than from OSS, so the CPTS-RI was answered only by those who had been exposed to OSS.

2.3. Study design

Based on the responses given by participants on the OSS identification form, they were divided into two groups: those who had been exposed to OSS (OSS+) and those who had not been exposed to OSS (OSS-). The groups were compared statistically in terms of their socio-demographic characteristics, clinical psychiatric diagnoses, and SDQ scores. The CPTS-RI results of the OSS + participants were also evaluated.

2.4. Statistical analysis

Statistical analyses were completed using SPSS version 22.0. Descriptive data related to the quantitative variables are given as the mean (x) ± standard deviation (SD) and minimum-maximum, while data related to the qualitative variables are given as numbers and percentages. According to assessment using the Shapiro-Wilk normality test, the quantitative variables with a normal distribution were analysed using independent samples T-test, while those with a non-normal distribution were analysed with Mann-Whitney *U* test. The evaluation of the qualitative variables was performed with Pearson-Fisher chi-square test. Bonferroni correction was used to know the significance level.

3. Results

3.1. Online sexual solicitation prevalence

When the answers to the three questions identifying OSS were investigated, 9.0% (n: 17) of the participants answered yes to one question, 3.7% (n: 7) answered yes to two questions, and 8.4% (n: 16) answered yes to all three questions. If a participant answered yes to at least one of these questions, they were assessed as being a victim of OSS. The results from the OSS identification forms showed that the prevalence of exposure to OSS was 25.6% (n: 29) for girls, 14.4% (n: 11) for boys, and 21.1% (n: 40) for all participants.

3.2. Socio-demographic characteristics

The mean age of the OSS + group was 15.07 ± 1.18 (min: 12, max: 16), while it was 14.21 ± 1.40 (min: 12, max: 16) for the OSS- group. The mean age of the OSS group was significantly higher than OSS- group ($p < 0.001$), these results indicate that older adolescents were exposed to OSS more than younger adolescents.

Although there is no statistically significant difference, females (25.7%) tended to be exposed to OSS more than males (14.5%), OSS was slightly higher in urban areas (23.2%) than in rural areas (19.5%), and it's considerably higher in adolescents with physical disease (31.2%) than in adolescent without physical disease (19.4). In addition, OSS was slightly higher in adolescents with dispersed families, middle-income families, and separated parents. The results obtained from a comparison of the socio-demographic data of the two groups are given in Table 1.

3.3. Psychiatric assessment

Based on the psychiatric interviews and DSM 5-based evaluations, the OSS + group exhibited significantly higher rates of depressive disorder, borderline personality disorder, and secondary psychiatric diagnosis as compared to the OSS- group. The results obtained from a comparison of the psychiatric evaluations of the two groups are given in Table 2.

The SDQ results showed that the SDQ 1 (emotional symptoms) and total SDQ scores of OSS + group were significantly higher than the OSS- group. The SDQ results of the two groups are shown in Fig. 1.

The CPTS-RI score of 40 points or more was accepted as indicative of clinical PTSD (Pynoos et al., 1993). When the CPTS-RI scores for OSS + individuals were investigated within this framework, the rate of PTSD development after the exposure to OSS was determined as 57.8% (n: 22). Two OSS + individuals who did not complete the CPTS-RI were excluded from the analysis.

4. Discussion

When the results of present study were investigated, the prevalence of exposure to OSS in the child and adolescent psychiatric patient population was identified as 21.1%. No equivalent study in the literature has described the prevalence of exposure to OSS in the clinical sample. However, there are socially based studies on this issue. The YISS-1 (2000), YISS-2 (2005), and YISS-3 (2010) studies were conducted on children between the ages of 10 and 17 in the United States, and they have been the most comprehensive studies on OSS. In these studies, the OSS exposure rates were 19% (2000), 13% (2005), and 9% (2010), respectively (Jones et al., 2012). A study completed in the European Union in 2013 reported the OSS rate among youths as 13% (Livingstone et al., 2014).

