



Comparing the level of social maturity, attachment styles, and emotion regulation strategies in normal adolescents and adolescents accused of sexual offenses crimes referred to the Forensic Medicine Department of Khorasan Razavi Province

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Abstract

Introduction: This study compared social maturity, attachment styles, and emotion regulation strategies in normal adolescents and adolescents accused of sexual crimes.

Materials and Methods: The research sample of this descriptive causal-comparative study consisted of 32 adolescent boys accused of sexual crimes who referred to the Forensic Medicine Department of Khorasan Razavi Province-Iran from April 2021 to March 2022. Thirty-two non-criminal adolescents were also selected as a comparison group using convenience sampling. Participants answered the Collins and Reed Attachment Styles Questionnaire, Rao Social Maturity Questionnaire, and Gross Emotion Regulation Strategies.

Results: The findings showed that normal adolescents compared to accused adolescents had higher scores in social maturity (274.21 vs. 132.53) and secure attachment style. In contrast, accused adolescents reported higher levels of avoidant (17.87 vs. 6.68) and anxiety styles (18.65 vs. 6.65). The independent samples t-test results revealed significant differences in social maturity ($t= 16.79, P < 0.001$) and attachment styles, including closeness ($t= 13.57, P < 0.001$), dependence ($t= -14.88, P < 0.001$), and anxiety ($t= -16.28, P < 0.001$). Groups differed significantly in reappraisal strategies ($t= 2.10, P= 0.039$) but not in suppression strategies ($t= -1.01, P= 0.316$).

Conclusion: This study shows that adolescents accused of sexual offenses are vulnerable due to low social maturity and insecure attachment, and strengthening cognitive reappraisal skills can play an important role in emotion regulation and preventing risky behaviors.

Keywords: Adolescent, Attachment behaviors, Emotion regulation, Sex offenses, Social maturity

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Introduction

Sexual assault is defined as the sexual penetration of a child or adult (vaginal, oral, or anal) with a penis, finger, or any object (1). Child Sexual Abuse (CSA) is a major social and public health issue with significant short-term and long-term consequences for victims, families, and society as a whole (1). Adolescents constitute over one-third (35.6%) of all individuals accused of sexual offenses committed against a child (2).

Recent studies suggest that attachment style can serve as a protective factor against high-risk behaviors (3) and insecure attachment may be one of the factors predisposing adolescents to sexually abusive behaviors (4,5). Bowlby (1969) considered the attachment bond a primary and fundamental need, believing that the experience of security in childhood forms the foundation for healthy psychological and mental functioning in adolescence and adulthood (6,7).

Furthermore, there is a documented relationship between attachment styles and emotion regulation. Secure attachment relationships influence regulation and coping strategies among individuals and promote better mental health outcomes (8). In recent years, researchers have strived to understand the integral role of emotions in the formation of sexual offenses (9).

Based on attachment theory, the type of emotional and interactive relationship adolescents have with their parents or primary caregivers plays a crucial role in shaping their behaviors, including high-risk sexual behaviors and criminal acts. In contrast, adolescents with insecure attachment styles (avoidant or ambivalent), due to experiencing fear, anxiety, and uncertainty in their early relationships, may face difficulties in adulthood such as reduced empathy, anxiety, and an inability to manage emotions, which can lead to deviant and high-risk sexual behaviors, including criminal offenses (10).

Numerous studies have shown that an anxious-ambivalent insecure attachment style is linked to internalizing disorders such as anxiety, which can predispose adolescents to high-risk sexual behaviors. On the other hand, an avoidant attachment style, often associated with parental coldness, rejection, and lack of emotional support, pushes adolescents toward withdrawal, irresponsibility, and reduced self-confidence, factors that increase the risk of

criminal acts and high-risk behaviors (11). Therefore, adolescent attachment style is recognized as a significant predictor of high-risk sexual behaviors and criminal offending, and fostering secure attachment in families can act as a protective factor against these harms. Providing a secure emotional environment by parents and caregivers, along with continuous support and emotional accessibility to the adolescent, are key factors in forming secure attachment and reducing the likelihood of high-risk behaviors (12).

