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## Evaluation of the environmental health and safety of schools in Qasr-e-Shirin in 2016 and 2017

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### ABSTRACT

The most effective and fundamental factors in educational environments for physical and mental growth and student learning are focusing on physical, health, and safety factors. Inattention to these facts can create adverse effects on the learning process and on students' health. In this regard, the present study was conducted with the aim of determining the environmental health and safety standards of schools in Qasr-e-Shirin City in 2016 and 2017. This study was a descriptive cross-sectional study that was carried out in 2016 and 2017. All men's school of the city (10 places) was selected as study population. Sampling was done by census method. To collect the required information, a standard checklist was designed based on the Iranian School Health Regulations. The results showed that the 40% of schools were environmental healthily status, and 10% for safety. Also, favorable conditions for classroom environment were determined about 80%, and 100% of the school area was proportional to the number of students. The health conditions in the 90% of school buffets were undesirable. It was found that Qasr-e-Shirin's schools had improper environmental health and safety standards, and consequently, these areas need serious attention from the educational and health departments.

## Introduction

Schools are considered as one of the most important social institutions of each society, therefore providing appropriate physical and mental conditions can improve the health status in the community [1]. Physical, health, and safety factors in educational environments are the most important factors that directly affect physical growth and psychological and mental aspects of students [2]. Environmental health and safety are two major issues in school health. These factors have distinctive roles in the lives of students by directly affecting the prevention of disease transmission and the promotion of the health of the environment [3]. In the absence of environmental and safety measures such as safe water, standard sanitary facilities, having proper

disposal of wastes and waste-collection systems, staircases, and in general, environmental comforts, the educational efforts of teaching systems and consequently the efficiency educational services will not be effective[4]. According to United States data in the 1990s, about 43% of mental and psychological problems of children was related to schools, and of these around 20% was related to school buildings[5]. Lyons et al. (1999) have reported that many accidents leading to bone fractures in schools can be prevented through changes in environmental conditions [6]. However, these results imply the impressive role of environmental factors. On the other hand, environmental and safety factors directly affect the reduction of disease related to schools' environments. In the event of a system failure, students may suffer from a variety of

parasitic infections and diarrhea [3]. Based on literatures and schools surveys' programs that have been observed, about 59% of the student populations suffer from intestinal parasitic infections, and 29.5% are infected with the protozoa. Also, researches have revealed that accidents, injuries, and death of students occur when the safety status of schools is not acceptable [7]. These problems can be worse in low income and developing countries. Since there are many problems in the fields of health and safety in the schools of Iran, its agents should be scientifically evaluated and appropriate solutions should be provided. Considering the above, this study was designed with the aim of investigating the environmental health status and safety of men's schools in the City of Ghasr-e-Shirin, Kermanshah, in 2016 and 2017.

## Method

This study was a descriptive cross-sectional study that was conducted during 2016 and 2017. The considered populations chosen to be studied in this work were taken from 10 primary, secondary, and high men's schools of the City of Qasr-e-Shirin, with all three levels being included in the study. Of these, about 60% of the population was primary school, 20% secondary and 20% high school. Sampling was performed by census method. To collect the required information a standard checklist was used from the School Health Regulations, Iranian Ministry of Health [10, 16]. The checklist included 75 questions; 35 for determining the school's environmental health, eight for determining the school's safety, and 32 for determining the status of building health and school ergonomics. To answer each question, two desirable and desirable options were considered. Each question was scored by 0 and 1. The minimum and maximum scores for all questions were 0 and 75, respectively. The health and safety status for each school was designed with the scores ranging between 0 and 25, where that condition was undesirable and a total score between 26 and 50 and 75 and 51 was related to not-bad-not-good and desirable conditions, respectively. The checklist was completed through observation, interviews, and surveys. Finally, the collected data were analyzed statistically using

SPSS and Excel software.

## Results and Discussion

Fig. 1 shows the overview of environmental health and safety conditions in three levels of educational schools. All schools had not-good-not-bad and desirable status. Among the status of primary schools, they were in better condition in terms of health and safety. Desirable conditions were determined for primary school only with a frequency of around 33%. From the point of view of favorable conditions for environmental health and the safety status, the schools were 40% and 10%, respectively. Health services such as washbasins and toilets were not satisfactory. Also, only 60% (in terms of frequency) of the drinking water places were sanitary. Similar researches that were conducted by Nazemi et al. indicated a desirable educational environment (in 100% of schools) existing in Shahroud City, Semnan, Iran [9]. Also, good status was reported in Parsabad, Ardabil, Iran (87.5% suitable) [3]. Other studies that have been conducted by Ganji (Arak, Markazi) and Shirdeh et al. (Darab, Fars) observed undesirable conditions with a frequency of about 38.43% and 27%, respectively [10, 11], which can indicate a lower level of awareness of schools directors rather than indicate health problems like fecal contamination, lack of adequate supervision and the absence of health trainers. The results of the current study show that 80% of the schools have good classroom environments. Rahmanian et al. reported that 83.9% of schools of Jahrom, Fars, were suitable with regard to classroom environment [12]. All of the educational spaces of schools were equipped with good (desirable level) lighting, and temperature and humidity conditions (data not shown). Except for lighting, the two factors of temperature and humidity were good in about 66.7% of survived schools in the study of Ganji et al. in Isfahan, Iran [13]. This can be explained by the renovation and reconstruction in the schools of Qasr-e-Shirin. Additionally, 100% (data not shown) of the study area was proportional between class spaces and the number of students. This relationship between the findings of Nazemi (Shahroud, Semnan, 44%) and Kermani (Pakdasht, Tehran, 55.23%) has shown that the classroom required space isn't sufficient

[14, 15]. It may be caused by lack of urban space and high populations.