The prevalence of exposure to OSS reported in the present study is higher than that in the literature data. Since the present study was conducted with a child and adolescent psychiatric patient population, we believe that it is difficult to compare these results with those of socially based studies. Additionally, because the literature data do not cover the last three years, a time when internet technologies have been developing and proliferating rapidly, it becomes still more difficult to compare these results with the data from the literature. The fact is that OSS happens in a largely hidden situation, and different psychiatric problems may be expressed due to adolescent's difficulties in describing

Table 1
Socio-demographic characteristics.

Socio-demographic characteristics		OSS – n (%)	OSS + n (%)	x^2	p value*
Gender	Female	84 (74.3)	29 (25.7)	3.410	0.072
	Male	65 (85.5)	11 (14.5)		
Residential area	Rural area	33 (80.5)	8 (19.5)	0.246	0.676
	Urban area	106 (76.8)	32 (23.2)		
History of physical disease	No	125 (80.6)	30 (19.4)	2.232	0.156
	Yes	22 (68.8)	10 (31.2)		
Family structure	Nuclear	119 (78.8)	32 (21.2)	0.174	0.917
	Extended	12 (80.0)	3 (20.0)		
	Dispersed	15 (75.0)	5 (25.0)		
Family income	Low	43 (82.7)	9 (17.3)	1.302	0.522
	Moderate	62 (74.7)	21 (25.3)		
	High	36 (80.0)	9 (20.0)		
Parental relationship	Together	125 (79.1)	33 (20.9)	0.209	0.603
	Separated	18 (75.0)	6 (25.0)		
Maternal psychiatric history	No	129 (77.7)	37 (22.3)	0.302	0.767
	Yes	15 (83.3)	3 (16.7)		
Paternal psychiatric history	No	136 (78.6)	37 (21.4)	0.020	1.000
	Yes	10 (76.9)	3 (23.1)		
		Mean	SD	t	p value**
	OSS –	14.21	1.40	−3552	**0.000**
	OSS +	15.07	1.18		

*P value from chi square analysis. **P value from independent sample *t*-test. Bold indicates significance ($p < 0.01$).

Table 2
Comparison of the groups in terms of psychiatric diagnosis.

Psychiatric diagnosis		OSS – n (%)	OSS + n (%)	x^2	p value
Neurodevelopmental disorder	No	103 (69.1)	33 (82.5)	2.795	0.114
	Yes	46 (30.9)	7 (17.5)		
Depressive disorders	No	117 (78.5)	21 (52.5)	10.839	**0.002**
	Yes	32 (21.5)	19 (47.5)		
Anxiety disorders	No	115 (77.2)	35 (87.5)	2.050	0.189
	Yes	34 (22.8)	5 (12.5)		
Obsessive compulsive disorder and related disorders	No	134 (89.9)	38 (95.0)	0.989	0.533
	Yes	15 (10.1)	2 (5.0)		
Disruptive disorders, impulse control and behavioural disorder	No	135 (90.6)	35 (87.5)	0.336	0.559
	Yes	14 (9.4)	5 (12.5)		
Borderline personality disorder	No	130 (87.2)	26 (65.0)	10.831	**0.002**
	Yes	19 (12.8)	14 (35.0)		
Secondary diagnosis	No	109 (73.2)	20 (50.0)	7.802	**0.007**
	Yes	40 (26.8)	20 (50.0)		

P values from chi square analysis.
Bonferroni corrected significance of $p \leq 0.007$ (0.05/7 = 0.007). Bold indicates significance ($p \leq 0.007$).

