



Predicting Sexual Behavior Based on Family Emotional Climate and Exposure to the Sexual Environment in Children with and Without Sexual Problems

Abbas Amanuelahi ^{1,*}, Rezvan Andarz ² and Zabihollah Abbaspour ¹

¹Department of Counseling, Faculty of Educational Sciences and Psychology, Shahid Chamran University of Ahvaz, Ahvaz, Iran

²Department of Counseling, Faculty of Educational Sciences and Psychology, Shahid Chamran University of Ahvaz, Ahvaz, Iran

*Corresponding author: Department of Counseling, Shahid Chamran University of Ahvaz, Ahvaz, Iran. Email: a.amanelahi@scu.ac.ir

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Abstract

Background: Children's sexual development and behavior are important aspects of their overall development and education and are a significant concern for parents. These behaviors can lead to harm to children. The emotional climate and sexual environment within a family can influence the development of sexual behaviors.

Objectives: This study aimed to predict sexual behavior problems in children, both with and without pre-existing sexual problems, based on their family's emotional climate and exposure to sexual environments.

Methods: The present study was an applied and descriptive-correlational study that utilized discriminant analysis as its primary analysis method. The study population consisted of parents with children between the ages of 6 and 12 in Ahvaz in 2021. A total of 294 parents were selected for the study using voluntary sampling. The data were collected using the Child Sexual Behavior Inventory (CSBI), the Family Emotional Atmosphere Scale, and the Family Sexuality Scale (FSS). The data collected were analyzed using discriminant analysis.

Results: The study's findings indicate that the emotional climate within a family and exposure to sexual situations within the family, both individually and in combination, can distinguish children who exhibit sexual behavior problems and those who do not. The conventional linear discriminant analysis (LDA) results indicated a significant combined power of the two variables (WL = 0.70; Kappa = 0.49; P = 0.001). The discriminant analysis results were significant for the family emotional climate (WL = 0.79; Kappa = 0.34) and exposure to the family sexual environment (WL = 0.80; Kappa = 0.36; P = 0.001).

Conclusions: Based on the findings of the present study, it can be argued that the emotional climate within a family and exposure to sexual behavior within the family environment significantly impact the development of problematic sexual behaviors in children.

Keywords: Child, Environment, Family, Sexual Behavior

1. Background

Children are among the most vulnerable groups exposed to various psychological and behavioral problems. Sexual behavior problems are prevalent and can cause significant harm to both families and communities (1). Between 42% and 73% of children under 13 exhibit sexual behaviors. Some of these behaviors are age-appropriate (such as touching the genitals and looking at others when not wearing appropriate clothing), and some are age-inappropriate (such as touching the genitals of others and interest in sexual behaviors) (2). For example, normal children aged 2 to 5 show some sexual behaviors, such as looking at naked people, touching their genitals in public or at home, and touching their mothers' breasts (3). Sexual be-

havior problems (SBPs), on the other hand, are inappropriate, disturbing, or offensive behaviors in terms of development. These behaviors are called sexual behaviors.

Various factors are examined to determine whether sexual behaviors are potentially harmful. Some criteria indicate that sexual behavior is dangerous: Sexual behavior between children of different ages or developmental stages and children who do not know each other well, sexual behavior occurring by intimidation or coercion, if the behavior is accompanied by emotional distress, if the behavior interferes with the child's functioning or healthy development, or if the behavior causes physical harm to someone (4, 5). Various factors affect the formation of children's sexual behaviors.

One of the factors influencing children is the family's emotional climate, which is affected by interpersonal relationships. The emotional climate within a family is shaped by various factors, including the relationships between family members, their attitudes and opinions towards each other, their feelings and interests, their level of participation in family activities, the presence of cooperation or competition within the family, and the quality of communication between family members (6). The nature of the emotional climate within a family, including the relationships between parents and children, among siblings, and between parents themselves, can significantly impact the development of children's personalities and their overall growth (7). The family emotional climate is characterized by several variables, including specific parenting behaviors and the time, amount, and types of emotions expressed by family members (8). Parents' emotional responses to their children's emotions affect children's subsequent awareness and modulate their emotional arousal. In general, emotionally expressive and receptive environments enhance children's emotional knowledge development (9). The family's emotional climate per se predicts the child's behavior (10). Positive and correct interactions between parents and children in the family are associated with healthy sexual behaviors in children (11, 12).

