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Relationships between demographic variables and stress coping strategies in sample of Iranian teenage girls

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Abstract

Adolescent girls face many types of stress, and stress-coping strategies a very important, since the factors related to the styles of adapting to stress have not been sufficiently addressed; thus, this study aimed to investigate the factors related to stress-coping strategies. This descriptive-analytical study, included 1181 adolescent girls in Rasht, Iran, and a cluster sampling method was used. The data collection tool was a two-part questionnaire, which included 17 demographic questions in the first part (age, educational level, number of family members, history of mental illnesses in the family, family rank, father's occupation, mother's occupation, father's education, mother's education, economic status, way of life, type of school, number of students in the class, light in the class, green area, color and building materials, and gender of most teachers), and in the second part of the Lazarus coping styles questionnaire, 66 questions were investigated. Data analysis was performed with SPSS-26, and descriptive indicators of frequency (frequency percentage), and mean and to investigate the correlation between qualitative and quantitative demographic variables with coping strategies, Kruskal–Wallis, Mann–Whitney, and Spearman correlation coefficient tests were used. Logistic regression was used to predict demographic variables.

Keywords Stress, Coping strategies, Teenage girls, Iran

Introduction

Stress is an undeniable fact and a factor in the transformation of a person's life [1], which is known as one of the most important causes of disease. Moreover, 75% of physical diseases are related to stress [2]. One of the groups that are exposed to various stresses is teenagers. There are stress factors such as issues related to school, social factors, the divorce of parents, the death of loved ones, etc. Several studies on teenagers have shown that teenagers who are chronically exposed to stress suffer from poor academic and psychological performance. In addition, the results of these stresses sometimes continue into adulthood and can lead to behavioral problems [3], also, on the basis of previous studies, parents' care style and parenting methods often lack the necessary flexibility and tact to consider important conditions, and expectations and needs are important in the development of the social-emotional skills of teenagers [4, 5]. Among the factors that cause some people to be less affected by various pressures than others and to be less injured, coping skills against stressors are needed [6].

Coping aims to master, reduce or bear the damage caused by stress [7]. One of the appropriate theories for adapting to stress is Lazarus' theory of stress and adaptation. Lazarus introduces coping as efforts to contain

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(including mastering, tolerating, reducing or minimizing) internal and environmental conflicts and demands that go beyond resources. It takes place in person. Coping is known as how people manage situations, what they do to eliminate stress, and how to manage emotions related to stress [8].

According to this theory, there are two main types of problem-oriented and emotion-oriented coping against psychological pressures [9]. In problem-oriented coping, a person focuses on the stress factor and tries to take correct and logical actions to solve the problem and reduce his stress. In emotion-focused coping, a person tries to control stressful events with emotional consequences [10]. A significant number of teenagers experience many stressful factors daily; in this context, coping is an effort to increase a person's adaptation to the environment or efforts to prevent the negative consequences of stressful situations. Using a problem-focused coping strategy is the most adaptive coping strategy; those who use practical strategies are more satisfied with how to control stressful events and are less exposed to emotional problems and tend toward risky behaviors, whereas emotion-focused coping leads to unsatisfactory adaptation to stressful events, and people who use this strategy are often anxious and depressed and have a greater probability of engaging in risky behaviors [11].

Inefficient and avoidant coping styles can endanger a person's and using a problem-focused and logical coping style can help a person's mental health. Problem-focused and logical coping styles can inversely predict disease indicators, and emotion-focused and emotional coping styles can directly predict disease indicators. mental health, When girls and boys use different coping styles, there is a difference in coping styles [12]. In a pervious study, there was a relationship between the coping styles of adolescent girls and boys and depression [13]. Buron et al., noted the relationship between the type of stress coping style and the mental health of adolescents and considered teaching them coping skills necessary to increase their mental health [14].

Accordingly, Iranian teenagers suffer from at least one psychiatric disorder, and according to the latest national surveys, the prevalence of psychiatric disorders in Iranian teenagers is 22.31%. Most disorders related to anxiety in late adolescence are reported in girls [15]. The continuation of this problem can affect the quality of life of teenagers, especially girls, and since teenage girls are the mothers of tomorrow, it can cause problems for the health of the family and society. Therefore, the use of health education theories can be effective for changing the behavior of teenagers and managing stress, anxiety and depression. The importance of stress and the ability of lazarus to cope with stress has been confirmed in a previous study [16–19].

