

# A comparison of health behavior and its effective factors in the students of primary schools with and without health educators in Zirkouh County 2015-2016

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## Abstract

**Background:** School health involves all activities aimed at providing, maintaining and promoting students' health. The health educator is responsible for providing of health services in schools. The aim of this study was to compare health behavior and its effective factors among the students of primary schools with and without health educators in Zirkouh County, South Khorasan Province, Iran in 2015.

**Methods:** This is a cross-sectional descriptive-analytical study where in a total of 250 primary school students in Zirkouh County (125 with health educator and 125 without health educator) were randomly selected. They were subsequently examined through a researcher-made questionnaire holding 59 items based on a three-point Likert scale. Data were analyzed in SPSS-18 using statistical tests including t-test and univariate and multivariate ANOVA. The significance level was considered at  $P < 0.05$ .

**Results:** The results showed that the sleep health score was significantly higher in the group with health educator, although the two groups did not differ in terms of health behavior and its other sub-scales ( $p < 0.05$ ). The multivariate ANOVA showed that gender, education, and father's occupation variables affected the students' health behaviors.

**Conclusions:** The results of this study showed that the presence of a health educator in schools had an impact on the students' health behavior, sleep health and personal health; however, it did not affect their nutritional behavior and physical activity. Hence, a great emphasis should be placed on the role and position of health educators, their regular presence in schools, and their interaction with parents.

**Keywords:** Health Behavior; Students; School Health Educator; Primary Schools

## 1. Introduction

School health involves all activities aimed at providing, maintaining and promoting students' health. In other words, school health is an attempt to increase the students' health performance, knowledge, and health beliefs (1).

As a widespread institution, the schools incorporate a large number of children and play an important role in the transfer of health information to individuals, families, and society (1). In order people of a community to have healthy

habits and lifestyles, it is necessary that health behaviors be taught to them at the right time, for which many scholars consider the early school years to be the most appropriate age for this purpose (2).

UNESCO has set one of its goals of primary education planning in improving growth, flourishing potential talents, and establishing healthy behaviors in children. Such behaviors can be the basis for a good and healthy lifestyle in individuals (3).

Since the school education period coincides with the rapid and critical period of physical and psychological growth and development, any deviation from the normal state of health in this period should be discovered and treated at the earliest opportunity. In this regard, the role of school health educators along with parents is vital in order rapid diagnosis and treatment of students' physical and mental defects as well as the impediments to the blossoming of student's talents and potentials. This can help achieve the goal of matching the school with the available facilities and the capabilities of each student (4, 5).

School health activities are performed by school health nurses in many countries worldwide. As a community health nursing discipline, the school health nursing has always been focused on health education and health care delivery. Health education by school nurses involves such issues as the student's personal health, foods, nutritional status, common school-age diseases, problems and accidents, mental health, puberty health, school environmental health, the importance of vaccination, and the role of parents in the growth and development of children (6). In Iran, due to the absence of community health nurse position in the organizational structure of the Ministry of Health and Medical Education, school health plans are left to people other than nurses who are referred to as health educators or school health care providers. According to the School Health Department, the hygiene and health conditions of students are only checked in the schools that have a health educator, and statistics indicate that there are health problems among them.

A study by Hafezi *et al.*, entitled "Comparison of school environmental health with an approach to promoting national education in girls' elementary schools with or without health educators", showed that the presence of health educators in schools can improve the school environmental health (7). In a study by Pommier *et al.* (2009), aimed at providing a better understanding of the methods to improve health services in European schools, the school health services were compared among seven countries: Belgium (French-speaking community), Denmark, France, Spain, Switzerland, Poland and Portugal. The results indicated that health education and health service promotion were the main objectives of all countries, but the methods of providing such services were different in these countries, each emphasizing on certain aspects of the services (8).

As the presence of a health educator in schools is not regarded as a priority in our country, it stands to reason to conduct research in this field. Thereby, the importance of health educators in schools would be highlighted for the authorities, and especially for the Ministry of Education officials, so that they would be prompted to promote school health. Accordingly, this study aimed to compare health behaviors in the students of schools with and without health educators in Zirkouh County, eastern Iran.

