Environmental health and safety in elementary schools: A case study in Ilam city, Iran

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Abstract

Introduction: Students in elementary schools due to the physical and behavioral characteristics more than adults have exposed to environmental hazards. This study was conducted to examine the environmental health and safety indices in girls' elementary schools in Ilam city.

Materials and methods: This cross-sectional study was carried out via census sampling method in girls' elementary schools (21 schools) in Ilam city. Data were collected through a checklist of management system evaluation. Finally, the data were analyzed by SPSS-16 and the schools were classified in 5 levels (1 to 5 stars).

Results: The results showed that 71.4 %, 66.7 % and 85.7 % of the schools were desirable in term of providing clinical services, improving nutrition in schools and parents and society participation in health promoting program, respectively. However, 100% of the schools in term of promoting the school staff were in undesirable condition.

Conclusion: According to the results, most schools in term of environmental health and safety indices were in moderate condition. It was revealed that 33% of the schools, based on the health improvement program, were classified as 1 star and no school was found as 5 stars. This issue requires more attention to improve and promote the schools health level by related authorities.

Keywords: Elementary School, Environmental Health, Safety

Introduction

Human wellbeing has substantial effects on the sustainable development in any country. It is obvious that schools can be considered to reach this purpose (1). Schools have a high importance among different organizations. They are regarded as a safe place in flourishing people and play a vital role in providing a healthy life for students (2). In addition, schools are fundamental institutions that provide the society development and children's hygiene (3). Elementary schools are the first social institution that children pass important time of their live (4). These places should be suitable according to health and safety principles. Previous studies have shown that these places had a significant role in occurring various

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accidents and diseases, especially in developing countries (5). Environmental health and safety in schools are the effective factors to improve health of the students (6). Different researches have reported that about 70 % of schools in Iran according to safety and health indices were not in suitable condition and the levels of the schools health and safety in some of them were in weak situation (7-10). According to a report in USA (1990), about 43% of mental and psychological problems in children were associated with schools which 20% of them were related to schools buildings (11). Revalthy et al. (2008) showed that there was a significant relation between students' behavior and the schools environment (12). About 65% of students absence days were resulted from infectious diseases because of non-standard educational environments (13). School health consists of all activities that have direct effects on the maintaining students' health, preventing diseases transmission and improving health level of schools environment (14). The low level of school health can cause direct adverse effect on the students as well as whole of society. Therefore, it is necessary to consider this issue as a preferent plan by associated organizations (15). Chan (1997) indicated that about 70% of diseases with high prevalence can be prevented through treatment of students in schools (16). Therefore, school health improvement program has been offered by World Health Organization (WHO) in 1987. This program was jointed in 1990 with the United Nations Educational, Scientific and Cultural Organization (UNESCO) program (Education for all). Therefore, in 2001, WHO has started school-based health care programs to progress school health. Updating the health information of students, parents, and schools employees is the main purpose of school health improvement program (17). Nowadays, successful enforcement of the management system of environmental health and safety in schools, school health improvement program, ranking and awarding stars to schools plays a vital role in improving schools health level (18). The aim of this study was to investigate the environmental health and safety indices in girls' elementary schools of Ilam city.

Materials and methods

This analytical-descriptive study was conducted to determine the status of environmental health and safety in girls' elementary schools of Ilam city in 2013. In order to conduct the present study, all the girls' elementary schools (21 schools) were selected via census sampling method. A checklist of management system evaluation was applied for the study (1). This checklist has been confirmed by Ministry of Education and the School Health Office, and Ministry of Health, treatment, and Medical Education (18). This checklist contains 8 indices of health promotion schools (HPS) program including a comprehensive program for environmental health training (8 items) with 18 scores, providing clinical services (12 items) with 16 scores, school environment health (8 items) with 21 scores, improving nutrition in schools (12 items) with 12 scores, physical activity (5 items) with 5 scores, employees' health (7 items) with 8 scores, mental health and consultation services for (8 items) with 11 scores, and parents and society participation in health promotion schools program (8 items) with 10 scores. After collecting and analyzing the data, the schools were ranked as desirable, middle, and undesirable. Finally, the schools were classified in 5 levels (Table.1) with regard to HPS program (1 to 5 stars) (1). SPSS-16 was also applied to analyze data and p-value of 0.05 was considered as significant level.

