Predicting the Health of Sixth-Grade Students in Tehran Based on Family-Centered Healthy Behaviors

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A B S T R A C T

Purpose: This study aimed to identify family-centered healthy behaviors and examine their relationship with the mental and social health of sixth-grade students, as well as to compare these relationships between male and female students.
Methodology: This research employed a mixed-methods approach with a sequential qualitative-quantitative design. In the qualitative phase, qualitative content analysis was conducted through semi-structured interviews with health specialists to identify dimensions of family-centered healthy behaviors. In the quantitative phase, a correlational method was used, and data were collected from 310 sixth-grade students in Tehran through stratified random sampling. Research instruments included a researcher-developed questionnaire on family-centered healthy behaviors, the Beshrat Mental Health Scale (2020), and the Keyes Social Well-Being Questionnaire (2004). Data analysis was performed using stepwise regression, independent t-tests, and SPSS 23 software.
Findings: The qualitative findings identified eight dimensions of family-centered healthy behaviors: contentment, cooperation and participation, expressing affection, awareness of each other, having a spiritual program, knowledge enhancement, diligence and dynamism, and recreation and enjoyment. Correlation analysis indicated a significant positive relationship between family-centered healthy behaviors and both mental and social health, with the strongest correlation observed between recreation and enjoyment and social health. Stepwise regression analysis revealed that family-centered healthy behaviors accounted for 21% of the variance in mental health and 34.7% of the variance in social health among students. Additionally, recreation and enjoyment had the strongest predictive power for both mental and social health in both male and female students. However, female students scored significantly higher than male students in family-centered healthy behaviors.
Conclusion: Given that these behaviors significantly contribute to well-being, it is recommended that they be promoted through educational resources, training workshops, and awareness programs for parents and families to foster healthier lifestyles and prevent mental health issues in students.
Keywords: Family-centered healthy behaviors, health, students

1. Introduction

Students are the primary assets of any society, and their health serves as the foundation for the overall well-being of the future population, playing an undeniable role in enhancing the country's health standards. From a global health perspective, health is not merely the absence of disease but rather a state of complete physical, psychological, and social well-being (Darbani & Parsakia, 2023; Hamblion, 2019). The issue of health among students is a fundamental and critical topic. Health is recognized as both a human right and a social goal worldwide, essential for fulfilling basic needs and improving the quality of human life (Neu et al., 2024). In this regard, the World Health Organization (WHO) emphasizes the importance of health promotion, which includes encouraging healthy lifestyles, creating supportive health environments, strengthening social initiatives to improve health conditions, redirecting healthcare services, and establishing public health policies (Wangsathaporn et al., 2024; Yang & Seyed Alitabar, 2024).

The findings of Carr and Hussey (1999) indicate that parents are among the key social factors influencing children's career orientations, attitudes, and health (Molaei Nejad et al., 2018). The family plays a significant role in health education, promoting health-oriented behaviors, and enhancing children's well-being. Moreover, many healthy and unhealthy habits develop during adolescence and persist into later life stages. Adolescence is a crucial period characterized by physical, emotional, and developmental changes that prepare individuals for adulthood. These changes affect dietary habits, sleep patterns, physical activity, weight management, and other lifestyle behaviors that determine an individual's overall health (Emami Siyahchali, 2020). Studies conducted in Iran highlight the impact of healthy behaviors on mental health (Teymori Fard et al., 2021), social well-being (Saber Shahraki, 2014), illness anxiety prediction (Farivar et al., 2020), modification of dietary behaviors, preventive roles against diseases (Vatan Doust, 2019; Yazdizadeh, 2024), and body mass index indicators (Vatan Doust, 2019). Additionally, studies (Nengsyi et al., 2020; Niedzwiedz et al., 2021) have demonstrated that education and the promotion of healthy behaviors significantly reduce the adverse effects on mental health.

Contemporary students engage in unhealthy behaviors more frequently than adolescents of previous generations. Many lifestyle habits are formed during adolescence and continue into later life stages (Ahmadi et al., 2019).