Another variable that can affect children's sexual behavior is exposure to the family's sexual environment (13). Exposure to sexual messages occurs in different ways depending on media content, media source, frequency of viewing, and the environment in which the media is viewed (14). Exposure to sexual content can happen by viewing nudity or sexual intercourse in the media and intentional or accidental exposure to nudity and/or sexual behavior at home (e.g., watching sex or sleeping and bathing together) (15). Children exposed to behaviors such as undressing, going to the bathroom or bathing, engaging in sexually explicit activities, or living in homes with family nudity, sexual relations, or less privacy are likelier to engage in sexual behaviors openly. Similarly, children exhibit more sexual behavior in homes with pornographic material (16). Children's access to sexual content, tools, and materials, or poor monitoring of children's access to these materials, can contribute to inducing sexual behavior (17). Sexual content in the media influences behaviors, attitudes, and beliefs related to sexual behaviors in children and adolescents. Exposure to explicit sexual media causes people to change and engage in rude sexual behavior (18). Hornor stated that problematic behaviors often result from exposure to overt sexual behaviors inside or outside the home (19).

2. Objectives

In recent years, mental health systems and child welfare agencies have increased their focus on the sexual behaviors of school-age or younger children. This is because early detection interventions can prevent many problems that may arise in children's lives in the future. Despite the significance of sexual health and behaviors in Iranian culture, no scientific study has been conducted on sexual education and the sexual health of children. Furthermore, the effects of emotional relationships and the expression of sexual behaviors within families are not entirely understood by educational and health systems. Given the significance of children's sexual behavior and its potential consequences, this study aims to predict such behavior by examining the emotional climate and sexual environment within the family.

3. Methods

3.1. Participants

The research population included all parents of children aged 6 to 12 years in Ahvaz in 2021 (from October to December). The research sample consisted of 752 parents who were selected using voluntary sampling and divided into two groups: Parents of children with abnormal sexual behavior (147 parents) and parents of children with normal sexual behavior (605 parents). To ensure equal group sizes for discriminant analysis, 147 parents were randomly selected from the 605 parents of children with normal sexual behavior. The cut-off point for inclusion in the abnormal sexual behavior group was a score higher than 60 on the Child Sexual Behavior Inventory (CSBI) (20). Meyers et al. recommended the smallest group sample size to be between 10 and 20 per predictor (21). The inclusion criteria were a willingness to participate in research, having a child aged 6 to 12, having at least a high school education, and living in the city of Ahvaz. The data were collected online. After developing the electronic version of the instruments, their links were posted on different online social media and networks for parents of primary schools, and the volunteers were asked to click on the link and answer the questions. The ethical considerations for enrollment in this study were ensuring voluntary participation, respecting the participants' privacy, and keeping their information confidential.

3.2. Instruments

3.2.1. Child Sexual Behavior Inventory

This inventory is a 38-item tool designed to assess a wide range of sexual behaviors in children aged 2 to 12.

The mother or primary caregiver assesses the child's sexual behaviors (e.g., the child touched his/her genitals in public, the child touched another child's genitals in public, etc.) over the past six months on a four-point Likert scale measuring the frequency of behavior (0 = never to 3 = at least once per week). The CSBI covers nine main domains of sexual behaviors, including boundary problems, exhibitionism, gender role behavior, self-stimulation, sexual anxiety, sexual interest, sexual intrusiveness, sexual knowledge, and voyeuristic behavior. A score of 65 or higher is clinically significant, although a score of 60 to 64 is also clinically significant and may show some problems (22). This scale shows good internal consistency (from 0.72 for a normative sample to 0.93 for a clinical sample), good reliability (a correlation of 0.91 after 2 weeks), and dependability between the parents living together (a correlation of 0.79). The construct validity of the inventory has been proven to be good (23). In the present study, the reliability coefficient of this inventory was calculated as 0.63 using Cronbach's alpha. The validity of this inventory was assessed using confirmatory factor analysis on a sample of 100 individuals, and the one-factor model was confirmed.

3.2.2. Family Emotional Atmosphere Scale

This 16-item scale was developed to measure affection in child-parent relationships. The scale contains 8 subscales: Love, cuddling, confirming, shared experience, gift-giving, encouraging, trusting, and feeling secure. The items are scored on a six-point Likert scale ranging from 1 to 5, with scores above the average indicating a good emotional climate among family members and scores below the average suggesting a weak emotional bond among family members. The internal consistency coefficients for the scale measured using Cronbach's alpha were 0.85, 0.77, and 0.77, indicating the acceptable reliability of this scale. The reliability for the total scale assessed using Cronbach's alpha was 0.90 (23). In the present study, the reliability coefficient of this scale was calculated as 0.87 using Cronbach's alpha.

