

Preventive Care in Nursing and Midwifery Journal



Original Article

The Role of Family Functioning and Emotional Expressiveness in Predicting Anxiety in Adolescent Girls

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Received: 4 Feb. 2025 Accepted: 25 Feb. 2025 Published: 10 Mar. 2025

Article Info

Keywords:

Family function Emotional expressiveness Anxiety Adolescent girls

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How to Cite This Article:

Naziri A, Hooman F. The Role of Family Functioning and Emotional Expressiveness in Predicting Anxiety in Adolescent Girls. Prev Care Nurs Midwifery J 2025; 15(1): 37-45

Abstract

Background: Anxiety is a common mental health issue in adolescence, more frequently affecting girls, emphasizing the need to examine family factors such as family functioning and emotional expressiveness.

Objectives: This study aimed to evaluate how family functioning and emotional expressiveness predict anxiety levels in adolescent girls.

Methods: This descriptive-correlational study analyzed a population of female adolescents enrolled in the first year of high school (grades 7-9, ages 13-15) in Shiraz during the 2023-2024 academic year. A sample of 252 participants was selected using a multi-stage cluster sampling method. Data were collected through the Children's Anxiety Scale, the McMaster Family Assessment Device (FAD), and the Emotional Expressivity Questionnaire (EEQ). The data were analyzed with Pearson's correlation coefficient and stepwise regression using SPSS version 26.

Results: Findings revealed a significant negative correlation between family functioning and anxiety (r=-0.51, p<0.001), as well as between emotional expressiveness and anxiety (r=-0.46, p<0.001). Both family functioning and emotional expressiveness together explained 34% of the variance in anxiety (R²=0.34), with family functioning contributing more significantly.

Conclusion: This study finds that family functioning and emotional expressiveness are important predictors of lower anxiety levels in adolescent girls, collectively accounting for a significant portion of the variance. Family functioning seems to have a more vital influence, indicating that interventions focused on family dynamics could help reduce anxiety in this group.

Implications for Nursing and Midwifery Preventive Care

- This study highlights the vital role of family functioning in reducing anxiety in adolescent girls and promotes nursing interventions to strengthen family cohesion, communication, and problemsolving skills, creating supportive environments.
- Emotional expressiveness, which is inversely related to anxiety, requires preventive nursing interventions that include educational programs to promote healthy emotional regulation skills and reduce anxiety risk in adolescent girls.
- Integrating these predictors into routine mental health screenings enables early identification and preventive care for at-risk adolescent girls.



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Introduction

Anxiety is a common mental health disorder among adolescents, with the potential to greatly affect their emotional, social, and academic paths [1]. This condition, marked by feelings of worry, fear, and tension, can lead to issues like lower academic achievement, avoiding social interactions, and a higher risk of future mental health problems [2,3]. Adolescent girls are especially susceptible to anxiety, showing higher rates than boys, which highlights the importance of studying genderspecific risk and protective factors [4]. Adolescence is a crucial and challenging developmental stage, full of major biological, psychological, and social changes factors that can either increase vulnerability to or worsen existing anxiety. Because anxiety during this time can have lasting negative effects on school success, relationships, and overall mental health, identifying its family and psychological predictors is critical for developing targeted interventions [5,6].

In this framework, the family, serving as the primary agent of adolescent socialization, assumes a pivotal role in the development of their coping strategies and emotional regulation capacities [7]. Family functioning, defined as the family's ability to effectively execute its duties and roles to meet the needs of its members, can exert both direct and indirect effects on adolescent mental health [8]. Characteristically, high-functioning families foster a supportive and secure milieu for adolescents, while those with compromised functioning may engender feelings of insecurity and anxiety within this population [9]. Family functioning, encompassing elements such as cohesion, flexibility, and problemsolving efficacy, can either serve as a protective factor against or a risk factor for anxiety [10].

Although prior studies, such as Farmakopoulou et al. [9], have established a link between family functioning and adolescent anxiety, the specific predictive role of family functioning in teenage girls within diverse cultural contexts, such as Iran, remains underexplored, necessitating further investigation [11]. This study aims to address this gap by examining how family functioning

contributes to anxiety outcomes in this population [10].

