European Journal of Biology and Medical Science Research
Vol.3, No.4, pp.11-18, October 2015
Published by European Centre for Research Training and Development UK (www.eajournals.org)

HEALTH STATUS OF SCHOOL STUDENTS IN KUWAIT (HEALTH SURVEY)

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ABSTRACT: *The purpose of the study is to investigate the health status of students in Kuwait. The objectives of the study were; to determine the distribution of general diseases among coincidently selected sample of elementary school students in designated areas in Kuwait city. Trained teachers were used to interview and measure the students. To achieve the objective, students from elementary schools were randomly chosen from different geographically located areas. The number of students in the selected sample is 7274 who are all males and from elementary level, their ages vary between 11 to 18 years. In conclusion, this study gives an indication that different kinds of diseases were detected in elementary school students and especially asthma using interview techniques. Geographical variations with respect to disease were observed and obese student were more likely to report asthma complaints.*

KEYWORDS: Health Status, Kuwait, School, Student,

INTRODUCTION

Health status in school children were studied extensively. Many researchers conducted several methods and surveys to identify the health status of student in many educational levels around the world. In Kuwait such studies were necessary for the Ministry of Education. The health status in school children was important for the Ministry of Health to identify the factors that may effects student's progress and achievements in Middle school education. A study from Greece conducted on 1539 student to assess if childhood asthma is a frequent cause of absenteeism that affects school performance. It was concluded that asthma and increased healthcare use enhance school absenteeism (Tsakiris et.al. 2013). Another study from USA, Georgia, on more than 900 students to examine potential associations between absences, repeated absence, tardiness, and repeated tardiness from school and doctor-diagnosed asthma. Students with asthma were more likely to be absent in certain days than students without asthma (Mizan et.al, 2011). A regional study from Qatar on 35 randomly selected schools were performed to assess the presence of social, psychological, health and school related factors that cause school failure. It was reported that psychological and health related factors were found to be more prevalent in students who failed a grade in school (Kamel and Bener, 2009). This study focused on the issue of student obesity by assessing the Body Mass Index (BMI) and its relation to health status. Such relationships were investigated in many researches. A recent cohort study over five years period conducted in Pennsylvania, USA on adolescents schools point out that extreme high obesity, especially among elementary students, is projected to increase substantially over time (Lohrmann et.al, 2014)

Another study from USA also found an increase in the prevalence of overweight/obesity among American children and Hispanic children in particular. They added that District prevalence of overweight/obesity is higher than available state statistics (Moreno et.al, 2013). School students from Brazil were also observed to be obese in a cross sectional study conducted in 2013. (Silva et.al, 2013). An European Childhood Obesity Surveillance conducted on

European countries found that overweight ranged from 18% to 57% among boys and from 18% to 50% among girls; and 6 - 31% of boys and 5 - 21% of girls were obese (Wijnhoven et.al, 2014)

This phenomenon of overweight school children was related to some intrinsic or extrinsic factors. Some studies relate the over weight problem to variation in sleeping behavior and nutritional pattern (Lu et.al, 2014), nutritional habits (Wojtyla et.al, 2013) or breastfeeding (Vafa et.al, 2012). Others relate overweight problems to; respiratory disorder (Lauhkonen et.al, 2014); increase the risk of wheezing (Silva et.al, 2013), and asthma (Tormanen et.al, 2014). Over weight students were also evident in different age groups. In a Brazilian study the chance of being obese was three times higher in 7-10 years old children than in the adolescents (Castilho et.al, 2014). Geographical variations were seen to be of a significant factor that may affect obesity levels among children (Castilho et.al, 2014; Wijnhoven et.al, 2014). This study was conducted in the academic year of 2012-2013 to determine health status in Kuwaiti elementary students.

METHODS

Objectives

To determine the distribution of general diseases among coincidently selected sample of elementary school students in designated areas in Kuwait city. Trained teachers were used to interview and measure the students. Furthermore, subjects who reported disease are grouped and statistically related to age groups and body mass to determine possible significant differences.

Design

This study relates cross sectional ascertainment of health status by intreviews to retrospective reporting of disease, measurement of weight and height, and location of school. These variables will be grouped and assessted to determine possible significant differences among the sample and possible factors that may effect the distribution of diseases especially asthm.

Setting

Students from elementary schools who were randomly chosen from different geographically located areas, by academically trained teachers from the Ministry of Education.

Subjects

This is a non probability sample (convenience sample) which depends on the availability of students in schools. The subjects were males only, Kuwaiti nationality and from 11 – 18 years old.

Main outcome measure

Reporting of diseases and measurements taken were sorely dependent on the trained teachers. Prevalence of different kind of diseases was calculated for students. Age groups and bio mass indicators were established to compare the groups with disease occurrence. Age groups were between 11-14 and 15-18. Biomass indicators were calculated according to the following

formula (weight/height x height). Then the groups were segregated as; normal (biomass reading between 18- 26.49), abnormal lower (1-17.9), and abnormal upper (26.50-100). Cross-tabulation between the cases with and without disease with different biomass groups and age groups were conducted. Asthma cases were also compared with biomass and age groups.

RESULTS

The number of students in the selected sample is 7274 who are all males and from elementary level. Student ages vary between 11 to 18 years old with ages of 12, 13, and 14 have the highest proportions (table 1). Table2 shows that 87% of the sample from all allocated schools is disease fee as the subject reported. The students who reported that they have some kind of disease are 12.7% of the sample .The table also shows that subjects who reported asthma complaints represent the highest proportion with nearly 6% of the sample. Table 3 illustrates the different locations of schools within area in Kuwait. Most of the sample was from alremethia area (16.6%) and the least from Alshab area (5.8%). Table 4 shows the distribution of sample with respect to subjects' health status, age groups, and body mass indicators. Results reveals that nearly 13% of the student have some kind of disease. The highest proportion of students is from 11 to 14 age groups (79%). And students who are over-weight are more prevalent (29.9%) than those with less than normal body mass (18.8%).

