

## *Physical Health Needs of High School Female Adolescents and Related Factors in Tabriz in 2020*

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### **Abstract**

**Background:** Adolescence is a very important and sensitive period of life and paying attention to the health of this period is of particular importance. Therefore, paying attention to the health of female adolescents, as future mothers, is doubly important.

**Objectives:** This study was performed aiming to determine the physical health needs of female adolescents and related factors in the city of Tabriz, Iran.

**Methods:** This descriptive-analytical study was performed on 435 high school female adolescents in the city of Tabriz using two-stage sampling method, in 2020. A demographic information form and the Female Adolescents Health Needs Questionnaire (FAHNQ; Shah Hosseini et al.) as a native questionnaire (validity=0.92, reliability=0.90) were used to collect data. Data analysis was performed by one-sample t-test, independent t-test, analysis of variance (ANOVA), and Duncan's post hoc test using SPSS software version 16.

**Results:** According to the findings, 90.34% and 9.66% of the samples attended public and non-public schools, respectively. The field of study of 53.79% of the participants was experimental sciences and 43.45% were studying in tenth grade. The level of physical health needs of female adolescents in Tabriz was high. The physical health needs of the study samples in public schools were higher than non-public schools, with twelfth-grade students more than other grades ( $P<0.05$ ). By increasing grade point average (GPA), family income, and consequently more access to the Internet and cell phones, adolescents' physical health needs decreased ( $P<0.05$ ).

**Conclusion:** According to the results, the physical health needs of female adolescents were high and one of the most relevant factors was the economic status. Therefore, it is recommended to plan and take measures to meet adolescents' health needs through the participation of parents, education officials, and other institutions.

**Keywords:** *health needs assessment, female adolescents, students*

### **Introduction**

Adolescence is one of the most sensitive periods of each person's life [1]. Nowadays, due to biological, technological, economic, and social changes in adolescents' lives, different health needs have been created in this age group.

Therefore, paying attention to the special needs in this period of life is of great importance [2]. Our country, because of having huge capital of adolescents, requires careful planning and attention to adolescents' health needs [3]. According to the United Nations Children's Fund,

10-19-year-old adolescents constitute approximately 1.2 billion of the world population [4]. Based on the 2016 census, there are about six million and five hundred thousand 13-18-year-old adolescents in Iran [5].

Given the characteristics as well as the physical and mental conditions of puberty in girls, paying attention to female adolescents' health as future mothers is doubly important. Adolescence in girls will be a directive basis and a beginner for the next periods of their lives [6]. Today's female adolescents are future mothers and their health needs will highly affect the next generation and family [7].

However, some studies reveal that the physical health of female adolescents is undesirable compared to males [8]. Mirzaei Najmabadi et al.'s study showed that there were challenges for adolescents to access fertility information [9]. According to Shah Hosseini et al.'s study, the main educational needs of female adolescents were sexual health education, life skills, and training for proper use of media [10]. Referring to the unmet health needs of female adolescents, Alipour et al. emphasized in their study on taking the necessary measures in order to meet adolescents' health needs [11].

Given that the process of forming needs in humans is very complex and has its roots in cultural, social, and economic contexts of each region, health needs should be measured locally and regionally [12]. This study aimed to determine the physical health needs of high school female adolescents and related factors in Tabriz in 2020.

## Methods

The present study was a descriptive-analytical research conducted in 2020. The study population included 30091 high school female students that in the pilot study, the obtained standard deviation of the sample was  $\delta=0.775$  and, considering  $d$  and  $Z_{1-\alpha/2}$  equal to respectively 0.1 and 2.58 and 99% confidence level, by placing in the formula, the sample size was calculated to be 400 people and with the probability of falling samples, 450 people were calculated. 15 samples were deleted due to incomplete questionnaires, and finally the information related to 435 questionnaires was examined.

$$n = \frac{Z^2 \frac{\alpha}{1-\alpha} \times \sigma^2}{d^2}$$

Sampling was performed in two steps. In the first step, the list of female high schools ( $n=198$ ) in Tabriz was numbered sequentially and 20 schools (4 schools from each district) were selected from the list of schools by systematic random sampling. In the second step, convenience sampling was used. The researcher went to schools and due to the prevalence of coronavirus and lack of presence of students in the school environment, the questionnaire link was provided to school principals and then the principals uploaded the questionnaire link in all virtual groups of schools (Shad Application, WhatsApp Application, or Bale Application) to tenth, eleventh, and twelfth grade students in experimental sciences, mathematical physics, humanities, and technical and vocational disciplines. After opening the questionnaire link, if the students selected the option "I will participate in this research with informed consent", they would be directed to the questionnaire answering section. The electronic questionnaire data were downloaded from the system in Excel format file.

