

The Survey on the Physical School Environmental Health Conditions in Kazeroon From 2013 to 2014: An Analytical Descriptive Study

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Received: September 16, 2014; Accepted: February 28, 2015

Background: The intellectual capability and personalities of children, who form the future of a nation, develop in elementary school. The educational organizations help students get rightful education and guidance and to grow up happily.

Objectives: The aim of this study is to evaluate the health status of elementary schools in the city of Kazeroon, Fars Province, Iran.

Materials and Methods: This research attempted to measure the physical environmental health conditions of 41 elementary schools in the educational district of Kazeroon. We used a questionnaire consisting of 88 questions prepared by Iranian Ministry of Health and Ministry of Education. Data were collected by interview with school administrators and health instructors and analyzed using SPSS, version 18 and Chi-square test.

Results: According to the results obtained, 85% of the schools were equipped with fan or air condition. In addition, 17% of the schools had separate labs and the rest used school health room as a lab. The environmental health conditions in none of the school pantries complied with the article 13 of the law on food, beverage and cosmetics, in addition to lacking the basic principles of the physical school conditions.

Conclusions: Many elementary schools in Kazeroon have urgent needs for restrooms, drinking water fountains, emergency exit ways, and maintenance of old buildings. The problem mostly arises from the lack of information of the school's administrators and health instructors with the standard requirements for school environmental health quality. Therefore, it is highly recommended to upgrade the physical and school environmental health conditions, and increase awareness and update the knowledge of the education authorities about the school environmental health condition. A close cooperation between the Ministry of Health and Ministry of Education is recommended to solve the health problems in the schools in order to prevent diseases and injuries to the health of the students.

Keywords: Environmental Health; Schools; Students

1. Background

The school is an important and effective environment for nurturing children's health (1). In every society, education is known to have an innovative and creative base and concept. The educational organizations help students get rightful education and guidance and to grow up happily. These organizations are also responsible for preparing the programs for talented students who play an important role in creating a prosperous society. Therefore, it is very important to observe all the school regulation in relation to the quality of health. In fact, schools are the environments for developing the personalities of students, where students spend most of their time (2-4).

The poor quality of the schools environment has great impact on the performance and learning of students (5), also schools with good environment persuade students to learn better and their talents to grow more effectively. On the contrary, students are discouraged in schools with poor discipline, low hygienic and health standards. A

school should be a safe place for the development of human potentials and talents. In Iran, the school students are mainly adolescents, who should enjoy a desirable environmental health conditions in schools (6). The fourth chapter of school safety regulations refers to environmental health in schools as a primary health principle. The physical environments in schools should meet the physical, psychological, social and mental needs of the students. Health and safety factors in an educational system are conducive to physical, mental, and training of students (7).

The safety conditions in schools are crucial to prevent accidents, and even death. Preparing the standard physical and environmental health condition in schools guarantees the health of students that promotes student's achievements.

2. Objectives

The aim of this study was to explore physical and en-

environmental health conditions in city of Kazeroon, Fars province, Iran, from 2013 to 2014.

3. Materials and Methods

The present descriptive cross-sectional study was carried out during September 2013 through April 2014. It comprised 41 elementary schools with 8,840 students attending 21 boy schools and 20 girl schools. Check lists containing 88 questions were prepared by the Ministry of Health in cooperation with the Ministry of Education. Data collection was based on observation, inspection, and completing questionnaires completed through interviews with schools administrators and health instructors. The data were analyzed using SPSS software version 18 and Chi-square test.

4. Results

The results showed that all 41 schools were located in appropriate places far from sources of environmental pollutants such as chemical factories, cemetery, etc. The data showed 85% of schools had air conditioners, fans, or both of them. Also, 17% of the schools had separate labs and the rest used school health room as a lab. The health conditions in none of the school pantries were based on article 13 of the law on food, beverage, and cosmetics. Basically, the primary principles of the law on school health conditions were not observed. According to the law on environmental health of schools, the flooring should be surfaced with asphalt or concrete so that there is no dust, where 95% of the schools met these conditions. Also, 90.24% of schools had classes with enough space according to the law. All schools used sanitary water supply approved by the Ministry of Health. According to data obtained in this study, 90.24% of the schools had cafeterias. Although all the cafeterias had health cards, none of them were run according to the article 13 of the law on food, beverage, and hygienic materials. All the schools were equipped with heating and cooling systems. Oil heaters were used in 2.5% of schools instead of standard gas heaters. All schools had a health instructor. In addition, all schools had fire extinguisher capsule with valid date as well as a first aid box.

The findings declared none of the schools had alarm and emergency exits. Moreover, 68.3% of the schools had hygienic conditions with a number of water fountains proportional to the number of students and 48.3% had

enough restrooms based on the students' number in accordance to regulations. All the schools had hand washing liquids. These schools had washable walls and floors around the water fountains sloping appropriately toward the sewer as well as valves on the bottom and edge of the fountain. In 88.8% of the schools, there were separate drinking water fountains while in the rest (12.2%) the distance between the drinking water fountains and restroom was not appropriate. Sufficient numbers of restrooms proportional to the number of students were found in 78% of the schools (Table 1). The results showed all the 41 schools had adequate stainless health dustbin, but most of them lacked pedals and lids. In 100% of the schools, the daily garbage was collected and disposed by local municipalities. In addition, all the schools had sewage wells. The survey showed that 80.5% of the schools were state run schools, and the rest were private. Also, 80.5% of the school buildings were older than 15 years (Table 2).