3.2.3. Family Sexual Environment Scale

This 5-item scale was developed to assess the exposure to the family sexual environment in children aged 2 to 12 years. The mother or primary caregiver responds to each item to measure the child's exposure over the past six months on a four-point Likert scale showing the frequency of exposure (0 = never to 3 = at least once per week). The scale does not have any reverse item. The reliability of this scale was measured as 0.49, showing weak reliability (24). The reliability coefficient of this scale was calculated in the present study as 0.61 using Cronbach's alpha. The validity of this inventory was assessed using confirmatory factor

analysis on a sample of 100 individuals, and the one-factor model was confirmed.

3.3. Statistical Analysis

The data were summarized using descriptive statistics (mean, standard deviation, frequency, and percentage), and the research hypotheses were tested using synchronous stepwise discriminant analysis with SPSS 26 software. The questionnaires were completed online. The respondents could only go to the next question if they answered the previous question. It was not possible to submit the final questionnaire without answering all questions; hence there were no missing data.

4. Results

The participants in this study were 294 children with and without sexual behavior problems. The mean age of the children with and without sexual behavior problems was 7.50 ± 1.99 and 8.00 ± 1.73 years, respectively. Besides, the mean age of the parents of children with and without sexual behavior problems was 31.23 ± 3.42 and 29.79 ± 4.58 years, respectively. Moreover, 21 persons (7.1%) had a high school education, 83 (28.2%) had a high school diploma, 139 (47.3%) had a bachelor's degree, 42 (14.3%) had a master's degree, and 9 (3.1%) had a Ph.D. degree. There were 67 girls (45.6%) and 80 boys (54.4%) in the group of children with sexual behavior problems, and there were 73 girls (49.7%) and 74 boys (50.3%) in the group of children without sexual behavior problems. Table 1 shows the descriptive statistics for the predictor variables.

As shown in Table 2, the family emotional climate ($F = 73.39$; $P = 0.001$) and exposure to the family sexual environment ($F = 61.15$, $P = 0.001$) had the discriminant power to predict sexual behavior problems in children.

As shown in Table 3, given the small Wilks' lambda value and the high chi-square ($WL = 0.70$; $\chi^2 = 10.09$; $P = 0.001$), the obtained function had good discriminant power to explain the variances in the criterion variable, i.e., groups of children with and without sexual behavior problems.

As the standardized coefficients (Table 4) indicate, the family emotional climate was more powerful in differentiating groups of children with and without sexual behavior problems ($\beta = 0.65$). Besides, the standardized coefficient for the exposure to the sexual environment ($\beta = -0.64$) shows that this variable had a good predictive power to differentiate the two groups of children (Table 4). Furthermore, discriminant analysis was performed to determine each variable's predictive power, as shown in Table 5.

Table 1. Descriptive Statistics for the Predictor Variables

Predictor Variables	Children with Sexual Behavior Problems		Children Without Sexual Behavior Problems		Skewness		Kurtosis	
	Mean	SD	Mean	SD	SK	SD	Ku	SD
Family emotional climate	48.99	11.28	58.82	8.15	1.00	0.28	-1.10	0.14
Exposure to the sexual environment	4.10	2.50	1.97	1.76	-0.34	0.28	0.56	0.14

Table 2. Results of Stepwise Discriminant Analysis

Step	Variables entered into the model	Wilks' Lambda	df1	df2	df3	Exact F			
						Statistic	df1	df2	Sig.
1	Family emotional climate	0.79	1	1	292	73.39	1	292	0.001
2	Exposure to the sexual environment	0.70	2	1	292	61.15	1	291	0.001

Table 3. Results of Stepwise Discriminant Function

Indicators	Values
Number of functions	1
Eigenvalue	0.42
Variance	100
Canonical correlation	0.54
Eta squared	0.29
Wilks' lambda	0.70
χ^2	10.092
df	2
Sig.	0.001
Data centroid	
With sexual behavior problems	0.646
Without sexual behavior problems	-0.646
Prediction accuracy	74.80%
Kappa coefficient	0.49
Sig.	0.001

Given the small lambda values for both variables (WL = 0.79 vs. WL = 0.80; P = 0.001), the functions of the family emotional climate and exposure to the sexual environment were significant, and these functions separately had discriminant powers to distinguish and explain the criterion variable, i.e., children membership in groups with and without sexual behavior problems (Table 5).

5. Discussion

This study aimed to predict sexual behavior problems based on family emotional climate and exposure to the sex-

ual environment in children with and without sexual problems. The results confirmed the observations of previous studies suggesting that children's sexual behavior problems can be predicted based on family emotional climate and sexual environment (25-27).

