Assessment of primary schools' environment in Erbil city

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Abstract

Background and objective: Healthy school environment is one of the main determinants of students' health in order to maximize the benefit from the educational programs. This study was aimed to assess the primary school environment in Erbil city.

Methods: A cross-sectional study was conducted in 50 primary schools in Erbil city out of 242 schools through the academic year 2010-2011. Data were collected using a questionnaire constructed by the researchers which included general information, area around the school, school environment, class-room and school canteen.

Results: Most of the primary schools were located near the main street, nearly all (98%) the streets leading to the schools were paved. In contrast, thirty one (62%) schools had been exposed to a pollution source, mainly noise (54.84%) and garbage (45.16%) pollution. The majority of the schools had standard school fencing, school yard, and garbage container, and only 8 (16%) of them had available/standard school ground. The study showed that nearly half of the schools had appropriate classrooms, lighting, and majority of them had adequate desks, appropriate blackboards and clean classrooms, while ventilation and age appropriate desks were partially available. The amount of chlorine in water was not tested. There is lack of materials in the first aid kits. Canteens were available, but not standard and the working staff did not have the health certificate.

Conclusion: School environment in Erbil city is not optimum.

Keywords: Assessment, School, Environment, Erbil

Introduction

All members of the school community need clean air to breathe, clean water to drink, a safe place for recreation, a safe way to travel to school to avoid accidents, and protection from extreme temperatures and ultraviolet radiation. A safe and healthy physical environment requires a good location and safe buildings; protection from excessive noise; natural light; clean indoor air and water; a healthy outdoor environment; and healthy school-related activities including safe management and maintenance practices, use of non-toxic cleaning supplies, careful use of pesticides, vector control, and use of non-toxic art supplies[1]. With more than 150,000 children spending many hours a day in more than 200 primary schools in Erbil city, the school environment is of special importance to children's health and development. Schools grapple with a wide variety of environmental problems, a high occupant density, and limited resources to prevent and address building, and health and safety issues (personal communication with Ahmed Majid, head of planning in directorate of education in Erbil city, at January 13, 2010). Physical school environment has a strong influence on children's health for several reasons. First, the environment is one of the primary determinants of children's health: contaminated water supplies can result in diarrheal diseases; air pollution can worsen acute respiratory infections and trigger asthma attacks; and exposure to lead, arsenic,

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solvents, and pesticides can cause a variety of health effects and even death. Second, children may be more susceptible to the adverse health effects of chemical, physical, and biological hazards than adults. Reduced immunity, immaturity of organs and functions, and rapid growth and development can make children more vulnerable to the toxic effects of environmental hazards than adults. Third, children's behavioral patterns are distinctively different from adults and place them at risk from exposure to environmental threats that adults may not face[1]. School health service aims to provide promotive, preventive and curative services which include health education and provision of a healthful school environment[2]. Up to researchers' knowledge, no publication study had been carried out previously in Erbil to assess the school environment. The aim of this study is to assess the primary schools environment in Erbil city.

Methods

A cross-sectional study was conducted in 50 primary schools in Erbil city out of 242 schools through the academic year 2010-2011. A purposive (non – probability) sampling was used for this study. Prior to the data collection, permission to conduct this study was taken from the General Directorate of Education/Ministry of Education, and from the World Health Organization (WHO) to use the questionnaire that had been used by the WHO team during the 2008 survey which was conducted in eight governorates of Iraq (Erbil was excluded)[3]. Data were collected by one of the researchers using a questionnaire that was adapted from WHO questionnaire. The tool was composed of five parts as follows: 1.General information, 2. Area around the school, 3. School environment, 4. Class -rooms and 5. School canteen. General information about primary schools was taken which included name of the school. Information on area around the school included: the distance between schools and main streets, street leading to

