



Health Promotion and Social Support of Jordanian Adolescents during COVID-19 Pandemic

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ABSTRACT

Background: During the COVID-19 pandemic, new policies were established to decrease the transmission of infection. These changes in policies might have an impact on health promoting activities and social support among adolescents. **Purpose:** The purpose of this study was to describe the levels of health promoting activities and social support among adolescents. **Methods:** A descriptive cross-sectional design was applied to collect data from 298 Jordanian adolescents. **Results:** Females reported a significantly higher mean score than males in total AHPs, peer support, health responsibility, life appreciation, and stress management. Male adolescents scored a significantly higher mean score in physical activity. The averages of peer support and family support were significantly higher among adolescents from private schools. Adolescents aged from 10 to 13 years scored a significantly higher average of nutrition dimension compared to adolescents aged from 17 to 19 years. In health responsibility, both groups of adolescents aged from 17 to 19 years and from 14 to 16 years reported significantly higher averages than adolescents aged from 10 to 13 years. Both groups of adolescents aged from 17 to 19 years and from 14 to 16 years reported significantly higher averages than adolescents aged from 10 to 13 years in life appreciation. **Conclusion:** Differences in health promoting activities based on adolescents' gender is an area that needs more investigation. Because of the importance of social support, family and peer support must be improved. **Implications for Nursing:** The differences in performing health promoting activities based on adolescents' gender are areas that need more attention. Fostering social support from family and peers is crucial to enhance adolescents' health. It is mandatory to activate the role of the community health nurse as soon as possible. Parents and teachers must have adequate information about the developmental changes during adolescence.

Keywords: Adolescents' health, Health promotion, Peer support, Family support.

What does this paper add?

This study highlighted the level of health promoting activities among adolescents during the COVID-19 pandemic during which new policies were established to prevent transmission of infection. The role of school

health nurse should be completely activated, and parents and teachers should have correct and adequate information about developmental aspects during adolescence.

Introduction

Adolescence is a significant developmental stage characterized by physical, cognitive, emotional, and social changes (American Psychological Association, 2021). Adolescents are at great risk of several health problems. For instance, the results of a systematic review during the COVID-19 pandemic revealed that the prevalence rates of depression, anxiety, sleep disorders, and posttraumatic stress symptoms were 29%, 26%, 44%, and 48%, respectively (Ma et al., 2021). In Jordan, 15% of adolescents had depression, 62% reported fear because of the pandemic, and 46% reported that their meal mostly has no protein (Barid et al., 2020).

Background

Health promoting activities are required to build healthy communities. Health promotion programs had an impact on the adolescent's healthy lifestyle and self-awareness (Ahmadi et al., 2021; Ortabag et al., 2011; Yıldırım et al., 2019). Adolescents' health promoting scale (AHPS) is a well-known tool that measures health promoting activities and addresses the following dimensions: nutrition, social support, health responsibility, life appreciation, physical activity, and stress management (Chen et al., 2014).

The average of health promotive activities was 143.75 in a study by (Ozturk & Ayaz-Alkaya, 2020) on a sample of Turkish adolescents and the mean scores for its subscales were: nutrition (21.08), exercise (13.23), stress management (21.01), social support (25.73), life satisfaction (31.08), and health responsibility (31.60). Among a sample of Iranian adolescents, the mean score of the AHPS was 3.58 out of five and the mean scores of the subscales were: life appreciation (3.99), nutrition (3.71), stress management (3.54), social support (3.50), physical activity (3.39) and health responsibility (3.26) (Musavian et al., 2014). Among Brazilian adolescents, the mean scores of health promoting domain were for life appreciation (4.14), stress management (3.84), exercise (3.72), social support (3.51), nutrition (3.41), and health responsibility (3.14) (Guedes & Zuppa, 2020). Turkish adolescents had (3.83) on the life appreciation subscale, (3.67) on social support, (3.49) on stress management, (3.39) on health responsibility, and (3.29) on nutrition and exercise (Ortabag et al., 2011).