The data collection tool included two parts: The demographic information form and the Female Adolescents Health Needs Questionnaire (FAHNQ). The demographic information form involved school type, grade, field of study, last year's grade point average (GPA), life companions, parents' education level, parents' employment status, family income, and access to the Internet and cell phones.

The FAHNQ was designed and its psychometric properties were assessed by Shah Hosseini et al. in 2010 [13]. This questionnaire involves 65 questions, 11 of which address physical health needs. Also, it consists of two types of items: Current status and desired status. All questions are positive and are rated as: "Totally agree (5), "Agree" (4), "No idea" (3), "Disagree" (2), and "Strongly disagree" (1). Each item is calculated through the difference between the desired status score and the current status score. In order to better understand the results, the scores are also reported based on 100.

In Shah Hosseini et al.'s study, the average content validity coefficient of the tool was 0.92. Measurement of internal consistency indicated

Cronbach's alpha coefficient of the questionnaire as 0.90, and measurement of tool stability showed the intra-cluster correlation coefficient (ICC) at a two-week interval ( $P < 0.001$ ;  $ICC = 0.984$ ). Also, in the current study, validity of the questionnaire was confirmed using content and face validity methods and reliability of this study was approved using Cronbach's alpha coefficient ( $\alpha = 0.843$ ).

The significance level of Kolmogorov-Smirnov test for all variables of this study was higher than 0.05 and, as a result, all variables had normal distributions; therefore, parametric tests were used. One-sample t-test was used to evaluate the difference between current and desired status (determining health needs), independent t-test was used to compare the average physical health needs in terms of school type and life companions, and analysis of variance (ANOVA) was used to compare the average physical health needs of study samples more than two groups (in terms of grade, last year's GPA and field of study, parents' education level, parents' occupation, family income, and access to the Internet and cell

phones) and then Duncan's post hoc test was used in SPSS software version 16. In this study, the significance level of P-value was considered lower than 0.05. In the implementation process, all ethical considerations were observed.

### Results

According to the findings of the current study, 90.34% and 9.66% of the studied subjects attended public and non-public schools, respectively. One hundred eighty-nine students (43.45%) were studying in tenth grade and 234 (53.79%) in the experimental sciences. Last year's GPA of 273 students (62.76%) was 19 and upper. Four hundred and seven students (93.56%) lived with their parents and 28 students (6.43%) lived with others. Sixty-one percent of the students' fathers were self-employed. The family income of 41.84% of samples was sufficient. About half of the studied students (49.89%) had high access to the Internet and cell phones, 36.09% had moderate access, and 14.02% had low access (Table 1).

*Table 1: Frequency distribution of demographic variables*

	Variable	Number	Percent
School type	Public	393	90.34
	Non-public	42	9.66
Grade	Tenth	189	43.45
	Eleventh	134	30.80
	Twelfth	112	25.75
Field of study	Mathematical physics	44	10.11
	Experimental sciences	234	53.79
	Humanities	135	31.04
	Technical and vocational	22	5.06
GPA	Under 16	11	2.53
	16-18	58	13.33
	18-19	93	21.38
	19 and upper	273	62.76
Father's occupation	Retired	31	7.13
	Employee	111	25.51
	Self-employed	266	61.15
	Unemployed	27	6.21
Mother's occupation	Employee	32	7.59
	Self-employed	15	3.44
	Housewife	387	88.97
Family income	Sufficient	182	41.84
	Somewhat sufficient	169	38.85
	Not sufficient	84	19.31
Access to the Internet and cell phones	Low	61	14.02
	Medium	157	36.09
	High	217	49.89

The results showed that the total score of the difference between desired status and current

status was significant ( $P < 0.05$ ) and the physical health need of female adolescents in Tabriz was

high (17.48±14.17). The highest need was related to free school meals (52.87±30.83) and the lowest

was related to bathing at least twice a week (2.75±13.769) (Table 2).