Therefore, fostering healthy behaviors among students within the school environment, as a setting for learning and behavioral change, is essential for building a healthy society. Furthermore, in recent decades, the psychological and social issues affecting children and adolescents have gained attention on a global scale and have become priorities in international public health policies. Hence, societies' investment in enhancing children's and adolescents' psychological and social well-being can be considered a preventive approach against high-risk behaviors (Husky et al., 2018).

Given the significance of mental health, its importance during adolescence, and its impact on the overall health of society, this study was conducted with two primary objectives. The first objective was to identify and categorize family-centered healthy behaviors. The second objective was to predict students' mental health and social well-being, distinguishing between male and female students, based on these family-centered healthy behaviors.

2. Methods and Materials

2.1. Study Design and Participants

This study employed a mixed-methods approach with a sequential qualitative-quantitative design. The qualitative phase utilized qualitative content analysis, while the quantitative phase employed a correlational method. In the qualitative phase, qualitative content analysis was used to identify the components of family-centered healthy behaviors. In the quantitative phase, following the finalization of categories and the compilation of components of family-centered healthy behaviors, a questionnaire was developed to determine the extent to which these behaviors impact the health of elementary school students, utilizing a correlational method.

The qualitative study population consisted of health specialists, from whom 10 participants were selected as the sample through purposive sampling based on the saturation principle. The quantitative study population included all sixth-grade students in Tehran during the second semester of the 2023-2024 academic year, totaling 1,625 students according to available reports. Using stratified random sampling and Cochran's formula, a sample of 310 male and female students was selected.

2.2. Instruments

For data collection, semi-structured interviews were conducted in the qualitative phase to identify the components of family-centered healthy behaviors. In the quantitative phase, three questionnaires were used: (1) A researcher-developed questionnaire on family-centered healthy behaviors, derived from interviews with experts, which included eight components: contentment, cooperation and participation, expressing affection, awareness of each other, having a spiritual program, knowledge enhancement, diligence and dynamism, and recreation and enjoyment. (2) The Beshrat Mental Health Scale (2020), which consists of 27 statements assessing individuals' emotions and thoughts, measuring mental health across two dimensions: psychological well-being (items 1–14) and psychological distress (items 15–27). (3) The Keyes Social Well-Being Questionnaire (2004), which consists of 20 items assessing social well-being across five dimensions: social flourishing, social coherence, social integration, social acceptance, and social participation.

To assess the reliability of the qualitative findings, inter-coder reliability was used. Correlation results indicated an inter-coder agreement coefficient of 0.789 at a significance level of 0.001. In the quantitative phase, content validity was used to assess validity, and Cronbach's alpha coefficient was used to assess reliability.

2.3. Data Analysis

For qualitative data analysis, inductive qualitative content analysis was applied. The data analysis process involved three coding stages: open coding, axial coding, and selective coding. In the open coding stage, the interview transcripts were documented. In the axial coding stage, concepts were categorized into thematic groups, and in the selective coding stage, these themes were classified into broader conceptual categories.

Quantitative data analysis was conducted using descriptive and inferential statistics in SPSS 23. The descriptive statistics included frequency, percentage, mean, standard deviation, and other relevant measures. In the inferential statistics section, hypotheses were tested using stepwise regression analysis and an independent t-test.

3. Findings and Results

This section presents the research findings in two parts: qualitative and quantitative. In the qualitative phase, after conducting interviews, the concepts were conceptualized, categorized, and classified into main and subcategories. In the quantitative phase, inferential statistics were used to examine the relationships between research variables and test the hypotheses. The results from both phases are presented separately in the following sections.

During the selective coding stage, subcategories derived from the interviews with semantic similarities were eliminated, and after multiple refinements, the components of family-centered healthy behaviors were classified into specific dimensions based on the results of factor analysis. The final findings identified 26 subcategories (components) and 8 main categories as dimensions of family-centered healthy behaviors, which are presented in Table 1.