The child-parent interactions occur within the family's emotional climate. Parents and children interact through their behaviors, attitudes, and goals. Thus, an emotional climate is formed in families where parents and children interact more frequently (28). Parents' emotional distance from their children, growing conflicts, anger, and violent parenting styles are associated with developing sexual behavior problems in children (29). Previous studies have shown that children who grow up in poor and tense family environments with weak emotional bonds between family members are more likely to develop behavioral and anxiety disorders. They are also more dissatisfied with their parents than children who grow up in families with more positive emotions and stronger emotional bonds. Children living in families with a negative emotional climate tend to experience more pressure from their parents. As a result, behavioral problems are likelier to occur in these children. The family emotional climate involves the emotional connection among family members, family bonding, and parental supervision, which are related to high-risk behaviors of individuals. People who grew up in families with turbulent emotions cannot easily cope with adversity and stressful situations due to poor tolerance and, thus, are likelier to develop impulsive and extreme behaviors. Thus, the failure to adopt coping strategies increases the tendency to risky behavior (6). Lack of a warm and sincere emotional climate between family members, especially the lack of support and encouraging emotional relationship between parents and children, causes frustration, self-blame, stress, and anxiety in children. Individ-

Table 4. Standardized, Non-standardized, Structural, and Classification Coefficients Using Stepwise Analysis

Predictive Variables	Standardized Coefficients	Non-standardized Coefficients	Structural Coefficients	Classification Coefficients	
				With Sexual Behavior Problems	Without Sexual Behavior Problems
Family emotional climate	0.65	0.06	0.77	0.64	0.55
Exposure to the sexual environment	-0.64	-0.29	-0.76	0.94	1.33
Constant		-2.69		-20.59	-17.11

Table 5. Results of Discriminant Analysis

Variables	Family Emotional Climate	Exposure to the Sexual Environment
Number of functions	1	1
Eigenvalue	0.25	0.24
Variance	100	100
Canonical correlation	0.44	0.44
Wilks' lambda	0.79	0.8
χ^2	65.36	63.82
df	1	1
Sig.	0.001	0.001
Non-standardized coefficient	0.1	0.46
Constant	-5.47	-1.46
Kappa coefficient	0.34	0.36
Sig.	0.001	0.001
Data centroid		
With sexual behavior problems	0.5	-0.493
Without sexual behavior problems	-0.5	-0.493
Prediction accuracy	67%	68.40%

uals should seek strategies to reduce their stress to overcome these negative emotions that lead to internal conflicts. Sexual behavior problems can be harmful and dysfunctional coping mechanisms for emotionally difficult situations (29).

The sexual environment is defined as sexual activities performed by family members (30). Research shows that the family environment is one of the most important factors leading to various childhood problems, especially sexual behavior problems, and making children model the family sexual environment (31). In addition, children's problems defining personal boundaries with their peers may be an example of imitating the sexual desires they have witnessed or experienced in the family. Research shows these family practices can increase confusion and anxiety about sexual boundaries (26).

Evidence suggests that children with external behavioral problems are likelier to engage in sexual behavior

when exposed to a sexual environment, reinforcing sexual behavior problems (24). Children who grow up in households with weak family boundaries and are exposed to nudity, parental sexual activity, and/or pornography are likelier to experience sexual behavior problems (31). Early exposure to sexual behavior or knowledge is associated with increased problematic sexual behavior in school children. Moreover, parents who report higher levels of family sexuality at home also report a higher frequency of sexual behavior in their children (32). Exposure to sexual content, behaviors, and stimuli can encourage children to learn and repeat these behaviors. Besides, as children approach puberty, they are more stimulated and encouraged to engage in sexual behaviors.

This study had some limitations. The participants were parents of children aged 6 to 12 years. Thus, generalizing the results to people of other ages should be done cautiously. Moreover, the sampling procedure and online data

collection may have had limitations. Accordingly, similar studies can be conducted in other age groups to assess the generalizability of the findings to others. Furthermore, children's sexual behaviors at different ages can be assessed using other techniques, such as interviews.

5.1. Conclusions

The emotional climate within a family and exposure to a sexual environment, including various sexual stimuli, are significant predictors of children's sexual behaviors. Such factors can lead to problematic sexual behaviors in children. Consequently, parents must try to enhance the family environment and prevent exposure to sexual stimuli for their children.

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Footnotes

Authors' Contribution: A.A. contributed to the conception, manuscript drafting, language editing, and manuscript revising; R.A. contributed to the conception, manuscript drafting, and data gathering; Z.A. contributed to the conception, data gathering, statistical analyses, and interpretation.

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