Research on the mental health of adolescent girls and ways to cope with stress is became more common after the coronavirus pandemic in some provinces of Iran, including Guilan Province, which was one of the important centers of this disease [20, 21]. Therefore, this study aims to investigate the relationships between demographic variables and stress coping strategies in teenage girls in Rasht city (the capital of Guilan Province) in 2023.

Materials and methods

In this descriptive-analytical study, 1181 adolescent girls from Rasht, Iran, participated in a cluster sampling method from 2022–2023. To determine the sample size, Mostafazadeh et al.'s study and Cochran's formula were used [22, 23].

$$n \geq \frac{Z^2 \times S^2}{d^2} \times DE = \frac{1.96^2 \times 3.58^2}{0.25^2} \times 1.5 = 1181$$

The average number of female students in each class in first secondary government schools (was approximately 100 people). and that in non-government girls' schools (was approximately 50 people). The structure of Rasht city schools (65% government and 35% nongovernment from government schools and 413 students from nongovernment schools were selected from 17 schools (8 government schools and 9 nongovernment schools). Before completing the questionnaires, the researcher went to the schools in coordination, and after obtaining the written consent of the parents, school officials and the students (emphasizing the right to withdraw from the study and ensuring the confidentiality of the information), he provided the necessary explanations about the objectives of the study and how to complete the questionnaire. After the questionnaires, they were completed by the students within two days in the form of self-reports.

The data collection tool was a two-part questionnaire, which included 17 demographic questions in the first part (age, educational level, number of family members, history of mental illnesses in the family, family rank, father's occupation, mother's occupation, father's education, mother's education, economic status, who do you live with?, type of school, number of students in the class, light in the class, green area, color and building materials, and gender of most teachers), and in the second part of the Lazarus coping styles questionnaire (by Lazarus and Folkman in 1988),with 66 questions in 8 areas, including confrontation, escape avoidance, distancing, seeking social support, self-control, responsibility, planning a solution to the problem, and positive reappraisal.

The scoring of the Lazarus questionnaire according to the Likert scale is as follows: I have not used it at all (score 0), I have used it sometimes (score 1), I often use it (score 2), and I use it a lot (score 3). For interpretation, we add the score obtained from the questions of each component together, and the highest score in each component indicates the dominance of that coping style in the individual. On the basis of this method of analysis, we collect the obtained scores and then judge them on the the basis of the table below. The following score is given for a questionnaire, which should be multiplied by the number of questionnaires. Students with scores ranging from 0–66 have a low coping style, those with scores ranging from 66–110 have an average coping style, and those with scores ranging from 110 and above have a high coping style.

Regarding the validity and reliability of the research tools, in the research of Alipour et al., the reliability of this test using Cronbach's alpha method was 0.85. Alipour et al., [24], in the study of Folkman and Lazarus, the reliability of this questionnaire with the internal consistency method was 0.75, and the reliability of its subscales was 0.61. For avoidant coping style, up to 0.79 has been reported for positive re-evaluation [25]. Additionally, in the research of Aghayousfi et al. in 2013, the reliability of the questionnaire using Cronbach's alpha was 0.76, which indicates the high reliability of the questionnaire [26].

Data analysis was performed with SPSS software (version 26, Chicago, IL, USA) software, and according to the type of variable (quantitative, qualitative), descriptive indicators of frequency (frequency percentage), mean (standard deviation) or median (range of changes) were used The Kruskal–Wallis H test, Mann- Whitney U test and Spearman correlation coefficient test were used to investigate the relationships between qualitative and quantitative demographic variables and Lazarus's adjustment style because the data were not normally distributed.

Results

The demographic characteristics of the research samples included in this study are presented in Tables 1 and 2.