Furthermore, while emotions like fear, anger, and disgust have biological underpinnings, individuals are capable of influencing the intensity, duration, and type of their emotional experience—a process known in psychological literature as emotion regulation. Emotion regulation involves conscious and unconscious strategies for managing emotional responses and is an essential skill for coping with new, stressful, and emotional situations; any deficiency in this skill can put an individual at risk for psychological disorders (13). Research has also demonstrated a close relationship between attachment styles, emotion regulation strategies, and social adjustment (11). Upon reaching social maturity, individuals acquire the necessary skills to regulate their emotions, enabling them to respond to challenges and conflicts in an adaptive and socially appropriate manner (14). Social maturity, considered the final stage after psychological maturity, plays a fundamental role in preventing deviant behaviors, including sexual offenses, and is recognized as a vital protective factor. Empirical evidence indicates that deficits in social maturity are significantly associated with increased vulnerability to antisocial behaviors and sexual deviations (15,16).

Therefore, this study aims to compare these three key variables in two groups of normal adolescents and adolescents accused of sexual offenses, seeking to identify differences and provide insights for prevention and treatment that can help reduce recidivism and improve the social functioning of this vulnerable group.

Materials and Methods

The current research employed a descriptive causal-comparative design. The statistical population included all adolescent boys referred to the Forensic Medicine Organization of Khorasan Razavi Province for clinical examinations due to charges of sexual crimes

between April 2021 and March 2022. From this group, 32 participants were selected based on specific inclusion criteria. Additionally, 32 normal adolescents were chosen as a comparison group using convenience sampling. G-POWER software was utilized to determine the sample size. The software indicated that a sample of 32 adolescent boys accused of sexual crimes and 32 normal adolescent boys (a total of 64 participants) would be sufficient for the study, given an effect size of 0.8. Inclusion criteria for participants were: being male, aged 12 to 18 years, possessing at least basic literacy, having accusations of sexual abuse, approval of their case by the Forensic Medicine Commission, and providing informed consent to participate. Exclusion criteria included a history of major psychiatric disorders or incurable diseases, the diagnosis of which was independently confirmed by a psychiatrist and a clinical psychologist.

Research instruments

A) *Demographic Characteristics Instrument:*

A researcher-developed questionnaire with closed-ended questions was employed to collect demographic information from the participants. This questionnaire assessed variables such as age and educational level.

B) *Rao Social Maturation Scale (RSMS):* This questionnaire was developed by Rao in 1986, assesses the level of social maturity in adolescents. It comprises 90 items distributed across three dimensions: personal competence, interpersonal competence, and social competence. Responses are rated on a four-point Likert scale, ranging from "strongly disagree" to "strongly agree." The initial validation studies for the questionnaire demonstrated strong psychometric properties. The reliability of the original version, evaluated using the parallel forms method on a sample of 250 individuals, was found to be 0.98. Its validity, assessed via the test-retest method with a two-week interval, was 0.79 (17). In domestic research, the reliability of this tool was 0.89 using the Cronbach's alpha method in the study by Hooman et al (18), which confirms the good validity and reliability of the questionnaire.

C) *Revised Adult Attachment Scale (RAAS):* This scale was developed by Collins and Read in 1990, this is a self-report instrument designed to assess individuals' relationship-building skills and self-described attachment styles towards close attachment figures. The scale consists of 18 items rated on a 5-point Likert scale, ranging from 1 ("not at all characteristic of me") to 5 ("very characteristic of me"). These items are categorized into three distinct dimensions:

closeness (reflecting secure attachment), dependence (reflecting avoidant attachment), anxiety (reflecting anxious attachment)

The RAAS has demonstrated strong internal consistency. In a sample of 173 students, the Cronbach's alpha coefficients were reported as 0.81 for the closeness (secure) subscale, 0.78 for the dependence (avoidant) subscale, and 0.85 for the anxiety (anxious) subscale (19). Further evidence of its reliability comes from a study by Pakdaman et al. (2001), which used the test-retest method. The RAAS was administered to 100 randomly selected high school sophomore boys and girls. The correlation between two administrations, conducted one month apart, yielded a reliability coefficient of 0.95, indicating excellent temporal stability (20).

