

## Original Article

**Environmental health assessment of primary schools in Norabad Mamasani City (Fars Province) in 2012****\*Gholamreza Jahed Khaniki<sup>1</sup> Nasrin Dehghan<sup>2</sup> Mohammad Hadi Dehghani<sup>2</sup>**

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**\*ghjahed@sina.tums.ac.ir****Abstract**

**Background and purpose:** School, as a reliable place in educating students, has an important role in training. The aim of this study was the assessment of environmental health of primary schools in Norabad Mamasani city of Fars Province.

**Materials and Methods:** In this analytical-descriptive and cross-sectional study, all of 26 primary schools in Norabad Mamasani city were surveyed by using census methodology. For data collection, it was used an approved form of safety and health school status by Ministry of Health and Medical Education. The obtained data was statistically analyzed by means of SPSS software using chi-square statistical test at the significant level with  $p=0.05$ .

**Results:** Results showed that 19(73.7%) and 7 (26.93%) of the 26 schools were public and private schools, respectively. 15 (57.7%) schools have the building of the new build. The results of the research indicated that there is not a significant difference between the health status of hand washing services, water fountain system, toilet and classrooms in the position of the old building and new building according the Chi-square test ( $p>0.05$ ). Also, there was no significant difference between the per capita health service (hand washing services, water fountain system and toilet) in public and private schools ( $p>0.05$ ).

**Conclusion:** The most schools had to favorable and hygiene situation of environmental health situation regarding the Health Instruction Guide for Environment of Schools. But, it should be improved the classroom, water fountain system and closets per capita and the distance of some schools from annoying centers. The authorities of Ministry of Education and Ministry of Health should pay more attention and interest in this regard and dedicate proper budgets to solve health problems.

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**Key words:** Environment Health, School Health, Students, Water Hygiene, School Safety

## 1. Introduction

Primary schools are the first social institution to its children and their life during an era that coincided with the growth of their physical and mental disorders affect school (1). Children in primary schools compared to the diseases have little resistance (2). Because the structure and performance of the members of the body and the body's defense systems are still not integrated (1). Children are specifically about 1300 hours for a year in the schools of the organization and of the teachers and other employees even more (3). The main development in the area of children is school after the House (4). Primary schools are public institutions, by the laws of the State of a long engagement will be evaluated with other public institutions towards children. Schools can support for one of the students health by offering health care environment, and to support the establishment of a health education awareness and the development of life skills help health (2). School health services principles of three-axis has formed a whole and independent that includes health education, health care, schools and individual students in health services (5). Inappropriate conditions of environmental health in schools can have many effects to the people in it on the environment. Some of these symptoms may have occurred after years of the show (6). In the event that you do not respect the principles of environmental health in schools, students may have a variety of parasitic diseases and diarrhea are affected (7). Therefore, in order to have a healthy life, they must be equipped with the skills to become health

science (2). Most important factors in lowering the level of environmental health, safety and ergonomics in primary schools are as follows: per capita educational space is not enough, near unhygienic places in the number of schools and non-old school building is safe, non-health conditions, toilet, hand washing services and unhygienic status and non-drinker, feel the course lesson school premises and facilities, with the help of inadequate of being inappropriate boards, and table of students (7). Unfortunately, the continuous increase in the number of students and the lack of sufficient training facilities and the reduction of space, that in many countries, particularly Iran, no, but to the terms and conditions of the building and the quality of educational space is attention more than before, to find a way to end this is to increase educational original space are operating in inducing the health problems in schools that has a different ratio of each behavior and the quality of training students in effective fact (8). So far several environmental health status studies for each school that is estimated to have been important in health promotion schools of some countries such as Iran (5, 7, 9-11), Norway (12), Poland (13) and USA (14). In attention to the case of health problems in schools, there is a frequency and different cities of the country, it is necessary in this cause problems with the scientific method of placement, and be given the necessary solutions and comprehensive study also kept about the environmental health status of primary schools. At now, a study was not done in this regard in primary school of

Norabad Mamasani city of Fars Province. Therefore, it seems necessary for this research aimed to determine the environmental health status of primary schools in Norabad Mamasani city of Fars Province to enhance a healthy school environment.

