

ORIGINAL ARTICLE

HEALTH AND SAFETY SITUATION AT NON-PUBLIC PRIMARY SCHOOLS

Masoumeh Imanian¹, Siyamak Tahmasebi², Akbar Biglaryan³, Kianoush Abdi⁴, Robab Teymouri¹ and Mansoureh Karimzadeh^{1,2}

¹ Pediatric Neurorehabilitation Research Center, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran

² Department of Preschool Education, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran

³ Department of Biostatistics, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran

⁴ Department of Rehabilitation Management, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran

Corresponding author: Mansoureh Karimzadeh

Email: mkarimz2000@gmail.com

ABSTRACT

Children are one of the most vulnerable groups in societies and promoting their health and safety in school should be one of the goals of education systems. Evaluating the current status of schools is the first step toward the prevention of crises in schools and coping with them. The present study investigates the health and safety status of non-public primary schools in Tehran. The present cross-sectional, descriptive-analytical study was conducted on a statistical population of non-public primary schools in Tehran, including 65 schools that were selected through multistage cluster sampling. The study tool was the School-Age Care Environment Rating Scale (SACERS), which was completed by the researcher upon observing the current status of schools, and a statistical analysis was then carried out in SPSS-23 using deductive analysis with the single-sample *t*-test and the cumulative percentage analysis. The results obtained showed that the schools met the required standards in indicators including health policies, safety policies, emergency conditions and personal hygiene; however, they lacked these standards in indicators including health measures, safety measures, attendance, departure and meals/snacks. In general, there was a significant difference between the mean health and safety indices in the schools and the required standards ($t=-8.19$, $P<0.001$), and the schools did not meet the required health and safety standards in view of the size of the mean difference. Regarding the role of supervisory authorities and attitudes of staff and parents related to educational environment, it seems that schools need to improve and resolve their deficiencies in various dimensions of health and safety in order to be ready to deal with emergencies. Assessments can be carried out in schools in the form of periodical self-evaluations to improve their performance. In this process, the school environment provides a safer and more enjoyable way for children to learn and create a sense of belonging to the school.

Keywords: Health and safety, schools, care environment, evaluation

INTRODUCTION

Children are the main assets of a country and their education is one of the main goals of socioeconomic development programs. To achieve development goals, providing children with the highest level of physical, mental, social and spiritual health should be considered a necessity and the priority of development programs. Next to family, school has the most important role in children's health¹. Since children's cognitive performance and academic achievements can benefit from health and healthy behaviors², providing safe and secure schools for all to learn is the responsibility of the government, society and non-public institutions³. The importance of this group of the society is such that this issue has been addressed in the ten principles of the United Nations International Strategy for Disaster Reduction

(UNISDR) and also in the seven goals of the new international framework, and emphasis has been placed on schools' safety evaluation, adjusting curricula to help mitigate the risk of disasters and promoting and communicating knowledge about hazard reduction and consequence elimination through the school curricula at all levels⁴.

The Japan International Cooperation Agency has asserted that disasters have serious effects on educational services. These effects are not just caused by the teachers' and students' death, but are caused in many cases by the sudden interruptions in the process of education and the children's psychological disruptions⁵.

The school built environment, comprising building infrastructure, grounds, neighbourhood and surroundings—not just the instruction, relationships, and other

significant experiences that occur in school—is critically important and can promote health or introduce harmful exposures that significantly impact children’s well-being⁶.

A safe school is one that has been established in a community committed to safety and that experiences the least disruption in an emergency situation⁷. In contrast, whenever a school has an unacceptable level of safety, there is a possibility of accidents, injuries or death for the students⁸. The key factors reducing the level of environmental health, safety and ergonomics in schools include inadequate per capita educational space, closeness of the school to unsafe and unhealthy places, dilapidated school buildings, unhealthy and unsafe classroom conditions and school campus, the possibility of electrocution and fire, inadequate first aid facilities and unsuitable whiteboards, desks and benches⁸. School health plans can include disease prevention and treatment and malnutrition within the school setting⁹.

