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Predictive Role of Psychological Distress and Assertiveness in High-Risk Behaviors among Female Adolescents in Ahvaz, Iran

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ABSTRACT

Background: Adolescence is a period marked by increased vulnerability to high-risk behaviors, which pose substantial public health challenges due to a complex interplay of internal psychological and social factors. The present study sought to examine the predictive role of psychological distress and assertiveness in high-risk behaviors among female adolescents in Ahvaz, Iran.

Methods: This descriptive-correlational study was conducted during the 2024–2025 academic year. A sample of 272 female adolescents was selected via multistage cluster sampling. Instruments included the High-Risk Behavior Questionnaire, the Depression Anxiety Stress Scales-21 (DASS-21), and the Assertion Inventory. Data analysis involved Pearson correlation coefficients and simultaneous multiple regression.

Results: Psychological distress emerged as a significant positive predictor of high-risk behaviors, whereas assertiveness exhibited a significant negative association with such behaviors ($p<0.001$). The multiple regression model was statistically significant ($F=51.04$, $p<0.001$), with psychological distress and assertiveness jointly explaining 31.8% of the variance in high-risk behaviors among the participants.

Conclusion: Psychological distress and diminished assertiveness represent key determinants of high-risk behaviors in female adolescents. Accordingly, school-based interventions emphasizing emotional regulation strategies and assertiveness skills training are recommended to reduce behavioral risks and promote overall adolescent well-being.

Keywords: Risk-taking, Psychological distress, Assertiveness, Adolescent

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Introduction

Adolescence is a pivotal developmental stage marked by profound physiological, cognitive, and psychosocial changes. This period involves the shaping of personal identity, core values, and belief systems, often under the strong influence of social environments and peer groups (Agarwal & Kumar Jha, 2025; Mastorci et al., 2024). For female adolescents, these transitions are particularly intricate, as they contend with evolving societal expectations and internal developmental challenges. Although many adolescents navigate this phase successfully toward adulthood, a substantial proportion exhibit vulnerability to behaviors that deviate from normative standards, with potential long-term adverse physical, psychological, and social consequences (Khodarahmi et al., 2023; Mastorci et al., 2024). The onset of such behavioral issues in adolescence extends beyond transient developmental challenges and constitutes a major public health issue, given that early risk behaviors frequently precede chronic psychological and social impairments (Arab Moghaddam et al., 2024). Thus, a thorough understanding of the unique challenges and internal resources of this population is crucial, as the interaction between psychological states and social competencies shapes trajectories toward either resilience or heightened risk.

High-risk behaviors represent a central concern in adolescent research, encompassing actions that endanger individual health, safety, and future prospects, as well as community stability (Bozzini et al., 2021). These behaviors are typically categorized into those directly threatening physical well-being—such as substance abuse, self-harm, and unsafe sexual practices—and those infringing on social or legal norms, including delinquency, aggression, and truancy (Malayen et al., 2024). Among female adolescents, high-risk behaviors often manifest subtly, frequently as externalized responses to internal emotional distress or efforts to gain peer acceptance (Ghelbash et al., 2024). Evidence suggests that their prevalence is influenced by socialization processes, including family dynamics, school environment quality, and peer relationships (Sharma et al., 2019). When internal psychological buffers or protective social skills are deficient, adolescents are more prone to the allure of risky activities. Identifying key predictors of these behaviors is therefore essential for developing targeted preventive interventions to alleviate the associated socioeconomic and psychological burdens.