Based on adolescents' gender, female adolescents reported higher scores in social support, health

responsibility and stress management than male adolescents; while male adolescents had a higher score in the nutrition and exercise subscale (Ortabag et al., 2011). Musavian et al. (2014) found that male adolescents had higher mean scores on the AHPS than female adolescents. Male adolescents reported a higher average score in nutrition, life appreciation and exercise subscales than female adolescents, while female adolescents reported a significantly higher average in health responsibility. Regarding age groups, older adolescents had significantly lower health promotion scores (Musavian et al., 2014) and high-school age Turkish students had lower scores in nutrition, exercise, health responsibility, and stress management subscales (Ortabag et al., 2011).

Parents' level of education was significantly associated with adolescents' health promotion; adolescents of parents with a university level education had significantly higher levels of health promoting activities than the others (Musavian et al., 2014; Ozturk & Ayaz-Alkaya, 2020). In addition, students whose mothers had a secondary-school level of education or above had a higher level of health responsibility subscale than students whose mothers had a primary-school level of education or less (Ortabag et al., 2011). Mother's occupational status had no impact on the total AHPS and its subscales among Turkish adolescents (Ortabag et al., 2011). Indeed, Iranian adolescents of employed mothers had higher levels of health promoting activities compared to adolescents of non-employed mothers (Musavian et al., 2014).

Social support is considered a vital source for health promotion (Drageset, 2021). It assists adolescents to deal with stress and prevents psychological distress (Camara et al., 2017). Among Jordanian adolescents, the family support mean score was 11.19 and the peer support mean score was 10.86 with a significant difference in peer social support based on adolescents' gender for the favor of females (Shaheen et al., 2019). In literature, there is an evident relationship between social support and health promoting activities. For instance, family and peer social support positively correlated with physical activity (Mendonça et al., 2014; Mendonça & Farias Júnior, 2015). Family support was associated with physical activity among middle-stage adolescents, while peer support had a strong relationship with physical activity in early-stage adolescents in Malaysia (Khan & Uddin, 2020). Family and peer

support were associated with healthy dietary habits among adolescents in the USA (Haidar et al., 2019).

During the COVID-19 pandemic, new policies were established to decrease the transmission of infection, such as social distancing, distance learning, using of electronic devices in the teaching process, and skipping physical activity classes. These changes might have an impact on health promoting activities among adolescents. For instance, in the beginning of the pandemic, adolescents engaged in less physical activities, more sedentary behaviors, and less healthy eating patterns (López-Bueno et al., 2020; Moore et al., 2020). In Jordan, during the pandemic, no research studies investigated health promoting activities and their relationship with perceived social support among adolescents. This study will address changes in health promoting activities and the impact of social support on these activities. Understanding the effect of social support on health promoting activities is critical for developing effective interventions that involve schools, parents, and peers. Changes in health promoting activities will help policy makers take into consideration these activities when designing policies in similar situations. Therefore, the purpose of this study was to describe the levels of health promoting activities and social support, as well as to examine their differences based on adolescents' characteristics.

Methods

Design and Sampling

Quantitative cross-sectional comparative research was applied, and an online self-reported questionnaire was used to collect data from Jordanian adolescents. The inclusion criteria were adolescents aged 10 through 18 years and having no disabilities. The schools were selected randomly by choosing four schools (two public and two private schools) from Amman. Then, a convenient sample was recruited from these schools.

The required sample size was calculated using G-power program with the analysis of variance (ANOVA) test at an effect size of (0.25), an alpha level of (0.05) two tailed, and a power of 95%. The calculations revealed a need for at least 252 participants (Faul et al., 2007).

Ethical Considerations

Ethical approval from the Institutional Review Board (IRB) was obtained from the Ethical Committee.

Selected schools were approached by data collectors to recruit adolescents. An envelope that contains an invitation letter, with information about the purpose of the study, the time needed to complete the questionnaire, the benefits and risks of participation, a consent form for parents, an assent form for the adolescent and the contact information of the principal investigator, was given to each adolescent. The parents were clearly informed that the participation in the study is voluntary and that the adolescents have the right to withdraw from the study at any time without any penalty. No identification information was requested in the online survey; thus, confidentiality and anonymity were protected. All the adolescents whose parents approved their participation in the study signed the assent form indicating that they are interested in participating. The participants were notified not to answer statements that may provoke negative feelings or cause distress.