A proper educational environment needs to take safety measures and be prepared for emergency situations on site. Children’s attendance should be monitored and their departure properly managed to ensure maximum safety. The students’ meal time should be regarded as a time for learning, and personal hygiene should be part of the school curriculum¹⁰. One of the main factors involved in creating a suitable school monitoring model is to monitor the students’ nutrition type and system at school. The availability of proper nutritious food, the proper packaging of food, preventing the sales of unhealthy foods and food vendors’ compliance with food hygiene are among the responsibilities of health educators in schools. As a matter of fact, in many schools throughout the world, health educators evaluate each student’s growth and consumption of different foods by preparing health records and identifying their list of permitted and non-allergenic foods, so as to determine the best nutrition regimen for the students and prevent obesity, which has also become very frequent in Iranian schools in recent years¹¹⁻¹⁴.

Evaluation and assessment are part of a system’s efficiency. Scales for evaluating children’s environments are a means of assessing the quality of systems and organizations put in charge of children’s education and care¹⁵. A study showed that children’s injuries are one of the main

problems in schools, and particular attention should therefore be paid to different parts of schools to prevent accidents¹⁶. Studies conducted by Kumar et al. showed a direct relationship between schools’ physical space and the students’ behavioural problems. According to the statistics published in the USA, 43% of children’s psychological problems and accidents are associated with school, and 20% are blamed on school buildings¹⁷. Becker et al. concluded that providing preventive training to students in schools in relation to natural disasters makes the students go home with the necessary set of information and encourage their parents to prepare for such events too^{18,19}.

According to the results obtained by Mehraeen et al., schools are poorly prepared in terms of medical equipment, firefighting, communication, shelter and water and food storage and the preparedness of high schools in Shiraz against earthquake is generally less than desirable²⁰. In a study conducted by Saeedi, schools in Izeh town were in a poor state in terms of hygiene in their cafeteria, which was deemed good in only 47.5% of the urban schools and 10% of the rural schools²¹. In assessing school cafeterias, Sharifirad showed that 46.5% of the schools in Isfahan were in a poor state²².

In the study in Izeh, Saeedi found a poor state of safety in both urban and rural schools, as most schools needed urgent attention in terms of emergency exits and warning alarms and also their cooling and heating systems²¹. In another study, Javadiyan Koutnaei showed that fire extinguishing facilities were in accordance with the environmental health standards in 55% of the schools in the examined province and the figure was 97% for first aids boxes. This researcher therefore suggested that the education organization should allocate a budget for improving compliance with all safety rules, renovating old schools and constructing standard schools²³.

A study conducted by Barjasteh Askari showed that privatization does not necessarily improve environmental health indices in primary schools; rather, proper management, increased budget and further monitoring by health centers are effective in having a safe and healthy school²⁴. Esmailiy et al. reported that girls’ high school students, teachers and directors in Ilam province are fairly well prepared for dealing with an earthquake; however, in physical

terms, the schools were in a poor state²⁵. Given the importance of education and security management in schools and the role of the assessment of the current status in the prevention and control of problematic outcomes, and considering the various dimensions of health and safety, the present study was conducted to evaluate the health and safety of non-public primary schools in Tehran.

METHODS

Study Population and Sample Size

The statistical population of the study included all the non-public primary schools of Tehran (n=530) in 2018. The sample size was determined as 59 schools, considering a test power of 80%, a confidence interval of 95% and 0.5 unit of difference in the mean scores of the scale, which was raised to 65 to take account of potential withdrawals. The schools were selected from the deprived, semi-deprived and well-off regions of Tehran using multistage cluster sampling. To carry out the study, the researcher visited the schools and observed their current status and completed the scale checklist in 2018.