In contrast, emotional expressivity is also acknowledged as a salient psychological construct that influences the processing and management of affective states [12]. Adolescents who encounter challenges in articulating their emotions demonstrate a heightened susceptibility to emotional suppression and the manifestation of anxiety [13,14]. Emotional expressivity denotes an individual's capacity to articulate and regulate their feelings [15]. Adolescents who can express their emotions healthily and constructively generally exhibit lower levels of anxiety, whereas the inhibition of emotional expression can precipitate an increase in anxiety [16].

While emotional expressivity is recognized as a protective factor, its interplay with family functioning in predicting anxiety among adolescent girls has received limited attention, warranting further exploration to inform comprehensive intervention strategies [12].

Previous research has shown links between family functioning, emotional expressivity, and adolescent anxiety; however, few studies have examined their combined predictive roles specifically in adolescent girls, especially in non-Western settings like Shiraz, Iran [9,16]. This research gap hampers the development of culturally tailored interventions for this vulnerable group.

Objectives

The current study fills this gap by exploring how family functioning and emotional expressivity predict anxiety levels in adolescent girls, offering insights into their relative influence and aiding in the development of prevention and treatment strategies to improve mental health outcomes.

Methods

Study Design

This study employed a descriptive and correlational research design.

Participants

The target population consisted of female adolescent students enrolled in the first cycle of secondary education (grades 7-9, ages 13-15 years) in Shiraz, Iran, during the 2023-2024 academic year, with an estimated population of approximately 15,000 students across public secondary schools. Shiraz is divided into three educational districts, and District 2 was randomly selected as a representative cluster, assuming comparable educational and demographic characteristics across districts based on standardized curricula and similar socioeconomic profiles.

Sampling Method

A multi-stage cluster sampling technique was employed, whereby three female secondary schools were randomly chosen from District 2. Within these schools, four classes were randomly selected, resulting in a total of twelve classes with an estimated 300 students (assuming an average class size of 25 students). To ensure statistical power, the sample size of 252 participants was determined based on the number of study variables (family functioning and emotional expressivity) using power analysis for regression studies. Questionnaires were distributed to 280 students to account for potential attrition.

Data Collection

To facilitate data collection, questionnaires were distributed during regular class hours by trained research assistants who provided standardized instructions to participants. The questionnaires were completed in a classroom setting under supervised conditions to ensure clarity and minimize distractions. Completed questionnaires collected immediately after completion to maintain response integrity and prevent loss of data. Ultimately, 252 participants provided complete and valid responses, defined as questionnaires with no missing responses on critical items required for scoring, and were included in the final sample.

Variables

The inclusion criteria for participation were: (a) female students enrolled in grades 7-9 at one of the

selected schools in District 2; and (b) submission of complete and scorable questionnaire responses. Exclusion criteria included submission incomplete or unscorable questionnaires. As part of ethical compliance, informed consent was obtained from school administrators and participants, with parental consent secured for students under 15 years, in accordance with ethical research guidelines. Withdrawal or lack of consent was respected as an ethical principle but not listed as an exclusion criterion. Marital status was not explicitly included as an inclusion or exclusion criterion due to the low prevalence of marriage among adolescents aged 13-15 in this context, though its potential influence on anxiety is acknowledged for future consideration. A demographic information form was administered to collect data on participants' age, grade level, and family structure (parental status).

Measurement Tools

Children's Anxiety Scale: The Children's Anxiety Scale was developed to evaluate anxiety in individuals aged 8 to 15 years. This 45-item instrument comprises six subscales: separation anxiety, social anxiety, obsessive-compulsive symptoms, panic-agoraphobia, generalized anxiety, and fear of physical injury. Anxiety levels in children and adolescents are measured using a four-point Likert scale, with example items such as "I worry about everything."

Scoring of the questionnaire employs a four-point Likert scale ranging from "Never" (0) to "Always" (3), yielding a total possible score between 0 and 135. Total scores are interpreted as follows: 0-44 indicates a low level of anxiety, 45-88 indicates a moderate level of anxiety, and scores exceeding 88 indicate a high level of anxiety in children and adolescents [17]. The Cronbach's alpha reliability coefficient reported by Ghanbari et al. for this scale was above 0.84 [18]. In the current study, the internal consistency of the anxiety scale was assessed using Cronbach's alpha, which yielded a coefficient of 0.83.