**Table 2: Mean and standard deviation of current status, desirable status, and the physical health needs of research samples**

Item	Desirable Status (SD±Mean)	Current Status (SD±Mean)	Physical Health Need (SD±Mean)	Physical Health Need Based on 100 (SD±Mean)	P-Value
Access to healthy water	4.68 ± 0.62	4.84 ± 0.45	0.15 ± 0.67	3.13 ± 13.55	0.001
Access to healthy sports facilities	3.23 ± 1.39	4.64 ± 0.70	1.41 ± 1.48	28.28 ± 29.76	0.001
Brushing every night	4.17 ± 1.08	4.76 ± 0.55	0.59 ± 1.04	11.82 ± 20.97	0.001
Eating 2-4 meals of fruits and vegetables daily	3.64 ± 1.25	4.49 ± 0.81	0.85 ± 1.23	17.10 ± 24.73	0.001
Clean environment	4.40 ± 0.84	4.79 ± 0.51	0.39 ± 0.91	7.91 ± 18.36	0.001
Having no barriers to exercise outside the home	2.89 ± 1.56	4.55 ± 0.90	1.65 ± 1.72	33.10 ± 34.59	0.001
Eating 2-3 meals of meat and legumes weekly	4.20 ± 1.08	4.53 ± 0.82	0.32 ± 1.10	6.57 ± 22.06	0.001
Eating 1-2 meals of dairy products daily	3.96 ± 1.17	4.45 ± 0.84	0.48 ± 1.09	9.79 ± 21.82	0.001
Offering favorite sport programs	2.91 ± 1.38	4.50 ± 0.87	1.59 ± 1.56	31.81 ± 31.24	0.001
Decorating food appearance	3.39 ± 1.21	4.28 ± 0.94	0.88 ± 1.23	17.74 ± 24.65	0.001
Eat breakfast daily	4.18 ± 1.13	4.54 ± 0.79	0.36 ± 1.01	7.21 ± 20.28	0.001
Providing free school meals	1.47 ± 0.85	4.11 ± 1.20	2.64 ± 1.54	52.87 ± 30.83	0.001
Getting at least 8 hours of sleep a night	3.77 ± 1.32	4.50 ± 0.88	0.73 ± 1.26	14.62 ± 25.31	0.001
Bathing at least twice a week	4.62 ± 0.69	4.76 ± 0.53	0.13 ± 0.68	2.75 ± 13.76	0.001
Physical health needs	3.67 ± 0.65	4.55 ± 0.46	0.87 ± 0.70	17.48 ± 14.17	0.001

According to the results, the physical health needs of female adolescents in public schools were higher than non-public schools ( $P < 0.05$ ). There was no statistically significant difference in the variables of life companions, parents' education level, and mother's occupation (Tables 3 and 4). The results of one-way ANOVA of physical health needs in the three grades showed a statistically significant difference between tenth, eleventh, and twelfth grades ( $P < 0.05$ ), and the results of Duncan post hoc test showed that students' physical health needs of twelfth grade were higher than that of eleventh and tenth grades. Also, the physical health needs were significantly different regarding last year's GPA ( $P < 0.05$ ), and the results of Duncan's post hoc test showed that students with a GPA lower than 16 ranked first in terms of the physical health needs of female adolescents. The physical health needs showed a significant difference ( $P < 0.05$ ) in terms

of father's occupation, and the results of Duncan's post hoc test indicated that students with unemployed fathers ranked first in terms of the physical health needs of female adolescents. The significance level of ANOVA test for the physical health needs of female adolescents in terms of family income was less than 0.05, and the results of Duncan's post hoc test showed that adolescents whose family income was not sufficient ranked first in terms of the health needs of female adolescents. Also, in terms of female adolescents' access to the Internet and cell phones, there was a significant difference at the 95% confidence level between the physical health needs of female adolescents. The results of Duncan's post hoc test showed that students who had less access to the Internet and cell phones, ranked respectively first and second in terms of the physical health needs (Tables 4 and 5).