Study tools

The schools' health and safety, including all the programs and measures adopted to help maintain the health of the personnel and children, was studied using the School-Age Care Environment Rating Scales (SACERS) checklist, which evaluates health and safety indices in eight components (health policies, health measures, safety and emergency policies, safety measures, attendance, departure, meals/snacks and personal hygiene)²⁶.

The SACERS was designed by Thelma Harms in 2014 with 47 items scored based on a 7-point Likert scale. A score of 5 indicates the minimum requirements for a favorable quality. Health and safety are among the factors assessed in this scale. The content validity of this scale was confirmed by ten experts, and its reliability in terms of the health and safety index was confirmed with a Cronbach's alpha of 71%, which shows the appropriate reliability of the tool for assessing schools' health and safety.

The health and safety index has eight components as follows:

Health policies

Health policies are guidelines and policies prepared by the center about the actions needed to take when a student falls ill and

the administration of medication to them, instructions for preventing the communication of diseases, health requirements for the personnel and the students' health records²⁶. These policies and guidelines are like a roadmap to achieving and maintaining health in the school environment.

Health measures

Health measures are measures associated with sick children, giving them an isolated space and monitoring them, teaching children about health issues, how to contact the parents of a sick child, communicating and interacting with the parents for sending information about their child's allergies and medication regimen to the centre, providing feedback to the parents and the centre personnel's support in terms of the child's mental and physical health²⁶. These measures construe the practical implementation of the guidelines in real life.

Safety and emergency policies

Safety and emergency policies are guidelines and policies prepared by the center about emergency procedures and their related measures. These guidelines include the regular inspection of the center's equipment in terms of fire safety and any environmental risks, personnel training for preparedness in emergency situations, the center's access to essential information about each child and the presence of trained personnel in terms of first aids and resuscitation in the center²⁶. These policies and guidelines act as a roadmap to determine the path for achieving and maintaining environmental safety.

Safety measures

This subscale includes the measures associated with the elimination and control of environmental hazards, access to phones in different parts of the center to make calls whenever necessary, practicing emergency evacuation guidelines, the availability and storage of and easy access to first aids tools, the notification of the parents about any events, training the children to observe safety rules and environmental planning for preventing risks as much as possible²⁶. These measures construe the practical implementation of the guidelines in real life as United Nations Office for Disaster Risk Reduction announced that Preparedness refers to actions being carried out to build the capacity to manage a disaster and ensure effective response^{27,28}.

Attendance

This subscale assesses whether there is early follow-up as needed when a child is late or absent, registering the children's attendance and maximizing the children's attendance through the collaboration of the center and the parents²⁶.

Departure

The process of the children's departure from the center and controlling their safe and secure departure, helping the children prepare for their departure, teaching the children correct and safe behaviors upon departure from the center and on the way home and generally the management of departure from the center are among the cases being evaluated in this subscale²⁶. Managing the children's safe departure from school has a role in their health and safety.

Meals/snacks

Appropriate meal times, acceptable nutritional value based on the children's needs, hygienic serving and storage of meals/snacks, taking into account each child's food restrictions and allergies, the personnel accompanying the children at meal times and sending menus to the parents are the cases assessed in this subscale²⁶.

Personal hygiene

This scale examines the attention paid to the personal hygiene of the children and personnel, the availability of proper and accessible hygiene facilities, teaching the

children personal hygiene, practicing hand hygiene, brushing teeth, and the regular cleaning and inspection of toilet facilities²⁶.

Statistical analysis plan

Data were analyzed in SPSS-23 using descriptive indices (frequency distribution, percentage, mean and standard deviation) and the parametric single-sample t-test (since the data had a normal distribution in the health and safety index according to the Kolmogorov-Smirnov test).

Ethical consideration

The present study observed due diligence and ensured the confidentiality of the schools' data and complied with the university's ethical principles. This study was confirmed by the Ethics Committee of University of Social Welfare and Rehabilitation Sciences (Ethical Code: IR.USWR.REF.1397.072).