school, pollution sources near the school, type of pollution sources, accessibility of health center, and causes to inaccessibility. School environment data included: the school fence, school yard, school yard to number of student (each student require 1-1.5 square meter)[3], school cleanliness (as assessed by the researcher), power source, availability of garbage containers, daily disposal of wastes, drinking water source, testing for chlorine residual, adequate taps (fifty student should have one tap)[3], adequate number of toilets (one toilet for every 25 students)[3], sanitary conditions, presence of sewage system, presence of insect and rodent control, health records in school, availability of first aid kit, availability of basic material in first aid kit, and school grounds (if the school ground present and cared, it was considered standard while if it is present but not cared it was considered not standard)[3]. Classroom items included: the classroom area (each student require one square meter)[3], lighting (as assessed by the researcher), ventilation, number of desks, blackboard, chalk, and classroom cleanliness. School canteen items included: availability of canteen (standard canteen is defined as being built by bricks and cement, and its floor is easily cleaned), quality of food, presence of valid medical cards of workers, presence of health education certificate of workers, and presence of another source that sells food items to the school. Data were analyzed using the Statistical Package for Social Sciences (SPSS version 11.5). Frequencies and percentages were calculated.

Results

Results showed that all the fifty schools were located near the main street. Nearly all (98%) of the streets leading to the schools were paved. Thirty one (62%) schools had been exposed to a pollution source; the main sources of pollution were noise (54.84%) and garbage (45.16%). Table 1 Majority of schools had standard school fence, school yard, and garbage containers while only 8 (16%) of them had

available/standard school ground. Regarding school yard to number of students, majority of them were adequate and most of them were clean. The source of drinking water of majority of schools was from tap water (state network). More than half of schools had first aid kits Table 2. Table 3 show that nearly half of the schools had appropriate classrooms, lighting, majority of them had adequate desks, appropriate blackboard and clean classrooms, while ventilation and age appropriate desks were partially appropriate. Majority of schools had non standard canteens and nearly half of the schools had another source that sells food items at the school, and more than half of canteen workers had no medical examination card. Table 4

Table 1: Distribution of schools by presence of pollution

Items	Frequency	Percentage
Presence of pollution sources near the school		
Yes	31	62
No	19	38
Total	50	100
Type of pollution sources (n=31)		
Noise	17	54.84
Garbage	14	45.16
Total	31	100

Table 2: Distribution of schools by some environmental variables

No.	Items	Frequency	Percentage N=50
1	**School fence**		
	Available/Standard	40	80
	Available/Non standard	9	18
	Not available	1	2
2	**School yard**		
	Available/Standard	29	58
	Available/ Non standard	21	42
	Not available	0	0.00
3	**School yard to number of students**		
	Adequate	45	90
	Inadequate	5	10
4	**School cleanliness**		
	Clean	48	96
	Not clean	2	4
5	**Power source**		
	Regular state network	49	98
	Network within the area	1	2
	Private generator	0	0.00
6	**Availability of garbage containers**		
	Available/Standard	46	92
	Available/ Non standard	4	8
	Not available	0	0.00
7	**Daily disposal of waste**		
	Yes	17	34
	No	33	66
8	**Drinking water source**		
	Tap water/state network	48	96
	Protected	2	4
	Unprotected	0	0.00
9	**Testing water for chlorine residual.**		
	Yes	20	40
	No	30	60
10	**Adequate taps**		
	Yes	12	24
	No	38	76
	Not available	0	0.00
11	**Standard taps**		
	Yes	15	30
	No	35	70
12	**Adequate number of Toilets**		
	Yes	12	24
	No	38	76
	Not available	0	0.00
13	**Sanitary conditions of toilets**		
	good	8	16
	bad	42	84
14	**Presence of sewage system**		
	Yes	45	90
	No	5	10

15	Presence of insect and rodent control		
	Yes	38	76
	No	12	24
16	Health records in school		
	Sustained	48	96
	Not sustained	2	4
	Not available	0	0.00
17	Availability of first aid kit		
	Yes	43	86
	No	7	14
18	Availability of basic material in first aid kit		
	Yes	9	18
	No	41	82
19	School grounds (school garden)		
	Available/Standard	8	16
	Available/ Non standard	34	68
	Not available	8	16