Table 1

Extracted Dimensions of Family-Centered Healthy Behaviors

Components	Dimensions
Having a good relationship with all available resources	Contentment
Adapting to positive and negative changes	
Lack of regret and envy	
Equality among family members	Cooperation and Participation
Family members' willingness to participate	
Expression of opinions and viewpoints within the family	
Giving gifts to each other	Expressing Affection
Not being indifferent or careless toward each other	
Appropriate reactions to each other's emotions	
Sharing in each other's joy and sorrow	
Active conversations within the family	Awareness of Each Other
Being informed about each other	
Being a good listener	
Participation in religious events and pilgrimage trips	Having a Spiritual Program
Attention and devotion to God Almighty	

Strengthening a culture of gratitude	
Emphasizing the importance of reading in the family	Knowledge Enhancement
Socializing with scholars and books	
Making beneficial use of digital spaces	
Serving the community	Diligence and Dynamism
Being useful to society	
Acquiring new skills	
Engaging in family games	Recreation and Enjoyment
Enjoying time together as a family	
Creating and cherishing memories	
Eating meals together as a family	

During the selective coding stage, subcategories derived from the interviews with semantic similarities were eliminated, and after multiple refinements, the components of family-centered healthy behaviors were classified into specific dimensions based on the results of factor analysis. The final findings identified 26 subcategories.

In the quantitative section, a total of seven hypotheses were tested, with the results presented for each hypothesis separately.

The first hypothesis stated that "family-centered healthy behaviors can predict students' mental health."

Table 2

Summary of the Model Related to the First Research Hypothesis

Model	R	R²	Adjusted R²	Standard Error of Estimate	F	Significance Level
1	0.401	0.161	0.158	17.14908	59.017	0.001
2	0.418	0.175	0.170	17.03144	32.552	0.001
3	0.443	0.196	0.188	16.84028	24.867	0.001
4	0.459	0.211	0.200	16.71354	20.349	0.001
5	0.472	0.223	0.210	16.60915	17.453	0.001

In the final model, recreation and enjoyment, having a spiritual program, expressing affection, cooperation and participation, and awareness of each other together accounted for 21% of the variance in students' mental health. The obtained F-values for all models were significant at an error level of less than 0.01, indicating that family-centered healthy behaviors significantly explain variations in mental health.

To further examine the first hypothesis, all dimensions of family-centered healthy behaviors were entered into the model step by step based on their correlation coefficients with mental health, as presented in Table 3. Initially, recreation and enjoyment were entered into the model. According to the results, recreation and enjoyment, with a t-value of 7.382 and a regression coefficient of 0.401, significantly and positively predicted students' mental health.

As shown in Table 2, recreation and enjoyment alone accounted for 15.8% of the variance in students' mental health. Recreation and enjoyment, along with having a spiritual program, collectively predicted 17% of the variance. In the third model, it was determined that recreation and enjoyment, having a spiritual program, and expressing affection together accounted for 18.8% of the variance. In the fourth model, the combination of recreation and enjoyment, having a spiritual program, expressing affection, and cooperation and participation predicted 20% of the variance in students' mental health.

In the next step, having a spiritual program was added to the regression model. In this model, the regression coefficient for recreation and enjoyment decreased to 0.310, but it remained significant. The results showed that recreation and enjoyment (t = 4.743, β = 0.310) and having a spiritual program (t = 2.296, β = 0.150) significantly and positively predicted students' mental health.

In the third step, expressing affection was added to the model. The results indicated that the significance of having a spiritual program was lost, while the regression coefficient for recreation and enjoyment decreased. In the third model, recreation and enjoyment (t = 4.045, β = 0.268) and expressing affection (t = 2.830, β = 0.168) remained significant and positive predictors of students' mental health.

In the next step, diligence and dynamism were entered into the model. However, since they had no significant impact on mental health, they were removed from the model, and the prediction of mental health was reassessed with

cooperation and participation. When cooperation and participation were included, having a spiritual program and expressing affection lost their significance. According to the results of the fourth model, recreation and enjoyment (t =

4.003, β = 0.263) and cooperation and participation (t = 2.379, β = 0.147) could positively and significantly predict students' mental health.

