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ORIGINAL ARTICLE

Study of the Health Status of Male Students in the First Stage of Secondary School in Semnan City as Parents of Future Generation

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K E Y W O R D S

Student;
Health;
Parents;
BMI

A B S T R A C T

The assessment of the health status of male students in the first grade of secondary school in Semnan County as future parents was conducted in 1400. This experimental study aimed to evaluate height, weight, BMI, and general physical condition to determine students' health status. A total of 55 seventh-grade, 90 eighth-grade, and 32 ninth-grade male students from Eghbalion High School were examined. After data collection, the information was organized using Excel software and analyzed through variance analysis in SPSS. Pearson's correlation coefficient was used to determine relationships between variables. The results indicated that height differed among seventh-, eighth-, and ninth-grade students; however, compared with national standards, students' height was below the community standard. No significant difference in weight was found between seventh- and eighth-grade students, but a difference was observed between the ninth grade and the other two grades. No significant difference in BMI was observed among the three grades. The average BMI in seventh grade was 20.17, in eighth grade 20.50, and in ninth grade 21.03. Therefore, while significant differences in height and weight were found among students, no significant difference in BMI was observed. Further research is required to ensure the health of male students as future parents so that more reliable conclusions may be drawn.

Introduction

The health of male students, as the future generation, is one of the most important concerns of parents, educators, and society. This issue can be examined from the following perspectives:

Improper nutrition: Excessive consumption of fast food, carbonated beverages, and unhealthy snacks, along with insufficient intake of fruits and vegetables and a lack of dietary balance are among the common nutritional problems of male students. Such poor dietary habits may lead to obesity, diabetes, cardiovascular diseases, and other health issues.

Physical inactivity: With the increasing use of electronic devices, computer games, and prolonged engagement in virtual spaces, male students tend to participate less in physical activities. Physical inactivity can lead to obesity, muscular weakness, skeletal problems, and chronic diseases.

Psychological problems: Academic pressures, social competition, family issues, and hormonal changes during puberty may result in psychological problems

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such as anxiety, depression, and behavioral disorders among male students.

Use of tobacco and drugs: The consumption of cigarettes, hookah, and narcotic substances is increasing among adolescent boys. In addition to physical harm, these substances may cause psychological and mental problems, learning difficulties, and reduced academic performance.

Chronic diseases: Some male students suffer from chronic illnesses such as asthma, allergies, cardiovascular diseases, and diabetes, which require special care.

Consequences of neglecting the health of male students

Reduced academic performance: Health problems may lead to decreased concentration, fatigue, and a decline in students' academic achievement.

Increased medical expenses: Diseases resulting from unhealthy lifestyles and lack of attention to health impose significant healthcare costs on families and society.

Reduced productivity in the future: Today's students will become the parents and workforce of the future. Therefore, their health ensures a healthy and productive population in the years ahead.

Strategies for Improving the Health of Male Students

Promoting healthy nutrition: Providing education on healthy eating in schools, encouraging the consumption of fruits and vegetables, limiting the intake of fast food and carbonated drinks, and ensuring easy access to healthy food options.

Encouraging physical activity: Developing sports facilities in schools, promoting group sports and physical activities outside school, and reducing time spent using electronic devices.

Enhancing mental health: Creating a safe and supportive environment at school, teaching life skills, holding counseling and psychological sessions, and increasing awareness among students and parents regarding mental health issues.

Preventing the use of tobacco and drugs: Educating students about the dangers of drug use, increasing awareness of the consequences of substance abuse, and supporting addiction-prevention programs.

Regular healthcare services: Conducting periodic medical examinations, ensuring timely vaccinations, and monitoring chronic diseases.

Collaboration among family, school, and community: Cooperation among parents, teachers, sports coaches, and other community members to promote the health of male students.

Ultimately, improving the health of male students requires a comprehensive approach and broad participation. Given the importance of this matter, investing in the health of male students is an investment in the country's future.

Pour and colleagues (2001) examined the physical health of male students in public high schools in several educational districts of Tehran and reported that screening is necessary to assess students' health status.