The McMaster Family Assessment Device (FAD): The FAD, developed by Epstein et al. in 1983 [19], is a 60-item self-report instrument designed to evaluate family functioning according to the McMaster Model of Family Functioning. Participants respond to items using a 4-point Likert scale, ranging from "strongly agree" (1) to "strongly disagree" (4). The FAD comprises seven subscales: problem-solving (6 items), communication (9 items), roles (11 items), affective responsiveness (6 items), affective involvement (7 items), behavior control (9 items), and general functioning (12 items). Total scores range from 60 to 240, with higher scores indicating poorer family functioning. Subscale scores are normalized to a 1-4 range (by averaging item scores) to facilitate comparison across dimensions despite varying item counts, with scores above 2.0 indicating unhealthy functioning for each subscale. Cut-off scores for general functioning suggest that scores above 2.0 (normalized) or 24 12-item subscale) (raw. for the indicate dysfunctional family dynamics [19]. Najarian [20] validated the FAD in Iran, reporting strong psychometric properties, including a Cronbach's alpha of 0.89 and test-retest reliability of 0.85. In the present study, the instrument yielded a Cronbach's alpha of 0.82, confirming robust internal consistency.

Emotional Expressivity Questionnaire (EEQ): The EEO was designed to evaluate individual differences in emotional expressivity. This 16-item instrument assesses three dimensions of expressivity: positive emotional expressivity, intimacy expressivity, and negative emotional expressivity. Responses are recorded on a five-point Likert scale (1= never true, 5 = always true). Total scores range from 16 to 80, with higher scores indicating greater emotional expressivity. The EEQ does not have established cutoff points for categorizing levels of expressivity, but higher scores reflect a stronger ability to articulate and regulate emotions constructively. The original validation study by King and Emmons [21] reported a Cronbach's alpha of 0.70 for the overall scale. Kargar et al. [22] validated the EEQ in Iran, reporting a Cronbach's alpha of 0.71 and confirming its suitability for Iranian populations. In the present study, the internal consistency of the EEQ was examined using Cronbach's alpha, which yielded a coefficient of 0.76.

Statistical Methods

The data were analyzed using SPSS, version 26. Descriptive statistics, including means, standard deviations, skewness, and kurtosis, were computed to summarize the data and assess the normality of variable distributions. Normality was evaluated by examining skewness and kurtosis values, with absolute values below 2 indicating acceptable normality for parametric analyses. Pearson's correlation coefficient was used to assess linear relationships between the variables, and stepwise regression analysis was employed to examine the predictive capacity of family functioning and emotional expressivity on adolescent anxiety levels. A significance level of p< 0.05 was adopted for all statistical tests.

Ethical Considerations

As part of ethical compliance, informed consent was obtained from school administrators and participants, with parental consent secured for students under 15 years, in accordance with ethical research guidelines. Withdrawal or lack of consent was respected as an ethical principle but not listed as an exclusion criterion.

Results

Out of 280 students who fulfilled the study's inclusion criteria, 28 were excluded due to incomplete responses or failure to meet exclusion criteria, yielding a final sample of 252 participants. The demographic characteristics of the sample are presented in Table 1. The sample included 252 female adolescents aged 13-15 years, with a mean age of 14.0 years (SD= 0.82). Most participants reported both parents as living (94.4%, n=238), with 5.6% (n=14) reporting one or both parents deceased. Marital status was not assessed in this study due to the low prevalence of marriage among this age group in Shiraz.

Descriptive statistics for the study variables are summarized in Table 2

 Table 1. Demographic Characteristics of the Study

 Sample

Variable	Category	n	%
	13 years	84	33.30
Age	14 years	90	35.70
	15 years	78	31.00
	Grade 7	86	34.10
Grade	Grade 8	88	34.90
	Grade 9	78	31.00
Parental	Both parents living	238	94.40
status	One/both deceased	14	5.60

Table 2. Means, Standard Deviations (SD), Skewness, and Kurtosis of the Research Variables

Variables	Means	SD	Skew ness	Kurtosis	
Anxiety	55.36	12.30	1.86	0.24	
Family functioning	101.25	34.12	-1.92	0.15	
Emotional expressiveness	48.07	10.26	-1.23	0.49	

SD: Standard Deviation

Table 3 presents the Pearson correlation coefficients for the relationships between anxiety, family functioning, and emotional expressiveness. Both family functioning and emotional expressiveness were inversely associated with anxiety, indicating that better family functioning (lower FAD scores) and higher emotional expressiveness were linked to lower anxiety levels. These significant correlations (p<0.001) suggest that supportive family environments and the ability to express emotions

constructively may serve as protective factors against anxiety in adolescent girls.