**Table 3: The results of T test to compare the mean scores physical health needs based on demographic variables**

Variable	Number	Mean Based on 100	Standard Deviation	Statistical t Value	Degree of Freedom	P-Value
School type	Public	393	17.92	2.0	433	0.046
	Non-public	42	13.33			
Life companions	Parents	413	17.65	-1.084	433	0.279
	Others	22	14.29			

**Table 4: The results of ANOVA test to compare the mean scores physical health needs based on demographic variables**

Variable	Source	Standard Deviation ± Mean	Statistical F Value	P-Value
Grade	Tenth	0.75 ± 0.62	8.80	0.001
	Eleventh	0.85 ± 0.66		
	Twelfth	1.09 ± 0.84		
Field of study	Mathematical physics	0.91 ± 0.59	1.53	0.206
	Experimental sciences	0.93 ± 0.66		
	Humanities	0.77 ± 0.74		
	Technical and vocational	0.77 ± 1.06		
GPA	Under 16	1.46 ± 0.88	3.19	0.023
	16-18	0.74 ± 0.79		
	18-19	0.87 ± 0.63		
	19 and upper	0.87 ± 0.69		
Father's education level	Sub- Diploma	0.91 ± 0.71	0.80	0.489
	Diploma	0.88 ± 0.71		
	Post-diploma and bachelor	0.82 ± 0.75		
	Master and above	0.73 ± 0.56		
Mother's education level	Sub- Diploma	0.94 ± 0.69	1.13	0.333
	Diploma	0.82 ± 0.74		
	Post-diploma and bachelor	0.79 ± 0.59		
	Master and above	0.79 ± 0.71		
Father's occupation	Retired	0.94 ± 0.69	3.09	0.027
	Employee	0.80 ± 0.64		
	Self-employed	0.85 ± 0.72		
	Unemployed	1.25 ± 0.71		
Mother's occupation	Employee	0.83 ± 0.65	0.49	0.683
	Self-employed	0.92 ± 0.78		
	Housewife	0.87 ± 0.71		
Family income	Sufficient	0.54 ± 0.61	50.779	0.001
	Somewhat sufficient	0.98 ± 0.62		
	Not sufficient	1.36 ± 0.71		
Access to the Internet and cell phones	Low	1.23 ± 0.75	19.124	0.001
	Medium	0.99 ± 0.68		
	High	0.68 ± 0.65		

**Table 5: The results of Duncan's post hoc test to compare the physical health needs based on demographic variables**

Variable	Homogeneous Groups Formed at the Level of 0.05			
	Group 1	Group 2	Group 3	
Grade	Twelfth	1.09	-	-
	Eleventh	-	0.85	-
	Tenth	-	0.75	-
	P-value	1	0.208	-
Last year's GPA	Under 16	1.46		
	19 and upper		0.87	
	18-19		0.87	
	16-18		0.74	
	P-value	1	0.477	
Father's occupation	Retired	1.25		
	Employee		0.94	
	Self-employed		0.85	
	Unemployed		0.80	
	P-value	1	0.373	
Family income	Sufficient	1.36		
	Somewhat sufficient		0.98	
	Not sufficient			0.54
	P-value	1	1	1
Access to the Internet and cell phones	Low	1.23		
	Medium		0.99	
	High			0.68

## Discussion

The results of this study showed that the difference between desired and current status of the physical health needs and, as a result, the physical health need of female adolescents in Tabriz were high. Also, the findings showed that the physical health need varied according to school type, education level, GPA, family income, father's occupation, and the amount of access to the Internet and cell phones.

In a systematic review by Moghaddam et al., among Iranian adolescents and youth, the rate of physical health problems was 33%, the rate of mental health was 17 to 72% in different regions, and the prevalence of high-risk behaviors was 44%. Among the studied countries, the lowest amount of health problems in adolescents and youth was related to Australia and the highest was related to the United States [14]. In line with the present study, the results of Bhargava et al.' study in India revealed that adolescents aged 15-19 years in this country significantly suffered from food deprivation, leading to consequences for growth and incidence of infectious and non-infectious diseases [15].