Ershadi, Ahmad (2000), examined the statistical indices and growth curves of weight and height of 6–18-year-old students in Kashan and stated that the average weight and height of Kashani boys and girls are greater than those of students from Isfahan, Gilan, Kermanshah, Kerman, and Mashhad. The weight of Kashani boys and girls in most age groups is also greater than that of Hong Kong, Tahitian, and Haryana students. However, their weight and height in all age groups are lower than those of Canadian and American students. The differences in the average height and weight of Iranian boys and girls compared with their peer groups in other countries clearly indicate that NCHS statistics cannot be used as a model for the height and weight of Iranian children and adolescents. Therefore, it is necessary for competent research authorities to develop and present an Iranian growth standard for children and adolescents.

Materials and Methods

The study on the health status of male students in the first grade of secondary school in Semnan County, as future parents, was conducted in 1400 as an experimental investigation aimed at assessing height, weight, BMI, and general physical condition. A total of 55 seventh-grade, 90 eighth-grade, and 32 ninth-grade male students from Eghbalion High School were examined. After data collection, the information was organized using Excel software and analyzed through analysis of variance (ANOVA) in SPSS. To determine the relationships between variables, Pearson's correlation coefficient was applied.

Results

Students' Height

The results of the analysis of variance for the height of male students in the first grade of secondary school at Eghbalion High School in Semnan were significant at the 1% probability level (Table 1). Mean comparison results showed a difference in height among seventh-, eighth-, and ninth-grade students. The lowest average height was observed in seventh-grade students at 153 cm, the average height in eighth grade was 164 cm, and the highest average height was recorded in ninth-grade students at 168 cm (Figure 1). Therefore, the observed height differences among the grades, given the one-year age gap, are considered natural. However, according to the conducted assessments and global height standards, the results indicated that the average height of these students is 2 to 3 centimeters below the international standard for this age group. Hence, it is necessary to adopt appropriate measures regarding height development in male students at this age to prevent potential future issues related to short stature.

Table1. The analysis of variance for the height of male students in the first

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F-test	Significance Level
Class	4800,105	2	2400,052	27,282**	.000
Experimental error	15307,285	174	87,973		
Total	20107,390	176			

Ns, *, ** indicate significance levels of 5% and 1%, respectively.

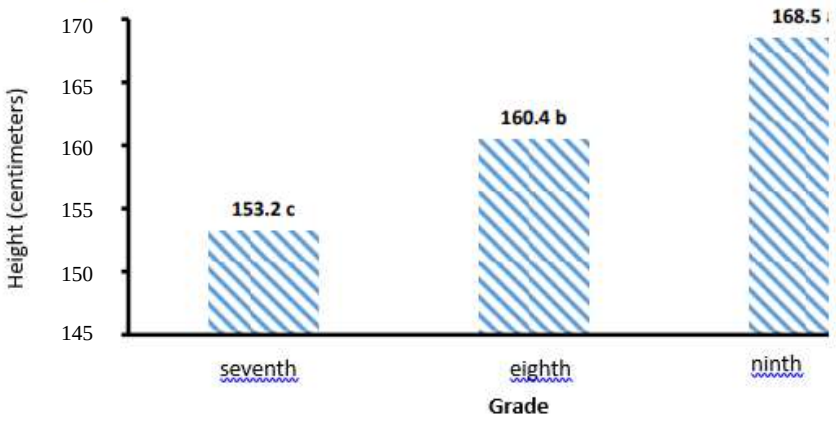

Figure 1. Male students in the first grade of secondary school at Eghbalion High School, Semnan

Students' Weight

The results of the analysis of variance for the weight of male students in the first grade of secondary school at Eghbalion High School in Semnan were significant at the 1% probability level (Table 2). The mean

comparison results showed that there was no difference in weight between seventh- and eighth-grade students; however, a difference was observed between these two grades and the ninth grade. The highest average weight was recorded among ninth-grade students at 60 kilograms (Figure 3). Therefore, this weight difference appears natural given the age gap. However, based on the conducted assessments and weight standards for this age group, the findings indicated that the average weight of these students is above the normal standard and exceeds the permissible threshold. Thus, it is necessary to adopt appropriate measures to ensure weight normalization for students aged 12, 13, and 14, as excessive weight may lead to various health problems in the future or create challenges in areas such as fertility and overall wellbeing. Given that these students represent the future builders and fathers of the next generation, it is essential to provide special attention to nutritional, physical, genetic, psychological, and other relevant factors, and to implement necessary strategies to support and improve their health.

