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# THE IMPACT OF SCHOOLS ENVIRONMENT HEALTH ON THE LEARNING AND ACADEMIC ACHIEVEMENT OF ELEMENTARY SCHOOL STUDENTS

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**Abstract:**

*Background: Compliance with environmental health of schools is a basic right of the students. Therefore, this research was conducted to determine the effect of school environment health on the learning and academic achievement of elementary school students of the city of Ahvaz, at the southwest of the Islamic Republic of Iran year 2015-2016.*

*Methods: At a cross-sectional study [2015-2016], a total of 210 students were selected randomly as sample of study. Cluster sampling was done by appropriate allocation and questionnaires were randomly divided among students. Data collection tools included Hermance's achievement motivation questionnaire and researcher-constructed questionnaire [observation checklist to examine the physical parameters of school environment health in educational institutions] and interviews with students. Data of study were analyzed using SPSS- 21 software.*

*Results: The results of this study showed that there is no statistically significant relationship between the school environment health and the learning and academic achievement of elementary school students. [P>0.05]. The health status of the schools in Ahvaz is undesirable in terms of ergonomic principles.*

*Conclusion: Although there was no statistically significant relationship between school environment health and learning and academic achievement of elementary school students, favorable physical and psychological conditions should be provided for the education of students by paying much attention to school environment health in order to improve the quality of education and prevent their academic failure.*

**Key Words:** *School environment health, Educational institutions, Elementary school, Academic achievement, Students.*

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**INTRODUCTION:**

Health facilities in the school are a set of factors that the lack of any of them can have adverse effects on the health process as well as educational programs [1]. Health facilities in the school are a set of factors that the lack of any of them can have adverse effects on the health process as well as educational programs [2]. The school is a special social setting in which the education and personality growth of today's children who determine the fate of community in future, are developed and founded.[3] One of the most important, critical, and influential school health issues is compliance with environment health at school.[4] On the other hand, the school is a large house where much valuable time of large number of children and young people is spent. [5].This sacred house should be lovely to help students enter to it with eagerness and enthusiasm and strive to gain knowledge with delight. The beautiful and attractive school provides the conditions for learning science and technology, and facilitates the flourishing of talents. However, unhealthy and inappropriate school minimizes the enthusiasm and eagerness to learn and reduces the possibility of dynamism and maturity.[6] In schools where unfavorable environment space induces fatigue, disorder, and pollution and immobility, the realization of educational and training goals and programs is faced with a serious problem [7]. The endless efforts of teachers of students in these schools do not have the desired efficiency. According to educational experts with a systematic viewpoint, in addition to the educational factors, the architecture of the school and its elements such as location, light, physical condition, desks and benches, etc. can considerably affect the students [8-13]. Studies showed that the frequency of health promoting activities in Danish schools have been rather stable during the period 2006 to 2010, except for a lower participation in anti-smoking project in 2010 compared with 2006. Bullying and physical activity are the areas that receive most attention. The participation in activities targeting physical activity was at about the same level in 2006 and 2010, although the necessary facilities for physical activity appeared to be less available in 2010 compared with 2006.[2].In a Swedish 1990-survey, it was reported that the vast majority of schools [94–99%] taught about alcohol, sex, smoking, drugs, physical health/exercise, and bullying/violence to all students during their school career [3]. Zazuoli et al. [2008] conducted a study on the environmental health condition of Sari elementary schools and concluded that the restrooms of these schools are not in a favorable condition. They as attributed this to the ignorance or carelessness of the responsible authorities and educational managers as well as paying more attention to quantity rather than quality [14]. However, Zazouli et al. [2012] reported that the health condition of 90% of the restrooms in

Mazandaran province is favorable [15]. Furthermore, Kermani et al. [2011] argued that the condition of Pakdasht schools' restrooms is unfavorable [16]. Neshat et al. [2010] reported that the condition of the restrooms in Zabol elementary and junior schools is unfavorable [17]. Malakootian et al. [2007] studied the condition of the environmental health and safety in the schools of Kerman city and concluded that the health condition of eighty percent of the schools is favorable [18]. Shahriari et al. [2008] conducted a study on the environmental health condition of the schools in Birjand city and reported that the health condition of the schools is favorable [19]. Zare Jamalabadi et al. studied the health condition of the elementary schools in the second educational district of Yazd province and compared it with the required standards of the health regulations in the academic year 2011-2012. They concluded that most of the schools have a proper area, health care rooms, standard first aid kits, appropriate drinking fountains, and standard toilets. They indicated that the health condition is consistent with the required standards of school health regulations and it is not significantly different in female and male schools [20]. Ganji et al. [2013] studied the environmental health condition of the female public elementary schools in Khomeyni Shahr, Isfahan, and reported that it is unfavorable [21].Therefore, improving the health of the school environment and paying serious attention to this issue can make educational activities useful while guaranteeing the health of the students. This research was conducted to determine the effect of school environment health on the learning and academic achievement of elementary school students of the city of Ahvaz, at the southwest of the Islamic Republic of Iran year 2015-2016.