## 2. Materials and Methods

This study is a cross sectional and descriptive-analytical study in order to determine environmental health assessment of primary schools. The population of study was 26 primary schools of public and private in Norabad Mamasani city of Fars Province which were evaluated in 2012. All of 26 primary schools in Norabad Mamasani city of Fars Province were assessed. Variables of the study include: health service status and their per capita, the spatial position of the course lessons, building, garbage collection and the status of the buffet. In order to collect information from school safety and health status form, approved by the Ministry of health and medical education was used. This form is formed three parts includes evaluation of the observance of the provisions of the regulation for environmental health schools as first part, including 83 rows, 33 articles and 33 notes. The second part of the study regulations of the school health management system that includes 18 rows and part three is evaluation of occupational health regulations, including 37 in a row. In this study, we used the first part of the form. Forms of direct observation by researcher and schools visits and interviewing officials for favorable health and unfavorable health were completed. Favorable and unfavorable

about the judgment being announced, based on per capita (quantitative) and qualitative status declared, by the Ministry of health and the Ministry of education (School of environmental health regulations). After the completion of the forms, the data SPSS software (version 16) were analyzed, and with the use of statistical analysis descriptive-analytical tests, there was a significant level of  $\alpha = 0.05$  about the statistical analysis. Also, in this study, the number of students and the number of health facilities (toilets, hand washing services, and water fountain system) were counted and the appropriateness of the health facilities between the number with the number of students according to regulation standards, environmental health and schools used for table was set.

## 3. Results

Results showed that 19(73.7%) and 7 (26.93%) of the 26 schools were public and private schools, respectively. 15 (57.7%) schools have the building of the new build. Of these new build schools, 10 (66.7%) and 5(33.3%) were public and private schools, respectively. 11 (42.3%) schools had old building which 9(81.8%) and 2(18.2%) schools were public and private schools, respectively. Total number of students in these schools is 2984 students which were considered the maximum number of them to fit the number of health facilities. Health status evaluated in terms of schools, toilet, hand washing services, water fountain system, spatial position, classrooms, building and collecting trash has been presented in Table 1. The results showed that none of the schools had a buffet. 25

(96.1%) schools had presented a difference between hand washing services, water fountain system. Generally, 81% of the primary schools for the city of Norabad Mamasani had a favorable environmental health status. The results of the research showed that there is not a significant difference between the health status of hand washing services, water fountain system, toilet and classrooms in the position of the old building and new building according the Chi-square test ( $p>0.05$ ). Frequency distribution of health status between the schools was named in Table 1. Also, the results of Chi-square test, a significant difference between the health status of hand washing services, water fountain system, toilet and classrooms, the spatial position of the building in the public and private schools did not show ( $p>0.05$ ). Frequency distribution of health status that they are in table 2 has been named. In the evaluation of the existing health care services per capita primary school in comparison with the standard higher per capita has been named in Table 3. About 77% of the number of

primary schools was in accordance with the standard toilets, per capita, of about 96.1% of the primary school had hand washing services in accordance with the standard and the number per capita of approximately 69.2% of primary school had the number of water fountain system in match with the standard per capita. Chi-square test results showed no significant difference between the per capita health service (hand washing services, water fountain system and toilet) in the old and new build schools ( $p>0.05$ ). Frequency distribution of per capita health services in newly and old primary schools and comparison with standard has been provided in Table 4. Also, the results of Chi-square test, there was no significant difference between the per capita health service (hand washing services, water fountain system and toilet) in public and private schools ( $p>0.05$ ). Frequency distribution of per capita health service in public and private primary schools and comparison with standard has been named in Table 5.

**Table 1.** Comparison of healthy conditions in primary school with newly and old buildings in Norabad Mamasani City of Fars Province

Items	Newly school		Old school		Total		P-value
	Favorable N(%)	Non favorable N(%)	Favorable N(%)	Non favorable N(%)	Favorable N(%)	Non favorable N(%)	
Hand washing services	13(86.7)	2(13.3)	9(81.8)	2(18.2)	22(84.6)	4(15.3)	1
Toilet	12(80)	3(20)	8(72.7)	3(27.3)	20(76.9)	6(23.07)	1
Water fountain system	13(86.7)	2(13.3)	9(81.8)	2(18.2)	22(84.6)	4(15.3)	1
Classroom	12(80)	3(20)	8(72.7)	3(27.3)	20(76.9)	6(23.07)	1
Location of building	8(53.3)	7(46.7)	7(63.6)	4(36.4)	15(57.7)	11(42.3)	1
Waste collection system	15(100)	0(0)	11(100)	0(0)	26(100)	0(0)	

