

Assessment of the Health Management System (HSE) and its Determinants in Iranian Schools: A National Study

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ABSTRACT

Objective: School students' health is considered as a sustainable and confident asset for the development of human resources. This study aimed to assess the health management system (HSE) and its determinants in Iranian schools.

Methodology: This study was conducted in 2009 through administration of a 64-item questionnaire in 120 schools in five Iranian provinces where an HSE system has been established and running.

Results: It showed that there was no relationship between gender, type of school management (public school, non public school - private school), levels of education, and ownership of schools with the implementation of HSE regulations. There was only some relationship between the Iranian provinces and the implementation of HSE regulations ($p < 0.001$) which either could be associated to level of culture and education in the provinces, or to the lack of support on the part of relevant authorities. Nevertheless, the study which was conducted in schools with such Health Management Systems established and running, showed, unlike a previous study in 2007 which pointed to a very poor HSE performance in the schools, that there are no schools with poor HSE records and that in fact 40.8% of the schools enjoy high levels of HSE standards.

Conclusion: This study demonstrated that "the plan of Establishment and Maintenance of the HSE Management System and grading of schools" on the same basis as a social initiative running on a systematic approach has been conducive to the promotion of health in schools across the country.

KEY WORDS: HSE, Management, Schools, Safety, Health, Environment.

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INTRODUCTION

Schools provide a place for the acquisition of knowledge, skills and attitudes which will accompany an individual throughout his or her life and will either ensure or fail to ensure a proper lifestyle. However talents of individuals fully flourish and their ultimate level of acquisition would be secured only once they enjoy health and welfare. For the same reason, a country would get maximum yield from its educational system once an investment in education accompanies an investment in health which is globally billed as the most strategic sort of investment.

For the first time, France in 1793 initiated a law in its educational system under which schools were

obliged to provide healthcare to their students. As a follow up, a physician was appointed in each school to serve the healthcare goal. In the United States of America, in 1829, William Alcott authored an article on standards and specifications of school building construction, ushering new ideas in the field.

In Britain, schools began to engage in healthcare activities as of 1907 under supervision of local educational departments. In 1919, most schools dedicated an area within their premises for provision of healthcare services and preliminary cares including dental services to the students after a head physician in the ministry of healthcare was assigned to run healthcare programs in schools all around the country.

In Japan, schools are required by virtue of a health policy to have new students undergo medical checkups as soon as they start their academic courses. Furthermore, regular health checkups are carried out and health advises are served in the course of the academic year.¹

In Canada, a master healthcare program is in place in schools which provides the students, their families and the school staff with healthcare training, supportive services, and ensure a proper living environment through feasible public and social policies.

In Iran, until 1911, in which the first modern school was established, schools existed in a traditional style called *Maktab*. Three years later, a board of physicians consisting of Iranian and resident European medics set up an establishment, called *Hefz as-Seha* (health protection) for the purpose of protection of public health.

In 1947, the organization of *Sehia Madares* which was assigned to schools' healthcare affairs was merged with the then Ministry of Culture. Twelve years later, in another development, a department of healthcare in charge of national educational centers was renamed and reorganized as National Educational Centers Healthcare Department General. Until 1979, up to 7000 healthcare officers were absorbed by the Ministry of Education after graduation and began to serve in schools in healthcare offices.

Following the 1979 Islamic Revolution, upon a proposal by the then ministry of healthcare and approval of the revolutionary council, the National Educational Centers Healthcare Department General was renamed to Schools Healthcare Department General and as a follow up, healthcare offices of educational centers and their subsidiaries were merged with the Ministry of Health, Treatment and Medical Training.¹

The present research is completely new in terms of its aim and methodology. In Iran, assessment of environmental health was confined to a school environment healthcare policy in the near past. Overseas on the other hand such assessments have been conducted on school environment and greeneries as well as safety of sport activities. Nevertheless, a scheme entitled "establishment of healthcare management system (HSE) in schools nationwide accompanied by a grading and grant of stars to the schools" was initiated in schools across the country in a joint three-party initiative by the Ministry of Health, Treatment and Medical Training, the Ministry of Education, and the Organization of Renovation, Development and Equipment of Schools Nationwide in 2006.

A pilot phase of the scheme was carried out successfully and the scheme is currently in place as a nationwide scheme by virtue of an agreement between the two ministries which initiated the program.¹

The scheme helped demonstrate that the Iranian schools have suffered from poor HSE conditions to the extent that in a grading conducted under the nationwide program in 2006, no school managed to secure a single green star, which stood for minimum HSE standards. The then minister of healthcare, treatment and medical training informed the then minister of education about the shortfall in an official memo. The exposure prompted the Ministry of Education to broaden cooperation with the Organization of Renovation, Development and Equipment of Schools Nationwide for the purpose of establishment and maintenance of healthcare management system in the country's schools as well as internal and external assessments followed by implementation of remedy and preventive measures concerning the existing shortfalls.