Table 3

Regression Coefficients Related to the First Research Hypothesis

Model	Source	B	SE	Beta	t	Sig
1	Constant	61.496	3.302		18.623	0.000
	Recreation and Enjoyment	6.759	0.880	0.401	7.382	0.000
2	Constant	56.047	4.048		13.845	0.000
	Recreation and Enjoyment	5.222	1.101	0.310	4.743	0.000
	Having a Spiritual Program	3.038	1.324	0.150	2.296	0.022
3	Constant	49.578	4.610		10.755	0.000
	Recreation and Enjoyment	4.517	1.117	0.268	4.045	0.000
	Having a Spiritual Program	1.980	1.361	0.098	1.454	0.147
	Expressing Affection	3.604	1.274	0.168	2.820	0.005
4	Constant	42.914	5.365		8.000	0.000
	Recreation and Enjoyment	4.439	1.109	0.263	4.003	0.000
	Having a Spiritual Program	2.282	1.357	0.113	1.682	0.094
	Expressing Affection	1.728	1.490	0.080	1.160	0.247
	Cooperation and Participation	3.407	1.432	0.147	2.379	0.018
5	Constant	43.043	5.331		8.073	0.000
	Recreation and Enjoyment	4.818	1.115	0.286	4.320	0.000
	Having a Spiritual Program	3.665	1.487	0.181	2.464	0.014
	Expressing Affection	3.258	1.636	0.152	1.992	0.047
	Cooperation and Participation	3.728	1.431	0.161	2.606	0.010
	Awareness of Each Other	3.666	1.665	0.179	2.201	0.028

In the fifth model, awareness of each other was introduced. With the inclusion of awareness of each other, the regression coefficients of recreation and enjoyment, having a spiritual program, expressing affection, cooperation and participation, and awareness of each other increased. The results indicate that recreation and enjoyment (β = 0.286) had the most significant impact, while expressing affection (β = 0.152) had the least effect on students' mental health.

In subsequent steps, contentment and then knowledge enhancement were added to the model. However, as they had no significant impact on mental health, they were removed.

Therefore, it can be concluded that recreation and enjoyment, followed by having a spiritual program, had the highest predictive power for students' mental health.

The second hypothesis of this study proposed that "family-centered healthy behaviors can predict students' social well-being."

The results presented in Table 4 indicate that recreation and enjoyment alone accounted for 34.7% of the variance in students' social well-being. Based on the obtained F-value, which was significant at an error level of less than 0.01, family-centered healthy behaviors significantly explained variations in social well-being.

Table 4

Summary of the Model Related to the Second Research Hypothesis

Model	R	R²	Adjusted R²	Standard Error of Estimate	F	Significance Level
1	0.591	0.349	0.347	11.25279	150.165	0.001

To further examine the second hypothesis, all dimensions of family-centered healthy behaviors were entered into the model step by step based on their correlation coefficients with social well-being. Initially, recreation and enjoyment

were entered into the model. According to the results in Table 5, recreation and enjoyment (t = 12.851, β = 0.591) significantly and positively predicted students' social well-being.

Table 5

Regression Coefficients Related to the Second Research Hypothesis

Model	Source	B	SE	Beta	t	Sig
1	Constant	41.187	2.167		19.008	0.000
	Recreation and Enjoyment	7.420	0.577	0.591	12.851	0.000

In the next step, diligence and dynamism, having a spiritual program, awareness of each other, expressing affection, knowledge enhancement, and cooperation and participation were sequentially entered into the model, except for contentment, which was excluded due to its lack of correlation with social well-being. In the stepwise regression related to the second hypothesis, all dimensions of family-centered healthy behaviors were included in the model, and dimensions with minimal impact on the dependent variable were eliminated. The results indicate that among all dimensions, recreation and enjoyment had the highest predictive power for students' social well-being.

The third hypothesis stated that "family-centered healthy behaviors can predict the mental health of female students."

The results in Table 6 show that recreation and enjoyment alone accounted for 16.2% of the variance in the mental health of female students.