## 2. Methods

This is a cross-sectional, descriptive-analytical study. The subjects included 250 male and female students of the fourth, fifth and sixth grades of primary schools in Zirkouh County in the 2015-2016 academic year. They were assigned into two groups with and without a health educator using stratified sampling method. Three schools in Zirkouh County had a health educator; hence, three schools were also randomly selected from the schools with no health educator which were almost similar in terms of the economic and social status. Nevertheless, gender was not exactly matched since only one male school had a health educator. Based on the sample size formula

$$n = \frac{2 \times \bar{p} \times (1 - \bar{p}) \times (Z_{1-\alpha/2} + Z_{\beta})^2}{(p_1 - p_2)^2}$$

) and considering 10 percent attrition rate, the sample size was estimated as 131 subjects per group. Finally, 125 questionnaires were completed in each group.

At first, the primary schools with or without a health educator were identified, and then 125 students were selected from the schools with a health educator and 125 from the schools without a health educator. The subjects were randomly selected from each school and each class proportionate to the number of students in each grade and based on the class list.

The data collection tool was a researcher-made questionnaire for assessing the students' health behaviors. The questionnaire contained 59 items, including the demographic characteristics and items on foods, physical education, sleep and personal health on a three-point Likert scale (never, sometimes and always, respectively assigned 0, 1, 2 scores). There were 15 demographic, economic and social items, 9 food-related items, 9 physical education items, 16 personal health items, and finally 10 sleep and rest items. In order to determine the content and scientific validity of the questionnaire, it was initially checked by 9

faculty members of the health education, epidemiology, nutrition and nursing departments. After applying their comments, the CVR and CVI of the questionnaire were obtained as 0.64 and 0.92, respectively. In order to determine the reliability of the questionnaire, it was completed by 20 students who were not included in the study sample, and the Cronbach's alpha coefficient was obtained as 0.86. Ultimately, the questionnaire was completed by the students, supervised by the researcher, and the data were analyzed in SPSS-18 using descriptive and analytical statistical tests such as univariate and multivariate ANOVA, one-sample t-test, and independent t-test. The significance level was set at  $p < 0.05$ .

### 3. Results

In the present study, 250 students from the primary schools in Zirkouh County were studied in 2015-2016. The frequency distribution of the demographic variables

presented in Table 1. the fact that there was only one male school which had a health educator, 47 female students were also selected from the schools without a health educator. Finally, 78 (31.2%) male students and 172 (68.8%) female students were included in the study. Two-way ANOVA was used to control the cofounding effect of gender, the results of which presented in Table 2.

The results of one-sample t-test showed that in both groups with or without a health educator, the mean score of health behavior and its subscales were less than average (1 score). Two-way ANOVA was used to compare the mean scores of health behavior and its subscales in the two groups with gender effect being controlled. The results showed that the health behavior, personal health and sleep health scores were higher in the group with health educator, but there was no significant difference between the two groups in other subscales (Table 2).

**Table 1:** Frequency distribution of demographic characteristics of students under study

Variable	Number	Percentage	
<b>Father's education level</b>	Illiterate	41	16.4
	Primary	78	31.2
	Secondary	39	15.6
	High school	49	19.6
	Tertiary	43	17.2
<b>Mother's education level</b>	Illiterate	47	18.8
	Primary	110	44
	Secondary	30	12
	High school	38	15.2
	Tertiary	25	10
<b>Father's occupation</b>	Employee	52	20.8
	Self-employed	93	37.2
	Farmer	37	14.8
	Stockbreeder	35	14
	Worker	22	8.8
	Unemployed	11	4.4
<b>Mother's occupation</b>	Housewife	217	86.8
	Employed	33	13.2
<b>Monthly income (thousand tomans)</b>	< 400	118	47.2
	Between 400 and 600	66	26.4
	> 600	66	26.4
<b>Housing</b>	House	245	98
	Apartment	5	2

Multivariate ANOVA was used to determine the effective factors on health behavior of students. The health behavior subscales were included in the model as the dependent variables, while demographic factors were regarded as the independent variables. The results revealed that among the variables studied, gender, father's education and father's occupation had an effect on the students' health behavior. The effect sizes of these variables amounted to 0.14, 0.03 and 0.03, respectively (Table 3). The results of multivariate analysis of variance in the context of

multivariate ANOVA showed that the gender variable affected the subscales of exercise and physical activity, personal health and nutritional status, where boys had a better performance in all these behaviors, except for personal health. Tukey's post hoc test indicated that father's education was conducive to nutritional status. Father's occupation was also effective on personal health and nutritional status, so that the students whose fathers were stockbreeders had better nutritional status and the students whose fathers were workers had better sleep health (Table 4).