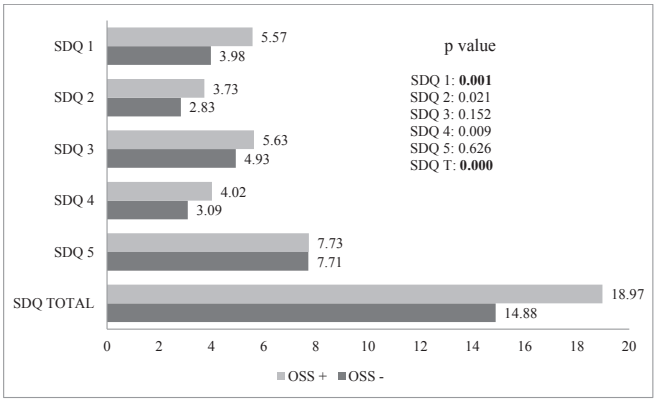

Fig. 1. Strengths and Difficulties Questionnaire (SDQ) Scores. The SDQ scores of the groups were analyzed by independent sample *t*-test. SDQ 1: Emotional Symptoms, SDQ2: Conduct Problems, SDQ 3: Attention Deficit and Hyperactivity, SDQ 4: Peer Problems, SDQ 5: Social Behavioural Problems, SDQ T: Total Difficulties Score. p value from Mann-Whitney *U* test. Bonferroni corrected significance of $p \leq 0.008$ (0.05/6 = 0.008). Bold indicates significance ($p \leq 0.008$).

what happened. Furthermore, the involvement of child and adolescent psychiatric clinics in solving psychiatric problems may be identified as a reason for the higher observed prevalence of exposure to OSS in the child and adolescent psychiatric patient population. Additionally, it should not be forgotten that the topic may involve socio-cultural differences, and the prevalence of OSS may vary between societies.

When the results are assessed in terms of gender, the prevalence of exposure to OSS is 25.6% in girls and 14.4% in boys. However, contrary to expectations, the statistical analysis found no significant differences between the genders. Studies described in the literature accept being female as a risk factor for exposure to OSS. In Germany, the OSS exposure rates were 5.6% for boys and 19.1% for girls (Baumgartner et al., 2010). In Denmark, the OSS exposure rates were 5% for boys and 16% for girls (Helweg-Larsen et al., 2012). The results of the present study differ from the literature data, and we believe that the reason for there being no significant statistical difference between the genders here may be linked to the low number of individuals in the OSS + group.

In the current study, we found that the mean age of the OSS + group was statistically higher than OSS- group. The same was the case in the YISS studies, where the prevalence of exposure to OSS increased with age (Jones et al., 2012; Mitchell et al., 2013). The

increased prevalence of exposure to OSS with age may be explained by the increased frequency and duration of internet use with age, increased risk-taking behaviour in the adolescent period, and a variety of characteristics related to the abusers. However, in the present study, the causes for the increase in exposure to OSS with age were not investigated, and no assessment of the abusers was completed.

The results of the present study related to the socio-demographic data indicated that OSS occurs independently of socio-demographic characteristics and may be observed at nearly every sociocultural and economic level. There are various studies on the socio-demographic risk factors for OSS in the literature. These studies have reported that a history of living separately from the family, high educational level in the home, and alcohol abuse in the family increased the risk of exposure to OSS (Helweg-Larsen et al., 2012; Mitchell et al., 2007). In addition, familial and social risk factors have been identified in studies on online grooming, a subject closely related to OSS. These risk factors are as follows: single parent family, low family satisfaction, parental substance abuse, poor family relationships, social isolation, and weak or limited peer support (Whittle et al., 2013). Although there has been no full consensus in the studies related to SA, it has been recognized that SA occurs independently of socio-demographic characteristics and may be observed at nearly all socio-cultural and economic levels (Westcott and Jones, 1999; Balogh et al., 2001). The results of the present study related to socio-demographic characteristics appear to be consistent with SA studies.