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Results

The results indicated that 42.9% of the schools were in desirable condition in terms of comprehensive program of health and none of them were in undesirable status. 71.4% of the schools were in desirable situation for providing clinical services. 57.1% and 42.9% of the schools were in middle and desirable state in terms of school environment health, respectively. 66.7% of the studied schools in terms of nutrition improvement were in desirable state and 9.5% of them were in undesirable state. In term of employees' health promotion index, all the schools were in undesirable state (Table 1). The results (Table 3) also showed that the schools in terms of schools environmental health, nutrition promotion in schools, mental health and consultation services and, they were in middle state. Meanwhile, employees' health promotion index in the elementary schools was at undesirable state (Table 2). Figure 1 shows that the maximum (33.33%) and minimum (4.76%) frequency percents were associated to health promotion schools of one star and four stars, respectively.

Table 1. Frequency distribution of HPS indices in elementary girls' schools of Ilam

Criteria	Condition	Frequency	Percent (%)
Comprehensive program for health education	Undesirable	-	-
	Middle	12	57.1
	Desirable	9	42.9
Providing clinical services	Undesirable	-	
	Middle	6	28.6
	Desirable	15	71.4
Schools environmental health	Undesirable	-	-
	Middle	12	57.1
	Desirable	9	42.9
Nutrition improvement	Undesirable	2	6.5
	Middle	8	28.6
	Desirable	11	66.7
Physical activity	Undesirable	-	-
	Middle	3	14.3
	Desirable	18	85.7
Employees' health promotion	Undesirable	21	100
	Middle	-	-
	Desirable	-	-
Mental health and consultation services	Undesirable	3	14.3
	Middle	15	71.4
	Desirable	3	14.3
Parents and society participation in health promotion schools program	Undesirable	-	-
	Middle	6	28.6
	Desirable	15	71.4

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Table 2. Mean score of indices and comparison health, safety and environment status with health regulations.

Health promotion school indices	Scale	Mean	St. Dev	Maximum score	Minimum score	Total score	T-test result
Comprehensive program for health education	Undesirable (0-3) Middle (4-8) Desirable (9-12)	8.57	2.5	12	5	12	t= -6.13 df=20 P=0.00
Providing clinical services	Undesirable (0-5) Middle (6-10) Desirable (11-16)	11.38	2.37	16	8	16	t= -8.90 df=20 P=0.00
Schools environmental health	Undesirable (0-6) Middle (7-14) Desirable (15-21)	14.38	4.1	21	9	21	t= -8.77 df=20 P=0.00
Nutrition improvement	Undesirable (0-3) Middle (4-8) Desirable (9-12)	8.5	2.6	12	4	12	t= -6.03 df=20 P=0.00
Physical activity	Undesirable (0-1) Middle (2-3) Desirable (4-5)	4.61	0.75	5	3	5	t= -2.03 df=20 P=0.02
Employees' health promotion	Undesirable (0-2) Middle (3-5) Desirable (6-8)	2.42	1.56	8	1	8	t= -28.03 df=20 P=0.00
Mental health and consultation services	Undesirable (0-3) Middle (4-7) Desirable (8-12)	6.66	1.9	11	3	11	t= -10.27 df=20 P=0.00
Parents and society participation in health promotion schools program	Undesirable (0-2) Middle (3-6) Desirable (7-10)	7.85	2.03	10	4	10	t= -4.8 df=20 P=0.00

