

Original Article

The Role of Genetic Factors and Parental Lifestyles in Predicting Psychological Well-Being and Coping Skills among Adolescents in Lorestan Province

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Abstract

Background and Aim: Adolescence is a critical period where psychological well-being and coping skills, vital for mental health, are shaped by genetic predispositions and parental lifestyles. This study examined the independent and interactive effects of these factors on adolescents' psychological well-being and coping skills in Lorestan Province.

Materials and Methods: A descriptive-correlational study with a predictive, ex post facto design involved 380 participants (190 adolescents aged 13–18 and their parents) from Khorramabad, Borujerd, Dorud, and Aligudarz, selected via multistage cluster sampling. Data were collected using the Perceived Genetic Predisposition Scale, Parental Lifestyle Scale, Ryff Psychological Well-Being Scale, and Adolescent Coping Strategies Questionnaire, and analyzed through multiple regression and Pearson correlation tests.

Results: Results revealed that resilience-oriented genetic factors and health-promoting parental lifestyles positively predicted adolescents' psychological well-being and constructive coping (problem-solving and social support-seeking), while negatively correlating with nonconstructive coping. Conversely, vulnerability-oriented genetic factors had an inverse effect on positive outcomes, collectively explaining 39.3%–53.3% of the variance in psychological outcomes.

Conclusion: These findings highlight genetic and parental lifestyle factors as significant predictors of adolescent mental health. Educational interventions targeting parental lifestyle and genetic awareness are recommended to enhance adolescent well-being. Future research should incorporate direct genetic data and longitudinal designs to deepen understanding.

Keywords: Genetic factors; Lifestyle; Psychological well-being; Coping skills

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Introduction

Adolescence is a critical and transformative stage of life, marked by profound physical, psychological, and social changes that significantly affect an individual's mental health and emotional stability (1). Adolescence (ages 13–18) is a critical and formative stage of human development characterized by significant biological, cognitive, and social changes, accompanied by challenges such as identity formation, emotional fluctuations, and intrapersonal crises that may precipitate anxiety or depression (2). During this period, as adolescents navigate profound physical and psychological transformations, mindfulness (*zehn-āgāhi*, the practice of non-judgmental awareness of thoughts and emotions) enables them to observe their feelings and thoughts without judgment, thereby improving control over emotional responses. Psychological well-being, encompassing life satisfaction, a sense of meaning and purpose, and positive interpersonal relationships, alongside practical coping skills and cognitive emotion regulation, plays a fundamental role in adolescents' adaptation to environmental stressors. Employing adaptive emotion regulation strategies and fostering mindfulness can reduce anxiety, prevent depression, and enhance resilience (*tāb-āvari*) (3). Equally critical are coping skills, defined as cognitive and behavioral strategies used to manage stress, encompassing constructive approaches such as problem-solving and seeking social support, as well as non-constructive strategies like avoidance or aggression (3, 4). These factors not only shape adolescents' current psychological functioning but also predict long-term outcomes in academic, social, and professional domains (4).

Genetic predispositions, environmental influences such as parenting styles and parental mental health, and their gene–environment ($G \times E$) interactions play crucial roles in shaping adolescent mental health (5, 6). Understanding these factors within specific cultural contexts, particularly in Iranian communities such as Lorestan Province, is crucial for elucidating the mechanisms underlying psychological well-being and coping (7). Globally, over 14% of adolescents experience mental disorders, posing significant societal challenges, especially in economically

constrained regions with strong ethnic ties, such as Lorestan, where cultural and economic factors amplify vulnerabilities (4, 7). Investigating biological, psychological, and environmental predictors provides a foundation for preventive interventions, such as life skills training and emotion regulation programs, to safeguard adolescent mental health (4). Theoretically, exploring $G \times E$ interactions enhances the applicability of behavioral genetics models across diverse populations (5). Practically, these insights inform localized mental health policies aimed at mitigating the intergenerational transmission of psychological issues (8).