A prominent internal predictor of behavioral maladjustment is psychological distress, a multidimensional construct encompassing diminished well-being and manifested through depression, anxiety, and stress symptoms (Safa et al., 2025). In adolescence, psychological distress impedes effective emotional regulation and cognitive processing (Debra et al., 2024). Moreover, elevated distress levels can undermine self-efficacy and increase the propensity for risky behaviors as maladaptive coping mechanisms, such as temporary escape or self-medication (Knapp et al., 2024). Empirical studies have consistently shown strong positive associations between psychological distress and high-risk behaviors in both general and clinical adolescent samples (Arbour-Nicitopoulos et al., 2012). For female adolescents, untreated chronic distress erodes resilience against peer pressure and environmental stressors, elevating the risk of impulsive and dangerous decisions. Consequently, psychological distress serves as a key internal driver predisposing individuals to maladaptive pathways (Pfeifer et al., 2011; Sisk & Gee, 2022).

Conversely, assertiveness functions as an important protective factor and a fundamental element of social-emotional competence. Assertiveness entails expressing thoughts, feelings, and rights directly, honestly, and appropriately while respecting others, including the ability to refuse unreasonable demands and resist coercion (Yosep et al., 2024). In female adolescents, higher assertiveness is linked to improved emotional regulation and stronger personal boundaries, particularly against peer pressure involving substance use or risky interpersonal interactions (Golshiri et al., 2023). Deficits in assertiveness and

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related social skills are significant precursors to behavioral issues and social isolation (Khademi Mofrad & Mehrabi, 2015). Adolescents with low assertiveness may seek external validation excessively, increasing conformity to risky peer norms to avoid rejection. In contrast, those with robust assertiveness skills are better equipped to manage social challenges, rejecting negative influences while pursuing adaptive goals (Englander-Golden et al., 1986).

The rationale for the current study is reinforced by escalating global concerns over the enduring societal and healthcare impacts of adolescent risk-taking. Although prior research has addressed various external factors, gaps persist in examining the joint predictive roles of internal emotional states (psychological distress) and interpersonal competencies (assertiveness) in female adolescents, particularly within the Iranian cultural context. Much of the existing literature has either prioritized male samples or analyzed these variables independently, with limited attention to how these factors may interact synergistically to influence high-risk behaviors in this specific population. By clarifying these predictors, educators and mental health practitioners can develop more efficacious school-based interventions that emphasize emotional empowerment and social resilience over mere restriction. Such targeted, evidence-based strategies are vital for curbing behavioral risks and promoting holistic well-being in future generations. Accordingly, this study aimed to predict high-risk behaviors based on psychological distress and assertiveness among female adolescents in Ahvaz.

Methods

The present study utilized a descriptive-correlational research design to examine the predictive relationships between variables. The statistical population comprised all female adolescents enrolled in secondary schools in Ahvaz, Iran, during the 2024–2025 academic year. Using a multistage cluster sampling method, a sample of 272 students was selected. The required sample size was determined based on the number of predictor variables (k=2) using Tabachnick and Fidell's (2019) formula ($N \geq 50 + 8k$), suggesting a minimum of 66 participants. However, to account for the multistage cluster sampling design (which increases the design effect and requires larger samples for adequate precision), anticipated attrition, and to achieve greater statistical power for regression analysis, a substantially larger sample of 272 participants was ultimately recruited (Tabachnick & Fidell, 2019). A multistage cluster sampling method was employed as follows: First, out of the six educational districts of Ahvaz, three districts were randomly selected. In the second stage, from each selected district, two secondary schools were randomly chosen. In the third stage, within each selected school, two to three classes from the 10th, 11th, and 12th grades were randomly selected. Finally, all female students aged 16–18 in the selected classes were invited to participate, resulting in a total sample of 272 students. Inclusion criteria included being aged 16 to 18, studying in the selected schools, and providing informed consent (from both the student and their legal guardian). Exclusion criteria involved the submission of incomplete questionnaires or a refusal to continue participation at any stage. Participants who reported a history of severe diagnosed psychiatric disorders (based on self-report and school health records) were also excluded. Regarding ethical considerations, the study's objectives were clearly explained to all participants and their legal guardians. Anonymity and confidentiality of the data were strictly maintained, and participants were assured of their right to withdraw from the study at any time without any negative consequences. Informed written consent was obtained from both the students and school authorities prior to data collection.