The distribution of the quantitative variables of the research is as follows: of the 1181 teenagers who participated in the research, the minimum age was 16 years, and the maximum age was 18 years. The average age of the participants was 17.10 years. The average number of people in the family was 3.54, the minimum number of people was, and the maximum was 4, (Table 1).

The mean of the problem-focused coping substructures was reported as follows: seeking social support (6.24), a positive reappraisal (7.18), planning a solution to the problem (8.23), and responsibility was (5.15), the mean total problem-focused coping score was (26.80).

Table 1 Sociodemographic characteristics of study subjects

	Mean ± SD	(Min–Max)
Age	(17.10 ± 0.806)	(16–18)
The number of family members	(3.54 ± 0.589)	(2–4)

The mean of the emotion-focused coping substructures was reported as follows: confrontation (6.19), self-control (11.50), escape-avoidance (16.37) and distancing (9.97). The mean total emotion-focused coping score was (44.04).

Overall, the adolescents' total coping score (emotion-focused coping and problem-focused coping) was 84.70, (Table 3).

Results of the use of Lazarus coping styles in adolescents reported that of the 1181 adolescents participating in the study, 929 (79%) used emotion-focused coping styles to a low degree, 185 (16%) to a medium degree, and 67 (5%) to a severe degree. 1114 (94%) used problem-focused coping styles to a low degree and 67 (6%) to a medium degree, (Table 4).

On the basis of asymmetry and elongation indices, as well as branch and leaf diagrams, and the Q-Q and Kolmogorov–Smirnov tests, The data distribution of the studies was not normal, and nonparametric methods were used for data analysis. The Kruskal–Wallis test, Mann–Whitney test, and Spearman correlation coefficient were used to investigate the relationships between qualitative and quantitative demographic variables and emotion-focused coping and problem-focused coping due to the nonnormality of the data.

The results revealed that emotion-focused coping had no significant relationship with students' birth rank, and the relationship between problem-oriented coping and students' birth rank was statistically significant ($p < 0.001$), such that students whose birth rank was 4 or more, and they had the highest mean and median scores for problem-focused coping styles.

Emotion-focused coping and problem-focused coping had a significant relationship with parents' jobs ($p < 0.001$), so the highest mean and median scores of emotion-focused coping and problem-oriented coping were related to students whose parents were private employees.

Emotion-focused coping and problem-focused coping were significantly related to parents' education ($p < 0.001$), so the lowest mean and median scores of emotion-focused coping and problem-focused coping

Table 2 Sociodemographic characteristics of study subjects

Qualitative demographic variables		Frequency	Percent
Birth rank	**1**	781	66
	2	260	22
	3	95	8
	4 and more	446	38
History of mental illness	**yes**	478	41
	no	703	59
Father's education	**less than Eighth grade**	170	14
	high school	405	34
	university	606	52
Mother's education	**less than Eighth grade**	151	13
	high school	433	37
	university	597	50
Father's job	**civil servant**	378	32
	private employees	731	62
	retired	56	5
	unemployed	13	1
mother's job	**civil servant**	218	18
	private employees	91	8
	retired	34	3
	unemployed	838	71
The economic situation	**bad**	208	18
	Average	548	46
The economic situation	**Good**	395	33.3
	Excellent	30	2.5
Type of school	**Governmental**	768	0.65
	Non- Governmental	413	35
Number of students in the class	**Less than 20**	433	36.7
	20–30	662	56.1
	More than 30	87	7.4
Does your classroom have enough light?	**yes**	486	41.2
	no	695	58.8
Is there a green area in your school?	**yes**	486	41.2
	no	695	58.8
Are the colors and materials used in the school attractive to you?	**yes**	530	44.9
	no	651	55.1
What is the gender of most of your teachers?	**woman**	1181	100
	man	0	0
Grade	**10**	331	0.28
	11	404	34.2
	12	446	37.8
Who do you live with?	**Parents**	1060	89.8
	with father	21	1.8
	with mother	88	5.7
	other relatives	7	0.6
	welfare or other support institutions	5	0.4

Table 3 Status table of structures and substructures of Lazarus theory among students