Extensive research highlights the role of genetics in influencing psychological well-being and coping skills, which are modulated by family environments (9). Supportive family settings can mitigate genetic predispositions to anxiety or depression, whereas stressors like economic hardship or family conflict may exacerbate these risks (10). Genetic markers, particularly those related to neurotransmitter systems, influence emotion regulation and stress responses (5, 11). Parenting styles significantly impact adolescent outcomes; authoritative parenting, characterized by balanced demands and responsiveness, fosters enhanced well-being and adaptive coping, unlike authoritarian or neglectful styles (12, 13). Parental mental health and economic stressors further influence adolescents through behavioral modeling and family emotional dynamics (14). In Iran, research often focuses on psychosocial factors, with limited integration of biological and lifestyle factors, particularly in rural regions such as Lorestan, where cultural nuances and economic constraints significantly influence family dynamics (7). Emerging studies emphasize pathways involving biological inheritance, parental behaviors such as nutrition and physical activity, and epigenetic interactions, particularly in the hypothalamic-pituitary-adrenal (HPA) axis (9, 15). Mediators such as self-efficacy, friendship quality, and school connectedness further shape adolescents' coping abilities (12). Physical activity enhances psychological resilience, contributing to adaptive coping (16). Family resilience and social support systems serve as protective factors against stress, fostering constructive coping strategies (17, 18). Cross-cultural studies from Nigeria and Vietnam highlight the pivotal role of parenting in

adolescent adjustment, with authoritative parenting styles associated with improved mental health outcomes (19, 20). In Persian literature, studies demonstrate that coping self-efficacy enhances well-being in adolescents from divorced families, though genetic factors are often underexplored (21). Secure parental attachments promote psychological well-being and constructive coping in adolescents with suicidal tendencies, contrasting with avoidant styles (22). Parental beliefs about genetic influences moderate parenting styles, which in turn impact adolescent outcomes (23).

In contrast, Western research shows that SLC6A4 gene variants increase depression risk by 35% in stressful environments, a risk mitigated by supportive parental lifestyles (9). G×E interactions, combined with authoritative parenting, account for 42% of the variance in psychological well-being (6). Unhealthy parental lifestyle patterns are linked to maladaptive coping, a trend reversible through targeted educational interventions (16).

Persian studies often emphasize socio-cultural factors, such as family structure and attachment, while Western research leverages genome-wide association studies (GWAS) for deeper genetic insights (6). These differences likely stem from variations in technological access and research priorities, yet both advocate for family-based interventions to support adolescent mental health in developing contexts like Iran (7, 9).

The limited integration of biological and lifestyle factors in rural Iranian settings, particularly in Lorestan with its unique emphasis on ethnic ties and collective resilience, underscores the need for this study. This research investigates the independent and interactive effects of genetic factors and parental lifestyles on adolescents' psychological well-being and coping skills in Lorestan Province, employing multivariate statistical methods that incorporate minimally invasive biological indices and environmental variables to provide localized evidence for policy and interventions.

Main Research Question

To what extent do genetic factors and parental lifestyles, independently and interactively, predict the psychological well-being and coping skills of adolescents in Lorestan Province?

Methods

This study employed a descriptive-correlational design with a predictive, *ex post facto* (causal-comparative) approach to examine the relationships among genetic factors, parental lifestyle patterns, and adolescents' psychological outcomes, without manipulating the variables. The statistical population consisted of all parents and adolescents (male and female) residing in Lorestan Province during the 2024–2025 academic year, including those with an adolescent child aged 13–18 years. Based on Cohen's formula, considering a Type I error ($\alpha = 0.05$), statistical power (0.8), and expected effect size, the sample size was determined to be 380 participants (190 parents and 190 adolescents). A multistage cluster sampling method was used. Initially, cities (Khorramabad, Borujerd, Dorud, and Aligudarz) were randomly selected. Subsequently, classes from middle and high schools in each city were randomly chosen, and questionnaires were distributed among parents and adolescents.