Table 2. Analysis of Variance for the Weight of Male Students in the First Grade of Secondary School, Eghbalion High School, Semnan

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F-test	Significance Level
Class	3129,455	2	1564,728	7,832**	.001
Experimental error	34764,827	174	199,798		
Total	37894,282	176			

Ns, *, ** indicate significance levels of 5% and 1%, respectively.

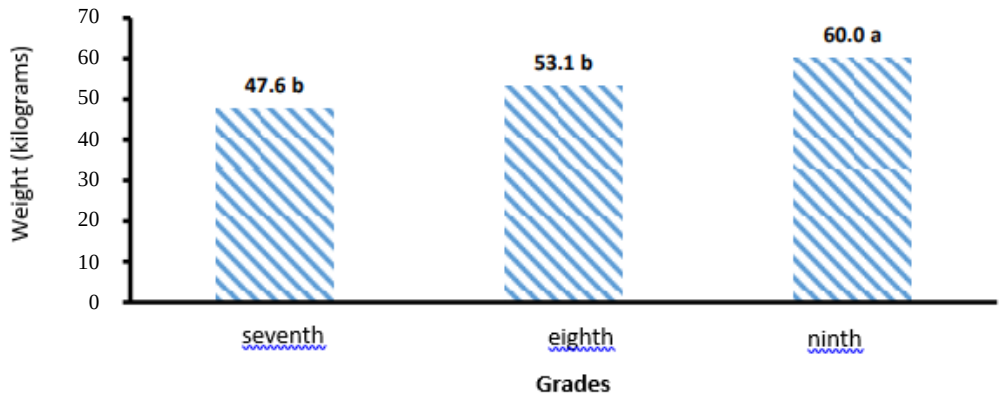

Figure 2. weight of male students in the first grade of secondary school at Eghbalion high school, Semnan

Students' BMI

The results of the analysis of variance showed that there was no significant difference in BMI among male students in the first grade of secondary school at Eghbalion High School in Semnan (Table 2). The students were nearly at the same level in terms of BMI (Figure 3).

Table 3 . Analysis of Variance for BMI of Male Students in the First Grade of Secondary School, Eghbalion High School, Semnan

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F-test	Significance Level
Class	14,914	2	7,457	.329ns	.720
Experimental Error	3940,792	174	22,648		
Total	3955,705	176			

Ns, *, ** indicate significance levels of 5% and 1%, respectively.

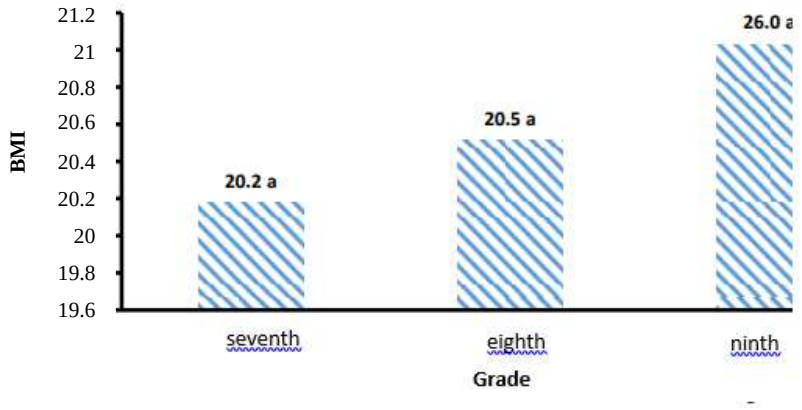

Figure 3. Male students in the first grade of secondary school at Eghbalion high school, Semnan