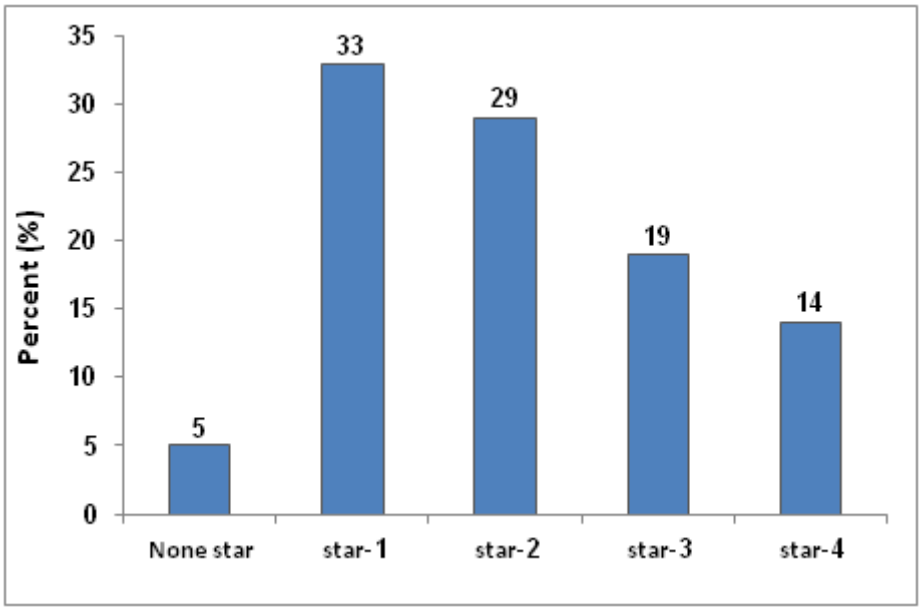


Figure 1. Relative frequency distribution of HPS in elementary girls' school of Ilam.

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Discussion

The results showed that more than 50% of the schools were in desirable state in terms of providing clinical services, nutrition improvement in schools, physical activity in schools and parents and society participation in health promotion schools program. In terms of providing clinical services, 71% of the schools were in desirable state and 29% of them were in middle state. In the present study, the health teachers have regularly attended in the most of the schools and they carried out vaccination and health measurements of the students according to the regulations and instructions. The first-aids boxes were also found in all of the schools. Kermani et al. (2010) reported that all of the schools in pakdasht city (Tehran, Iran) had the first-aids boxes (11). 68%, 26% and 6% of the schools in terms of nutrition improvement index were in desirable, middle and undesirable conditions, respectively. In this study, the enough physical space and healthy foods were found in most of the schools and food buffets were regularly monitored by health teachers and healthcare experts. But, there was no cultural program to encourage the students for eating healthy foods in all of the schools. In term of physical activity, 56% and 44% of the schools were in desirable and middle states, respectively. There was a certain time for physical activity of students in most of the schools. There was also enough opportunity and facilities for exercise time of students, teachers, and other employees. The mental health and consultation indices were in desirable situation only in 14% of the schools. The improvement of students' mental, social and emotional health has been considered as one of the most important issues in schools. Students should be individually or collectively evaluated and examined by psychologist, social workers, and experienced instructors (18). In a study by Revalthy et al. (2003), it was revealed that there was a direct relationship between physical features and behavioral problems of students in schools (12). In this study, there was no first-aids training program in 42.9% of the schools. Aghili et al. (2010) reported that first-aids training program was not in desirable state in Iran (1). Teachers' health has an important role in promoting health indices and education of the students. Efficient education can be occurred when students find health and wellbeing indices in their teachers. Therefore, health monitoring of teachers should be considered as one of the main health promotion schools programs (18). The indices of parents and society participation in the health promotion schools programs, physical activity, schools environmental health, providing clinical services and offering comprehensive program for health education were not observed in the schools. 42 % and 57 % of the schools in terms of environmental health index were in desirable and middle states, respectively. 57.1 % of the schools also had a safe environment. In addition, preventive and safety measurements were conducted in 11% of the schools. Salehpour Dehkordi et al. (2010) reported that elementary schools of Shahrekord (Iran) in terms of health and safety had a similar situation with our study (4). In the present study, 38.1% of the schools have accessed to sanitary toilets (water closets). Aghili et al. (2010) presented that the most of schools in Isfahan (Iran) have accessed sanitary toilets (water closets) (1). In addition, according to the obtained results, 52 % of the schools equipped with sanitary wastewater disposal system. The results of the present study showed that 61.9% of the schools had green spaces. Kermani et al. (2012) reported that only 40 % of the elementary schools in Pakdasht (Iran) had green spaces (11).