		N	Mean	Std.devaiation	Confidence interval 0.95	
					Minimum	Maximum
Problem- focused coping	**Seeking social support**	1181	6.24	4.70	5.98	6.51
	A positive reappraisal	1181	7.18	5.37	6.89	7.50
	planning a solution to the problem	1181	8.23	6.13	7.90	8.60
	responsibility	1181	5.15	3.79	4.37	4.94
Total Problem- focused coping		1181	26.80	19.99	25.14	27.55
	Confrontation	1181	6.19	4.57	5.94	6.45
	Self-Control	1181	11.50	8.74	11.01	12.02
	escape-avoidance	1181	16.37	11.77	15.72	17.06
	distancing	1181	9.97	8	9.53	10.44
Emotion- focused coping		1181	44.04	33	42.2	45.97
Total coping (Problem focused coping and emotion coping)		1181	70.84	53	67.34	73.52

Table 4 teenagers ' grades in using Lazarus coping style

	Score limit	Number	Percent	Mean	Standard deviation	Confidence interval 0.95	
						Min	Maximum
Emotion-focused coping	Low	929	79	0.27	0.56	0.24	0.30
	Medium	185	16				
	Severe	67	5				
	Total	1181	100				
problem- focused coping	Low	1114	94	0.05	0.23	0.04	0.07
	Medium	67	6				
	Severe	0	0				
	Total	1181	100				
Total coping (problem-focused and emotion-focused coping)	Low	301	25	0.95	0.56	0.92	100
	Medium	628	54				
	Severe	252	21				

were related to students whose parents did not have a university education.

Emotion-focused coping and problem-focused coping had a significant relationship with economic status ($p < 0.001$), so the lowest mean and median scores of emotion-focused coping and problem-focused coping were related to students who had poor economic status.

Emotion-focused coping and problem-focused coping were significantly related to the number of students in the class ($p < 0.001$), so the highest mean and median scores of emotion-oriented coping and problem-oriented coping were related to people whose class had fewer than 20 students.

Who the students lived with had no significant relationship with emotion-focused coping or problem-focused coping, ($p < 0.001$).

Emotion-focused coping and problem-focused coping were significantly related to students' educational level ($p < 0.001$), with the highest mean and median scores of emotion-focused coping and problem-focused coping among 11 th-grade students.

Emotion-focused coping and problem-focused coping in students had a significant relationship with having enough light, having attractive colors and materials used in the classroom, and having green area in the school and studying in a non govermental school. The highest mean and middle scores of emotion-focused coping and problem-focused coping were related to students who had enough light in their classroom and had green areas in their school, and the colors and materials used in their classroom were attractive to them. Emotion-focused coping and problem-focused coping were significantly related to a were significantly

related to a history of mental illness in the students' families ($p < 0.001$), and the highest mean and median scores, emotion-oriented coping and problem-oriented coping were related to students who had a history of mental illness. There was no mental illness in the family (Tables 5 and 6).

According to the information (Table 6), emotion-oriented coping and problem-oriented coping were not significantly correlated with age or the number of family members ($r = 0.096$, $p = 0.001$)

The results of the rank logistic regression in relation to the factors predicting the intensity of emotion-focused coping showed that the variable of having a green area in the school had a significant relationship with the intensity of emotion-focused coping; thus, students who had green spaces in their school compared with other students used emotion-focused coping more often, ($p = 0.000$, OR = 2.208).

The sufficiency of the classroom light also had a significant relationship with the intensity of emotional-focused coping; thus, the students who had enough light in their class used emotional-focused coping more often, $p = 0.000$, OR = 9.294.

The attractiveness of the colors and materials used in the students' classrooms was also significantly related to the intensity of emotion-focused coping; thus, the students who reported that the colors and materials used in their classrooms were attractive to them were more likely to use emotion-focused coping, OR = 2/711. $p = 0.000$.

Mothers' education also had a significant relationship with the intensity of emotion-focused coping; students whose mothers had a higher level of education used emotion-focused coping more often, (OR = 1.979, $p = 0.036$), (Table 7).

The results of the rank logistic regression in relation to the factors predicting the intensity of problem-focused coping showed that the mother's job has a significant relationship with the intensity of problem-focused coping, such that students whose mothers had a government job compared with students whose mothers did not have a job. They mostly used problem-focused coping, $p = 0.011$, OR = 2.161.