When participants were compared in terms of their psychiatric diagnoses, it appeared that depressive disorder, borderline personality disorder, and secondary psychiatric diagnosis were significantly higher in OSS + group. The studies reported that youth exposed to OSS have some psychological difficulties. These have included depressive symptoms (Ybarra, 2004), aggressive behaviour (Ybarra and Mitchell, 2007), substance abuse, and difficulties in school (e.g., truancy, bringing weapons to school; Ybarra et al., 2007a). The studies on "online grooming" and "voluntary sexual exposure online" similarly suggest that children who had been exposed to these conditions have poor psychological health (Whittle et al., 2013; Jonsson et al., 2014). In addition, studies show that psychological problems (such as affective disorder, depression, and behavioural problems) may be associated with risky online sexual behaviors, a risk factor of exposure to OSS (Mitchell et al., 2007; Ybarra et al., 2007c; Baumgartner et al., 2010; Livingstone and Smith, 2014).

When studies related to SA are investigated, it is found that 62% of children who are exposed to SA have at least one psychiatric diagnosis, while 29% have two or more psychiatric diagnoses (McLeer et al., 1998). Frequently identified psychiatric problems in these individuals are PTSD, acute stress reaction, depressive disorder, anxiety disorder, and behavioural disorder. In the present study, secondary psychiatric diagnosis and depressive disorder were both found to be significantly high in the OSS + group, and this result accords with the literature on SA. No study was encountered in the literature on the relation between having been exposed to OSS during adolescence and borderline personality disorder, although there have been studies on this issue as it relates to SA. A number of studies have revealed that children and adolescents who are exposed to SA are at an increased risk for developing borderline, antisocial, and paranoid personality disorders during adolescence. However, these studies were completed while the subjects were in adulthood and a long time after the trauma occurred (Bierer et al., 2003; Sar et al., 2006). The reason for this limitation in the literature may be that individuals under the age of 18 have not fully completed personality development, and therefore, personality disorders are seldom diagnosed prior to this age. However, difficult life events and trauma may cause personality disorders, and the symptoms of personality disorders may be observed before the age of 18 (Bierer et al., 2003; Sar et al., 2006).

When the SDQ results, which provide an indication of psychiatric problems, were investigated, we can say that individuals exposed to OSS have emotional problems. When studies defining the emotional and behavioural effects on children exposed to SA are examined, it can be seen that these children have been shown to have fear reactions, anger, hostility, guilt, low self-esteem, and relationship problems (Friedrich et al., 1988; Finkelhor et al., 1990; Thakkar et al., 2000; Kaplan and Klinetob, 2000; Heffernan and Cloitre, 2000; Romans et al., 2001). In the present study, as no prior assessment was made to enable us to determine whether the adolescents exposed to the OSS had developed significantly higher rates of these psychiatric problems after experiencing the OSS, it is difficult to draw conclusions on this topic. As a result, we believe that there is a need for further studies to identify the cause-effect relationship between these psychiatric problems and OSS.

Studies related to SA have stated that the most common psychiatric problem occurring after SA is PTSD (Kaplan, 2002; Glaser et al., 2002). However, there is only one study in the literature examining the relationship between OSS and PTSD. McHugh et al. conducted a two-month web-based diary study of 75 teens (ages 13–17) who reported their online risk experiences (information breaches, explicit content exposure, cyberbullying, and sexual solicitations) each week. In the study, the teens reported 222 online risk events (11% of the events were sexual solicitations) and PTSD symptoms were measured using the Children's Revised Impact of Event Scale. The authors reported that online risk experiences evoked PTSD symptoms and 36.4% of online risk incidents resulted in clinically diagnosable PTSD (McHugh et al., 2018). However, these results not specific to OSS. Considering this deficiency in the existing literature, one of the most important aims of this study was to investigate the relationship between OSS and PTSD. In the present study, the participants answered the CPTS-RI specifically in relation to an OSS exposure event that had occurred during the previous year, so the results directly reflected the effects of the online sexual trauma. When the CPTS-RI scores for individuals exposed to OSS were investigated, the results were striking. The CPTS-RI scores showed varying levels of PTSD in 35 of the 40 individuals exposed to OSS. CPTS-RI scores of 40 points or more are considered consistent with clinical PTSD (Pynoos et al., 1993). In this respect, the development rate of PTSD after exposure to OSS was identified at 57.8%. PTSD has been reported at rates varying from 44 to 71% in children and adolescents who have been exposed to SA (Kaplan, 2002; Glaser et al., 2002). In the present study of OSS, a non-contact form of SA, the rate of PTSD is similar to that seen in SA studies. However, the current study sample was drawn from a child and adolescent psychiatric patient population who were already seeking help. The participants may have showed worse their PTSD symptoms, and therefore, the rate of PTSD after the OSS may be higher than it would be for the general adolescent population.