Instruments

Perceived Genetic Predisposition Scale: A subscale of the Illness Perception Questionnaire–Revised (IPQ-R) developed by Moss-Morris et al. (2002) (24), this scale assesses parents' beliefs about the role of heredity and genes in shaping adolescents' psychological traits and potential issues (e.g., anxiety, depression, problem-solving skills). It includes seven items rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree), with scores ranging from 7 (indicating low belief in genetic influence) to 35 (reflecting a firm belief). International reliability coefficients range from 0.75 to 0.82 (1). The Persian adaptation, validated by Sadati et al., demonstrated acceptable reliability ($\alpha = 0.78$) and validity through confirmatory factor analysis in Iranian populations (25).

Parental Lifestyle Scale (Revised Version): This instrument, developed by Walker et al. (26), measures parental behaviors in nutrition, physical activity, stress management, tobacco use, and sleep hygiene. It demonstrates high internal consistency, with Cronbach's alpha ranging from 0.82 to 0.90 internationally and from 0.80 to 0.88 in Iranian studies. The Persian version, validated by et al., reported reliability ($\alpha = 0.85$) and validity via factor analysis in Iranian samples (27).

Psychological Well-Being Scale: Developed by Ryff (1989) (28), this scale

evaluates six dimensions of well-being: autonomy, personal growth, positive relations, purpose in life, environmental mastery, and self-acceptance. Reliability coefficients range from 0.86 to 0.93 for the full version and from 0.70 to 0.85 for shorter versions internationally. The Persian adaptation, validated by Sadati et al., showed reliability ($\alpha = 0.80$) and validity through structural equation modeling in Iranian adolescents (26).

Adolescent Coping Scale (ACS): Developed by Frydenberg et al. and Lewis (29), this 80-item instrument measures 18 coping strategies across three domains: problem-solving, seeking social support, and non-constructive coping. Reliability coefficients range from 0.72 to 0.87 internationally and from 0.80 to 0.85 in Iranian samples. The Persian version, validated by Samadi Tari and Jahangir (2018), reported reliability ($\alpha = 0.82$) and validity through factor analysis in Iranian adolescents (30).

Participants provided informed consent after receiving full explanations. Data confidentiality was ensured, and results were reported anonymously without identifying information.

Inclusion criteria included having an adolescent child aged 13–18 years, a minimum of five years of residence in Lorestan Province, absence of severe psychiatric disorders (based on parental self-report), and willingness to participate. Exclusion criteria included failure to complete questionnaires, withdrawal from participation, returning incomplete or invalid questionnaires (e.g., inconsistent or random responses), or any violation of inclusion criteria (e.g., residency less than five years or unreported psychiatric conditions). Data analysis utilized multiple regression to examine the independent effects of genetic factors and parental lifestyle on adolescents' psychological well-being and coping skills. Pearson's correlation coefficient assessed the strength and direction of relationships among variables. The significance level was set at $p = 0.05$, and analyses were conducted using SPSS software (version 29).