Data Collection

This study utilized an electronic survey in which data was collected through a self-administered electronic survey from October 2021 to December 2021. A link for the electronic copy of the survey was generated and accessed through a web browser. After IRB approval, trained data collectors accessed the selected schools and explained the purpose and the procedure of the study to the principal of the school. Then, the data collectors gave the adolescents the envelopes. The parents were asked to sign the consent forms and assents were signed by the adolescents. Then, the adolescents were asked to activate the quick response code (QR code) and access the survey.

Measures

The first part of the survey contained the socio-demographic questions about gender, age, educational achievement measured in final grade out of 100, and sector of school. The second part (perceived social support scale) consists of two parts with 20 items for each part (peer and family perceived social support). Each item has responses of "Yes," "No," or "Don't know." The scores ranged from (0 to 20) with the higher score indicating a higher perceived social support (Procidano & Heller, 1983). The Arabic version of the perceived social support scale was applied (Alkaid Albqoor et al., 2021).

The third part of the survey was the adolescents' self-

reported health promotion scale consisting of 40 items. The scale has a 5-point Likert response (1= never, 5 = always). To facilitate comparison, the mean scores out of five were calculated for the total score of the scale and its dimensions (Chen et al., 2003). The questionnaire was translated into Arabic and back-translated into English by an expert committee. The original and the translated Arabic copy were evaluated by two other experts in the field. In this study, the reliability test of peer support was (0.84), and for family support was (0.90). The AHPS total score regarding reliability was (0.90) and for the subscales, the reliability coefficients were from (0.66) to (0.86), indicating good reliability.

Data Management

Data was analyzed using the Statistical Package for Social Sciences (SPSS), version 21. Descriptive statistics, students t-test and the analysis of variance (ANOVA) were applied in this study.

Results

Sample Characteristics

A total of 298 adolescents participated in the study with a mean age of 14.8 (*SD* = 2.4). The majority (77%) were females and (56%) of the sample were from public schools. Adolescents aged between 14 and 16 years comprised (45%) of the sample, while the mean score of the academic achievement was 88.2 out of 100 (*SD* = 10.9) (Table 1).

Table 1. Sample characteristics (N=298)

Variable	n	%
Gender		
Male	70	23
Female	228	77
School Type		
Public school	166	56
Private school	132	44
Age Classification (Years)		
10 – 13	81	27
14 – 16	134	45
17 – 19	83	28
Mother’s Education Level		
High school or less	106	36
Diploma	54	18
BSc	117	39
Higher education	21	7
Father’s Education Level		
High school or less	122	41
Diploma	45	15
BSc	87	29
Higher education	44	15

Description of Health Promotion and Social Support

The mean score of peer social support was 13.2 (*SD*=4.1), while that of family social support was 14.8 (*SD* = 4.7). The mean score of the AHPS was 3.3 (*SD*=0.75). The averages of the AHPS dimensions from the highest to the lowest were: life appreciation 3.7 (*SD*=0.68), nutrition 3.3 (*SD* = 0.75), social support 3.3 (*SD*= 0.70), stress management 3.2 (*SD* = 0.73), health responsibility 3.0 (*SD* = 0.85), and exercise 2.8 (*SD*=1.00).

Differences in Health Promotion and Social Support Based on Adolescents’ Gender

Male and female adolescents showed significant differences as follows: Females reported a significantly higher mean of total AHPS ($t(296, 1) = -1.99, p = 0.03$), peer support ($t(296, 1) = -2.55, p = 0.012$), health responsibility ($t(296, 1) = -2.79, p = 0.006$), life appreciation ($t(296, 1) = -3.38, p = 0.001$), and stress management ($t(296, 1) = -3.98, p < 0.001$). On the other hand, male adolescents scored significantly higher in physical activity ($t(296, 1) = 2.99, p = 0.003$) (Table 2).

