

Health Promoting Behaviors in Adolescent Females and Its Relevant Factors in Qazvin, Iran

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Abstract: Promotion of health in adolescent females is one of the millennium development goals and missions of the World Health Organization. So, it is essential to examine health-promoting behaviors and plan appropriately to promote health in this group. According to the literatures have done in different area of Iran, it is anticipated that the status of health promotion behaviors in Qazvin is also undesirable. So this study aimed to determine health-promoting behaviors in middle school adolescent females and its related factors.

Methods: This cross-sectional study was conducted on 424 middle school female students in Qazvin, Iran. The subjects were selected through a cluster sampling method. Data collection tools included a demographic questionnaire, and the Health-Promoting Behaviors (HPLPII) questionnaire, which measures health-promoting behaviors in 6 dimensions including health responsibility, physical activity, nutrition, spiritual growth, stress management, and interpersonal relations.

Results: The present study results showed overall mean health-promoting behaviors is 82.51 ± 21.44 . In the following domains, adolescent females scored moderately: nutrition, physical activity, stress management, interpersonal relations; and they were poor in health responsibility, but obtained a good score in spiritual growth. The scores of health-promoting indexes decreased with a rise in the grades of the students and improved by higher parents' educational status.

Conclusions: The present study results showed health-promoting behaviors in adolescent females were at a moderate level. Thus, consideration should be given to providing appropriate health and educational services (and in some cases, counseling services) to adolescents and their families, especially in health responsibility demension.

Keywords: Health promotion, Health behavior, adolescent, females.

1. INTRODUCTION

Health-promoting behaviors are among the major health-determining factors that emphasize the prevention of diseases, development of acceptance skills and self-care capability (1, 2). Overall, 53% of mortality causes are associated with individuals' lifestyle and unhealthy behaviors (3). Health behaviors have potential effects on health promotion and the quality of life, and proportionally reduce health care costs (2). According to Pender's theory, lifestyle-based behavior is the pattern of voluntary activities of everyday living and stems from demographic, environmental and social factors (4).

Therefore, human behavior is a reflection of various factors, and experts have been seeking to identify this causal network in order to affect factors that can have an impact on behavior. The range of this network is very broad and varies from one group to another and even from one individual to another (5).

Adolescents constitute one of the most important age groups. The International Conference on Population and Development emphasized that adolescents have unique needs compared to adults (6). Adolescence is the beginning of physical, mental, and social developments that affect their performance in adulthood (7). While some habits develop in childhood, habits such as smoking and drinking alcohol are formed in adolescence (8). These habits, subsequently, result in the development of patterns that have justifiable health consequences in our future lives (9). However, the period of puberty can pave the way for the formation of positive adolescent behaviors and thus contribute to the improvement of long-term health outcomes (10).

As a part of its main objectives and policies, the World Health Organization has focused on the health of adolescents, especially that of girls (11). According to United Nations Population Fund (UNFPA), girls' health is the key to breaking the cycle of intergenerational poverty and achievement of the millennium development goals. Because of the physical and mental conditions of girls in this period and also their essential reproductive role, the health of adolescent girls has been given a special place (12). Also, improving the health of adolescent girls as future mothers can ensure the health of future generations (13).

Iran, with 15 million adolescents, is considered to be one of the youngest countries in the world (14). Paying attention to the issue of adolescent health and timely investment will help reduce health costs later in life (15). Proper health condition, in addition to improving the quality of life, can serve as a basis for the development of the country and a sustainable economy (16). Since awareness about this issue in the society under study, prior to any intervention, is an absolute necessity, the present study aimed to examine health-promoting behaviors in middle school female students.

2. MATERIALS & METHODS

Setting and participants:

This cross-sectional study was conducted on middle school adolescent girls in Qazvin city, Iran. The inclusion criteria were studying at middle schools located in urban districts of Qazvin, Iran, having no diagnosed behavioral or psychological disorders according to their health records and having Islamic religion. We selected the students by using the multistage sampling design. At first, the city was divided into two areas, and the list of girls' middle schools in every area was determined. Three schools were selected from each area (6 schools in total). Then, one class was randomly selected from each grade in each school, and all Muslim students in that class participated in the study. Finally, study population consisted of 424 junior high school female students from the city of Qazvin.