Table 3: Distribution of schools by classroom variables

No.	Items	Frequency	Percentage
1	**Classroom**		
	Appropriate	24	48
	Partially appropriate	25	50
	Inappropriate	1	2
2	**Lighting**		
	Adequate	25	50
	Inadequate	25	50
3	**Ventilation**		
	Appropriate	14	28
	Partially appropriate	35	70
	Inappropriate	1	2
4	**Desks**		
	Adequate	47	94
	Inadequate	3	6
5	**Age appropriate desks**		
	Appropriate	7	14
	Partially appropriate	43	86
	Inappropriate	0	0.00
6	**Blackboard**		
	Appropriate	35	70
	Partially appropriate	15	30
	Inappropriate	0	0.00
7	**Chalk**		
	Regular	8	16
	Oil	42	84
	Others	0	0.00
8	**Classroom cleanliness**		
	Clean	48	96
	Not clean	2	4

Table 4: Distribution of schools by school canteen variables

No.	Items	Frequency	Percentage
1	**Canteen**		
	Available/Standard	2	4
	Available/ Non standard	45	90
	Not available	3	6
	Total	**50**	**100**
2	**Food at canteen complies with health conditions**		
	Yes	43	91.4
	No	4	8.6
	Total	**47**	**100**
3	**Do canteen workers carry medical examination card?**		
	Yes	21	44.7
	No	26	55.3
	Total	**47**	**100**
4	**Do canteen workers carry the health education certificate?**		
	Yes	0	0.00
	No	47	100
	Total	**47**	**100**
5	**Is there another source that sells food items at the school?**		
	Yes	25	50
	No	25	50
	Total	**50**	**100**

Discussion

Maintaining a healthy school environment is critical to the success of students. A healthy school environment includes safeguarding the rights of students, faculties, staffs, and maintaining a safe work environment and a healthy atmosphere[4]. This study showed that more than half of the schools had been exposed to a pollution source. The main sources of pollution were noise and garbage. A recent study by Evans & Maxwell (1997) identified a link between chronic noise exposure and reading deficits[5]. The present study showed that majority of schools had standard school fence, school yard, and garbage containers, while only 8 (16%) of them had available/standard school

ground. The study showed that the school yard area was adequate in the majority of schools and most of them were clean, while a study conducted on 147 Iraqi primary schools by WHO (2009) about student's health status and environmental assessment demonstrated that the percentage of standard playground was (53.7%)[3] knowing that the above mentioned study didn't include Erbil schools. There has been a dramatic increase in playground related injuries over the past two decades. According to the United States Consumer Product Safety Commission (CPSC) statistics, nearly 200,000 playground related injuries requiring emergency room visits occurs each year[6]. The present study showed that the source of drinking water of majority of schools was from tap water (state network). These results are similar to the results of a study done by WHO Iraq survey [3]. First aid kits are essential in routine daily life as there are chances for accidents to occur when people least expect them[7]. The present study showed that majority of schools had sustained health records and first aid kits. These results were similar to a study conducted by WHO (2009) which demonstrated that the percentage of sustained health records was 79% and first aid kits was 64%[3]. A study done by Omolo (2010) in kisumu east and west districts, Kenya, demonstrated that (96.6%) of schools had first aid kits[7]. The present study showed that half of schools had adequate lighting, more than half of the schools had partially adequate ventilation and most of schools had clean classrooms. These results are similar to results of a study done by Adegbenro (2007) which demonstrated that the majority of the classrooms (80%) were not over-crowded and the rooms were adequately ventilated [8]. Results of the present study indicated that majority of schools had available/non standard canteens. A healthy canteen was defined as one that was safe, clean, profitable and providing a range of high nutritional value foods[9].

Conclusion

The study concluded that pollution sources near the schools, testing water for chlorine residual, adequate taps, adequate number of toilets, availability of basic material in first aid kit, canteen workers carry the health education certificate in Erbil city were not optimum.

Recommendations

Research and further studies should be conducted in Erbil governorate regarding other aspects of school health program such as assessment of head teacher's knowledge about school health program, prevalence of head lice among primary school children, and knowledge and practice of primary school teachers toward dental caries.

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