Table 2. Differences in health promotion and social support based on adolescents' gender (N=298)

Variables	M (SD)		t – value	p-value
	Males	Females		
Social Support Scale				
Peer support	12.1 (4.3)	13.6 (3.9)	-2.55	0.012*
Family support	15.5 (3.9)	14.6 (4.9)	1.67	0.098
Health Promotion Scale				
Nutrition	3.4 (0.70)	3.3 (0.77)	0.712	0.48
Social support	3.2 (0.60)	3.3 (0.73)	-1.33	0.18
Health responsibility	2.8 (0.75)	3.1 (0.87)	-2.79	0.006**
Life appreciation	3.4 (0.79)	3.8 (0.87)	-3.38	0.001**
Exercise (physical activity)	3.1 (0.89)	2.7 (1.6)	2.99	0.003**
Stress management	2.9 (0.67)	3.3 (0.73)	-3.98	0.000***
Total AHPS	3.1 (0.45)	3.3 (0.60)	-1.99	0.03*

Note. *Student t test is significant at the 0.05 level (2-tailed).
 ** Student t test is significant at the 0.01 level (2-tailed).
 *** Student t test is significant at the 0.001 level (2-tailed).

Differences in Health Promotion and Social Support Based on School Type

The average of peer support was significantly higher among adolescents from private schools ($t(296, 1) = -2.41, p = 0.017$) and the average of family support was

also significantly higher among adolescents from private schools ($t(296, 1) = -4.81, p < 0.001$). The average of social support as a dimension of AHPS was significantly higher among adolescents from private schools ($t(296, 1) = -2.75, p = 0.006$) (Table 3).

Table 3. Differences in the study variables based on school type

Variables	M (SD)		t - value	p-value
	Governmental	Private		
Social Support Scale				
Peer support	12.7 (4.1)	13.8 (3.9)	-2.41	0.017*
Family support	13.7 (5.2)	16.2 (3.6)	-4.81	0.000***
Health Promotion Scale				
Nutrition	3.3 (0.74)	3.4 (0.77)	-1.59	0.11
Social support	3.2 (0.71)	3.4 (0.70)	-2.75	0.006**
Health responsibility	2.9 (0.86)	3.1 (0.84)	-1.08	0.28
Life appreciation	3.7 (0.88)	3.7 (0.84)	-0.073	0.94
Exercise	2.7 (1.0)	2.9 (1.1)	-1.34	0.18
Stress management	3.2 (0.72)	3.2 (0.76)	-0.13	.89
Total AHPS	3.2 (0.60)	3.3 (0.53)	-1.58	0.11

*Student t test is significant at the 0.05 level (2-tailed).
 ** Student t test is significant at the 0.01 level (2-tailed).
 *** Student t test is significant at the 0.001 level (2-tailed).

Differences in Health Promotion and Social Support Based on Adolescents' Age Group

Adolescents aged from 17 to 19 years showed a significantly higher average of peer support ($F(2, 295) = 4.10, p = 0.017$) ($M = 14, SD = 3.7$), compared to

adolescents aged from 10 to 13 years ($M = 12.2, SD = 4.3$). Three dimensions of AHPS showed significant differences among adolescents' age groups; adolescents aged from 10 to 13 years scored a significantly higher average in the nutrition dimension ($F(2, 295) = 3.33,$

$p=0.037$) ($M = 3.4$, $SD = 0.73$), compared to adolescents aged from 17 to 19 years ($M = 3.1$, $SD = 0.71$). In health responsibility ($F(2, 295) = 4.59$, $p = 0.011$), both groups of adolescents aged from 17 to 19 years and from 14 to 16 years reported a significantly higher average ($M = 3.2$, $SD = 0.88$) ($M = 3.1$, $SD = 0.80$) than adolescents aged from 10 to 13 years ($M = 2.8$, $SD = 0.87$). Finally,

a significant difference was found in life appreciation ($F(2, 295) = 9.57$, $p < 0.001$), where both groups of adolescents aged from 17 to 19 years and from 14 to 16 years reported significantly higher averages ($M = 3.9$, $SD = 0.75$) ($M = 3.8$, $SD = 0.88$) than adolescents aged from 10 to 13 years ($M = 3.3$, $SD = 0.86$) (Table 4).