Measures:

The following seven questionnaires were used to collect data:

Socioeconomic status:

Socioeconomic status was assayed by a researcher-made questionnaire containing items on parental occupation and education level, economic status and body mass index (BMI) was utilized. For calculated BMI the participants were measured for height and weight. Body mass index (BMI) was determined as the ratio of weight (kg) and height squared (m).

Health-Promoting behaviors:

Health-Promoting Lifestyle Profile II (HPLPII) is based on Pender's Health-Promotion model to determine to what extent people display health-promoting behaviors. HPLPII contained 52 items arranged in six subscales, including health responsibility, physical activity, nutrition, spiritual growth, stress management and interpersonal relations. Each item was scored on a five-point Likert scale from 1 (never) to 4 (always). The total scores hence ranged between 52 and 208. Higher scores revealed better health-promoting behaviors. Previous studies have confirmed the reliability of the HPLPII

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(Cronbach's alpha 74% to 94%) (17). We verified the reliability of this questionnaire in a pilot study conducted on 20 female students, and Cronbach's alpha was found to be 0.84.

Statistical analysis:

The categorical and continuous variables were presented as mean (standard deviation (SD)) and frequency (percentages), respectively. The total scores of health-promoting behaviors and their dimensions were presented as mean and SD. Initially, the univariate correlations between the adolescents' characteristics and the total scores of health-promoting behaviors and their dimensions were determined using ANOVA and Pearson correlation coefficient according to normal distribution of data. We used hierarchical generalized linear models (GLMs) to identify the variables significantly associated with health-promoting behaviors. This multiple relationships were evaluated stepwise; that is, in each phase of the analysis, the non-significant variables ($P > 0.05$) with highest P value were excluded from the model. For the data analysis, we used SPSS version 16 (SPSS Inc., 2007). All tests were two-tailed and statistical significance was considered for P values < 0.05 .

Ethical Considerations:

The study was approved by the Ethics Committee of Research Deputy of Qazvin University of Medical Sciences and Qazvin Department of Education. Aims of the study were explained to the participants and their parents and they were assured of the confidentiality of personal information before starting the study and all signed a written informed consent. The researchers conformed to all the ethical.

3. RESULTS

Demographic characteristics:

The participants in the study were 424 female middle school students with a mean age of 13.28 ± 0.9 years. Most of the mothers (42.1%) and most of the fathers (42.9%) in the study had a high school diploma. Most mothers were housewives (81.2%) and most fathers were employees (85.4%). Most adolescent girls evaluated their economic status as "good" (51.1%). The data on the demographic information has been presented in Table 1. The mean body mass index of adolescent girls was 19.83 ± 3.28 .

Health-promoting behaviors status:

As presented in Table 2, the overall mean score of health-promoting behaviors was 82.57 ± 21.44 , which is at a moderate level. Among the indexes of health-promoting behaviors, spiritual growth had the highest mean score, followed by interpersonal relationships, stress management, nutrition and physical activities, and the lowest mean score was that of health responsibility; all indexes were at an undesirable level except spiritual growth. Adolescent girls in the first grade of middle school, compared to those in other grades, had a higher overall score in health-promoting behaviors and all subscales. The results of ANOVA test showed that the mean score of all subscales of health-promoting behaviors, except stress management ($p = 0.33$), in all the three grades of middle school had a significant difference. The mean scores of nutritional status ($P < 0.00$) and spiritual growth ($P < 0.02$) increased with an improvement in the economic status. Regarding health responsibility, the children of retired mothers had a high mean score ($p < 0.03$).