Table 6

Summary of the Model Related to the Third Research Hypothesis

Model	R	R²	Adjusted R²	Standard Error of Estimate	F	Significance Level
1	0.409	0.167	0.162	16.05670	32.373	0.001
2	0.463	0.215	0.205	15.64238	21.876	0.001

In the second model, it was determined that recreation and enjoyment, along with expressing affection, accounted for 20.5% of the variance in the mental health of female students. Based on the results, the obtained F-values for all models were significant at an error level of less than 0.01, indicating that family-centered healthy behaviors significantly explained variations in female students' mental health.

To further examine the third hypothesis, all dimensions of family-centered healthy behaviors were sequentially entered into the model based on their correlation with the mental health of female students. As shown in Table 7, recreation and enjoyment were initially entered into the model. According to the results, recreation and enjoyment (t = 5.690, β = 0.409) significantly and positively predicted the mental health of female students. In the next step, expressing affection was added to the regression model. In this model, the regression coefficient for recreation and enjoyment decreased to 0.307 but remained significant. According to the results, recreation and enjoyment (t = 3.966, β = 0.307) and expressing affection (t = 3.105, β = 0.240) significantly and positively predicted the mental health of female students.

Table 7

Regression Coefficients Related to the Third Research Hypothesis

Model	Source	B	SE	Beta	t	Sig
1	Constant	68.114	4.388		15.524	0.000
	Recreation and Enjoyment	6.412	1.127	0.409	5.690	0.000
2	Constant	56.675	5.643		10.043	0.000
	Recreation and Enjoyment	4.811	1.213	0.307	3.966	0.000
	Expressing Affection	4.794	1.544	0.240	3.105	0.002

In the next step, having a spiritual program, diligence and dynamism, cooperation and participation, awareness of each other, knowledge enhancement, and contentment were sequentially entered into the model. However, all these dimensions were removed as they had no significant effect on the dependent variable. The results indicate that

recreation and enjoyment (β = 0.307) and expressing affection (β = 0.240) had the highest predictive power for female students' mental health.

The fourth hypothesis stated that "family-centered healthy behaviors can predict the social well-being of female students."

The results in Table 8 indicate that recreation and enjoyment alone accounted for 36% of the variance in female students' social well-being. Based on the obtained F-value, which was significant at an error level of less than 0.01, family-centered healthy behaviors significantly explained variations in female students' social well-being.

Table 8

Summary of the Model Related to the Fourth Research Hypothesis

Model	R	R²	Adjusted R²	Standard Error of Estimate	F	Significance Level
1	0.603	0.364	0.360	10.62895	92.116	0.001

To further examine the fourth hypothesis, all dimensions of family-centered healthy behaviors were entered into the model step by step based on their correlation with female students' social well-being. Initially, recreation and enjoyment were entered into the model. According to the results in Table 9, recreation and enjoyment (t = 9.598, β = 0.603) significantly and positively predicted female students' social well-being.

Table 9

Regression Coefficients Related to the Fourth Research Hypothesis

Model	Source	B	SE	Beta	t	Sig
1	Constant	43.245	2.904		14.889	0.000
	Recreation and Enjoyment	7.160	0.746	0.603	9.598	0.000

In the next step, diligence and dynamism, awareness of each other, having a spiritual program, knowledge enhancement, expressing affection, and cooperation and participation were entered into the model, except for contentment, which was excluded due to its lack of correlation with female students' social well-being. In the stepwise regression related to the fourth hypothesis, all dimensions of family-centered healthy behaviors were included in the model, and dimensions with minimal impact on the dependent variable were eliminated. The results indicate that among all dimensions, recreation and enjoyment (β = 0.603) had the highest predictive power for female students' social well-being.

The fifth hypothesis stated that "family-centered healthy behaviors can predict the mental health of male students."

The results in Table 10 indicate that recreation and enjoyment alone accounted for 11.5% of the variance in male students' mental health. In the second model, recreation and enjoyment, along with diligence and dynamism, accounted for 13.8% of the variance. Based on the obtained F-value, which was significant at an error level of less than 0.01, family-centered healthy behaviors significantly explained variations in male students' mental health.