**METHODS:**

At a cross-sectional study in2015-to 2016, the population of the study included all male elementary school students in Ahvaz, [South-west of Iran], of whom 210 students were selected randomly as the sample of the study. Questionnaires were randomly distributed among students. Also, in this research, the sample data were selected from the different educational areas including educational area no. 1: 50 students, No. 2: 41 students, No.3: 59 students and No. 4: 60 students.

The ethical considerations necessary to satisfy the respondents were observed and they were ensured that their views will be kept confidential. Also, participation in the study was voluntary.

Observation checklist to examine the physical parameters of school environment health in educational institutions: due to there is no standard questionnaire related to subject of study, after interviews with a number of teachers and experts organization development, equipping and modernization of schools, environmental health and

collect their views and taking into account the scientific principles, a questionnaire was developed. Then, by conducting pre-test [among 30 students], reliability and validity of questionnaire was calculated. Their validity was confirmed by content and construct validity was confirmed by a number of experts and their reliability was calculated and confirmed by Cronbach's alpha [87%].

**Academic Achievement Motivation Questionnaire of Hermance**

- It is one of the most common paper and pencil questionnaire to assess the need for achievement. Hermance [1977] constructed this questionnaire based on experimental and theoretical knowledge about the need for achievement and studying the related literature related. The initial questionnaire included 29 questions developed based on ten characteristics that distinguish people who have high achievement motivation with those who have low achievement motivation. To prepare materials of questionnaires, Hermance considered ten characteristics of people as based in selecting questions:
- High level of desire;
- Strong motivation for upward mobility;
- Long resistance facing with assignments or moderate difficulty level;
- Willingness to reattempt in doing assignments;
- Dynamic perception of time, the feeling that things happen quickly;
- Foresight;
- Paying attention to merit criterion in selecting friends, colleagues and model;
- Recognition through good performance at work;
- Doing job well;
- Low risk behavior.

Hermance found these ten characteristics was acquired on the base of previous research and he selected them as guide for selecting the questions. After trial implementation and analyzing the questions and calculating the correlation of individual questions with total test, 29 questions were selected as final questionnaire of achievement motivation. It should be noted that after analyzing the questions, no significant question about the tenth characteristics was included in the final questionnaire. Therefore, the final questionnaire was constructed only on the basis of nine characteristics. The questions of questionnaire were stated as incomplete sentences and multiple options were given for each of the. To equalize the value of questions, four options were written for all 29 questions. The options were given score in terms of intensity of motivation of achievement from high to low or low to high. Scoring the questionnaire was conducted based on nine characteristics that questions were developed based on them. Some of

the questions were written positively, while other groups of them were written negatively.

T0 each question of this questionnaire [observation checklist to examine the physical parameters of school environment health in educational institutions], the minimum score [0] and maximum score [2] were assigned, in the other hand:

[0]: If the school has not met the standard principles at all in the studied component [non-standard];

[1]: If the school has met the standard principles relatively in the studied component [semi-standard];

[2]: If the school has met the standard principles fully in the studied component [standard].

Given the number of questions in observation checklist [5], the minimum score obtained by each school [completely non-standard], and the maximum obtained score by in terms of studied components, researcher marks each item in terms of meeting the standards according to three standard option of standard, semi-standard and non-standard. According to the observation checklist, standard schools were those schools which required the min score based on confirmation of modernization, development and equipping of schools organization.