As can be seen from Fig. 2, all level of schools was ergonomic. In the evaluation of the ergonomics status of men's schools, results showed that secondary schools were in not-good-not-bad status and 50% of primary and high schools were desirable and 50% were in not-good-not-bad status. In comparison with the findings of Nezami et al. (70% good), lower ergonomic conditions existed for Qasr-e-Shirin. This findings show the increasing importance of ergonomics in public attitudes. In a survey of health condition of buffets, it was revealed that serious problems exist and in only 10% of schools was this desirable. Similar results were reported by Nazemi and Ganji et al. [9, 10]. These findings suggest that school buffets are not supervised and effective action on this issue is needed.

Fig. 3 displays the safety status of three levels of schools in the city of Qasr-e-Shirin. Accordingly, more schools at three levels are in undesirable and not-good-not-bad conditions. However, only 10% (in frequency) is included a good situation. The most observed problems were related to absence of warning signs, emergency exits, and routes, electrical panels, etc., also, safety of schools was reported to be at weak levels for other cities by Zare, Shahriari and Ganji et al. [10, 16,17]. With regard to these results, a serious and decisive decision taken by managers and directors of schools is necessary.

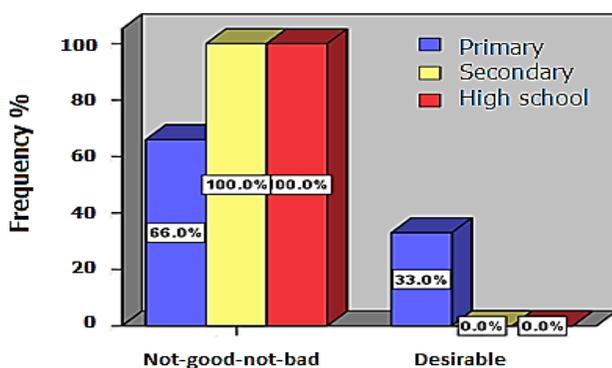


Figure 1. The overview of environmental health and safety conditions in three educational schools levels

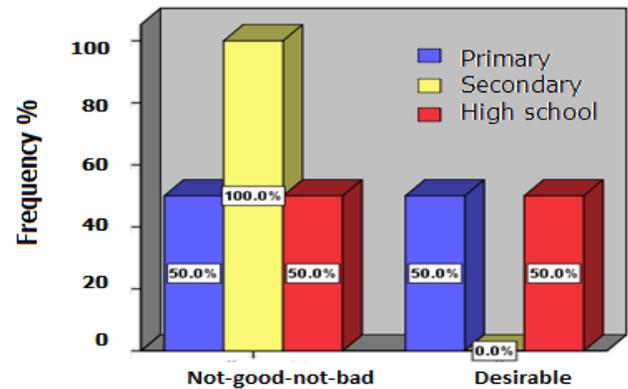


Figure 2. The ergonomics status of the studied schools of Qasr-e-Shirin

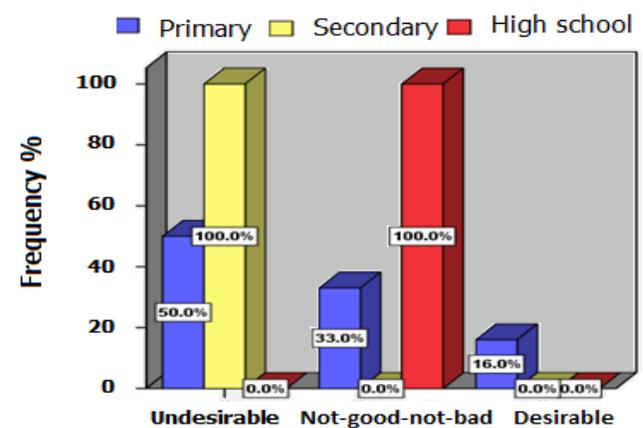


Figure 3. The safety status of three level schools of Qasr-e-shirin

### Conclusion

According to the results of this study, it can be concluded that the attention to safety of schools in Qasr-e-Shirin is very weak. More attention is needed to the inappropriate buffet space and to environmental health facilities such as toilet and drinking water places. However, to improve the level of schools' safety, it is necessary for enough of a budget to be allocated and for the health center supervision to be increased.

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