D) *Emotion Regulation Strategies*

Questionnaire (ERQ-CA) This questionnaire was developed by Gross and John to measure emotion regulation strategies. This questionnaire consists of 10 questions and two subscales: reappraisal with 6 items and suppression with 4 items. Participants respond on a 7-point Likert scale from strongly disagree (with a score of 1) to strongly agree (with a score of 7). Gross has reported the validity and reliability of the above questionnaire with an internal consistency coefficient of 0.73 and a test-retest coefficient of 0.69 for both strategies (21,22). To standardize this questionnaire on adolescents, a study adapted this questionnaire for children and adolescents. Factor analysis showed that the ERQ-CA questionnaire has two factors (reappraisal and suppression). The calculated Cronbach's alpha for the entire questionnaire was 0.81 and for the two reappraisal and suppression factors were 0.79 and 0.68, respectively (23).

To conduct the research, the research plan was first approved by the specialized commission of the General Forensic Medicine Department of Khorasan Razavi Province. After scientific supervision and review, the proposed plan was finally approved by the Vice-Chancellor of Research of Ferdowsi University of Mashhad. After going through the evaluation and approval stages of the plan, 41 cases were selected from the existing files by referring to forensic medicine according to the research criteria. Then, the research questionnaires were provided to the participants. From the responses sent and after removing incomplete responses from the

analysis process, 32 people from each group were finally selected and the results were examined.

Results

The highest age distribution, approximately 44%, was for the age of 16, while the age range of the participants varied between 12 and 18. The average age for delinquent boys was estimated to be 16.5 years, for non-delinquent boys it was 16.1 years. Also, the highest level of education, approximately 57%, was for the lower secondary level. The descriptive results are presented in Table 1.

To examine hypothesis of the study, considering the interval nature of the dependent variable and having two independent groups, an

independent t-test was used. First, the assumptions of the independent t-test were examined. Normality was examined using the Kolmogorov-Smirnov test. The results showed that dimensions of emotion regulation were not normal ($P < 0.05$). Given that the t-test is independent of robust tests, its use is not prohibited despite the rejection of the normality assumption. Also, in examining the homogeneity of variance with respect to the F-test, wherever homogeneity of variance was confirmed, independent t-test results with equal variances were reported, and wherever homogeneity of variance was rejected, independent t-test results with unequal variances were reported. The independent t-test results are presented in Table 2.

Table 1. The descriptive results of social maturity, attachment styles, and emotion regulation strategies

Variable	Normal adolescents		Accused adolescents		
	M	SD	M	SD	
Social maturity	274.21	31.16	132.53	36.13	
Attachment styles	Closeness	17.65	2.80	8.31	2.7
	Dependence	6.68	2.71	17.87	3.27
	Anxiety	6.65	2.71	18.65	3.15
Emotion regulation strategies	Reappraisal	12.21	4.31	10.15	3.48
	Suppression	12.28	4.34	12.40	3.95

Normal adolescents scored significantly higher in social maturity (274.21 ± 31.16) compared to accused adolescents (132.53 ± 36.13). They also exhibited more secure attachment (higher closeness, lower dependence and anxiety). In contrast, accused

adolescents reported higher dependence (17.87 ± 3.27) and anxiety (18.65 ± 3.15). Emotion regulation strategies (reappraisal, suppression) showed differences between groups. The difference in means for reappraisal was greater than suppression.