Based on the multivariate regression analysis, the mean score of health-promoting behaviors in the female students in the first grade of middle school was 25.4 higher than that of female students in the third grade of middle school ($p < 0.001$). The mean score of health-promoting behaviors in students whose mothers had an education of less than high school diploma was 5.93 less than the score of those students whose mothers had university education ($p < 0.02$). Also, the mean score of health-promoting behaviors in students whose fathers were illiterate was 1.75 lower than the score of those students whose fathers had university education, which was a significant difference ($p = .009$).

4. DISCUSSION

By offering an overview of lifestyle among female students of middle school and the related issue in the city of Qazvin, the present study aims to identify behaviors that are in an undesirable status, which can be of importance in future planning and policymaking. This is because promoting health-related behaviors can contribute to the performance and

independence of individuals, improve the sense of responsibility and quality of life and reduce the costs of health care (18, 19). The findings of the present study can be divided into two parts: first, the status of health-promoting behaviors in adolescent female students is undesirable, and second, some demographic factors can have an effect on these behaviors.

Studies conducted on high school adolescents in different parts of Iran have shown that of the health-promoting behaviors, the indexes of nutrition in Bandarabbas (20), responsibility in Hamedan (21) and stress management in Lorestan (22) showed a more undesirable status. In all mentioned studies, physical activity had a low score; this index was reported to be undesirable even in Tehran (23) and Isfahan (24), which are among the largest cities in Iran and enjoy adequate facilities. In Qazvin, the overall mean score of health-promoting behaviors of female adolescents was average. The findings of the present study, which indicate an undesirable level of responsibility, followed by physical activity, corresponded to the results of cited studies, all highlighting the undesirable status of physical activities among female adolescents in Iran. Also, the physical activity score was higher in female adolescents in the first grade than in students in higher grades. It seems that alternative hobbies like computers and cell phones and busy school schedules and homework are the potential reasons for not exercising (25). Because of the impact of inactivity on cardiovascular diseases, diabetes, osteoporosis and the Healthy People Program, which emphasizes that all people should exercise for at least 30 minutes every day (25, 26), the issue of physical activity requires closer examination and planning. One of the most efficient methods to encourage physical activity can be developing educational programs (27).

Regarding health responsibility, the low mean age of the adolescents and their insufficient awareness of their own role in improving life quality can be among the reasons for the sense of low responsibility toward health (28). In the present study, female students in the first grade of middle school and those who were in a better economic situation showed a better sense of responsibility and self-care, which corresponded to some other studies, such as the study by Moeeni et al (21) and the one by Piri et al (22). This index had a higher score in adolescents who had retired mothers. The occupation of mothers can change the traditional structure of family and cause other family members to be engaged more in household activities; also, working mothers can have a high level of education (17). In addition, the free time retired mothers have during their leisure time can contribute to the improvement of health responsibility in their children.

Of the subscales examined in this study, spiritual growth had the highest score, which was in correspondence with the results of Mottaqi et al (24). Spiritual health is one of the most important elements of human health. Spirituality gives meaning and direction to life and establishes coordination among internal forces and is accompanied by qualities such as stability in life, peace and a closer connection with God, society and the environment (29). The higher scores of this index in Iran can be because of the role of religion in Iran. Spiritual growth was higher among adolescents in the first grade of the middle school and was directly associated with economic status. Regarding interpersonal relations, which had a higher score in students of the first grade, the findings of the study corresponded to the results of the study by Diaz et al (30).

The body mass index was just in the normal range, which because of the undesirable nutritional index score seems to be logical. The nutritional index score in adolescents in the first grade of middle school was higher, and since the other scores, including health responsibility, were higher at this age, this finding is logical. Also, this index showed an improvement when the economic status was better. Economic status is a key factor in nutrition, and can with an improvement in nutrition, health can improve as well (31).

In the final analysis, the scores of health-promoting indexes decreased with a rise in the grades of the students, which corresponded to the results of Mottaqi et al (24) and Tavafian et al (20). Also, the educational status of mothers and fathers was among the factors that contributed to the improvement of health-promoting behaviors in adolescents (32). According to studies, the education of parents, especially mothers, can play an effective role in nutrition and is directly associated with the health behaviors of students and their knowledge about health (33, 34). By sharing their knowledge about health and providing them with social support, parents direct their children toward a healthy life.