Results

The demographic findings of this study showed that

among the adolescent participants, 65 (34.2%) were male and 125 (65.8%) were female. In terms of geographical distribution, the majority of participants were from Aligudarz (120, 31.6%) and Dorud (110, 28.9%), followed by Khorramabad (80, 21.1%) and Borujerd (70, 18.4%). All participants had resided in Lorestan Province for at least five years (100%) and reported no severe psychiatric disorders (based on self-report, 100%). A multistage cluster sampling method was applied, and all participants provided informed consent (100%) prior to participation. These demographic characteristics—particularly the higher proportion of female participants and the geographic concentration in Aligudarz and Dorud—enabled the examination of the influence of genetic factors and parental lifestyle on adolescents' psychological well-being and coping skills within the unique cultural context of Lorestan Province, while ensuring complete confidentiality of personal data. Based on the results presented in Table 1, the correlation coefficients calculated between genetic factors and parental lifestyle, and psychological well-being and adolescent coping skills, were statistically significant at the 0.01 alpha level ($p < 0.01$). Specifically, resilience-oriented genetic factors and health-promoting parental lifestyles showed positive correlations with psychological well-being, problem-solving coping, and help-seeking coping strategies, and negative correlations with non-constructive coping strategies. Conversely, vulnerability-oriented genetic factors were negatively correlated with psychological well-being, problem-solving coping, and help-seeking coping, but positively correlated with non-constructive coping strategies. To predict adolescents' psychological well-being based on genetic factors and parents' health-promoting lifestyle, a multiple regression analysis was performed. The Durbin–Watson statistic (1.697) fell within the acceptable range of 1.5 to 2.5, indicating that the assumption of independence of residuals was met. Furthermore, to test for multicollinearity among predictor variables, tolerance indices and the Variance Inflation Factor (VIF) were examined. The results confirmed that no violation of the multicollinearity assumption was present, suggesting that the predictors were statistically independent and suitable for inclusion in the regression model.

Table 1. Descriptive Findings and Correlation Coefficients Among Research Variables

Variables	Mean	SD	1	2	3	4	5	6	7
Resilience-oriented genetic factors	16.39	3.241	1						
Vulnerability-oriented genetic factors	13.46	3.187	-0.479**	1					
Parental lifestyle	84.98	6.713	0.579**	-0.514**	1				
Psychological well-being	38.47	6.719	0.539**	-0.552**	0.600**	1			
Problem-solving coping strategy	50.73	10.243	0.601**	-0.571**	0.635**	0.675**	1		
6. Help-seeking coping strategy	76.38	10.090	0.539**	-0.456**	0.556**	0.577**	0.574**	1	
7. Non-constructive coping strategy	61.24	9.213	-0.491**	0.473**	-0.573**	-0.694**	-0.584**	-0.497**	1

Significance level: $p < 0.05$. Significance level: $p < 0.01$

According to the results presented in Table 2, the obtained F-value ($F = 54.602$) for the regression model was statistically significant at an alpha level of less than 0.01 ($p < 0.01$). This finding suggests that genetic factors and parental lifestyle effectively account for variations in psychological well-being, confirming the adequacy of the proposed regression model. The obtained R^2 value ($R^2 = 0.468$) shows that genetic factors and parental lifestyle together account for 46.8% of the variance in psychological well-being among adolescents.

The standardized regression coefficients (Beta) were as follows:

- Resilience-oriented genetic factors: $\beta = 0.212$, $p < 0.01$
- Vulnerability-oriented genetic factors: $\beta = -0.278$, $p < 0.01$
- Parental health-promoting lifestyle: $\beta = 0.335$, $p < 0.01$

These results demonstrate that resilience-oriented genetic factors and a health-promoting parental lifestyle significantly and positively predict adolescents' psychological well-being. In contrast, vulnerability-oriented genetic factors are significant negative predictors.

To predict problem-solving coping strategies among adolescents through genetic factors and parental health-promoting lifestyle, multiple regression analysis was also conducted.

The Durbin–Watson statistic ($DW = 1.631$) indicated that the assumption of independence of residuals was met (as the value lies between 1.5 and 2.5).

Furthermore, multicollinearity diagnostics using tolerance and variance inflation factor (VIF) indices showed no violations of the multicollinearity assumption, confirming the suitability of the regression model for further interpretation.

According to Table 3, the obtained F-value ($F = 70.861$) for the regression model was statistically significant at an alpha level of less than 0.01 ($p < 0.01$). It indicates that genetic factors and parental lifestyle effectively explain variations in adolescents' problem-solving coping strategies, confirming the appropriateness of the regression model.

The R^2 value ($R^2 = 0.533$) shows that genetic factors and parental lifestyle collectively account for 53.3% of the variance in problem-solving coping strategies among adolescents.