The type of school of the students had a significant relationship with the intensity of problem-focused coping, so that public school students used less problem-focused coping, $p = 0.000$, OR = 0.093.

The age of the students also had a significant relationship with the intensity of problem-focused coping; as the age of the students increased, they used less problem-focused coping, ($p = 0.000$, OR = 0.093), (Table 8).

Discussion

An examination of the constructs and subconstructs of Lazarus theory revealed that teenagers use emotion-focused coping more often. This coping style is inefficient, stems from poor insight and a lack of good judgment, and is often ineffective and inflexible. People who use this coping mechanism deny and avoid life problems or react impulsively and hastily without considering the situation and trying to find a better solution and have not reached social, cognitive, and emotional growth and perfection. and cannot deal with stress rationally. Such conditions ultimately cause personal and social damage and hasty decisions. Similar to the results of our study, in the study of Safari et al., the coping method most commonly used by teenagers was emotional-focused coping methods, and adolescents used problem-focused coping methods less often [27]; similar results were reported in other studies in the country [28, 29]. In studies abroad, the most common method of coping with stress has been emotional focused coping styles [30, 31].

In our study, the highest average score of the substructures was related to the substructure, escape-avoidance of the emotion-focused coping substructures, which means that the students who participated in the research, when faced with stress, escaped and stayed away from the stressful situation, used this strategy as an ineffective strategy in facing stress, which is similar to the results of our study, In Rahimi Ahmadabadi et al.'s study, they reported that teenagers use emotional coping styles and that they are not familiar with problem solving coping strategies or that they do not know how to use them, and that the methods needed to address them are stressful. This phenomenon should have a certain amount of knowledge and should give them the opportunity to use correct strategies to manage their anger and other emotions [29].

In the present study, the highest average score under the problem-focused coping structure was related to planned problem solving. In planned problem solving, a person directly examines ways to address the problem, and usually, by finding suitable solutions for the problem, the person feels satisfied, and the level of stress is reduced.

Individual and social variables are effective factors in all aspects of health and play an important role in adopting health-oriented behaviors. Although problem-focused coping with stress is a health-oriented behavior, in past studies, much attention has not been given to the relationships between individual, interpersonal and environmental variables and stress coping styles, and we discuss some of these relationships below.

Similar to the results of our study, in the study of Safari et al., parental education was reported as one of the

Table 5 Relationship of qualitative demographic variables with emotion- focused and problem- focused coping in student

Qualitative demographic variables		Indicators	Emotion-focused coping	Problem-focused coping
Birth rank	**1**	**N**	781	781
		Mean Rank	591.48	595.49
	2	**N**	260	260
		Mean Rank	565.52	543.73
	3	**N**	95	95
		Mean Rank	609.23	634.88
	4	**N**	45	45
		Mean Rank	691.41	639.61
		Kruskal–Wallis H	6.82	12.48
		df	3	3
		***p*- value**	0.08	0.00
		chi-square	3.58	6.36
Father's job	**civil servant**	**N**	381	381
		Mean Rank	610.39	616.67
	private employees	**N**	730	731
		Mean Rank	585.97	582.82
	retired	**N**	57	56
		Mean Rank	579.78	577.38
	unemployed	**N**	13	13
		Mean Rank	354.42	357.15
Mother's job	**civil servant**	**N**	218	218
		Mean Rank	668.83	668.20
	private employees	**N**	91	91
		Mean Rank	725.18	731.64
	retired	**N**	40	40
		Mean Rank	585.83	574.81
	unemployed	**N**	832	832
		Mean Rank	556.72	556.17
		Kruskal–Wallis H	40.404	41.03
		df	3	3
		***P*_ value**	0.000	0.000
		chi-square	34.03	30.87
Father's education	**less than Eighth grade**	**N**	170	170
		Mean Rank	436.96	430.47
	high school	**N**	405	405
		Mean Rank	482.74	476.72
	university	**N**	606	606
		Mean Rank	706.57	712.41
		Kruskal–Wallis H	176.128	185.283
		df	2	2
		***P*_ value**	0.000	0.00
		chi-square	157.92	170.26