Table 2. The results related to social maturity, attachment styles, and emotion regulation strategies (independent T-test)

Variable	F	P	T	df	P
Social maturity	0.03	0.86	16.79	62	0.000
Closeness	0.16	0.68	13.57	62	0.000
Dependence	0.82	0.36	-14.88	62	0.000
Anxiety	0.70	0.40	-16.28	62	0.000
Reappraisal	1.46	0.23	2.10	62	0.039
Suppression	0.00	1.00	-1.01	62	0.316

The independent samples t-test results revealed significant differences in social maturity ($t = 16.79, P < 0.001$) and attachment styles, including closeness ($t = 13.57, P < 0.001$), dependence ($t = -14.88, P < 0.001$), and

anxiety ($t = -16.28, P < 0.001$). However, significant differences were found for reappraisal ($t = 2.10, P = 0.039$) but not for suppression ($t = -1.01, P = 0.316$).

Discussion

The aim of this study was to investigate the role of social maturity, attachment styles, and emotion regulation strategies in the occurrence of sexual crimes in adolescents. For this purpose, adolescents accused of sexual crimes referred to the Forensic Medicine Department of Khorasan Razavi Province were compared with non-accused adolescents. According to the results, there was a significant difference in social maturity between the adolescents accused of sexual crimes and normal adolescents. Normal adolescents had higher scores in social maturity compared to accused adolescents. This finding is consistent with the results of previous studies that have reported reduced social skills and poor impulse control in delinquent adolescents (24,25).

In most of these studies, the study groups included adolescent boys aged 14 to 18 years, who are similar in age to the statistical population of this study. Other domestic studies on delinquent adolescents have also shown that problems such as poor self-control, difficulty in establishing interpersonal relationships, and lack of communication skills are important predictors of antisocial behaviors (26). These findings support the present results and indicate that social and emotional deficits can put adolescents at risk for committing crimes, especially in the area of sexual relations.

In explaining these findings, it can be said that from Bandura's (1977) perspective, social maturity is the product of appropriate modeling of social models, internalization of moral standards, and development of self-regulation (25). Delinquent adolescents usually encounter maladaptive parental models (26), which makes their healthy development at this stage challenging and leads to identity crises and weaknesses in adolescents' interpersonal and social skills, which result in the inability to predict the consequences of their behaviors and a reduced sense of adherence to social norms. These deficiencies, especially in the area of sexual relations, can lead to self-interested and abnormal behaviors. Therefore, adolescents with less social maturity are more likely to engage in delinquent and antisocial behaviors. Neuroimaging studies also show that individuals who are more socially mature and behave more socially mature show better functioning in prefrontal areas, while adolescents who commit sexual offenses show less activity in the orbitofrontal cortex. This

neurodevelopmental deficit leads to poorer understanding of the mental states of others, poorer moral decision-making, and poorer control of sexual impulses (27,28).

However, some studies have reported mixed results. For example, a study of delinquent adolescents in Scandinavian countries found no significant differences in social maturity between delinquent and non-delinquent adolescents (29). The authors of this study suggested that cultural differences, educational systems, and stronger social supports in these countries may have moderated the negative impact of adverse family experiences. Also, in some studies of adolescent girls (30), social maturity was found to be less predictive of delinquency than emotional and attachment factors.

The results of this study also showed that adolescents accused of sexual offenses have an insecure attachment style, especially the anxious-ambivalent attachment style, compared to normal adolescents. This finding is consistent with previous research in this field. Receiving conditional attention from parents in childhood, especially in the first years of life, and unpredictable parental behaviors lead to the formation of an insecure attachment style. In line with this finding, the results of the research show that delinquent adolescents, especially those who commit sexual offenses, usually have had adverse experiences in childhood such as neglect, abuse, and lack of emotional responsiveness from their parents or primary caregivers, which leads to the formation of an insecure attachment style. Among insecure attachment styles, the anxious-ambivalent style has a higher mean among delinquent adolescents because this style is associated with characteristics such as excessive concern about disclosure, a strong need for approval from others, and emotional instability, which cause adolescents to be confused in social relationships and engage in risky behaviors. This attachment style causes adolescents to seek attention and approval from others, which can lead to delinquent behaviors, including sexual offenses. These results are consistent with the Reis study (22), which studied 32 adolescent boys aged 12 to 19 who had been convicted of sexual offenses. The difference is that it used a mixed (quantitative and qualitative) approach to examine the attachment style of adolescents. The results of this study showed that peer offenders tend to

have an avoidant attachment style, while child abusers tend to have an anxious attachment style. Although there are methodological differences between studies, the overall conclusion shows significant agreement in emphasizing the importance of insecure attachment style and its role in adolescent risky behaviors (22,25). Another finding of the present study is related to emotion regulation strategies. This finding is consistent with the results of previous research (23,31).