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Conclusion

Students in elementary schools due to the physical and behavioral characteristics more than adults have exposed to environmental hazards. This study was conducted to examine the environmental health and safety indices in girls' elementary schools in Ilam city. The results showed that most of schools health indices were in desirable and middle conditions. The undesirable state only existed in term of promoting teachers' health, which can be improved through training, monitoring and screening examination. Also, it was revealed that 33 % of the schools, based on the health improvement program, were classified as 1 star and no school was found with 5 stars. This issue requires more attention for improving and promoting the schools health indices by related authorities.

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References

1. Moslemi Aghili M, Joneidi Jafari A, Ziaedini SH. Study of establishment and maintenance Evaluation of health management system in schools, and ranking and give star to schools in the country. I.U.M.S. 2010;107(2):248-258.
2. Shahriari T, Modi M, Hajiani M, Shahriari Z. Study of hygienic status of schools in Birjand during year 2007-2008. J Birjand Univ Med Sci. 2009;16(2):68-75.
3. Pirasteh A, Karami S, Ramazankhani A. Evaluation of factors influencing knowledge and attitudes of primary school teachers in the field of school health in Tehran in 1998. J Zanjan Univ Med Sci. 2001;24(3):48.
4. Salehpour Dehkerdi Z, Yaghmaei F, Akbarzadeh Baghban A, Hosseinzadeh S. The Survey of Hygiene and Safety Physical Environment Status of Primary Schools in Shahrekord City in 2009. Toloo e Behdasht. 2010;9(28):41-50.
5. Zare R, Jalalvandi M, Rafiei M . Ergonomic, Safety and Environmental Health Status of Primary Schools in Markazi Province / Iran in 2003-2004. J Kerman Univ Med Sci. 2007;14(1):61-69.
6. Malakotian M, Akbari H, Nekoei Moghadam M, Parizi A, Nekounam GHA. Investigate of Environmental Health condition and safety of schools in Kerman city in 2007. Toloo e Behdasht. 2008;7(25):1-13.
7. Nouri R. Schools Health. 1st ed. Mashhad: Vaghephy Publication; 1995. P. 27-41 .
8. Winnial S, Dorman S, Stevensen B. Training leader for school health programs. J Sch Health. 2002;974(3):79-84.
9. Marthar k, Leslie L. Physical activity, dietary practices and other health behaviors of at risk youth attending alternative high school. J Sch Health. 2004;74(4):119-23.
10. Shendell DJ, Barnet C. Science based recommendation to prevent or reduces potential biological, chemical and physical agents in schools. J Sch Health. 2004;74(10):390-95.
11. Kermani M, Farzadkia M, Yousefi Z, Ghandali R. Investigating the Environmental health and safety status among primary schools. J Mazandaran Univ Med Sci. 2012;22(95):85-89.
12. Revalthy K, Patrik M, Lioyd DJ. Association Between Physical Environment of Secondary Schools and Student Problem Behavior: A

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National Study, 2002-2003. J Environ and Behav. 2008;40(4):455-486.
13. Zazuoli MA, Abdi M, Ghahramani E, Ghorbanian M. Investigation of Environmental Health Indexes of District 1 Primary School in Sari, Iran in 2008. Iran J Health Environ. 2009;2(3):204-213.
14. Neshat A, Dastoorani MJ, Ramazani AA, Changizi H, Jabbarzare M. Investigation of Environmental Health and safety situations in elementary and guide schools of Zabol, 2010. J Rostamineh Zabol Univ Med Sci. 2010;2(3):52-61.
15. Chan MS. The global burden of intestinal nematode infections– fifty years on. Parasitol Today. 1997;13(4):437-443.
16. Johari Z, Ramazankhani A, Zarpak B. Investigation of safety condition in primary schools in Tehran. J Shaheed Sadoughi Univ Med Sci. 2000;4(7):33.
17. Khalili A, Jahani Hashemi H, Jamaly H. A comparative study on safety and environmental health of public and private schools of Qazvin. J Qazvin Univ Med Sci. 2007;11(1):42.
18. Motlagh MI, Ziaedini HM, Rafieifar SH, Dashti M, Aminaei T, Ardalan G. Health promoting schools (HPS) in Islamic republic of Iran. 2st edition, Khademo reza publication; 2010. P. 47-53.

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