The standardized regression coefficients (Beta) were as follows:

- Resilience-oriented genetic factors: $\beta = 0.279$, $p < 0.01$
- Vulnerability-oriented genetic factors: $\beta = -0.264$, $p < 0.01$
- Parental health-promoting lifestyle: $\beta = 0.338$, $p < 0.01$

These results demonstrate that resilience-oriented genetic factors and a health-promoting parental lifestyle significantly and positively predict adolescents' problem-solving coping strategies, whereas vulnerability-oriented genetic factors significantly and negatively predict these strategies.

To predict seeking social support coping strategies among adolescents through genetic factors and parental health-promoting lifestyle, multiple regression analysis

was also conducted. The Durbin–Watson statistic (DW = 1.798) indicated that the assumption of independence of residuals was met (as the value falls between 1.5 and 2.5). Additionally, multicollinearity diagnostics using tolerance and variance inflation factor (VIF) indices revealed no violations of the multicollinearity assumption, confirming the suitability of the regression model for interpretation. As shown in Table 4, the obtained F value ($F = 40.968$) for the regression model was statistically significant at an alpha level below 0.01 ($p < 0.01$), indicating that genetic factors and parental lifestyle effectively explain variations in adolescents' coping strategy of seeking social support, confirming the adequacy of the regression model. The R^2 value ($R^2 = 0.398$) indicates that genetic factors and parental lifestyle account for 39.8% of the variance in adolescents' coping strategies, specifically seeking social support.

The standardized regression coefficients (Beta) were:

- Resilience-oriented genetic factors: $\beta = 0.281$, $p < 0.01$
- Vulnerability-oriented genetic factors: $\beta = -0.162$, $p < 0.05$
- Parental health-promoting lifestyle: $\beta = 0.310$, $p < 0.01$

These results demonstrate that resilience-oriented genetic factors and a health-promoting parental lifestyle positively and significantly predict adolescents' tendency to seek social support, whereas vulnerability-oriented genetic factors negatively and significantly predict this coping strategy.

To predict non-constructive coping strategies among adolescents through genetic factors and parental

health-promoting lifestyle, multiple regression analysis was also conducted. The Durbin–Watson statistic (DW = 1.843) indicated that the assumption of independence of residuals was met (as the value falls between 1.5 and 2.5). Additionally, multicollinearity diagnostics using tolerance and variance inflation factor (VIF) indices showed no violations of the multicollinearity assumption, confirming the suitability of the regression model for interpretation.

As presented in Table 5, the F value ($F = 40.195$) for the regression model was statistically significant at an alpha level of less than 0.01 ($p < 0.01$), indicating that genetic factors and parental lifestyle effectively explain variations in adolescents' non-constructive coping strategies, confirming the suitability of the regression model. The R^2 value ($R^2 = 0.393$) indicates that genetic factors and parental lifestyle account for 39.3% of the variance in non-constructive coping strategies among adolescents.

The standardized regression coefficients (Beta) were:

- Resilience-oriented genetic factors: $\beta = -0.185$, $p < 0.05$
- Vulnerability-oriented genetic factors: $\beta = 0.197$, $p < 0.01$
- Parental health-promoting lifestyle: $\beta = -0.365$, $p < 0.01$

These findings suggest that resilience-oriented genetic factors and a health-promoting parental lifestyle are negatively and significantly associated with adolescents' non-constructive coping strategies.

In contrast, vulnerability-oriented genetic factors are positively and significantly associated with these maladaptive coping behaviors.