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International Journal of Novel Research in Healthcare and Nursing

 Vol. 4, Issue 3, pp: (23-30), Month: September - December 2017, Available at: www.noveltyjournals.com

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International Journal of Novel Research in Healthcare and Nursing

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APPENDIX - A
List of tables:
Table1. Demographic characteristics of the study population

Characteristics	Percentage (n)	
School grade	First	35.7 (95)
	Second	29.7 (79)
	Third	34.6 (92)
Maternal education	Illiterate	1.9 (5)
	Less than high school diploma	35 (93)
	High school diploma	42.1 (112)
	College education	21.1 (56)
Paternal education	Illiterate	0.8 (2)

	Less than high school diploma	28.2 (75)
	High school diploma	42.9 (114)
	College education	28.2 (75)
Maternal occupation	Unemployed	81.2 (216)
	Employed	17.3 (46)
	Retired	1.5 (4)
Paternal occupation	Unemployed	1.1 (3)
	Employed	83.8 (223)
	Retired	15 (40)
Economic status	Low	3 (8)
	Middle	23.7 (63)
	High	73.3 (195)
BMI	Low	33.8 (90)
	Normal	59.4 (158)
	Extra weight and fat	6.8 (18)

Table2: Distribution and comparison mean ± SD of health-promoting behavior scores of the study population based on demographic characteristics

characteristics		overall	Physical activity	Stress management	Interpersonal relations	Health responsibility	Nutrition	Spiritual growth
All student		82.57±21.44	11.15±5.07	13.87±4.25	14.84±4.51	9.53±4.5	13.63±4.92	19.49±6.01
Grade	First	88.61±16.97	12.8±4.66	14.35±4.08	15.38±3.92	10.43±3.99	14.64±4.18	20.86±3.74
	Second	75.81±21.82	9.78±5.14	13.4±4.85	13.69±4.74	9.48±4.84	12.15±4.66	17.29±4.86
	Third	82.20±23.54	10.61±4.99	13.79±3.85	15.28±4.72	8.66±4.56	13.86±5.54	19.97±8
	P value	0.001*	0.001*	0.33	0.02*	0.02*	0.003*	0.001*
Maternal education	Illiterate	85.91±17.34	12.5±6.05	14.33±3.22	14.75±3.49	10.58±4.81	13.66±2.90	20.08±3.02
	Less than high school diploma	81.83±21.86	11.55±4.93	13.25±4.33	14.2±4.41	9.12±4.82	14.33±5.18	19.36±6.22
	High school diploma	84.11±21.41	11.94±4.7	13.88±4.63	15.32±4.3	9.71±4.89	13.85±4.34	19.6±5.37
	College education	84.64±21.53	12.5±5.52	13.72±4.52	14.75±4.4	9.87±4.66	14.18±4.74	19.59±5.22
	Total	83.33±21.51	11.89±4.95	13.61±4.47	14.77±4.36	9.52±4.82	14.09±4.72	19.51±5.65
	P value	0.63	0.5	0.48	0.07	0.44	0.74	0.95
Paternal education	Illiterate	75.5±19.09	15±5.65	13±2.82	10.5±0.7	7±2.82	12±5.65	18±2.82
	Less than high school diploma	87.01±24.12	11.81±4.91	14.49±4.25	15.14±4.84	10.3±4.76	14.48±6.18	20.77±8.26
	High school diploma	80.34±20.17	10.5±5.15	13.6±4.21	14.81±4.4	9.26±4.43	13.2±4.36	18.91±4.81
	College education	82.57±21.44	11.37±5.03	13.7±4.35	14.7±4.37	9.25±4.34	13.49±4.23	19.14±4.81
	Total	81.68±20.17	11.15±5.07	13.87±4.25	14.84±4.51	9.25±4.34	13.63±4.92	19.49±6.01
	P value	0.18	0.21	0.52	0.52	0.31	0.33	0.18
Maternal occupation	Unemployed	82.75±21.56	11.07±4.93	13.85±4.18	14.69±4.55	8.19±4.31	13.63±4.99	19.69±6.17
	Employed	80.93±19.7	11.54±5.48	13.97±4.52	15.26±4.17	9.76±4.48	13.32±4.49	18.63±5.15
	Retired	91.5±36.42	10.5±8.58	14.25±6.23	18±5.47	12.75±4.99	17.25±5.67	18.75±7.36
	Total	82.57±21.44	11.15±5.07	13.87±4.25	14.84±4.51	9.53±4.5	13.63±4.92	19.49±6.01