**Table 2.** Distribution of health status variables and comparing the public school and non-profit school in Norabad Mamasani city of Fars Province

Items	Public school		Private school		Total		P-value
	Favorable	Non- favorable	Favorable	Non- favorable	Favorable	Non- favorable	
	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	
Hand washing services	16(84.2)	3(15.8)	6(85.7)	1(14.3)	22(84.7)	4(15.4)	1
Toilet	14(73.7)	5(26.3)	6(85.7)	1(14.3)	20(77)	6(23.1)	1
Water fountain system	16(84.2)	3(15.8)	6(85.7)	1(14.3)	22(84.7)	4(15.4)	1
Classroom	15(79)	4(21)	5(71.4)	2(28.6)	20(77)	6(23.1)	0.5
Location of building	13(68.4)	6(31.6)	2(28.6)	5(71.4)	15(57.75)	11(42.35)	0.06

**Table 3.** Comparison the per capita and standard of health services in primary schools in Norabad Mamasani city of Fars Province

Health services	N	Existing per capita	Standard per capita	Match with standard	Mismatch with standard
			N(%)	N(%)	
Hand washing services	105	29	60	25(96.1)	1(3.9)
Toilet	120	25	40	20(77)	6(23)
Water fountain system	101	30	45	18(69.2)	8(30.8)

**Table 4.** Frequency distribution of per capita health services in newly and old primary schools and comparison with standard

Health services	Newly school			Old school		p-value
	Match with standard	Mismatch with standard	N(%)	Match with standard	Mismatch with standard	
	N(%)	N(%)	N(%)	N(%)		
Hand washing services	14(93.3%)	1 (6.7%)	11(100%)	0(0%)	1	
Toilet	11(73.3%)	4(26.6%)	10(90.9%)	1(9.1%)	0.3	
Water fountain system	8(53.3%)	7(46.7%)	10(90.9%)	1(9.1%)	0.08	

**Table 5.** Frequency distribution of per capita health services in public and private primary schools and comparison with standard

Health services	Public school		Private school		p-value
	Match with standard	Mismatch with standard	Match with standard	Mismatch with standard	
	N(%)	N(%)	N(%)	N(%)	
Hand washing services	19(100%)	0(0%)	6(85.7%)	1(14.3%)	0.2
Toilet	15(79%)	4(21%)	6(85.7%)	1(14.3%)	1
Water fountain system	14(73.7%)	5(26.3%)	4(57.2%)	3(42.8%)	0.6

#### 4. Discussion

This study was designed to investigate the environmental health status in primary schools of Norabad Mamasani city in Fars province to enhance the environmental health in schools. It determined that 81.1% of primary school has favorable environmental health status. According to this study it seems that environmental health status of the primary schools for the city of Norabad Mmasni can be better than Yasouj city (8). The status of the garbage collection was 100% adapted with the original articles was done in school of Arak city in 2009 (15). In present study, all of 26 (100%) public and private primary schools in Norabad Mamasani city of Fars Province were equipped with waste disposal system. Chi-square test results showed that environmental health status variables studied by type of ownership (public and private) and the type of building (old and new build), there was a significant difference ( $p > 0.05$ ). Also, the Chi-square test results showed that the per capita health services according to the type of ownership (public and non-profit) and the type of building (old and new build), there was not a significant difference ( $p > 0.05$ ). The results of previous studies conducted in the country are similar to present study (7, 10, 11). The results show that only 57.7% of the schools studied the spatial position of the building in a favorable condition and were 42.3% had adverse spatial position of the desired building; having at least 500 meters away from environmental sources of livestock, like the cemetery road and sound resources. 42.3% of the spatial position of the schools building had an undesirable