Table 2. Multiple Regression Analysis for Predicting Psychological Well-Being through Genetic Factors and Parental Lifestyle

Model	Unstandardized Coefficients (B)	Standard Error	Standardized Coefficients (Beta)	t	Sig. (p)	R	R ²	F	Sig. (p)
Constant	10.691	6.408	—	1.668	0.097	0.684	0.468	54.602	0.01
Resilience-Oriented Genetic Factors	0.439	0.141	0.212	3.117	0.002	—	—	—	—
Vulnerability-Oriented Genetic Factors	-0.586	0.136	-0.278	-4.304	0.001	—	—	—	—
Parental Health-Promoting Lifestyle	0.335	0.070	0.335	4.817	0.001	—	—	—	—

Table 3. Multiple Regression Analysis for Predicting Problem-Solving Coping Strategies through Genetic Factors and Parental Lifestyle

Model	Unstandardized Coefficients (B)	Standard Error	Standardized Coefficients (Beta)	t	Sig. (p)	R	R ²	F	Sig. (p)
Constant	3.862	9.153	—	0.422	0.674	0.730	0.533	70.861	0.01
Resilience-Oriented Genetic Factors	0.882	0.201	0.279	4.388	0.001	—	—	—	—
Vulnerability-Oriented Genetic Factors	-0.848	0.194	-0.264	-4.362	0.001	—	—	—	—
Parental Health-Promoting Lifestyle	0.516	0.099	0.338	5.190	0.001	—	—	—	—

Table 4. Multiple Regression Analysis for Predicting the Coping Strategy of Seeking Social Support through Genetic Factors and Parental Lifestyle

Model	Unstandardized Coefficients (B)	Standard Error	Standardized Coefficients (Beta)	t	Sig. (p)	R	R ²	F	Sig. (p)
Constant	29.382	10.242	—	2.869	0.005	0.631	0.398	40.968	0.01
Resilience-Oriented Genetic Factors	0.876	0.225	0.281	3.895	0.001	—	—	—	—
Vulnerability-Oriented Genetic Factors	-0.514	0.218	-0.162	-2.362	0.019	—	—	—	—
Parental Health-Promoting Lifestyle	0.466	0.111	0.310	4.187	0.001	—	—	—	—

Table 5. Multiple Regression Analysis for Predicting Non-Constructive Coping Strategies through Genetic Factors and Parental Lifestyle

Model	Unstandardized Coefficients (B)	Standard Error	Standardized Coefficients (Beta)	t	Sig. (p)	R	R ²	F	Sig. (p)
Constant	104.752	9.387	—	11.160	0.001	0.627	0.393	40.195	0.01
Resilience-Oriented Genetic Factors	-0.526	0.206	-0.185	-2.552	0.011	—	—	—	—
Vulnerability-Oriented Genetic Factors	0.569	0.199	0.197	2.856	0.005	—	—	—	—
Parental Health-Promoting Lifestyle	-0.501	0.102	-0.365	-4.914	0.001	—	—	—	—

Discussion

This study aimed to investigate the extent to which genetic factors and parental lifestyles, both independently and interactively, affect adolescents' psychological well-being and coping skills in Lorestan Province. The findings revealed that resilience-oriented genetic factors and health-promoting parental lifestyles were positively associated with psychological well-being and constructive coping strategies (such as problem-solving and seeking social support). In contrast, vulnerability-oriented genetic factors were negatively related to these outcomes and were positively associated with nonconstructive coping styles. Overall, the results are consistent with previous evidence and contribute to the understanding of gene–environment interactions (G×E) within the specific cultural setting of Lorestan.

Resilience-oriented genetic traits, as perceived by parents, exhibited a positive correlation with psychological well-being and the use of constructive coping strategies (5).

Conversely, vulnerability-oriented genetic traits, which increase stress sensitivity, were found to weaken both well-being and coping skills (10). Parental perceptions of genetic influences on their children's behavior can also shape their expectations and parenting styles, thereby indirectly influencing adolescents' mental health (3).

Parental health-promoting lifestyles, including healthy nutrition, regular physical activity, and effective stress management, emerged as key determinants of enhanced psychological well-being and constructive coping strategies (16, 17, 21). Such lifestyles were also associated with a decrease in nonconstructive coping mechanisms such as avoidance and aggression (20). Multiple regression analyses indicated that genetic factors and parental lifestyles jointly accounted for 39.3% to 53.3% of the variance in psychological well-being and coping skills, providing further support for the integrative role of biological and environmental factors (7). However, the explained variance was lower than that observed in certain international studies (31), which may be attributed to cultural distinctions or the use of parental perceptions instead of direct genetic measures (6, 27, 30).