Table 4. Differences in the study variables based on the adolescents' age groups

Social Support Scale	10 – 13	14 – 16	17 – 19	F- value	p-value
Peer Support	12.2 (4.7)	13.3 (3.8)	14.0 (3.7)	4.10	0.017*
Family support	15.3 (4.4)	14.7 (4.4)	14.3 (5.4)	0.896	0.40
Health Promotion Scale					
Nutrition	3.4 (0.73)	3.3 (0.79)	3.1 (0.71)	3.33	0.037*
Social support	3.3 (0.76)	3.4 (0.72)	3.3 (0.65)	0.79	0.46
Health responsibility	2.8 (0.87)	3.1 (0.80)	3.2 (0.88)	4.59	0.011*
Life appreciation	3.3 (0.86)	3.8 (0.88)	3.9 (0.75)	9.57	0.000**
Exercise	2.8 (1.0)	2.9 (0.98)	2.6 (1.1)	1.84	0.16
Stress management	3.1 (0.77)	3.2 (0.73)	3.3 (0.71)	1.62	0.051
Total AHPS	3.1 (0.64)	3.3 (0.55)	3.3 (0.53)	2.53	0.08

Note. * ANOVA test is significant at the 0.05 level (2-tailed).

** ANOVA test is significant at the 0.01 level (2-tailed).

*** ANOVA test is significant at the 0.001 level (2-tailed).

Differences in Health Promotion and Social Support Based on Parents' Education Level

A significant difference was found in family support based on the mother's education level ($F(2, 295) = 3.73$, $p = 0.012$), where adolescents whose mothers had a bachelor's degree ($M = 15.3$, $SD = 4.3$) and adolescents whose mothers had a higher education ($M = 16.5$, $SD = 4.2$) reported higher averages of family support than adolescents whose mothers had high school or below ($M = 13.7$, $SD = 5.2$). Based on father's education level ($F(2, 295) = 3.17$, $p = 0.025$), adolescents whose father had a higher education ($M = 15.5$, $SD = 4.6$) reported higher family support than adolescents whose fathers had high school or below ($M = 13.8$, $SD = 5.4$).

Associations between Social Support and the Dimensions of Health Promotion

Low, but significant, correlations were found between peer support and the following dimensions of health promotion: nutrition ($r = 0.133$, $p = 0.021$), social support ($r = 0.155$, $p = 0.008$), health responsibility ($r = 0.236$, $p < 0.001$), life appreciation ($r = 0.202$, $p <$

0.001), physical activity ($r = 0.143$, $p = 0.013$), and stress management ($r = 0.262$, $p < 0.001$). Family support showed low significant correlations with: nutrition ($r = 0.251$, $p < 0.001$), social support ($r = 0.266$, $p < 0.001$), health responsibility ($r = 0.134$, $p = 0.021$), and physical activity ($r = 0.204$, $p < 0.001$).

Discussion

This study described adolescents' health promoting behavior and social support during COVID-19 pandemic. The average of the AHPS was 3.3, whereas the averages for peer and family support were 13.2 and 14.8, respectively.

In this study, the highest health promotion average was in life appreciation, while the lowest was in physical activity. This finding was similar to those obtained by Musavian et al. (2014) and Ortobag, et al. (2011) among Iranian and Turkish adolescents. Guedes and Zuppa (2018) found that the highest average of health promoting behaviors was in life appreciation. This can be explained based on the way their families raised their feelings of gratitude and loving life (Hussong et al.,

2019). Like the current study, physical activity dimension of health promotion was the lowest among adolescents in Turkey (Ozturk & Ayaz-Alkaya, 2020). This finding is plausible, because adolescents had to spend most of their time inactive, as online teaching reduced their level of physical activity. In addition, when some schools applied the 50% classrooms occupancy, they had to skip physical activity classes to reduce the duration of school teaching and reduce chances of physical contact among adolescents.