situation and the distance is less than the limit in the standard with the main road, which had led the creation of noise and noise pollution and background incidence of events in schools. Research shows that noise pollution and reduced stress level increased accuracy and learning. In the original paper by Kjartan (1998) in the country of Norway was reported that the noise pollution in areas forbidden by great machine and other areas were up to three times more measured (12). About 77% of the number of primary schools in accordance with the standard toilets, per capita, of about 96.1% of the primary school of hand washing service in accordance with the standard and the number per capita of approximately 69.2% of the number of water fountain system primary school have in accordance with the standard per capita. But in general the status of health services about environmental health in schools have variations of the condition. School health services for students in primary schools of Norabad Mamasani city includes one hand washing system for every 29 students, one toilet, for 25 students and one fountain water for each 30 student. These results has been higher per capita has in comparison with standard; whereas the density of health care facilities in the province of Tehran, respectively a hand washing service average for each 111 students, one toilet for every 73 students, and one water fountain system for each 119 students have been existed (8). In the present study, 76.9% of the schools had a favorable view of the classes were health shows attention to architectural schools and its effect on students learning and vitality.

In the original paper in 2007 was also carried out in the city of Isfahan 80.5% of the schools have had classes of optimal health (9). In a study about the environmental health and safety status of the city of Yazd primary school shows that the upgrading of the urban schools and rural schools were 83.4% and 16.6%, respectively. In terms of trash collected status of 65.8%, 64.4% for toilet, 32.4% for water fountain system and 78.4% for hand washing service in terms of optimal health and status it has. Per capita health services and school-level course per capita and in comparison with the appropriate standard and had enough (5). Pirzadah et al has done a research in the field of environmental health status compared to public primary school in different areas carried out in Isfahan, the results indicated that 76.6% of the schools, with 85.5% of the compliant status and school classes have optimal status. Health service status and the variations in the water fountain system were favorable. There was no significant difference of this opinion in the regions. 79% of the comments collected and waste disposal and health of some 49% had a favorable condition buffet (9). In a study, Reshadmanesh has studied the environmental health and safety status of schools and the factors affecting individual health observed students in Sanandaj city in 1995. The results showed that 42% of the schools in terms of collection and disposal of waste and 70% in terms of water fountain system and 48% were favorable status in terms of hand washing service (16). Zazoli et al, as well as research in the field of environmental health indicators status of

primary school in city of Sari in 2008 did the results showed that only the extent of the training area near schools to 6.6% is standard. They reported that there is difference in between hand washing service and water fountain system 35.6% schools. Also, the type of public and non-profit (private) school being the standard toilet, hand washing service and water fountain system not affected (11). The results of a study conducted in the field of environmental health indices in schools (educational space) in the rural regions of the Mazandran province in 2003 has been shown that only 14.7% of positive difference between the hand washing service and water fountain system schools. Water fountain system has been located in the distance towards the toilets were built (6). The results of a study conducted in the field of environmental health status of Birjand city schools in the academic year 2007-2008 showed that there was no significant difference between the study options depending on the type of school (rural and urban) and there is an academic degree, but there was no significant difference between the evaluated the options in terms of school property (public and non-profit) (10). Zare et al also has done a research in the field of environmental health status, safety and ergonomic central province primary school in the academic year 2003-2004. The results showed that in terms of the environmental health status of safety 21.2% and 18.1% in optimal conditions. Environmental health and safety status by dating the school did not show significant differences (7). Ezeonu and Anyansi (2010) have done a study in

the field of environmental health status of primary schools in southern east of Nigeria (17). In this study of the form of School Health Program Evaluation (SHPE) for environmental health status of primary schools use on average of SHPE in private schools (50.4) were more than the public schools (28.69) (6). Zdunkiewi changes in the health conditions of primary schools in Poland (1988-1990) study, the results of the adverse health status represents, especially in the rural schools was that these conditions often related to light deficiency, deficiency of equipment such as table, chairs, a lack of health facilities, toilet facilities and a lack of entertainment instruments(13). Revalthy et al (2002-2003) did a study in field of the relationship between physical environment and behavioral problems of students in schools perform. The results showed that there is a direct relation between the characteristics of the physical environment of schools and behavioral problems of students (14). Amendment of state measures such as surveillance, disappointed and continuous education of schools, visits students and the cooperation of the Ministry of national education and Ministry of health and medical education, as well as specific and predictive validity defined for improvement of environmental health, safety and ergonomic schools is essential. Based on the results of this study, most of the schools, in terms of environmental health status based on environmental health regulations and health status has had schools. But it must be to improve the per capita and toilet and water fountain system in schools of pesky centers some action schools. This requires

more attention, the authorities of education, healthcare and the providers of funding suitable for solving health problems.

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