Research has shown that rapid physical growth, which is typically seen in adolescence, leads to increased calories and nutritional needs; therefore, appropriate nutrition affects growth during puberty [16]. Evidence shows that Iranian adolescents consume less recommended foods, affecting their physical health [17]. Snacks also play a critical role in the body's energy supply, but most students prefer snacks and junk foods to main food sources [18], leading to increase their health needs.

Moreover, the results showed that the physical health needs of female adolescents in public schools were higher than non-public schools. The reason for this difference can be attributed to the physical needs of students who attend non-public schools and have a good economic status.

The results of Panjalipour et al.'s study [19] showed that the health needs of female adolescents in non-public schools were higher than those in public schools, which is inconsistent with the results of the present study. The reason for this difference in the results of the two studies can be due to the difference between the research samples and environments of the two studies. The

researcher believes that, due to benefiting from more facilities, non-public schools in Tabriz have been somewhat able to meet adolescents' health needs. Also, in the current study, the ages of the research samples were 15 years and older; however, in Panjalipour et al.'s study, the samples were 10-19 years old and this difference could affect the results of the two studies.

Regarding the grade and its association with adolescents' health needs, the needs of twelfth grade were more than the physical health needs of students in tenth and eleventh grades. Lavasani et al. indicated that given that adolescents in twelfth grade are preparing to enter the university and there is an intense competition among them to pass the university entrance exam, it is possible that they have less opportunity to meet their health needs [20].

Regarding the determination of the health needs of female adolescents in terms of last year's GPA, the students with a GPA under 16 had greater physical health needs than others. Bhandari et al. stated that poor diet and lack of some nutrients such as protein, iron, calcium, iodine, and vitamins A and B led to students' learning disabilities and academic failure [21]. According to the researcher, the main reason for students' academic failure can be due to malnutrition and lack of nutrients.

Regarding family income and its relationship to the health needs of female adolescents, increased income led to decreased physical health needs of adolescents. Naghibi et al.'s study in 2015 showed that there was a statistically significant relationship between father's occupation and health-related quality of life. Father's income, education level, and illness as well as the number of children can affect family quality of life by affecting the economic status, and families' access (especially adolescents' access) to healthcare facilities could improve their quality of life [22], being consistent with the results of the present study. The researcher states that enjoying appropriate income results in the ability to meet the health needs, whereas insufficient income can limit this ability and consequently cause health problems, too. In line with the present study, Mirghforvand et al.'s study showed a significant relationship between health-related quality of life and family income sufficiency [23]. In addition, Bettina F. Pikó et al.'s study indicated that

students from the middle and upper social classes had a better self-perception of health status compared to those from the lower social classes [24].

In the current research, the physical health needs varied in terms of access to the Internet and cell phones so that as access increased, the physical health needs decreased. The researcher believes that families who have a good economic status and are able to provide access to the Internet and cell phones for their children, are also able to meet their health needs. Also, the proper and principled use of virtual pages and valid scientific websites can enhance adolescents' awareness and be effective in their self-care.

Unlike the findings of the present study, Khoshnoodfar et al.'s study [25] and Dongre et al.'s study [26] showed that excessive use of cell phones had numerous consequences and complications for adolescents, with the highest health risks including reduced sleep, headaches, feeling pressure in the eyes, and thumb pain.

### Conclusion

The results of the present study showed that the status of the physical health needs of female adolescents studied in this research was not desirable, and one of the most important factors in this relation was the economic status of the families. Therefore, it is essential to pay attention to identifying the fundamental issues and problems of adolescents and their families and addressing their needs, as well as focusing human and financial resources on specific and effective research and training. It is also recommended to design and implement various types of educational and counseling interventions both for adolescents and their parents as well as school officials to meet the health needs of high school students. It is hoped that the findings of this research can help policymakers and officials promote health and meet the needs of this age group.

Since a questionnaire was used to collect data in the present study, this study had self-report limitations. In addition, due to the lack of cooperation of the schools of the National Organization for Development of Exceptional Talents (NODET), the findings cannot be generalized to these school types.

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### Conflict of interest

There is no conflict of interests in publishing this article.

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