Table 5 (continued)

Qualitative demographic variables		Indicators	Emotion-focused coping	Problem-focused coping
Mother's education	**less than Eighth grade**	**N**	151	151
		Mean Rank	451.78	447.95
	high school	**N**	433	433
		Mean Rank	465.23	465.23
	university	**N**	597	597
		Mean Rank	717.43	718.40
		Kruskal–Wallis H	201.646	195.518
		df	2	2
		P_ value	0.000	0.000
		chi-square	180.891	189.169
The economic situation	**bad**	**N**	188	188
		Mean Rank	459.72	448.72
	Average	**N**	556	556
		Mean Rank	499.42	499.10
	Good	**N**	324	324
		Mean Rank	775.93	782.15
	Excellent	**N**	113	113
		Mean Rank	729.76	731.84
		Kruskal–Wallis H	220.858	224.911
		df	3	3
		***P*_ value**	0.000	0.000
		chi-square	184.161	175.33
Grade	**10**	**N**	331	331
		Mean Rank	567.54	566.23
	11	**N**	404	404
		Mean Rank	628.60	629.73
	12	**N**	446	446
		Mean Rank	574.35	574.30
		Kruskal–Wallis H	9.153	9.300
		df	2	2
		***p*- value**	0.01	0.01
		chi-square	1.33	7.39
Is there a green area in your school?	**yes**	**N**	486	486
		Mean Rank	780.76	489.89
	no	**N**	695	695
		Mean Rank	458.31	451.92
		Mann–Whitney U	7666.500	72,225.000
		***p*- value**	0.000	0.000
Does your classroom have enough light?	**yes**	**N**	519	519
		Mean Rank	801.74	810.15
	no	**N**	662	662
		Mean Rank	425.78	419.19
		Mann–Whitney U	62,413.000	58,048.000
		***p*- value**	0.000	0.000

Table 5 (continued)

Qualitative demographic variables		Indicators	Emotion-focused coping	Problem-focused coping
Are the colors and materials used in the school attractive to you?	**yes**	**Mean Rank**	530	530
		N	784.27	789.92
	no	**Mean Rank**	651	651
		N	433.65	429.05
		Mann–Whitney U		
		***P*_ value**	70,079.500	67,085.500
	yes	**N**	0.000	0.000
History of mental illness		**Mean Rank**	478	478
	no	**N**	558.06	558.13
		Mean Rank	703	703
		Mann–Whitney U	613.40	613.35
		***P*_ value**	152,272.500	152,307.500
	yes	**N**	0.000	0.000
Type of school		**Mean Rank**	768	768
	no	**N**	478.89	473.80
		Mean Rank	413	413
		Mann–Whitney U	799.47	808.93
		***P*_ value**	72,493.000	68,585.000
			0.000	0.000

Table 6 Relationship of quantitative demographic variables with emotion- focused and problem- focused coping in students

			Age	family members
Spearman's rho	**emotion-focused coping**	**Correlation Coefficient**	−0.003	−0.022
		***P*_ value**	0.929	0.451
		N	1181	1181
	problem-focused coping	**Correlation Coefficient**	−0.001	0.006
		***P*_ value**	0.965	0.846
		N	1181	1181

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

influential and variable factors in the adoption of stress coping styles. Individual, social and cultural variables were confirmed [32, 33].

In the present study, who the student lived with was not related to the adoption of stress coping styles, whereas in the study of Mary Grossman et al., stress coping styles were less common in families with divorced parents [34].

In the present study, school environment and mothers' education were among the predictors of emotion-focused coping, and mothers' occupation was among the predictors of problem-focused coping. The findings of the present study and similar studies suggest that demographic variables are predictors of stress coping styles, and the differences in the types of variables can be attributed to differences in the differences in the study objectives; individual, economic, social and cultural factors; and the type of questionnaire used [32–36]. Notably, in all previous studies improvements in political, social and cultural conditions to change individual-social variables, have emphasized the mental health of adolescents.