**Table 2:** Comparison of mean scores of health behavior and its subscales in the two groups

	With health educator	Without health educator	Total	Two-way analysis
	Mean (SD)	Mean (SD)	Mean (SD)	of variance
<b>Total score</b>	074 (0.25)	0.73 (0.25)	0.74 (0.26)	F=5.51
<b>One-sample t-test</b>	<0.001	<0.001	<0.001	P=0.02
<b>Exercise and physical activity</b>	0.45 (0.13)	0.43 (0.14)	0.44 (0.14)	F=0.65
<b>One-sample t-test</b>	<0.001	<0.001	<0.001	P=0.42
<b>Personal health</b>	0.62 (0.32)	0.63 (0.35)	0.63 (0.35)	F=5.96
<b>One-sample t-test</b>	<0.001	<0.001	<0.001	P=0.01
<b>Nutritional status</b>	0.75 (0.35)	0.81 (0.38)	0.78 (0.37)	F=2.282
<b>One-sample t-test</b>	<0.001	<0.001	<0.001	P=0.09
<b>Sleep health</b>	0.62 (0.28)	0.55 (0.27)	0.59 (0.28)	F=8.02
<b>One-sample t-test</b>	<0.001	<0.001	<0.001	P=0.005

**Table 3:** Contributors to health behaviors of students in Zirkouh primary schools

	Fisher statistic	Degree of freedom	Significance	Effect size
<b>Gender</b>	9.88	4	< 0.001	0.14
<b>Father's education</b>	1.75	16	0.03	0.03
<b>Father's occupation</b>	1.64	20	0.04	0.03

**Table 4:** Contributors to subscales of health behaviors in students of Zirkouh primary schools

Variables	Exercise and physical activity	Personal health	Nutritional status	Sleep health
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
<b>Gender:</b>				
Male	0.79 (0.13)	0.40 (0.13)	0.73 (0.32)	0.59 (0.26)
Female	0.71 (0.26)	0.45 (0.14)	0.58 (0.33)	0.59 (0.29)
P-value	0.002	0.001	<0.001	0.59
<b>Father's education:</b>				
Illiterate	0.47 (0.17)	0.65 (0.33)	0.70 (0.29)	0.55 (0.30)
Primary	0.44 (0.13)	0.71 (0.34)	0.86 (0.36)	0.61 (0.25)
Secondary	0.39 (0.12)	0.57 (0.34)	0.77 (0.42)	0.56 (0.32)
High school	0.45 (0.12)	0.58 (0.32)	0.78 (0.38)	0.56 (0.25)
Tertiary	0.43 (0.14)	0.59 (0.34)	0.73 (0.37)	0.64 (0.29)
P-value	0.08	0.11	0.05	0.40
<b>Father's occupation:</b>				
Governmental sector	0.45 (0.12)	0.60 (0.12) ab	0.72 (0.36)	0.62 (0.26) ab
Self-employed	0.43 (0.14)	0.60 (0.32) ab	0.78 (0.38)	0.59 (0.29) ab
Farmer	0.40 (0.13)	0.53 (0.37) a	0.71 (0.37)	0.48 (0.26) a
Stockbreeder	0.47 (0.12)	0.81 (0.37) b	0.82 (0.38)	0.59 (0.27) ab
Worker	0.48 (0.16)	0.72 (0.22) ab	0.92 (0.29)	0.72 (0.29) b
Unemployed	0.47 (0.16)	0.57 (0.16) ab	0.85 (0.37)	0.55 (0.16) ab
P-value	0.06	0.02	0.21	0.05

The indices a and b show the results of the Tukey's post hoc test. Similar indices represent the lack of significant difference between the two groups.

#### 4. Discussion

This study aimed to compare the health behavior and its effective factors in the students of primary schools with and without health educators in Zirkouh County. In the present study, a significant difference was observed between the mean scores of health behavior in the students with a health educator and the students without a health educator. This finding is consistent with the findings of the study by Hafezi *et al.* (7); however, it does not correspond to the study by Jolaei *et al.* on 330 male and female students of the fourth and fifth grades of primary school in the two groups with or without a health educator in Ahvaz (2).