Females reported a significantly better average in total health promotion, peer support, health responsibility, life appreciation, and stress management, while male adolescents showed significantly better physical activity. In this study, female adolescents reported a significantly higher peer support average than male adolescents. Female adolescents had a better peer relationship than male adolescents (Li et al., 2020), which justifies reporting stronger peer support among females than among males. Besides, female adolescents scored higher in the total AHPS, as well as in life appreciation, health responsibility, and stress management dimensions than male adolescents, which was consistent with (Musavian et al., 2014; Ortabag et al., 2011). Moreover, male adolescents had a higher score than females in the physical activity dimension, which was consistent with (Musavian et al., 2014). Female adolescents reported more peer support than male adolescents, which helps them in managing day-by-day stress. Besides, body image is an important aspect for female adolescents; so, they take care of their health more than male adolescents. On the other hand, male adolescents had a higher score in physical activity, since their mobility outside is not restricted as in females.

Regarding the school type, adolescents in private schools reported significantly higher social support from peers and family than those in public schools. Based on age categories, significant differences were found in peer support, where the category of (17-19) years reported higher peer support than the age category of (10-13). Regarding AHPS dimensions, a significant difference was found in nutrition, where adolescents in the age category of (10 – 13) reported a higher score than the age category of (17-19) years, which was consistent with Ortabag et al. (2011). It is well known that parents care about the nutritional status of young adolescents more than that of older adolescents, where the

adolescents' nutritional choices might be influenced by peers. A difference in health responsibility dimension was found in the age categories of (14-16) and (17-19). These two age categories reported significantly higher health responsibility than the age group of (10-13) years, which was not like previous studies in which the (10-13) age group scored higher than the other groups (Ortabag et al., 2011). Besides, these two groups had significantly higher scores than the early-stage group in life appreciation. Cognitive development and realistic sense of identity enhance adolescents' independency in the middle and late stages (Gilmore & Meersand, 2014).

In this study, the mean score of peer social support was 13.2, while that of family social support was 14.8, with higher values than in a previous study conducted before the pandemic in which the mean score of family support was 11.19 and that of peer support was 10.86 (Shaheen et al., 2019). Changes in learning policy during the pandemic put demands on the family and peers to provide more support in comparison to the pre-pandemic state. Family support was significantly higher among adolescents whose parents had higher educational level. Social support from family and friends was similar to that in previous studies which showed a significant relationship of family and peer support with physical activity among adolescents in Malaysia, as well as with healthy dietary habits among adolescents in the USA (Haidar et al., 2019; Khan & Uddin, 2020). Peer support, but not family support, had significant relationships with life appreciation and stress management. Social relationships during adolescence make it easier to discuss stressful situations with peers than with parents, particularly as they have the same concerns and challenges. Development of peer groups enhances the sense of identity and plays an important role as a source of information about the outside world (Gilmore & Meersand, 2014).

Implications for Nursing

The differences in performing health promoting activities based on adolescents' gender represents an area that needs more attention. Further research is required to clarify the reasons beyond these differences. Planning activities that foster social support from family and peers is crucial to enhance adolescents' health. In the future and in situations like COVID-19 pandemic, managers from different levels must take into consideration these health promoting activities when

establishing new policies. The role of the school health nurse in Jordan is not completely activated, and since school health nurses have significant roles in supporting healthy activities among adolescents, it is mandatory to apply this role as soon as possible. Parents and teachers must have adequate information about the developmental changes during adolescence.

Limitation of the Study

The limitations of this study include the use of an online self-administered survey and a cross-sectional design. The setting of the study was in Amman, which might affect the generalizability of the results.

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Conclusion

Differences in health promoting activities based on adolescents' gender is an area that needs more investigation. Because of the importance of social support, family and social support must be improved in order to enhance the life status of adolescents.

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Conflict of Interest

No conflict of interest is to be declared by the authors.

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