This study has potential limitations. It was a cross-sectional study, the number of individuals exposed to OSS was low, and the PTSD was evaluated by the use of a questionnaire. However, the study also has various strengths. It was conducted with a clinical sample, and it was found that the prevalence of OSS was higher than in socially-based studies. The victims of SA (offline) were not included in this study, and the negative effects of OSS were isolated. Also, the relationship between OSS and PTSD was examined specifically. We believe it would be beneficial to repeat this study with greater age intervals and larger samples.

5. Conclusion

In the 12- to 16-year-old child and adolescent psychiatric patient population of our study, the prevalence of OSS was 21.2%. Depressive disorder, borderline personality disorder, and secondary psychiatric diagnosis are significantly higher in adolescents who exposed to OSS. The rate of post-traumatic stress disorder (PTSD) development after exposure to OSS was determined as 57.8%. These results indicate that OSS is a severe trauma that occurs at a high rate, and it should be included in psychiatric evaluations, particularly because young people

are reticent about sharing this information spontaneously. As a result, we believe that child and adolescent psychiatric experts should question patients regarding OSS. It will be important and beneficial to consider the risk factors for OSS and the probability of PTSD in clinical practice.

Conflicts of interest

None.

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References

American Psychiatric Association, 2013. Diagnostic and Statistical Manual of Mental Disorders (DSM-5®). American Psychiatric Pub.
Balogh, R., Bretherton, K., Whibley, S., Berney, T., Graham, S., Richold, P., et al., 2001. Sexual abuse in children and adolescents with intellectual disability. J. Intellect. Disabil. Res. 45, 194–201.
Baumgartner, S.E., Valkenburg, P.M., Peter, J., 2010. Unwanted online sexual solicitation and risky sexual online behavior across the lifespan. J. Appl. Dev. Psychol. 31, 439–447.
Bierer, L.M., Yehuda, R., Schmeidler, J., Mitropoulou, V., New, A.S., Silverman, J.M., Siever, L.J., 2003. Abuse and neglect in childhood: relationship to personality disorder diagnoses. CNS Spectr. 8, 737–754.
Chen, L.P., Murad, M.H., Paras, M.L., Colbenson, K.M., Sattler, A.L., Goranson, E.N., Elamin, M.B., Seime, R.J., Shinozaki, G., Prokop, L.J., Zirakzadeh, A., 2010. Sexual abuse and lifetime diagnosis of psychiatric disorders: systematic review and meta-analysis. Mayo Clin. Proc. 85, 618–629.
Erden, G., Kılıç, E.Z., Uslu, R.İ., Kerimoğlu, E., 1999. Çocuklar için travma sonrası stres tepki ölçeği: Türkçe geçerlik, güvenirlik çalışması. Çocuk ve Gençlik Ruh Sağlığı Dergisi (Turkish Journal of Child and Adolescent Mental Health) 6, 143–149 (Turkish).
Faller, K.C., 2003. Understanding and Assessing Child Sexual Maltreatment. Sage, Thousand Oaks, CA.
Famularo, R., Kinscherff, R., Fenton, T., 1992. Psychiatric diagnoses of maltreated children: preliminary findings. J. Am. Acad. Child Adolesc. Psychiatry 31, 863–867.
Finkelhor, D., Hotaling, G., Lewis, I., Smith, C., 1990. Sexual abuse in a national survey of adult men and women: prevalence, characteristics, and risk factors. Child Abuse Negl. 14, 19–28.