Table 3. Pearson Correlation Coefficients of Anxiety with Family Functioning and Emotional Expressiveness

Variables	Pearson Correlation Coefficient (r)	p		
Family functioning	-0.51	0.001		
Emotional expressiveness	-0.46	0.001		

To evaluate the predictive power of family functioning and emotional expressiveness on anxiety, a stepwise multiple regression analysis was conducted using a forward selection method, with anxiety as the dependent variable. The results are detailed in Table 4.

In Model 1, family functioning emerged as a significant predictor, explaining a substantial portion of the variance in anxiety scores. In Model 2, the inclusion of emotional expressiveness increased the explained variance, with both predictors together accounting for 34% of the variance in anxiety. Family functioning showed a stronger predictive effect (standardized β =-0.40 in Model 1, -0.35 in Model 2), indicating its critical role in anxiety outcomes. The negative regression coefficients suggest that poorer family functioning (higher FAD scores) is associated with increased anxiety, while greater emotional expressiveness is linked to reduced anxiety.

Table 4. Summary of Stepwise Regression Analysis for Predicting Anxiety

Model	Predictor variable(s)	F	R	\mathbb{R}^2	В	SE	β	t	p	95% CI
1	Family functioning	41.21	0.51	0.26	-0.30	0.03	-0.40	-5.51	0.001	[-0.36, -0.24]
2	Family functioning and emotional expressiveness	37.30	0.59	0.35	-0.22	0.04	-0.35	-3.11	0.001	[-0.24, -0.12]

SE: Standard errors; 95% CI: 95% Confidence intervals

Discussion

This study aimed to investigate the extent to which family functioning and emotional expressiveness predict anxiety levels among adolescent females. The initial finding revealed a statistically significant correlation between family functioning and anxiety, consistent with prior research by Farmakopoulou et al. [9], Guo et al. [23], and Wang et al. [24]. These studies similarly reported that supportive family environments reduce adolescent anxiety. However, divergent findings exist; for instance, Mesman et al. [25] found that in some high-conflict families, adolescents developed resilience, suggesting that certain family dynamics may not universally

increase anxiety. This observation can be elucidated by considering that family functioning, as a central construct, encompasses the family's capacity to establish a supportive, cohesive, and effective milieu for its members. Characteristically, highfunctioning families facilitate healthy inter-member communication, address conflicts constructively, and cultivate a secure environment conducive to adolescents' emotional and psychological growth. These attributes can serve as protective factors against the development of anxiety, as adolescents within such contexts tend to experience heightened feelings of security and acceptance, thereby enhancing their ability to navigate life's demands [9]. Conversely, families with compromised functioning may exhibit deficits in cohesion and support, manage conflicts maladaptively, and inadequately address the emotional needs of their adolescent members. Such conditions can contribute to elevated anxiety levels in adolescents, who may experience feelings isolation. insecurity. and vulnerability. Adolescents raised in these familial environments often encounter greater psychological strain and may possess diminished capacity for emotional regulation when facing everyday stressors [24].

Moreover, family functioning can impact the acquisition of adolescents' social and emotional competencies. Effective families typically guide adolescents in developing skills such as problemsolving, stress management, and adaptive emotional expression, which can bolster their resilience against anxiety [23]. In contrast, adolescents in lowfunctioning families may have fewer opportunities to acquire these crucial skills, consequently increasing their susceptibility to anxiety. This proposition underscores the notion that family functioning operates not only as a significant environmental influence but also as a robust predictor of anxiety in adolescent girls. Investigating the association between these constructs offers valuable insights into the determinants of adolescent mental wellbeing and can inform the development of effective intervention approaches aimed at mitigating anxiety and enhancing their overall quality of life.