Students' Weight Status in Terms of Obesity and

Thinness

The frequency distribution of the weight status of male students in the first grade of secondary school at Eghbalion High School in Semnan showed that, among the 177 students examined, 6.2% were thin and 6.2% were very thin. In total, 12.4% of the students had lower-than-normal weight, which requires attention. On the other hand, students whose weight was above the normal range and were considered overweight accounted for approximately 11.9%, and those classified as very overweight constituted 22.6%. Altogether, 35.5% of the students had weight greater than the normal range. This excessive weight gain can cause various complications for students, and the 35% figure found in this study is considerably high. Considering that students at these ages generally have the highest levels of physical activity, their tendency toward severe obesity indicates the need for immediate action by the Ministry of Education and relevant institutions. Excessive or abnormal obesity can pose serious risks to these students, endanger their future health, and impose heavy medical costs on society due to obesity-related diseases such as cardiovascular disorders. It may also negatively affect family stability. Therefore, if proper measures are taken at this age, these students—who will become the fathers of the next generation—will enjoy better health, and society will also benefit from improved wellbeing while avoiding heavy future social and medical expenses (Table 4 and Figure 4).

Thus, 12.4% of the students experience weight loss relative to the normal range, and 35.5% experience weight gain relative to the normal range. Altogether, 47.9% of these students face abnormal weight deviations—either below or above normal. Since both excessive weight loss and excessive weight gain are risk factors, special attention must be given to these students.

Table 4 . Frequency Distribution of Weight Status of Male Students In the First Grade of Secondary School, Eghbalion High School, Semnan

Gender	Simple Frequency	Relative Frequency	Cumulative Relative Frequency
Very Thin	11	6.2	6.2
Thin	11	6.2	12.4
Normal	94	53.1	65.5
Overweight	21	11.9	77.4
Very Overweight	40	22.6	100.0
Total	177	100.0	

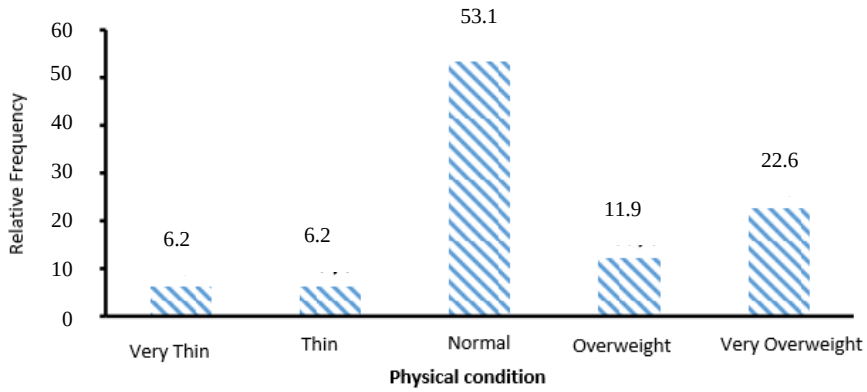

Figure 4. frequency distribution of weight status among male students in the first grade of secondary school at Eghbalion high school, Semnan.

The correlation coefficient (Table 5) showed that there is a significant positive relationship between height and weight, meaning that as students' height increases, their weight also increases. A significant positive correlation was also observed between BMI and weight, as well as between BMI and weight status.

Table 5. Correlation Coefficients of the Examined Characteristics in Male Students, First Grade of Secondary School, Eghbalion High School, Semnan

Variable	height	weight	BMI	status
Height	1.00			
Weight	.571**	1.00		
BMI	0.11	.873**	1.00	
Status	.181*	.664**	.704**	1.00

Ns = non-significant, * = significant at the 5% level, ** = significant at the 1% level

Discussion and Conclusion

Based on the conducted assessments, 12.4% of the students had lower-than-normal weight, and 35.5% had higher-than-normal weight. Altogether, 47.9% of the students deviated from normal weight by either being underweight or overweight. Many researchers, including Chor *et al*. (2009), Ershadi (2000), Malek Afzali *et al*. (1985), Aminolroya *et al*. (2001), and Hedayati Emami (1993), have examined height, weight, and some other characteristics. In some cases, their findings align with the results of the present study, while in others they differ, likely due to factors such as age, gender, or other characteristics of the students. Since both excessive weight loss and excessive weight gain are risk factors, special attention must be directed toward these students. If timely measures are taken, potential future risks and costs to society—given that these students represent the future generation and future parents of this country—can be prevented. By restoring these students to normal weight ranges, we can ensure healthier fathers and healthier families in the future, reduce the financial burden on the nation, and contribute to the country's overall health and development.

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Conflict of interests

No conflict.

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