Instruments

High-Risk Behavior Questionnaire: Developed by Zadeh Mohammadi et al. (2011), this 38-item scale measures the propensity for various high-risk activities, including substance use, alcohol consumption, smoking, violence, and risky sexual

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behaviors. Items are scored on a 5-point Likert scale (1 = Never to 5 = Always), with higher total scores indicating a greater tendency toward high-risk conduct. Previous research in the Iranian context reported high validity and a Cronbach's alpha coefficient of 0.94 (Zadeh Mohammadi et al., 2011). In the current study, the internal consistency (Cronbach's alpha) for this instrument was 0.90, demonstrating excellent reliability.

Psychological Distress Scale (DASS-21): The Depression, Anxiety, and Stress Scale (DASS-21), developed by Lovibond and Lovibond (1995), was used to assess internalizing symptoms. This 21-item instrument comprises three subscales (7 items each). Responses are rated on a 4-point Likert scale (0 = Did not apply to me at all to 3 = Applied to me very much). Total scores range from 0 to 63, where higher scores reflect higher levels of psychological distress (Lovibond & Lovibond, 1995). The Persian version has shown robust psychometric properties in previous studies (alpha > 0.85) (Sahebi et al., 2005). In this research, the Cronbach's alpha for the total scale was calculated at 0.94.

Assertiveness Inventory: The Gambrill and Richey (1975) Assertiveness Inventory was employed to measure social competence. This 22-item scale assesses the degree of discomfort and the probability of engaging in assertive behaviors across various social situations (e.g., saying no, initiating conversations). Items are scored on a Likert scale, where higher scores represent higher levels of self-assertiveness and social confidence (Gambrill & Richey, 1975). Regarding the Assertiveness Inventory, previous studies in Iran have confirmed its validity and acceptable reliability (alpha = 0.90) (Samouei et al., 2014). In the current study, the internal consistency (Cronbach's alpha) was determined to be 0.88, indicating high reliability.

Procedure

Following the necessary coordination with the Ahvaz Department of Education and obtaining formal ethical clearance, the researchers visited the selected schools. Data collection was conducted in a group format within the classroom setting during designated hours to ensure minimal academic disruption. Before distributing the instruments, the researcher provided a brief orientation regarding the purpose of the study and instructions on how to complete the questionnaires. Participants were encouraged to respond honestly, and any ambiguities regarding the items were clarified on-site. The process was supervised to ensure independent completion and to prevent peer influence. On average, the completion of the entire battery of questionnaires took approximately 45 minutes. Once collected, the data were screened for missing values and prepared for statistical processing.

Data Analysis

Data were analyzed using SPSS version 26. Descriptive statistics (mean and standard deviation) were used to summarize the data. The research hypotheses were then tested using Pearson correlation coefficients and simultaneous multiple regression analysis to determine the unique contribution of each predictor variable. Prior to conducting Pearson correlation and multiple regression analyses, the assumptions of normality, linearity, multicollinearity (VIF < 10 and tolerance > 0.10), homoscedasticity, and independence of residuals were examined and confirmed to be satisfactorily met. Specifically, skewness and kurtosis values for all variables fell between -1 and +1 (see Table 1), VIF values ranged from 1.28 to 1.31 (well below 10), tolerance values exceeded 0.76, and residual plots indicated no violations of linearity or homoscedasticity, with Durbin-Watson statistic of 1.89 confirming independence of residuals.

Results

The study sample comprised 272 female adolescents aged 16 to 18, with a mean age of 17.02 years (SD=0.81). Specifically, 79 participants (29.0%) were 16 years old, 108 (39.7%) were 17 years old, and 85 (31.3%) were 18 years old. In terms of academic tracks, 79 students (29.0%) were enrolled in mathematics and physics, 103 (37.9%) in humanities, and 90 (33.1%) in experimental sciences.