Finkelhor, D., Mitchell, K.J., Wolak, J., 2000. Online Victimization: A Report on the Nation's Youth. National Center for Missing & Exploited Children, USA.
Friedrich, W.N., Beilke, R.L., Urquiza, A.J., 1988. Behavior problems in young sexually abused boys a comparison study. J. Interpers Violence 3, 21–28.
Glaser, D., Rutter, M., Taylor, E., 2002. Child sexual abuse. In: Rutter, M. (Ed.), Child and Adolescent Psychiatry. Blackwell Science, pp. 340–358.
Goodman, R., 1997. The strengths and difficulties questionnaire: a research note. JCPP (J. Child Psychol. Psychiatry) 38, 581–586.
Goodman, R., Meltzer, H., Bailey, V., 1998. The Strengths and Difficulties Questionnaire: a pilot study on the validity of the self-report version. Eur. Child Adolesc. Psychiatry 7, 125–130.
Güvenir, T., Özbek, A., Baykara, B., Arkar, H., Şentürk, B., İncekaş, S., 2008. Güçler ve güçlükler anketi'nin (GGA) türkçe uyarlamasının psikometrik özellikleri. Çocuk ve Gençlik Ruh Sağlığı Dergisi (Turkish Journal of Child and Adolescent Mental Health) 15, 65–74 (Turkish).
Heffernan, K., Cloitre, M., 2000. A comparison of posttraumatic stress disorder with and without borderline personality disorder among women with a history of childhood sexual abuse: etiological and clinical characteristics. J. Nerv. Ment. Dis. 188, 589–595.
Helweg-Larsen, K., Schütt, N., Larsen, H.B., 2012. Predictors and protective factors for adolescent Internet victimization: results from a 2008 nationwide Danish youth survey. Acta Paediatr. 101, 533–539.
Jones, L.M., Mitchell, K.J., Finkelhor, D., 2012. Trends in youth internet victimization: findings from three youth internet safety surveys 2000–2010. J. Adolesc. Health 50, 179–186.
Jonsson, L.S., Priebe, G., Bladh, M., Svedin, C.G., 2014. Voluntary sexual exposure online among Swedish youth–social background, Internet behavior and psychosocial health. Comput. Hum. Behav. 30, 181–190.
Jonsson, L.S., Bladh, M., Priebe, G., Svedin, C.G., 2015. Online sexual behaviours among Swedish youth: associations to background factors, behaviours and abuse. Eur. Child Adolesc. Psychiatry 24, 1245–1260.
Kaplan, S.J., 2002. Child and adolescent sexual abuse. In: Lewis, M. (Ed.), Child and Adolescent Psychiatry a Comprehensive Textbook. Lippincott Williams and Wilkins, Philadelphia, pp. 1217–1222.
Kaplan, M.J., Klinetob, N.A., 2000. Childhood emotional trauma and chronic posttraumatic stress disorder in adult outpatients with treatment-resistant depression. J. Nerv. Ment. Dis. 188, 596–601.
Kaufman, J., 1991. Depressive disorders in maltreated children. J. Am. Acad. Child Adolesc. Psychiatry 30, 257–265.
Livingstone, S., Kirwil, L., Ponte, C., Staksrud, E., 2014. In their own words: what bothers children online? Eur. J. Commun. 29, 271–288.
Livingstone, S., Smith, P.K., 2014. Annual research review: harms experienced by child users of online and mobile technologies: the nature, prevalence and management of sexual and aggressive risks in the digital age. JCPP (J. Child Psychol. Psychiatry) 55, 635–654.
McHugh, B.C., Wisniewski, P., Rosson, M.B., Carroll, J.M., 2018. When social media traumatizes teens: the roles of online risk exposure, coping, and post-traumatic stress. Internet Res. 28, 1169–1188.
McLeer, S.V., Dixon, J.F., Henry, D., Ruggiero, K., Escovitz, K., Niedda, T., Scholle, R., 1998. Psychopathology in non-clinically referred sexually abused children. J. Am. Acad. Child Adolesc. Psychiatry 37, 1326–1333.