A further significant finding was the statistically significant inverse relationship between emotional

expressivity and anxiety among adolescent girls, aligning with findings by Young et al. [26], Cejudo et al. [27], and Namazi Yousefi et al. [28]. However, divergent results were noted by Schreier et al. [29], who reported that in collectivist cultures, high emotional expressivity sometimes increased social anxiety due to cultural norms favoring emotional restraint. This supports the hypothesis that anxiety levels in adolescent girls can be predicted by their degree of emotional expressivity. Emotional expressivity, as a psychological construct, denotes an individual's capacity to articulate and regulate their feelings in adaptive and constructive manners. Adolescents exhibiting high levels of emotional expressivity typically demonstrate enhanced abilities in identifying their emotions, communicating them both verbally and nonverbally, and employing effective emotion regulation strategies when confronted with stressors and challenges [28]. This capacity can function as a protective mechanism against anxiety, as adolescents who can express their emotions are less prone to experiencing the accumulation of suppressed or unresolved feelings, which can contribute to heightened anxiety [26]. Conversely, adolescents with low emotional expressivity may encounter difficulties articulating their feelings and tend to suppress or deny negative emotions such as fear, sadness, or anger. This emotional inhibition can lead to a buildup of stress and psychological tension, potentially culminating in the manifestation of anxiety [14]. Adolescents who cannot express their emotions in healthy ways may experience amplified feelings of helplessness and inadequacy when facing stressful circumstances, thereby increasing their vulnerability to anxiety [16]. Moreover, emotional expressivity influences the quality of adolescents' interpersonal connections. Adolescents who can express their emotions appropriately typically cultivate more intimate and supportive relationships with their peers and family. These relationships can serve as a vital source of social support and contribute to the mitigation of anxiety [15].

The results suggest that both family functioning and emotional expressivity are significant predictors of anxiety in adolescent girls, with specific dimensions of family functioning, such as communication and problem-solving, playing critical roles. For instance, effective communication and problem-solving were associated with lower anxiety, as these dimensions foster a supportive environment [9, 19]. In contrast, poorer scores in affective responsiveness were linked to higher anxiety, indicating that families' emotional engagement significantly influences adolescent mental health [23]. These findings align with Epstein et al. [19], who emphasized that deficits in specific FAD subscales. particularly communication and affective responsiveness, are robust predictors of psychological distress. Families with low functioning in these areas may fail to provide the emotional support needed to buffer stress, thus increasing anxiety risk [24].

Several limitations of the current study should be acknowledged. First, sampling was restricted to District 2 in Shiraz, which may limit the generalizability of findings to other districts or regions with differing socioeconomic or cultural characteristics. Second, the large number of questionnaire items (approximately 120 across the Children's Anxiety Scale, FAD, and EEQ) may have contributed to participant fatigue, potentially affecting response accuracy. Third, the sample was exclusively composed of adolescent constraining the generalizability to male adolescents. Fourth, demographic variables such as marital status and parental status were not fully explored as predictors, limiting the analysis of their potential influence on anxiety. A further limitation is the reliance on self-report questionnaires, which introduces potential response biases, such as social desirability or recall bias. Despite these limitations, the study's strengths include a robust sample size, the use of validated and reliable measures, and a focus on a culturally specific population, providing valuable insights for intervention development in Iran.

Conclusion

In conclusion, this study substantiates the significant roles of family functioning and emotional expressiveness in mitigating anxiety among adolescent girls, with family functioning, particularly in communication and problem-solving, showing a stronger predictive effect. These findings underscore the importance of fostering supportive family environments and emotional regulation skills to reduce anxiety in this population. Future research endeavors are encouraged to include male adolescents to facilitate gender-based comparisons, incorporate qualitative methods such as interviews to enhance understanding, replicate the study across multiple districts and urban settings to improve generalizability, and assess additional demographic predictors like marital status to capture their impact on anxiety.

Ethical Considerations

The study received approval from the Ethical Committee of Islamic Azad University, Shiraz Branch (code: IR.IAU.SHIRAZ.REC.1403.282). Informed consent was obtained from all participants and their parents, adhering to established ethical guidelines. Participants were fully informed about the study's objectives, procedures, and their right to withdraw at any time without any repercussions. To ensure confidentiality, all data were anonymized, and no personally identifiable information was collected.

Acknowledgments

This article was extracted from a part of the MSc dissertation of the first author in the Department of Psychology, Shiraz Branch, Islamic Azad University, Shiraz, Iran. The authors express gratitude to the school administrators, teachers, and students of the participating schools in Shiraz for their cooperation and support in data collection.

Conflict of Interest

No conflicts of interest are declared.

Funding

No funding was received for this study.

Authors' Contributions

Naziri A. conceptualized the study, designed the methodology, and led data collection. Hooman F. performed data analysis and contributed to

manuscript preparation. Both authors reviewed and approved the final manuscript.

Artificial Intelligence Utilization

The authors declare that no generative AI technologies were used in the creation of this manuscript.

Data Availability Statement

The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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