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Table 1 summarizes the descriptive statistics and distributional characteristics of the primary variables. The mean score for high-risk behaviors was 70.68 (SD=16.30), suggesting a moderate propensity for risk-taking within this sample. Psychological distress had a mean of 40.84 (SD=8.09), indicating relatively elevated levels compared to typical adolescent norms. Assertiveness scores averaged 53.30 (SD=11.72), reflecting moderate assertive abilities. All skewness and kurtosis values ranged between -1 and +1, confirming approximate univariate normality (Table1).

Table 1. Descriptive statistics and normality indices for study variables

Variable	Mean	SD	Skewness	Kurtosis
High-risk behaviors	70.68	16.30	0.42	-0.18
Psychological distress	40.84	8.09	0.31	-0.45
Assertiveness	53.30	11.72	-0.27	-0.62

Table 2 presents the intercorrelations among the study variables. Psychological distress was strongly positively correlated with high-risk behaviors (r=0.57, p<0.001), implying that greater emotional distress coincides with increased risk engagement. Assertiveness demonstrated a strong negative correlation with high-risk behaviors (r=-0.54, p < 0.001), indicating its protective role. A moderate negative correlation was also found between assertiveness and psychological distress (r=-0.48, p<0.001) (Table2).

Table 2. Pearson correlation coefficients among study variables

Variables	High-risk behaviors	Psychological distress	Assertiveness
High-risk behaviors	1		
Psychological distress	0.57**	1	
Assertiveness	-0.54**	-0.48**	1

Note: **p<0.001

Table 3 reports the results of the simultaneous multiple regression analysis with high-risk behaviors as the dependent variable. The model was highly significant (F=51.04, p<0.001), explaining 31.8% of the variance (R^2=0.318). Psychological distress positively predicted high-risk behaviors (β=0.23, t=4.01, p<0.001), whereas assertiveness emerged as a significant negative predictor (β=-0.26, t=-3.80, p<0.001). The comparable magnitude of standardized coefficients underscores the independent contributions of both factors, supporting their roles as key determinants of risk propensity in female adolescents (Table3).

Table 3. Simultaneous multiple regression analysis predicting high-risk behaviors

Predictor variable(s)	B	SE	β	t	P
Psychological distress	0.46	0.11	0.23	4.01	0.001
Assertiveness	-0.31	0.08	-0.26	-3.80	0.001
Constant	45.12	8.21	-	5.50	0.001

Note: F=51.04, p<0.001; R=0.56; R^2=0.318; Adjusted R^2=0.313

Discussion

The primary objective of this study was to investigate the predictive power of psychological distress and assertiveness in determining the prevalence of high-risk behaviors among female adolescents in Ahvaz. The findings confirmed that

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both internal psychological states and interpersonal competencies significantly influence the behavioral trajectories of this population. Specifically, the results revealed that higher levels of psychological distress are associated with an increased propensity for high-risk conduct, while robust assertiveness acts as a critical protective factor that mitigates such tendencies. These results provide empirical support for the theoretical framework suggesting that adolescent risk-taking is a multidimensional phenomenon driven by the interplay of emotional regulation and social-emotional skills, and further highlight the importance of considering specific cultural contexts in such investigations (Young et al., 2019).

The first significant finding of this research indicates that psychological distress serves as a potent positive predictor of high-risk behaviors among female adolescents. This relationship can be explained through the "self-medication" and maladaptive coping hypotheses, which suggest that adolescents experiencing high levels of depression, anxiety, or stress often lack the necessary emotional regulation strategies to manage their internal turmoil (Paulus et al., 2021). Consequently, they may engage in risky activities—such as substance use, self-harm, or impulsive aggression—as a temporary, albeit hazardous, means of escaping or alleviating their psychological pain. Furthermore, persistent distress can cloud cognitive appraisal and diminish self-efficacy, making adolescents more vulnerable to the immediate gratification offered by risky behaviors without regard for long-term consequences (Lin & Guo, 2024). This finding is consistent with the research of Darvishi et al. (2022), who demonstrated a significant positive correlation between distress and delinquency in Iranian youth, as well as the study by Shechter et al. (2020), which highlighted how elevated distress during social crises increases the reliance on unhealthy coping mechanisms (Darvishi et al., 2022; Shechter et al., 2020).