Cultural and socioeconomic conditions in Lorestan—characterized by powerful ethnic ties and economic constraints—were found to shape parental lifestyles and expectations (6). Unlike findings from other cultural contexts such as Nigeria and Vietnam, where authoritative parenting styles predominate (12, 21), in Lorestan, parents' physical and psychological well-being exert a greater influence, reflecting a cultural emphasis on family health and collective resilience (6, 3).

Cross-cultural comparisons indicate that the influence of parents on adolescents' psychological well-being and coping skills varies widely. In some Asian contexts, economic pressures—especially during global crises—have been linked to reduced supportive parenting and heightened psychological vulnerability (32). Overprotective parenting in stressful environments has been associated with increased test anxiety and diminished coping ability (33). On the other hand, stable kinship networks have a positive impact on socio-emotional well-being across cultures (34). At the same time, supportive and structured parenting promotes adaptive coping, as seen in studies from African contexts (35). Parental health difficulties, such as illness during the pandemic, have disrupted family dynamics and adversely affected adolescents (36).

Additionally, psychological control by parents has been linked to maladaptive behaviors, including anxiety-driven substance use (37). Neurobiological mechanisms, such as mirror neuron activity, further highlight how parental modeling directly shapes coping processes (38). Parental spirituality and shared moral values have also been shown to mitigate stress across cultural backgrounds (38). In Lorestan, family health and ethnic solidarity act as protective factors, underscoring the importance of culturally tailored approaches to enhancing adolescent mental health (3, 7).

The findings of this study have multiple practical implications for local policy and the design of interventions. Educational programs for parents focusing on healthy lifestyles—such as proper nutrition and physical activity—can contribute to improving adolescents' mental health and coping skills. Additionally, awareness programs regarding the influence of genetic beliefs on parenting behavior can encourage parents to create more supportive

environments for their children. These interventions are particularly recommended in economically disadvantaged areas such as Lorestan and can be implemented through health centers and schools.

Despite its valuable findings, this study had several limitations. First, reliance on parental perceptions rather than direct genetic data may have affected the accuracy of the results. Second, the cluster sampling method may have limited the generalizability of the findings to specific regions. Third, excluding potential mediating variables—such as friendship quality or school connectedness—may have limited the comprehensiveness of the analysis. Finally, although the instruments used demonstrated acceptable reliability, they may not have been fully compatible with the cultural characteristics of Lorestan.

For future research, it is recommended to use direct genetic data—such as biological markers—to more accurately investigate gene–environment interactions. Furthermore, longitudinal studies could help elucidate causal pathways over time. From a practical perspective, evidence-based educational programs for parents and adolescents focusing on life skills and emotion regulation are recommended. These programs could be implemented through collaboration with local organizations such as the Department of Education and health centers. Lastly, attention to specific cultural factors, such as the role of ethnic solidarity in Lorestan, may facilitate the design of interventions tailored to local contexts.

Conclusion

The role of parents in shaping adolescents' mental health and coping skills varies significantly across cultures, heavily influenced by social and economic contexts. In Asian-American families, economic stressors disrupt supportive parenting, thereby heightening adolescents' psychological vulnerabilities. Conversely, authoritative parenting in Kenya fosters constructive coping skills through clear boundaries and emotional support. In stable kinship environments, such as specific traditional communities, parents enhance social-emotional well-being by providing emotional stability. In Lorestan, the emphasis on parental physical and mental health, alongside strong ethnic ties, serves as a prominent

protective factor, aligning with cultural values of collective resilience (*tamābori-ye jame'i*). These variations highlight the need for designing interventions tailored to the unique cultural characteristics of each region.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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