Table 10

Summary of the Model Related to the Fifth Research Hypothesis

Model	R	R²	Adjusted R²	Standard Error of Estimate	F	Significance Level
1	0.347	0.121	0.115	16.41974	19.903	0.001
2	0.387	0.150	0.138	16.20046	12.699	0.001

To further examine the fifth hypothesis, all dimensions of family-centered healthy behaviors were entered into the model step by step based on their correlation with male students' mental health. Initially, recreation and enjoyment were entered into the model. According to the results in Table 11, recreation and enjoyment (t = 4.461, β = 0.347) significantly and positively predicted male students' mental health.

Table 11

Regression Coefficients Related to the Fifth Research Hypothesis

Model	Source	B	SE	Beta	t	Sig
1	Constant	59.490	4.526		13.145	0.000
	Recreation and Enjoyment	5.623	1.260	0.347	4.461	0.000
2	Constant	54.150	5.069		10.682	0.000
	Recreation and Enjoyment	3.664	1.524	0.226	2.405	0.017
	Diligence and Dynamism	3.334	1.498	0.209	2.225	0.028

In the next step, having a spiritual program, expressing affection, awareness of each other, cooperation and participation, knowledge enhancement, and contentment were sequentially entered into the model. However, all these dimensions were removed as they had no significant effect on the dependent variable. The results indicate that recreation and enjoyment ($\beta = 0.226$) and diligence and dynamism ($\beta = 0.209$) had the highest predictive power for male students' mental health.

The sixth hypothesis stated that "family-centered healthy behaviors can predict the social well-being of male students."

The results in Table 12 indicate that recreation and enjoyment alone accounted for 30.9% of the variance in male students' social well-being. Based on the obtained F-value, which was significant at an error level of less than 0.01, family-centered healthy behaviors significantly explained variations in male students' social well-being.

Table 12

Summary of the Model Related to the Sixth Research Hypothesis

Model	R	R²	Adjusted R²	Standard Error of Estimate	F	Significance Level
1	0.560	0.314	0.309	11.85853	66.324	0.001

To examine the sixth hypothesis, all dimensions of family-centered healthy behaviors were sequentially entered into the model based on their correlation with the social well-being of male students. Initially, recreation and enjoyment were entered into the model. According to the results, recreation and enjoyment ($t = 8.144$, $\beta = 0.560$) significantly and positively predicted male students' social well-being.

Table 13

Regression Coefficients Related to the Sixth Research Hypothesis

Model	Source	B	SE	Beta	t	Sig
1	Constant	40.003	3.269		12.239	0.000
	Recreation and Enjoyment	7.413	0.910	0.560	8.144	0.000

In the next step, diligence and dynamism, having a spiritual program, awareness of each other, expressing affection, and knowledge enhancement were sequentially entered into the model, except for cooperation and participation and contentment, which were excluded due to their lack of correlation with male students' social well-being. However, all these dimensions were later removed from the model due to their minimal impact on the dependent variable. The results indicate that among all dimensions, recreation and enjoyment ($\beta = 0.560$) had the highest predictive power for male students' social well-being.

The seventh hypothesis of this study compared male and female students and stated that "the prediction of students' health based on family-centered healthy behaviors is the same for both genders."

Based on the results in Table 14, the obtained F-value (0.890) and a significance level greater than 0.05 indicate that the variance of variables is equal.

Table 14

Mean Differences by Gender

Gender	Sample Size	Mean	Standard Deviation
Male	147	92.7687	17.01654
Female	163	97.0552	16.94080

However, as observed in Table 15, the t-test value (-2.220) and a significance level of less than 0.05 indicate a significant difference in the prediction of students' health based on family-centered healthy behaviors between male and female students.

Table 15

Results of the Independent t-Test

	F	Significance Level	t	Degrees of Freedom	Significance Level	Mean Difference
Equal Variance Assumed	0.890	0.346	-2.220	308	0.027	
Unequal Variance Assumed			-2.219	304.4	0.027	

This means that the prediction of students' health based on family-centered healthy behaviors was higher among female students, with a mean difference of 4.28, compared to male students. Consequently, the research hypothesis was rejected.