In light of the significance of provision of healthcare of school students, the authors in the present study have tried to review and assess the safety, healthcare and environmental conditions in the schools where the discussed nationwide scheme is currently in place.

METHODOLOGY

The current research is a cross sectional, descriptive - analytical study. The population under study consists of 120 schools where the Health Management System (HSE) is running. The schools under study are either all boys' or all girls' schools and serve at the three levels of primary, junior high and high school either in public or non public sector and

are privately owned or run on rent in one of five provinces across Iran.

The authors in a first step administered a questionnaire in 48 schools selected at random in the provinces of Tehran and Qom for the purpose of determining the validity and reliability of the tool. The questionnaire was reviewed and analyzed by a technical committee and was modified into a 64 item questionnaire after a removal of shortcomings and an enhancement of points of strength. The modified questionnaire was then conducted in 120 other schools selected at random in the five provinces of Tehran, Qom, Bushehr, Golestan, and Ardebil. The collected results were examined through the Pearson Chi Square test after going through the SPSS software.

In the ranking procedures, one single point was allocated to every question in the first place and the 64 questions were considered as 100 percent altogether. The ranking was carried out according to the following indicators:

- a. Below 25 percent as poor.
- b. Between 26 to 50 percent as fair.
- c. Between 51 and 75 percent as good.
- d. Above 76 percent as very good or excellent.

RESULTS

Following an assessment of the general indicator of health, safety and environment (HSE) in the present study, 2.5% of the schools under study (three schools) were ranked as fair, 56.7% (68 schools) as good, and 40.8% (49 schools) as very good (or excellent) while no school was ranked as poor. With regard to observance of health requirements, 1.7% of the schools (two schools) were ranked as fair, 36.7% (44 schools) as good, and 61.7% (74 schools) as very good (or excellent) while no school was ranked as poor.

Regarding safety conditions, 13.3% of the schools (16 schools) were ranked as fair, 58.3% (70 schools) as good, and 28.3% (34 schools) as very good (or excellent) while no school was ranked as poor. As for the environmental requirements, 35.84% of the schools (43 schools) were ranked as fair, 12.5% (15 schools) were ranked as good and 51.66% (62 schools) were ranked as very good (or excellent) while no school was ranked as poor.

The general indicator of health, safety and environment (HSE) showed no significant statistical difference in regards to the comparison between female only and male only schools ($p = 0.814$), nor is there such a significant difference in the case of schools at different levels of education ($p = 0.615$),

governmental and nongovernmental (private) schools ($p = 0.231$), nor schools of different ownership ($p = 0.211$). Nevertheless, when it comes to the case of different provinces, the general indicator of health, safety, and environment shows that 8.3% of schools in the Tehran province (2 schools) have had a fair performance, 37.5% (9 schools) have had a good performance and 54.2% (13 schools) have had a very good performance.

In contrast, the figures for the schools in Golestan province are 83.3% (20 schools) as good and 16.7% (4 schools) as very good. For schools in the Qom province, the figures were 4.2% (1 school) as fair, 66.7% (16 schools) as good, and 29.9% (14 schools) as very good. For schools in the Bushehr province, the figures were 79.2% (19 schools) as good and 20.8% (5 schools) as very good. The Figures for schools in the Ardebil province were 16.7% (4 schools) as good and 83.3% (20 schools) as very good. The difference between the provinces in terms of the general indicator of health, safety and environment (HSE) is thus significant ($p < 0.001$) (Table-I).

DISCUSSION

The present study showed no significant difference between the indicators of gender ($p = 0.814$), types of schools (either public or private) ($p = 0.231$), levels of education ($p = 0.615$) and type of school ownership ($p = 0.211$) on the one hand and to what extent these schools comply with the HSE requirements and standards on the other. Nevertheless, a significant difference was obtained in terms of observance of HSE requirements and standards in the comparison of different provinces with one another ($p < 0.001$) (Table-I).

According to the figures presented in the Table-I, very good or excellent HSE performance can be found in Ardebil and Tehran. The higher HSE per-

Table-I: Relationship between the indicator of health, safety and environment (HSE) and different provinces in the country in 2009.