Data of study were analyzed using descriptive statistics [frequency, percentage, mean, standard deviation] and inferential statistics [factor analysis, t-test, Kolmogorov - Smirnov test and one-way ANOVA analysis] at SPSS- 21 software. In this section, the descriptive statistics related to observation, a checklist to examine the impact of physical variables of school environment health on learning and achievement questionnaire of students was provided. Then, statistical hypotheses were examined in the data analysis section. To examine the normal distribution of data, Kolmogorov-Smirnov test was used. Then, to examine the hypothesis of study, structural equation and Pearson correlation coefficient were used, while single-sample t-test, independent two-sample t-test and ANOVA were used to examine the sub-hypotheses of study.

## RESULTS:

For investigating students' amount of learning and academic achievement [including 29 questions of 4 options], the Hermans' standard questionnaire was used as a research tool and for studying physical variables of schools environment health in educational spaces [including 5-question of the standard, semi-standard and non-standard of 3-option] a researcher-made questionnaire; given the age of the respondents, the method of interview was used in completing questionnaires. By completing questionnaires and interview, some parents or teachers of students were also present. Based on [Table.1] in which the demographic characteristics of the students have been specifically mentioned, from between 210 elementary students samples under study, 11 students were from elementary second

grade, 38 students from third grade, 63 students from fifth grade and 73 students from sixth grade. Also in terms of age characteristics of the students under question, 15 students were 7-year old, 21 students 8-year old, 38 students 9-year old, 63 students 10-year old, and 73 students 11-year old. For investigating the normality of the distribution of data related to the noise of educational spaces, amount of learning and academic achievement, in [Table.1] Regarding 5 questions related to the check-list of variables of school environment health in educational institutions with three options standard, medium and non-standard, the amount of point and score of students has been stated. The first question was about the general health status of the school environment [Measured by the researcher]. In this case, 77[32.5%] students have selected the standard option, 60[25.3%] students the medium option and 72 63[32.5%] students non-standard option. The mean and standard deviation [SD] of this question have been 2.29±1.16. The second question asked was about the Health service of schools; 71[32.1%] individuals have selected the option standard, 51[23.6%] individuals the option medium and 93 [39.2%] individuals the option non-standard. The mean and standard deviation of this question have been also 2.35±1.14. The third question asked was about the Providing proper heating and cooling equipment for schools. [Measured by the researcher]; 76[32.1%] individuals have selected the option standard, 61[25.7%] individuals the option medium

and 65[32.1] individuals the option non-standard. The mean and standard deviation of this question have been also 2.29±1.15. The fourth question asked was about the School environment sewage, disinfection, and detergents. [Measured by the researcher]; 93[39.2%] individuals have selected the option standard, 58[24.5%] individuals the option medium and 62[26.2] individuals the option non-standard. The mean and standard deviation of this question have been also 2.11±1.12. The fifth question asked about the Safety of schools environment against natural and non-natural events; [Measured by the researcher]; 55[28.7%] individuals have selected the option standard, 80[33.8%] individuals the option medium and 68[23.2%] individuals the option non-standard. The mean and standard deviation of this question have been also 2.27±1.11. In [Table.3]. Table.4, This study showed that there is no statistically significant relationship between the school environment health and the learning and academic achievement of elementary school students. [P>0.05]. The health status of the schools in Ahwaz is undesirable in terms of ergonomic principles and educational achievement of elementary students . Also in this research there was not observed any relationship between amount of learning and academic achievement and the demographic variables under investigation such as age, education level, education district of education place etc. [P>0.05].

**Table 1: Demographic information of students**

| Variables | Number and percentage of Students |
|---|---|
| Educational grade | |
| 2 | 11[5] |
| 3 | 25[12] |
| 4 | 38[18] |
| 5 | 63[30] |
| 6 | 73[35] |
| Total | 210[100] |
| Age | |
| 7 | 15[7] |
| 8 | 21[10] |
| 9 | 38[18] |
| 10 | 63[30] |
| 11 | 73[35] |
| Total | 210[100] |
| Educational area | |
| 1 | 50[24] |
| 2 | 41[20] |
| 3 | 59[27] |
| 4 | 60[29] |
| Total | 210[100] |

**Table 2: Examination of normal distribution of data**

| Factors | Number of questions | Eigen value | Percentage of variance | Cumulative variance percentage |
|---|---|---|---|---|
| School environment health | 5 | 19.99 | 39.91 | 39.91 |