4. Discussion and Conclusion

The present study aimed to identify family-centered healthy behaviors and their relationship with the health of sixth-grade students. The study's primary objectives included identifying the indicators, components, and dimensions of family-centered healthy behaviors, validating family-centered healthy behaviors, examining their predictive power for students' mental and social health, and comparing these aspects between male and female students.

The qualitative findings identified eight main categories as dimensions of family-centered healthy behaviors. According to the qualitative analysis results, each dimension included components derived from open and axial coding of the interview data.

The correlation matrix results indicated a significant positive relationship between family-centered healthy behaviors and all its dimensions. Family-centered healthy behaviors showed the highest correlation with awareness of each other and the lowest correlation with contentment. Additionally, a significant positive relationship was found between family-centered healthy behaviors and overall health, including mental and social health. Among these, family-centered healthy behaviors exhibited the strongest correlation with social health. The results demonstrated that all dimensions of family-centered healthy behaviors were positively and significantly related to health, with recreation and enjoyment having the highest correlation and contentment the lowest. Furthermore, there was a significant positive relationship between the dimensions of family-centered healthy behaviors and both mental and social health.

Stepwise regression analysis showed that the health of sixth-grade students could be predicted by family-centered healthy behaviors, specifically recreation and enjoyment, and cooperation and participation. Both mental and social health were predicted by family-centered healthy behaviors. Moreover, it was determined that the mental and social health of male and female sixth-grade students could be predicted based on family-centered healthy behaviors. However, there was no significant difference between male and female students in the prediction of health based on these behaviors.

In the qualitative phase, eight main categories of family-centered healthy behaviors were identified: contentment, cooperation and participation, expressing affection, awareness of each other, having a spiritual program, knowledge enhancement, diligence and dynamism, and recreation and enjoyment. These findings align with existing theories and expert perspectives. One of the identified behaviors, cooperation and participation, aligns with Henry Ford's statement that "coming together is a beginning, staying together is progress, and working together is success." Expressing affection is consistent with Gachman's (1997) perspective, which considers healthy behaviors as encompassing mental events and emotional states. Additionally, Rogers argued that self-actualized individuals establish empathetic connections with others and define right and wrong based on their understanding of both their own and others' needs (Forouzanfar et al., 2023; Tavakoli et al., 2022; Tima, 2022). Litz (2007), in his theory of family resilience, emphasized communication as a protective factor

in adaptation and acceptance (Haqiqatian, 2022; Teymori Fard et al., 2021).

The findings also confirmed that having a spiritual program is a dimension of family-centered healthy behaviors, consistent with Walker's (1987) perspective. According to Walker, healthy behaviors follow a multidimensional pattern, with spiritual growth as one of its key aspects. Spirituality involves an intrinsic human essence and is connected to individual well-being. On a personal level, spirituality represents the pursuit of meaning and purpose in life. Litz (2007) also identified spirituality as a protective factor in family resilience. The Ontario Healthy Communities Coalition (2003) highlighted the importance of opportunities for learning and skill development, while Keyes identified an individual's sense of being useful and productive as an indicator of social flourishing (Farhadi, 2020; Moieni et al., 2016; Yazdizadeh, 2024).

In the quantitative phase, family-centered healthy behaviors accounted for 21% of the variance in students' mental health. These findings align with prior studies (Khavari et al., 2022; Nengsyi et al., 2020; Niedzwiedz et al., 2021; Teymori Fard et al., 2021; Tome et al., 2012). According to social learning theorists, children acquire various interpersonal skills by observing adult role models. Additionally, behaviorist perspectives suggest that mental health is influenced by environmental stimuli, and all behaviors can be learned. These theoretical perspectives provide a potential explanation for the relationship between family-centered healthy behaviors and mental health.

Another key finding indicated that physical activity, recreation, and enjoyment within the family contribute to students' improved mental health. Researchers believe that happy individuals respond more positively and adaptively to life events, experience lower stress levels, have stronger immune systems, and demonstrate greater creativity than unhappy individuals. Happy individuals are not only more effective in managing daily challenges but also in coping with highly stressful and threatening life events (Yazdizadeh, 2024).