RESULTS

The present study was conducted on 65 non-public primary schools, including 36 all-boys schools and 29 all-girls. The status of health and safety in non-public primary schools in Tehran was assessed using the single-sample t- test, with the mean comparison standard for the scale being 5. The results are presented in Table 1.

Table 1: The single-sample t-test for assessing the equality of the mean scores of health and safety with the base values (i.e. score of 5)

Dimension	Test criterion	degrees of freedom	P-Value	mean difference	Upper limit	Lower limit
Safety and Health	-8.19	64	0.001	-1.30	-1.62	-0.98

Table 1 shows a significant difference between the mean health and safety index and the required standards ($P < 0.001$, $t = -8.19$), and given the level of the mean difference, this dimension is below the

required standards. The normal distribution of each of the components of the health and safety index was assessed using the Kolmogorov-Smirnov test. The results are presented in Table 2.

Table 2: The single-sample Kolmogorov-Smirnov test for assessing the normal distribution of the components of the health and safety index

Safety and Health Components	Number of schools	Normal parameters		MaxDiff*			K-S-s**	P-Value
		Mean	SD***	absolute	Positive	Negative		
Health policies	65	5.37	2.05	0.26	0.21	-0.26	2.13	0.001
Health measures	65	3.58	2.91	0.30	0.30	-0.29	2.46	0.001
Safety and emergency policies	65	3.86	2.26	0.30	0.21	-0.31	2.46	0.001
Safety measures	65	1.49	1.32	0.41	0.41	-0.36	3.34	0.001
Attendance	65	4.17	2.23	0.33	0.33	-0.27	2.67	0.001
Departure	65	3.83	2.72	0.30	0.30	-0.28	2.44	0.001
Meals/snacks	65	2.55	2.23	0.34	0.34	-0.24	2.76	0.001
Personal hygiene	65	4.69	2.08	0.40	0.23	-0.39	3.20	0.001

* Maximum differences** Kolmogorov-Smirnov statistic***SD= Standard deviation

According to the Table 2, the Kolmogorov-Smirnov test yielded significant results, which indicate the non-normal distribution of all the health and safety components. The

cumulative percentage analysis was therefore used to assess the status of these components. The results are shown in Table 3.

Table 3: Descriptive indicators of health and safety index components and assessing the distribution of data

Components	Mean	SD*	K-S-s**	P-Value	Percent Upper than Base Limit
Health policies	5.36	2.05	2.12	0.001	63.1
Health measures	3.58	2.91	2.45	0.001	41.5
Safety and emergency policies	3.86	2.26	4.45	0.001	50.8
Safety measures	1.49	1.32	3.33	0.001	4.6
Attendance	4.16	2.23	2.66	0.001	36.9
Departure	3.83	2.72	2.44	0.001	41.5
Meals/snacks	2.55	2.22	2.75	0.001	20
Personal hygiene	4.69	2.07	3.20	0.001	66.2

*SD= Standard Deviation**Kolmogorov-Smirnov Statistic

DISCUSSION

According to Table3, if the cumulative percentages of groups higher than the mean standard (mean =5) is upper than 50%, the required standards can be said to be met in the schools. According to this table, the health policies, safety and emergency policies and personal hygiene indices met the required standards, but there was a gap between the schools' status and the basic standards in terms of health measures, safety measures, attendance, departure and

meals/snacks, whose quality was poorer. The present findings show that schools are in a good state in terms of health guidelines and safety guidelines and emergency procedures, but not in the practical areas of the components of health measures. This deficiency can be attributed to the lack of strict monitoring of the application of guidelines in schools by the relevant authorities and also the lack of programs devised by the schools to allow the parents to visit as unexpected guests, which can encourage better monitoring. It seems that

the official monitoring of schools cannot demonstrate the actual daily processes in which the children spend their time. Parents can visit their children's school only at the time of enrolment or in school-parent meetings and cannot visit on other times or are not welcomed. The lack of demand from the parents to promote emergency preparation measures and provide training at the school can be a decisive factor that has the consequence of making the schools simply archive their safety guidelines among the