**Table 3: Frequency and percentage of respondents regarding to the school environment health on learning and academic achievement**

| Questions | Response | | | Mean± SD | P-value |
|---|---|---|---|---|---|
| | Standard N [%] | Moderate N [%] | Non-standard N [%] | | |
| The general health status of the school environment | 77[32.5] | 60[25.3] | 63[32.5] | 2.29[1.16] | 0.773 |
| Health service of schools | 71[32.1] | 51[23.6] | 76[32.1] | 2.35[1.14] | 0.734 |
| Providing proper heating and cooling equipment for schools | 76[32.1] | 61[25.7] | 65[32.1] | 2.29[1.15] | 0.718 |
| School environment sewage, disinfection, and detergents | 93[39.2] | 58[24.5] | 62[26.2] | 2.11[1.12] | 0. 716 |
| Safety of schools environment against natural and non-natural events | 55[28.7] | 80[33.8] | 68[23.2] | 2.27[1.11] | 0.700 |

**Table4: Chi-square goodness of fit test and observed and expected frequency**

| Variables | | Observed frequency | Expected frequency | Remaining | P-value |
|---|---|---|---|---|---|
| **Students' perspective** | Standard | 151 | 79 | 72.0 | 0.001 |
| | Moderate | 58 | 79 | -21.0 | |
| | Non-standard | 28 | 79 | -51.0 | |
| | Total | 210 | | | |

**DISCUSSION:**

The results of this study showed that there is no statistically significant relationship between the school environment health and the learning and academic achievement of elementary school students. [P>0.05]. The health status of the schools in Ahwaz is undesirable in terms of ergonomic principles.

Therefore, we can say that the results of this study are in line with those of studies conducted by Nabe-Nielsen et al [2]. WH Peters et al [4]. Klakk et al [5]. Peters LWH et al [6]. Zazouli et al. [11], Kermani et al. [14], Neshat et al. [15], and Ganji et al. [19]. However, they are not consistent with the results of the studies conducted by Malakootian et al. [16], Shahriari et al. [17], and Zare Jamalabadi et al. [18]. Although there was no statistically significant relationship between school environment health and learning and academic achievement of elementary school students, favorable physical and psychological conditions should be provided for the education of students by paying much attention to school environment health in order to improve the quality of education and prevent their academic failure.

**CONCLUSION:**

Following the school environmental health standards, one can save millions of Rials which is spent on repairing and maintaining a school, prevent various incidents happening at schools and also prevent the spread of diseases, particularly the infectious diseases. It also reduces the disabilities resulted from the incidents, decreases pharmaceutical and medical costs, provides students with a favorable physical and mental condition to educate, improves the quality of education, and prevents educational failure.

It is proposed that a greater deal of cooperation be made between the health units in the schools of Ahvaz Department of Education, health deputy of Ahvaz Jundishapur University of Medical Sciences, and Khuzestan Province Education Department to eliminate the unfavorable and non-standard cases of the schools' restrooms in Ahvaz.

The major limitations of this study included the dispersion of the population, lack of a desirable access to them, and unwillingness of some participants to cooperate.

**CONFLICT OF INTEREST:**

1. Impossibility of generalizability of the research results to schools in other cities, due to students' anthropometric dimensions, geographical and climatic conditions of metropolis Ahvaz.

2. The dispersion of research population and non-equality of facilities in schools in metropolis Ahvaz.

3. The use restriction of questionnaire as the only means of data collection and the impossibility of doing quality works in this regard, including interview with managers, parents and experts in ergonomics

4. The absence of standards according to which the quality of available possibilities and resources can be evaluated.

5. Given the age of the students and the lack of understanding of some of the questions, which can be considered as one of the limitations of the present research, the teachers were asked to distribute the questionnaires and read the questions one by one in plain language to students so that they can have an understanding of appropriate response to the questions.

**CONFLICT OF INTEREST**

The authors declare no conflict of interest.

**REFERENCES:**

1.Gilavand A, Moosavi A, Gilavand M, Moosavi Z. Content Analysis of the Science Textbooks of Iranian Junior High School Course in terms of the Components of Health Education. Int J Pediatr 2016; 4[12]: 4057-69. DOI: 10.22038/ijp.2016.7428

2. Nabe-Nielsen K, Krølner R, Hvas Mortensen L, Birk Jørgensen M, Diderichsen F. Health promotion in primary and secondary schools in Denmark: time trends and associations with schools' and students' characteristics. BMC Public Health. 2015; 15: 93. doi: 10.1186/s12889-015-1440-z

3.Lissau I, Poulsen J. Nutrition policy, food and drinks at school and after school care. Int J Obesity. 2005;29:S58–S61. doi: 10.1038/sj.ijo.0803101.