The results also revealed that expressing affection had the least significant positive impact on students' mental health. This may be explained by the fact that expressing love and affection is a learned behavior that can be taught and reinforced through education and cultural development, particularly from childhood, which aligns with social learning theory.

Findings showed that family-centered healthy behaviors predicted 34.7% of the variance in students' social health.

These results are consistent with prior studies (Alborzi, 2019; Shaban & Ghavidel, 2021; Teymori Fard et al., 2021). One explanation for these findings is that healthy behaviors contribute to improved social health. Keyes argued that health has a social foundation and defined social health as an individual's evaluation of their role and function within society. According to Keyes, social well-being encompasses more than just physical and mental health and includes the ability to navigate social challenges. He also believed that social health is positively related to prosocial behaviors, social responsibility, and societal status. Thus, aligning with Keyes' theory, social health is influenced by individuals' lifestyles.

Another finding indicated that family-centered healthy behaviors accounted for 20.5% of the variance in female students' mental health. According to the results, recreation and enjoyment ($\beta = 0.307$) and expressing affection ($\beta = 0.240$) had the highest predictive power for female students' mental health. These findings align with prior studies (Moieni et al., 2016; Nengsyi et al., 2020). The results can be explained by the idea that happiness is a driving force that fosters motivation, activity, competence, and optimism, making it a central component of a fulfilling life. Argyle defined happiness as consisting of three fundamental components: emotional, cognitive, and affective, which contribute to positive outcomes such as physical and mental health, optimal performance, productivity, and entrepreneurship.

The results also indicated that family-centered healthy behaviors predicted 36% of the variance in female students' social health, with recreation and enjoyment having the strongest predictive power. These findings are consistent with Yazdizadeh's (2023) research, which demonstrated a significant positive correlation between happiness and social health among students (Yazdizadeh, 2024). Keyes and Larson defined social health as an individual's way of adapting to the world, asserting that effective, happy, and satisfied individuals who maintain a tendency toward joy and enthusiasm exhibit higher social health.

Family-centered healthy behaviors also predicted 13.8% of the variance in male students' mental health. The results indicated that recreation and enjoyment, as well as diligence and dynamism, had a positive impact on male students' mental health. These findings align with Enasseri's (2017) research. The results suggest that recreation and enjoyment are associated with positive functioning and mental well-being. Increased enjoyment not only enhances mental health but also enriches life, fostering personal growth, flourishing,

and interpersonal effectiveness. These findings clearly demonstrate the relationship between mental health and enjoyment.

Additionally, family-centered healthy behaviors accounted for 31% of the variance in male students' social health, with recreation and enjoyment having the highest predictive power. These findings align with Larson's perspective, which suggests that an individual's evaluation of their relationships with family, others, and social groups reflects their overall satisfaction with life and social status.

When comparing male and female students, the study found that family-centered healthy behaviors differed between the two groups. Specifically, the mean score for family-centered healthy behaviors was 4.28 points higher among female students than male students. Based on Laroche's (1998) findings, this result can be interpreted as women demonstrating greater responsibility toward health and adopting healthier lifestyle behaviors than men (Yazdizadeh, 2024).

Overall, based on the study's findings and a review of previous research, family-centered healthy behaviors represent a way of life that families adopt, significantly influencing health and social well-being, particularly among students. More specifically, the results indicate that fostering healthy behaviors such as contentment, cooperation and participation, expressing affection, awareness of each other, having a spiritual program, knowledge enhancement, diligence and dynamism, and recreation and enjoyment can substantially contribute to improving family health, particularly in terms of mental and social well-being.

Therefore, it is recommended that the identified family-centered healthy behaviors be published in educational journals to be accessible to parents and that training workshops be conducted to promote these behaviors among families. Additionally, these behaviors should be disseminated through educational posters, banners, online workshops, and digital resources to provide families with strategies for adopting a healthier lifestyle, increasing their awareness of well-being, and preventing mental health disorders.

Authors' Contributions

All authors significantly contributed to this study.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

Declaration of Interest

The authors report no conflict of interest.

Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the interview and participated in the research with informed consent.

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