Given the significantly higher score of health behavior in the students with a health educator than the students without a health educator, this indicates the effect of health educators on the students' health behaviors along with the role of their families and parents. Therefore, schools should provide students with health education through special strategies to attract teachers and parents. Another factor affecting the role of health educators is their regular presence in schools, methods of communication with students and the methods and tools for providing educational programs. As for the present study population, i.e. the educational area under the supervision of the Department of Education of Zirkouh County, which is a very large area, there were only four health educators, each being present two days a week in each school. The regular presence of health educators in schools, in addition to increasing the health services in schools, improves their relationship with students, principals and teachers, which can lead to the elimination of many of their health, environmental, physical and psychological problems.

The results of independent t-test showed that there was a significant difference between the two groups regarding the sleep health variable, and the group with a health educator had better sleep health status. This was consistent with the findings of Hafezi (7).

One-third of an individual's life is spent sleeping, which should not be thought of as a waste of time because sleeping reduces stress, anxiety and nervous tensions and helps people to refresh their energy, to have more concentration and adaptation, and to enjoy daily activities.

Thus, inadequate sleep and sleep deprivation result in behavioral, neurological and physiological changes that can be associated with academic failure and reduced daily performance in the classroom (9, 10). The common disciplinary principles in the families of different communities and parent's strategies for scheduling their children's sleep and homework can be effective on students' sleep patterns. In this regard, the role of health educators and school officials is very important in raising awareness among families, identifying sleep disorders in students and their referral to relevant specialists, communication with their families and helping them to reduce family tensions and becoming aware of the role of family stress in sleep disorders in children, which was also shown to be significant in the current study.

Additionally, in terms of personal health, there was a significant difference between the students with and without a health educator. This was not in line with the findings of Hafezi (7) and Jolaei *et al.* (2).

The proper nutrition of students at home and school and its relationship with the presence of health educator were other factors studied in this research. There was no significant difference between the students with and without a health educator in terms of nutritional status. Since children's desirable growth and development depends on proper nutrition and good nutritional habits, it is important to pay enough attention to children's nutrition because food habits develop from childhood and continue to adulthood, and families play a significant role in shaping the child's personality (11).

Several studies have shown that nutritional habits are more influenced by culture, beliefs, nutritional attitudes, mass media, cultural interactions, epidemiological transitions and changing values (12, 13) than nutritional knowledge. Accordingly, it may be concluded that the lack of a significant difference between the nutritional behavior of the students with a health educator and the students without a health educator can be attributed to social and cultural issues, especially the effect of family nutritional habits and patterns on the formation of nutritional behaviors in the students.

The results of multivariate analysis of variance in the context of multivariate ANOVA showed that gender affected the subscales of exercise and physical activity, personal health and nutritional status, and in all these behaviors, boys had a better performance. Father's

education was effective on nutritional status. Father's occupation was also effective on personal health and nutritional status, so that the students whose fathers were stockbreeders had better nutritional status and the students whose fathers were workers had better sleep health. This difference between the two genders may be attributed to the differences in the patterns of growth in girls and boys of the same age, differences in their dietary behaviors and patterns, and their awareness and attitude differences.

On the other hand, puberty occurs earlier in girls than boys and is associated with a lot of changes in the individual's personality and attitudes. In addition, during this period, physical and mental changes are so rapid and comprehensive that can disturb the adolescent, resulting in less attention paid to physical activity, personal health and nutrition. Therefore, the role of parents and health educators in informing students of the physiological and natural changes that occur at the age of puberty has great importance. Since many parents refrain from providing complete and comprehensive explanations in this regard due either to cultural barriers, or shyness and reservedness or the lack of close and friendly relations with their children, the school education on puberty becomes even more significant (14).

In this study, children whose fathers were stockbreeders and in other words, were producers in the rural setting had better nutritional status. Similarly, a study by Averbeke and Khosa indicated that the production of products by rural people through agriculture and animal husbandry could affect their nutrition and lead to more consumption of their own products, and that income is the most important determinant of food security in rural households (15). Hence, the accurate identification of social, cultural and economic factors affecting the population can have an influence on the health status of families and, consequently, the students.

## 5. Conclusion

The results of this study revealed that the presence of health educators in schools influenced the students' health behavior, sleep health, and personal health, but did not affect their nutritional behavior and physical activity. The students' health behavior, especially nutritional behavior and physical activity, is a multidimensional issue that is affected by various factors and variables such as the social, cultural and economic factors, particularly by the role of

families in the development of health behaviors in students in addition to presence or absence of a health educator. Consequently, in order to enhance students' health behaviors, in addition to the regular presence of health educators, which is the basis for the elimination of many of the students' physical and psychological health problems, a great emphasis should be placed on increasing interactions between school health educators and the students' parents.

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