International Journal of Novel Research in Healthcare and Nursing

Vol. 4, Issue 3, pp: (23-30), Month: September - December 2017, Available at: www.noveltyjournals.com

	P value	0.61	0.82	0.96	0.27	0.03*	0.31	0.53
Paternal occupation	Unemployed	75.33±23.67	11.33±7.09	13±4.35	12±4.35	10±1.73	12.66±3.51	16.33±7.23
	Employed	82.9±21.73	11.21±5.01	13.94±4.35	14.91±4.51	9.52±4.48	13.62±5	19.65±6.21
	Retired	81.3±20.03	10.8±5.39	13.57±3.75	14.67±4.54	9.6±4.8	13.77±4.61	18.87±4.67
	Total	82.57±21.44	11.15±5.07	13.87±4.25	14.84±4.51	9.53±4.5	13.63±4.92	19.49±6.01
	P value	0.76	0.89	0.82	0.52	0.97	0.92	0.49
Economic status	Weak	80.96±20.64	11.22±5.22	13.84±4.36	14.65±3.99	9.36±5.22	13.36±4.62	18.52±4.3
	Moderate	82.39±20.54	11.1±5.05	13.87±4.19	14.9±4.66	9.5±4.27	13.53±4.59	19.45±4.91
	Good	99.62±39.69	11.75±4.94	14.75±5.39	15±5.01	11.75±3.49	18.25±10.88	28.12±21.04
	Total	82.57±21.44	11.15±5.07	13.87±4.25	14.84±4.51	9.53±4.5	13.63±4.92	19.49±6.01
	P value	0.66	0.93	0.84	0.92	0.36	0.02*	0.00*
BMI	Low	84.2±21.62	10.82±5.92	13.8±4.38	14.87±4.68	9.7±4.63	12.17±4.72	19.45±4.98
	Normal	82.22±21.35	12.24±5.23	14.06±4.21	14.93±4.48	9.48±4.48	14.12±4.47	19.7±6.59
	Extra weight and fat	76.62±22.03	10.53±4.8	12.58±4.12	14±3.96	9.23±4.3	13.49±5.18	17.64±5.51
	Total	82.57±21.44	11.15±5.07	13.87±4.25	14.84±4.51	9.53±4.5	13.63±4.92	19.49±6.01
	P value	0.61	0.06	0.59	0.71	0.95	0.39	0.58

* pvalue >0.005

Table3: Hierarchical generalized linear model for Health-promoting behaviors

Variable		B	Std.Error	95% Wald Confidence Interval		Wald Chi-Square	Sig
				Lower	Upper		
Grade	First	25.40*	4.80	15.97	34.83	27.89	0.001
	Second	4.39	3.91	-3.28	12.07	1.25	.262
	Third	0a	.	.	.	.	.
Maternal education	Illiterate	-17.82	15.66	-32.44	28.94	.012	.911
	Less than high school diploma	-5.93	4.04	1.47	17.31	5.41	.02
	High school diploma	-4.78	2.97	-6.37	5.28	.03	.855
	College education	0a	.	.	.	.	.
Paternal education	Illiterate	-1.75*	6.85	-31.25	-4.39	6.76	0.009
	Less than high school diploma	-.54	3.22	-11.10	1.53	2.20	.138
	High school diploma	9.39	3.83	-13.45	1.57	2.39	.122
	College education	0a	.	.	.	.	.