The schools were close to the standard levels in terms of the management and organization of attendance and departure. The parents' heightened sensitivity to their children and the students' lack of outside-home experience can be said to have generated this expectation from the school among the parents. Unlike in the past, most children do not go to school and return home on their own, and their outside-home experience has therefore been reduced as a result of their major life style changes and the phenomenon of urbanization and its complications. Schools somewhat respond to this arisen need to avoid the negative consequences of non-compliance, but they have a long way to achieving the desired standards. Given the support and training provided by Iranian families and the practices of personal hygiene skills before the age of school, the personal hygiene component is at a favorable level. Among the components, personal hygiene is in a good state, which may be due to the schools' and families' support in terms of training and practicing these skills.

Overall, the results show that the health and safety index is not at a desirable level in schools. As shown in a study by Barjasteh Askari, privatization has not necessarily improved environmental health indices in primary schools²⁴.

This result agrees with those obtained by Ganji et al., who concluded that the state of environmental health was not desirable in public primary girls' schools in Khomeyni Shahr in Isfahan Province²⁹. Moreover, the results showed that schools were poor in terms of safety and emergency measures, which could be attributed to the attitude of directors and stakeholders toward the importance of safety issues. The implementation of guidelines requires the expenditure of money and training for the teachers and children, and schools that only attach importance to the students' academic success may consider spending time and

other guidelines instead of implementing them. Many schools and even parents use the excuse of "not wishing to impose any stress on the children" to avoid practical procedures, and the lack of responsible monitoring authorities further fuels the problem. Health measures are somewhat monitored and supported by the parents, and schools are therefore in a better state in terms of safety measures. Due to the formality of the issue of health and safety guidelines, most schools demonstrated acceptable levels.

money on these issues a waste of resources. These results agree with those obtained by Javadiyan Koutnaei et al., who studied the safety status of primary schools in Mazandaran Province compared to the standards and found a wide gap between the safety status of schools and the standards in some cases (location, gas piping, heating facilities, fire extinguishing facilities, etc.)²³. As Sheffield et al concluded better surveillance, more research, and increased federal and state oversight of environmental factors in schools (specific to climate risks) are necessary, as exposures result in short- and long term negative health effects and climate change risks will increase over time³⁰, considerations to regional standards are required as the scale recommended.

In addition, the management of the attendance and departure of the students was at a poor level in the studied schools. The present study showed that schools were poor in terms of preparing meals and snacks, which agrees with the results obtained by Ghorbani et al., who investigated environmental health indices in primary schools in Rasht between 2006 and 2011 and found that most schools had no cafeterias and did not meet the hygiene standards³¹. The present findings also concur with the results of a study by Khodayari et al., who examined the health activities and programs adopted by schools for promoting healthy and nutritious food regimens in Tabriz and found that most schools performed poorly in terms of preparing healthy food items and providing proper spaces for having breakfast and snacks³².

CONCLUSION

Children's health and safety in schools are considered very critical. The first step in developing such programs is to carefully and comprehensively assess schools. The present ideas about meeting children's needs is

reflected in the updated version of SACERS, which provides a comprehensive framework for the care of children in these ages, and the scale is therefore considered an appropriate tool for schools' self-assessment and monitoring.

The present findings showed that there is a wide gap in non-public schools in Tehran between the dimensions of health and safety and the desired standards, and it is necessary for school directors to identify the weaknesses of their schools and their potentials for incidents with an attention to the various dimensions of this problem and then take measures to resolve them.

Given the health and safety management approach, all school directors and educational district managers are recommended to take advantage of these tools to periodically assess their schools and pay attention to their neglected issues, so that an acceptable school environment can be provided to all children throughout the country and the chances of any potential harm to the children during the schools' times of hazards can be eliminated.

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