5. Discussion

The study showed that the height of water fountains from ground level was adequate. Also, the distance of blackboards in classes to the first row seats of students as well as lighting and temperature in classes were acceptable. However, there was a lack of emergency exists and alarms in all the schools. According to another report the safety rules in elementary schools were not observed (8). Therefore, it seems that the Ministry of Education rebuilding headquarter should pass the compulsory law of providing emergency exists so that it would be taken into consideration in designing the schools.

Lack of sanitation in schools causes not only illnesses and pollution, but also creates adverse psychological effects. Previous studies showed that there was a direct relationship between physical environmental conditions in schools and the students' behaviors. According to the results of this research, it seems that adequate personal hygiene, providing the environmental health condition, awareness of the schools staff of basic hygiene, appropriate sewage system, and clean surrounding are necessary to promote elementary schools environment for better education. This is in accordance with the survey of Lyons et al., who showed many cases of accidents that had led to bone injuries in schools could be avoided by making proper changes in school environmental conditions (9).

Table 1. The Environmental Health Conditions of Schools ^a

	Schools With Sanitary Condition	Schools With Unsanitary Condition	P Value
Water fountains	28 (68.3)	13 (31.7)	0.019
Restrooms	28 (68.3)	13 (31.7)	0.019
Washstands	32 (78)	9 (22)	< 0.001

^a Data are presented as No. (%).

Table 2. The Physical Conditions of School Building

	Number of Schools	P Value
The age of Building		< 0.001
Old	33	
New	8	
Type of property		< 0.001
Governmental	33	
Private	8	

This study also showed the following sections did not comply with standards and should be taken into considerations when building schools:

- Sewage system to collect surface flowing waters
- Sufficient number of drinking water fountains. The poor access to sanitary water supply is a common problem in over 850 million people worldwide. one of the most diseases caused by a lack of access to clean water and sanitation facilities are diarrhea which contribute to the mortality rate of about 1.9 million and new diarrhea cases estimated at 4 billion annually especially among children (10). So sufficient sanitary water and water fountains are necessary to prevent the spread of diarrhea.

- Sufficient number of restrooms proportional to the number of students. When toilets are adequately accessible, children use the toilet rather than openly urinating in school or around school grounds or hold their urine until can get to a toilet or openly defecate outside of school. It may also happens that avoiding toilets affects the health of students and cause intestinal disease or urinary problems (11, 12).

- Washing detergents in restrooms. The lack of adequate sanitation can lead to many health-related problems including diarrhea and death. Recent estimates indicate that only 45% of schools in countries with poor economy have adequate sanitation facilities (13). The proper slope of the floor of restrooms covered with ceramics or tiles facilitates the flow of water through the drain.

- The appropriate lighting in restrooms.

- The time spent in classroom is mainly for learning and teaching goals, so classroom indoor environmental quality (IEQ) conditions should help attaining these goals. IEQ include indoor air, thermal, acoustics, light, spatial conditions (13) and location of the building (4), if classroom IEQ conditions are unsuitable, they interfere with learning and teaching activities (3, 10).

Besides, schools should have ventilation fans with proper window meshes. Asthma symptoms among students may develop due to lack of proper ventilation and outdoor air pollution and overpopulation of classrooms. The carbon dioxide concentration in indoor is 1000 ppm higher than outdoor, related to ventilation efficiency and 0.5 - 0.9% decrease in the annual average daily presence and a 10 - 20% relative increase in pupils' absence (14).

The school cafeteria should have clean and healthy environments with washable ceramic walls. The cafeteria

workers should have valid health certificate and protective clothing such as plastic gloves and protective hair covers. As school food is used daily by pupils, it must cover adequate nutritional needs and required energy. Inadequate hand hygiene is the cause of many food borne diseases. When food handlers do not observe personal hygiene or prepare unhygienic foods, they may become microorganism's vehicles, through their hands, cuts or sores, mouth, skin and hair, etc. (15), conditions clearly affecting the physical and mental health and adequate learning of the students. Regarding the school environmental health and the safety conditions, there are many problems especially observed in many rural areas and small towns. To develop solutions for these problems of the physical and school environmental health conditions, further scientific studies are needed to resolve existing the problems.

In conclusion, a most important aspect of this research was the lack of awareness of school's administrators and health instructors about the standard requirements concerning school environmental health conditions. Therefore, it is highly recommended to update the schools' authorities on the physical and school environmental health conditions, the measure necessary to increase awareness and knowledge of the education authorities about the school environmental health condition. Finally, most of the studied schools require more restrooms, drinking water fountains, emergency exits, healthy cafeteria, and reconstruction of old school buildings in accordance with the safety regulations. A close cooperation between the Ministry of Health and Ministry of Education is recommended for resolving health problems in the schools. Moreover, the prevention of illnesses and injuries are required to promote the health of the students.

Acknowledgements

We are grateful to the authorities of Kazeroon Bureau of Education for their sincere cooperation. Also excellent technical assistance at the Center for Development of Clinical Research at Nemazee Hospital is highly appreciated.

Authors' Contributions

The overall implementation of this study including design, experiments and data analysis, and manuscript preparation were the results of the corresponding author's efforts. All authors have made extensive contribution into the review and finalization of this manuscript. All authors read and approved the final manuscript.

Funding/Support

Financial support of this research project was provided by Shiraz University of Medical Sciences, Shiraz, IR Iran (No. 92-6490).

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