Item	Indicator of health, safety and environment			
	Very good (excellent) No. (%)	Good No. (%)	Fair No. (%)	Poor No. (%)
Golestan	4 (16.7)	20 (83.8)	0	0
Tehran	13 (54.2)	9 (37.5)	2 (8.3)	0
Qom	7 (29.2)	16 (66.7)	1 (4.2)	0
Bushehr	5 (20.8)	19 (79.2)	0	0
Ardebil	20 (83.3)	4 (16.7)	0	0
P value	< 0.001			
Total	49	68	3	0

formance achieved may be due to several factors, including levels of higher education and culture, an attitude on the part of authorities and principals of the schools or parents of students, and the support of governmental authorities; financial facilities and consummate teachers are more available in Tehran and any other metropolis in Iran than in the provinces. Similarly, health officers are more efficiently used in these schools and more attention is paid to issues of health, safety and environment.

The IRI Ministry of Health, and Medical Education, in light of its constitutional mission, has been planning for and supervising over health affairs in schools within its capacity. Nonetheless, schools constitute an educational center and the Ministry of Education is commissioned to deal with the educational affairs of the students and promote their knowledge. At the same time, the Ministry of Education has been entangled with limited human and financial resources, causing it to focus more on educational affairs and subsequently pay limited attention to healthcare planning and allocate little resources to health concerns. On the other hand, experts with Ministry of Health, and Medical Education who in keeping with their duties and mission embark on examination and study of health shortfalls in schools around the country have achieved little in promoting health standards, due to the several reasons already discussed; actually, there is no legal guarantee to remove health problems in schools as the Ministry of Health is unable to exert legal levers of pressure to punish the schools who fail to remove the problems, such as shutting down the violating schools the same way they would any violating businesses. Such levels of pressure prove effective with huge crowds of students behind the school gates the day after the date a school is shut down, bringing about political, social and economic consequences for the violating school authorities. On the other hand, proper healthcares should be available and maintained for all students.² Accordingly, an assessment of healthcare risks in schools would help achieve an acceptable level of safety and healthcare in the educational centers.³

Moreover, with the costs of efficient screening programs in schools properly calculated, authorities can better decide on allocation of resources for the purpose of improvement of the healthcare situation.⁴ In general, it is a key policy to attend to safety and healthcare issues in schools as a failure to attend to or poor treatment of such issues would lead to a host of problems.⁵ It is therefore necessary to establish and/or expand healthcare systems in

schools for the purpose of promoting sustainable safety and health planning,⁶ including the promotion of public health training,⁷ provision of essential supports to healthcare measures,⁸ or development of standardized protocols for the purpose of measurement of healthcare in schools.⁹ Furthermore, an implementation of healthcare promotion programs in schools would help the students to expand their educational privileges¹⁰ including providing a safe and healthy environment for them in which they can acquire knowledge more efficiently. Accordingly, authorities must resolve an existing conflict between healthcare shortfalls and deficit of resources on the one hand and a large population in need of healthcare in schools on the other¹¹, and in doing so counselors and principals of schools can play a crucial role.¹² Therefore, an adequate management infrastructure is essential to carry out such measures by providing the relevant authorities with necessary tools for managing the affairs in a systematic manner and keeping them under constant control. It is therefore necessary to resolve the existing problems through a systematic and stimulating approach albeit taking the deficit of resources into account.¹³

A systematic management of the healthcare concerns in modern times would help institutionalize the health management system (HSE) in schools around the country and subsequently would help systematize the programs of identification, measurement and assessment of health and safety problems in schools. The objective once achieved would serve as an efficient tool for a fundamental, scientific and immediate control of problems and, subsequently the implementation of remedy or preventive measures to that effect, collectively helping develop a safe and healthy environment in the Iranian schools.¹³

In the light of the scheme underway in the Iranian schools on "establishment of health management system (HSE) in schools nationwide accompanied by a grading and grant of stars to the schools", the present study, conducted in the schools subject to the nationwide implementation of the scheme was revealing. It showed that, considering the similarities between the two ranking systems, the ranking of schools can serve as an appropriate metrics for the constant monitoring of safety, health and environmental conditions in schools. The scheme showed that the schools have suffered from poor levels of HSE conditions in the early years of the implementation of the system. A ranking carried out in 2007 showed that no school

involved in the scheme had even managed to secure a single green star which stood for minimum HSE standards.¹ This information prompted the Ministry of Education to broaden their cooperation with the Organization of Renovation, Development and Equipment of Schools Nationwide for the purpose of establishment and maintenance of the health management system in the country's schools as well as internal and external audits followed by the implementation of remedy and preventive measures concerning the existing shortfalls.

The authors of the present study have tried to adopt a ranking method similar to the one adopted in the mentioned scheme. Accordingly, a school which has failed to secure any stars in the nationwide scheme's ranking procedures has been designated as a school with poor performance in the present study's ranking mechanism. Similarly, the study's HSE checklist is nearly identical to the one applied in the nationwide scheme.