Conclusion

This study reported that not only do most teenagers, especially girls, face considerable stress during the day, but in the face of stress, they use emotion-oriented

Table 7 The results of rank logistic regression in relation to predicting of intensity emotion-focused coping

Parameter Estimates							
Parameter		**B**	**Std. Error**	**p_value**	**OR**	**95% Wald Confidence Interval for Exp(B)**	
						Lower	**Upper**
Is there a green space in your school?	**has it**	0.792	0.2157	0.000	2.208	1.447	3.370
	does not have	0[a]			1		
Does your classroom have enough light?	**has it**	2.229	0.3329	0/000	9.294	4.840	17.849
	Does not have	0[a]			1		
Are the colors and materials used in the school attractive to you?	**has it**	0.998	0.2777	0.000	2.711	1.573	4.673
	does not have	0[a]			1		
Mother's education		0.683	0.1773	0/000	1.979	1.398	2.801

Dependent Variable: intensity emotion-focused coping

Model: (Threshold), ?Is there a green area in your school?, Does your classroom have enough light?,Mother's education

[a] Set to zero because this parameter is redundant

Table 8 The results of rank logistic regression in relation to predicting of intensity problem-focused coping

Parameter		**B**	**Std. Error**	***P*_ value**	**OR**	**95% Wald Confidence Interval for Exp(B)**	
						Lower	**Upper**
mother's job	**Employee**	0.771	0.3046	0.011	2.161	1.190	3.927
	Non-employee	0.450	0.4150	0.278	1.568	0.695	3.537
	Retired	0.127	0.6690	0.849	1.136	0.306	4.214
	Unemployed	0[a]			1		
Type of school	**Governmental**	−2.371	0.3666	0.000	0.093	0.046	0.192
	NGOs	0[a]			1		
age		−0.741	0.1746	0.000	0.477	0.339	0.671

Dependent Variable: problem-focused coping

Model: (Threshold),age?,mother's job?, Type of school?

[a] Set to zero because this parameter is redundant

[b] Fixed at the displayed value

coping styles that do not help them solve their problems and reduce stress, increasing the likelihood of risky behaviors. Factors such as the green space in the school, the attractiveness of the colors and materials used and the classes not being crowded, having a job and university education in the parents are among the factors that increase problem-oriented styles. This study emphasized the implementation of interventions such as cognitive-behavioral therapy, mindfulness, teaching problem-solving skills, and resilience training; incorporating stress management techniques into school curricula; and designing and implementing educational interventions on the basis of Lazarus theory structures in students, parents, teachers, and school coaches to improve the mental health of adolescents.

Limitations

This study has two main limitations. The first limitation is the large number of questions in the Lazarus theory questionnaire that students had to answer, which could be boring for teenagers. Future studies should examine problem-oriented coping styles on a given day, and emotion-oriented coping styles should be examined on the other day. The next limitation is that demographic variables have a great impact on the choice of adolescent coping styles, some of which were examined in this study, and the examination of other variables is suggested in future studies.

Thank you and appreciation

The findings of this work are related to the research project and doctoral thesis of health education and health promotion approved by Tehran University of Medical Sciences with ethical code: IR.TUMS.SPH.REC.1402.144.

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Participants' satisfaction

At the beginning of the research, informed consent was obtained from the parents of the participating students for their children's participation in the research, which was based on the form of Tehran University of Medical Sciences, to obtain the consent of the participant.

Authors' contributions

N. F. designed the study, collected the data and drafted the manuscript, E. k. performed the statistical analysis and prepared the tables. H. F. was the scientific advisor of the project. Gh.G.as the responsible author, supervised the entire study. All authors reviewed and edited the draft manuscript and approved the final version.

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Data availability

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

Declarations

Ethics approval and consent to participate

All methods were carried out following the principles outlined in the 1964 Helsinki Declaration and its subsequent amendments. All protocols were approved by the Ethics Committee of Tehran University of Medical Sciences (IR.TUMS.SPH.REC.1402.144). To conduct this research, an informed consent form was obtained from all the participants, and all the authors and participants have expressed their informed consent to participate in this research and provide information and publish the results of this research.

Consent for publication

Not applicable in this section.

Competing interests

The authors declare no competing interests.

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