4.WH Peters L, Kok G, TM Ten Dam G, J Buijs G, GWM Paulussen T. Effective elements of school health promotion across behavioral domains: a systematic review of reviews. BMC Public Health. 2009; 9: 182. doi: 10.1186/1471-2458-9-182

5. Klakk H, Andersen LB, Heidemann M, Moller NC, Wedderkopp N. Six physical education lessons a week can reduce cardiovascular risk in school children aged 6–13 years: A longitudinal study. Scand J Public Health. 2014;42:128–136. doi: 10.1177/1403494813505726.

6. Peters LWH, Kok G, Ten Dam GTM, Buijs GJ, Paulussen TGWM. Effective elements of school health promotion across behavioral domains: a systematic review of reviews. BMC Public Health. 2009;9:182. doi: 10.1186/1471-2458-9-182.

7. Gilavand A. An analysis of anthropometric data on Iranian primary school student: a Review. Int J Med Res Health Sci 2016; 5[8] 310-16.

8. Gilavand A, Hosseinpour M. Investigating the Impact of educational spaces painted on learning and educational achievement of elementary students in Ahvaz, southwest of Iran. Int J Pediatr. 2016; 4[2]: 1387-96. DOI: 10.22038/ijp.2016.6439

9. Gilavand A, Jamshidnezhad A. The Effect of noise in educational institutions on learning and academic achievement of elementary students in Ahvaz, South West of Iran. Int J Pediatr. 2016; 4[3]: 1453-63. DOI: 10.22038/ijp.2016.6500

10. Gilavand A, Espidkar F, Gilavand M. Investigating the Impact of Schools' Open space on learning and educational achievement of elementary students in Ahvaz, southwest of Iran, Int J Pediatr. 2016; 4[4]: 1663-1670. DOI: 10.22038/ijp.2016.6672

11. Gilavand A, Gilavand M, Gilavand S. Investigating the impact of lighting educational spaces on learning and academic achievement of elementary students. Int J Pediatr. 2016; 4[5]: 1819-28. DOI: 10.22038/ijp.2016.6768

12. Gilavand A. The Impact of Educational Furniture of Schools on Learning and Academic Achievement of Students at Elementary Level. Int J Med Res Health Sci. 2016; 5[7S]: 343-348.

13. Gilavand A. Investigating the Impact of Environmental Factors on Learning and Academic Achievement of Elementary Students: Review. Int J Med Res Health Sci. 2016; 5[7S]: 360-369.

14. Zazuoli M.A., Abdi M.,Ghahramani E., Ghorbanian M.Investigation of Environmental Indexes of District 1 Primary School in Sari, Iran. Iran. J. Health & Environ., 2009; 2[3]: 204-2013.

15. Zazouli MA, Abadi MH, Yousefi M. Investigating the Environmental Health and Safety Indices among Schools in Mazandaran Province, Iran. Spring 2015;1[1]:28-34.

16. Kermani M. FarzadkiaM. Yousefi Z. Ghandali R. Investigating the Environmental Health and Safety Status among Primary Schools. J Mazand Univ Med Sci 2012; 22[95]: 93-97.

17. Neshat A. Dastoorani M. Ramazani A. Changizi H. Jabbarzare H. In vestigation of Environmental Health and safety situations in elementary and guide schools of Zabol, 2010. Rostamineh. 2012; 3[4]: 1-10

18. Malakootian M, Akbari H, NekoeiMoghadam M, Parizi A, Nekounam GH. Investigation of Environmental Health Condition and Safety of Schools in Kerman in 2007 Tolooe Behdasht 2007; 7[3,4]:1-7

19.Shahriari T, Moodi M, Hajiani M, Shahriari Z. Study of hygienic status of schools in Birjand during year 2007-2007. Journal of Birjand University of Medical Sciences. 2009; 16 [2]: 68-75.

20. Zare Jamalabadi M, Kajbaf M B, Mohiti Ardakani E. Accordance of Schools Health Status with the Regulations of School Health in Yazd. JCHR. 2014; 3 [3] :177-184.

21. Ganji M, Shirani Z, Tarahi MJ, Ebrahimi A. A Survey of the Environmental Health Status of Girl's Primary Schools of Khomeyni Shahr, Isfahan, Iran, in 2013. J Health Syst Res 2016; 12[3]: 267-71.