Mitchell, K.J., Finkelhor, D., Wolak, J., 2007. Youth Internet users at risk for the most serious online sexual solicitations. Am. J. Prev. Med. 32, 532–537.
Mitchell, K.J., Finkelhor, D., Wolak, J., Ybarra, M.L., Turner, H., 2011. Youth internet victimization in a broader victimization context. J. Adolesc. Health 48, 128–134.
Mitchell, K.J., Jones, L.M., Finkelhor, D., Wolak, J., 2013. Understanding the decline in unwanted online sexual solicitations for US youth 2000–2010: findings from three Youth Internet Safety Surveys. Child Abuse Negl. 37, 1225–1236.
Normand, C.L., Sallafranque-St-Louis, F., 2016. Cybervictimization of young people with an intellectual or developmental disability: risks specific to sexual solicitation. J. Appl. Res. Intellect. Disabil. 29, 99–110.
Pynoos, R.S., Frederick, C., Nader, K., Arroyo, W., Steinberg, A., Eth, S., Nunez, F., Fairbanks, L., 1987. Life threat and posttraumatic stress in school-age children. Arch. Gen. Psychiatr. 44, 1057–1063.
Pynoos, R.S., Goenjian, A., Tashjian, M., Karakashian, M., Manjikian, R., Manoukian, G., Steinberg, A.M., Fairbanks, L.A., 1993. Post-traumatic stress reactions in children after the 1988 Armenian earthquake. Br. J. Psychiatry 163, 239–247.
Romans, S.E., Gendall, K.A., Martin, J.L., Mullen, P.E., 2001. Child sexual abuse and later disordered eating: a New Zealand epidemiological study. Int. J. Eat. Disord. 29, 380–392.
Sar, V., Akyuz, G., Kugu, N., Ozturk, E., Ertem-Vehid, H., 2006. Axis I dissociative disorder comorbidity in borderline personality disorder and reports of childhood trauma. J. Clin. Psychiatry 67, 1583–1590.
Thakkar, R.R., Gutierrez, P.M., Kuczen, C.L., McCanne, T.R., 2000. History of physical and/or sexual abuse and current suicidality in college women. Child Abuse Negl. 24, 1345–1354.
Van Ouytsel, J., Walrave, M., Ponnet, K., Heirman, W., 2015. The association between adolescent sexting, psychosocial difficulties, and risk behavior: integrative review. J. Sch. Nurs. 31, 54–69.
Westcott, H.L., Jones, D.P., 1999. Annotation: the abuse of disabled children. JCPP (J. Child Psychol. Psychiatry) 40, 497–506.
Whittle, H., Hamilton-Giachritsis, C., Beech, A., Collings, G., 2013. A review of young people's vulnerabilities to online grooming. Aggress. Violent Behav. 18, 135–146.
World Health Organization, 2003. Guidelines for Medico-Legal Care of Victims of Sexual Violence. World Health Organization, Geneva, Switzerland.
Ybarra, M.L., 2004. Linkages between depressive symptomatology and Internet harassment among young regular Internet users. Cyberpsychol. Behav. 7, 247–257.
Ybarra, M.L., Diener-West, M., Leaf, P.J., 2007a. Examining the overlap in Internet harassment and school bullying: implications for school intervention. J. Adolesc. Health 41, 42–50.
Ybarra, M.L., Espelage, D.L., Mitchell, K.J., 2007b. The co-occurrence of Internet harassment and unwanted sexua lsolicitation victimization and perpetration: associations with psychosocial indicators. J. Adolesc. Health 41, 31–41.
Ybarra, M.L., Mitchell, K.J., Finkelhor, D., Wolak, J., 2007c. Internet prevention messages: targeting the right online behaviors. Arch. Pediatr. Adolesc. Med. 161, 138–145.
Ybarra, M.L., Mitchell, K.J., 2007. Prevalence and frequency of Internet harassment instigation: implications for adolescent health. J. Adolesc. Health 41, 189–195.