The second significant outcome of the study demonstrates that assertiveness is a robust negative predictor of high-risk behaviors, functioning as a vital internalizing buffer. Assertiveness, characterized by the ability to express one's rights and refuse unreasonable social demands, empowers adolescents to maintain personal boundaries and resist the "pathological pull" of peer pressure (Yosep et al., 2024). Adolescents with high levels of assertiveness possess greater social competence, allowing them to navigate complex interpersonal situations and say "no" to harmful propositions, such as drug experimentation or unsafe sexual practices, without fearing social exclusion. In contrast, those with diminished assertiveness are more likely to conform to deviant peer norms in an attempt to gain social validation or avoid conflict, thereby increasing their risk of engaging in maladaptive conduct (Khademi Mofrad & Mehrabi, 2015). This finding aligns with the results of Golshiri et al. (2023), who emphasized that social skills training specifically targeting assertiveness is crucial for reducing behavioral risks in female adolescents (Golshiri et al., 2023). Similarly, González-Yubero et al. (2021) found that assertiveness is a fundamental protective variable that significantly lowers the probability of cannabis use and other substance-related risks in the adolescent population (González-Yubero et al., 2021).

The regression model further underscored the synergistic impact of these variables, revealing that psychological distress and assertiveness collectively account for 31.8% of the variance in adolescent high-risk behaviors. This substantial predictive power suggests that any comprehensive intervention must address both the internal emotional state and the external social skills of the adolescent. When high psychological distress is coupled with low assertiveness, the adolescent is placed in a state of high vulnerability, as they simultaneously experience the internal drive for maladaptive escape and the lack of social tools to resist external pressures. Therefore, fostering a balanced developmental environment that prioritizes emotional health while building interpersonal resilience, is essential for preventing

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the onset of delinquency and other hazardous behaviors.

Regarding the limitations of the current study, several factors must be considered when interpreting the results. The sample was exclusively comprised of female adolescents in Ahvaz, which may limit the generalizability of the findings to male populations. Furthermore, the reliance on self-report instruments may introduce social desirability bias, potentially leading participants to underreport their engagement in stigmatized behaviors. Finally, the cross-sectional nature of the research prevents the establishment of definitive causal relationships between the variables.

Conclusion

The present study underscores the critical role of psychological distress and assertiveness in shaping the behavioral landscape of female adolescents. The findings establish that elevated psychological distress serves as a significant risk factor, while robust assertiveness functions as a fundamental protective mechanism against maladaptive conduct. Given that these variables collectively account for a substantial proportion of the variance in high-risk behaviors, targeted school-based interventions are imperative. Implementing integrated programs that prioritize emotional stabilization and social skill-building—specifically assertiveness training—can effectively diminish high-risk tendencies and foster long-term psychological resilience and well-being in this vulnerable demographic.

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Conflict of interest

The authors declared no conflicts of interest.

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Ethical considerations

Ethical approval was obtained from the Ethics Committee of Islamic Azad University, Ahvaz Branch (Code: IR.IAU.AHVAZ.REC.1404.019). The study objectives were clearly explained to all participants and their legal guardians. Written informed consent was obtained from both students and their parents/guardians. Anonymity and confidentiality of the data were strictly maintained, and participants were assured of their right to withdraw from the study at any time without any negative consequences.

Code of Ethics

IR.IAU.AHVAZ.REC.1404.019

Authors' Contributions

EJ carried out the conception and design of the study, data collection, data analysis and interpretation, drafting of the manuscript, critical revision of the manuscript, and approval of the final version for publication.

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