Based on the said methodology, the study did not designate any school involved in the population of study as poor while it designated 2.5% of them as fair, 56.7% as good and 40.8% as very good or excellent. Accordingly, most schools (56.7%) have been designated as having a good performance. The study thus indicates by comparing current results to the records of 2006 and 2007, when the scheme of HSE establishment in schools was still in a pilot phase and had designated the schools as being poor in terms of HSE conditions, that the establishment and maintenance of the health management system (HSE), in light of its systematic and process based approach, has the potential to provide an appropriate ground for promotion of health conditions in schools through appropriate tools. It also seems that the establishment and maintenance of the HSE management system in schools can help the authorities tackle safety, health and environment problems in a systematic manner in keeping with priorities, and through absorption of such related organizations as the Iranian Organization of Renovation, and the Development and Equipment of Schools.

Implications for School Health: With the scheme in place and through allocation of necessary funds, the problems will gradually be removed and the rankings of the deficient schools will improve in a relatively short time. With a view to the scheme on "establishment of health management system (HSE) in Iranian schools accompanied by a grading and grant of stars to the schools" as a systematic

management infrastructure, the authors propose the following requirements for the purpose of optimal and systematic implementation of the relevant programs.

- * Proper structures should be set up in schools for the purpose of the HSE system and a trained individual should be designated for management of the safety and healthcare affairs. The individual shall be formally designated by the principal and shall be supported by necessary funds.
- * School principals shall be required to act according to the relevant HSE laws and regulations in their schools and help establish and maintain such health management systems in other schools through promotional releases.
- * The relevant laws and regulations shall be carried out accurately and adequately.
- * Necessary training shall be offered to the school authorities, staff and students, and if appropriate, their parents on a systematic and regular basis.
- * Safety, health and environmental risks of measures carried out in the schools for the purpose of HSE standards as well as the outcomes of such measures shall be assessed on an annual basis.
- * HSE planning for the purpose of resolution of problems in the risk assessment process as well as implementation of relevant remedy or preventive measures shall be made after taking the priorities and the available resources into account.
- * Authorities shall regularly inspect, self evaluate and audit and assess such remedy and preventive measures carried out in the schools.
- * A system shall be established for the purpose of documentation of records of safety and health projects in schools including a register of accidents, school health files, student health records, and subsequent incorporation of such personal health records with a national, personal electronic health file designed for every Iranian which identifies every individual through his or her national ID code. Similarly, the authorities shall draw up, ratify and implement necessary policies and procedures for the purpose of safety and health standards in schools.
- * Authorities shall train and forge an attitude among the students for maintenance of safety and health buildings and facilities and promote their awareness about HSE standards in school areas.

- * The students shall be encouraged to preserve the HSE related facilities and use them in an optimal way.
- * The students shall be trained to use the facilities accurately.
- * The students and their parents shall be encouraged to join hands in rehabilitation and repair of HSE related facilities as well as optimal implementation of the health management system in the schools.
- * The authorities shall plan to utilize the students' capacity in the HSE related affairs in the schools, including encouraging them to join HSE assessment teams and to impart HSE related trainings to their peers. The students' capacity shall be used in health and safety control projects in the schools through organizing health aid groups, health scout groups, and health promotion groups.
- * The authorities shall inspect and keep record of different parts of school buildings and carry out timely measures for rehabilitation or repair of faulty HSE related facilities.
- * The authorities shall beautify the school walls and buildings by painting as well as tree and flower plantation in the school premises.
- * The authorities shall manage the available funds with a view to improve the HSE conditions in the schools.
- * The authorities shall enhance and expand cooperation inside the school and between relevant organizations and bodies for the purpose of promotion of HSE standards in the schools.
- * A health chamber shall be established and equipped in every school.
- * HSE facilities and equipments shall be inspected and examined on a regular basis.
- * School authorities shall stage HSE management review sessions on a regular and systematic basis in the presence of the school principal, school staff, representative of the students and representative of their parents with the goal of making a review of adopted measures and identification of necessary resources and measures to resolve existing problems in the process of HSE implementation.

Thus, establishment and maintenance of the health management system in schools and ranking to granting stars to schools is the most appropriate plan in this regard. Furthermore this is considered as an innovational plan and is going to be executed for the first time in Iran and may be set forth as a

successful pattern of institutionalization of systematic and dynamic health system in collective environments such as schools in EMRO zone and in the world. The authors hope that schools will systematically improve their safety, health and environmental conditions, as they are such crucial collective environments, through an effective establishment and maintenance of a HSE management system and annual ranking of HSE conditions.

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