According to James Gross' theory, emotion regulation refers to the processes that individuals use to influence, control, or express their emotions. Emotion regulation, as one of the important psychosocial skills, plays a key role in adolescent maladaptive behaviors. Several studies have shown that emotion regulation strategies in the two groups of offenders and non-offenders had significant differences. In this regard, the results of the present study showed that there was a significant difference in the reappraisal subscale and no significant difference was observed in the suppression subscale. As for the reason for these results, it can be said that reappraisal is known as a more adaptive and effective strategy in emotion regulation and usually has a greater difference in clinical groups and those with psychological problems compared to suppression. In this regard, the results of intervention studies have shown that emotion regulation training usually increases reappraisal scores, which indicates the higher importance of this subscale in emotion regulation (21). On the other hand, it can be said that cognitive reappraisal is a pre-event strategy that involves changing the way we interpret and evaluate emotional situations before the emotion fully manifests.

This strategy requires higher cognitive skills and self-awareness and, as an adaptive strategy, is related to mental health and adaptive social behaviors. Adolescents accused of sexual offenses usually have weaknesses in using this strategy, which causes a significant difference from normal adolescents. While emotion suppression is a post-event strategy that refers to hiding the expression of emotions after they have occurred and it is more of a defensive reaction.

This strategy may be used similarly in both groups, and for this reason, no significant difference was observed. Other reasons include the limitations of using a questionnaire as a

research tool, which may not be able to accurately distinguish between strategies (13).

Among the important limitations of this study is that the sample was limited to adolescents accused of sexual crimes referred to the Forensic Medicine Department of Khorasan Razavi Province, and generalizing the results to other adolescents accused of sexual crimes requires caution. In addition, the cross-sectional nature of the study limits the possibility of examining causal relationships and it is not possible to definitively determine cause and effect. Future research can examine the impact of environmental, family, and cultural factors on social maturation and attachment styles and evaluate the role of psychological and educational interventions in improving emotion regulation and preventing sexual delinquency. From a practical perspective, designing and implementing educational and empowerment programs for parents and adolescents in the field of social skills, emotion regulation, and creating a safe attachment style can help reduce the incidence of sexual crimes. It is also suggested that policymakers, judicial institutions, and psychiatric institutions collaborate to develop and implement comprehensive preventive and supportive programs for adolescents at risk.

Conclusion

In general, adolescents accused of sexual offenses showed lower levels of social maturity and insecure attachment styles, especially anxious attachment styles, compared to their normal peers.

Also emotion regulation strategies, especially cognitive reappraisal, were significantly weaker in adolescents accused of sexual offenses than in normal adolescents. Therefore, the results of the study emphasize the importance of early interventions to increase social maturity, establish secure attachment styles, and train emotion regulation skills, which can play an effective role in preventing the occurrence of sexual criminal behaviors and promoting healthy psychosocial development during this sensitive period of life.

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Conflict of Interest

No conflict of interest was reported by the authors.

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Ethical Considerations

This article is an extract from a research plan approved between the Research Vice President of Ferdowsi University of Mashhad and the General Forensic Medicine Department of Khorasan Razavi Province. It should also be noted that informed consent was obtained from the participants and they were assured of confidentiality and publication of the results without mentioning personal information.

Code of Ethics

102146

Authors' Contributions

The first and second authors each contributed 25% and were responsible for implementing the study and preparing the initial report.

The third author contributed 10% and carried out the final writing and translation of the article. The fourth author also contributed 10% and supervised the proper execution of the study.

Finally, the last author, with a 30% contribution, was responsible for conceptualizing the research idea, overseeing the approval process, final editing of the manuscript, submitting it to the journal, and responding to reviewers.

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