Table 5 shows cross tabulation of the two age groups 11-14 and 15-18 with the three groups of body mass indicators and asthma complaints. Chi-square test indicate significant variations between the different body mass groups ($p<0.00$), especially within the abnormal ones. Abnormal lower body mass were seen to be more in younger ages (20.7%) compared with higher ages (11.9%). Whereas, abnormal upper body masses were higher in older student groups (36.1%) compare with younger ones (28.3%). Students with normal body mass were nearly equal in both age groups. Comparing age groups with asthma complaints reveals no differences, with p-value equals 0.6.

Table 6 illustrates a comparison between school locations with different biomass groups and health status. Significant differences were observed ($p<0.00$). The students with lower than normal biomass were observed to be the highest in Salwa (25%) compared with the lowest in Alremathia (14.5%). Whereas, the upper biomass group was the highest in Aremathia (33.4%), compared with Alsalmia which have the lowest proportion (22.7%). However, for health status, Alzahra reported the highest disease complaints (21.3%) compared with only 5.6% complaints reported in schools in Aljaberia.

Table 7 shows a high significant differences ($p<0.0$) between the groups when comparing students bio mass and asthma complaints. The highest proportion of asthmatics was seen in overweight group (7.9%) and the lowest in less than normal group (4.9%).

DISCUSSION

The Department of Curriculum conducted this study through academically qualified teachers who were not trained regarding extract of health information or using tools to identify diseases symptoms or diagnosis. The information extracted from the students was solely depending on students understanding of questions asked by teachers and their response through personal

interviews. Such method has many limitations. First, there is well known standards tools to screen for health status such as ISSAC questionnaire (self-written or video- diagnosis) and Asthma Pediatric Screen (BAPS) used for asthma diagnosis, or other kinds of screening tests to identify diseases. Second, the persons collecting information's were not qualified for such task. Using qualified personals, school nurses, or information collected from the Ministry of Health could be more valuable and credible. This research however, with the results obtained may give an indication regarding the existence of some kind of disease but and do not show the scale or magnitude of the problem. The distribution of students group was not equal with respect to age groups and distribution within different areas. However, such differences can be estimated and compared with chi-square test but bias may be inevitable. Results shows most students in elementary schools were from the age group of 11-14. Nearly 13% of the students reported some kind of disease and nearly half of them reported asthma complaints. An earlier study conducted by the researcher on asthma symptoms on similar age group students in 1997; results shows nearly 25% of the sample have some kind of asthma symptoms with more sensitive tools used for diagnosis (Al-Khalaf 2001). A study from Ohio suggested that asthma in school student is poorly diagnosed and under reported (Clark et.al. 2013). Asthma symptoms and diagnosis seems to be under estimated in this study. Also that can be the case for the other kinds of diseases. Third of our sample are overweight that was evident in other studies (Lu et.al, 2014; Lohrmann et.al, 2014, Wojtyla et.al, 2013, Castilho et.al. 2014). The variations in disease reporting in different geographical locations may appear due to many extrinsic and intrinsic factors which are not under investigation in this study. A study from Indiana USA looked at the association between asthma exacerbations in school students and air pollution. They concluded that monitoring of air pollutants over time could be a reliable new means for predicting asthma exacerbations among elementary school children (YoussefAgha et.al. 2012). However, asthma cases association with high body mass may give an indication that overweight students are more likely to have asthma symptoms. The Brazilian study suggests that an excess of fat deposits, either in the abdominal region or elsewhere in the body, increased the risk of wheezing (Silva et.al. 2013). Papoutsakis and collogues found that obese school children were more likely to be asthmatic when compared to controls (Papoutsakis et.al.2014). In conclusion, this study gives an indication that different kinds of diseases were detected in elementary school students and especially asthma using interview techniques. Geographical variations with respect to disease were observed and obese student were more likely to report asthma complaints. These findings have to be treated with caution as we illustrated earlier that bias, underestimation, and limitation in method techniques may be evident.

Table (1) Age distribution of the sample

Ages	Frequency (%)
11	324 (4.5)
12	1848 (25.4)
13	1891 (26.0)
14	1676 (23.0)
15	1357 (18.6)
16	118 (1.6)
17	46 (0.6)
18	14 (0.2)
Total	**7274 (100.0)**

Table (2) The percentage of different kinds of diseases complaints within student sample

Subjects	Frequency (%)
No disease	6353 (87.3)
Asthma	448 (6.2)
Diabetes	38 (0.5)
Heart	27 (0.4)
Cancer	7 (0.1)
Chest allergy	63 (0.9)
Anemia	155 (2.1)
Nervous fatigue	7 (0.1)
Headache	11 (0.2)
Eye disease	103 (1.4)
Ear disease	23 (0.3)
Learning difficulties	11 (0.2)
Unintentional urination	11 (0.2)
Tertiary fat accumulation	1 (0.0)
Asthma + diabetes	5 (0.1)
Liver disease	3 (0.0)
Oesteo problems (bone disease)	6 (0.1)
Missing	4 (0.1)
Total	7274 (100.0)

Table (3) Distribution of school students in different areas

Areas	Student Frequency (%)
Alzahra	534 (7.3)
Alsalmia	831 (11.4)
Alremaithia	1206 (16.6)
Heteen	800 (11.0)
Mishrif	581 (8.0)
Biaan	1098 (15.1)
Aljaberia	603 (8.3)
Salwa	665 (9.1)
Alshaab	424 (5.8)
Alsalam	532 (7.4)
Total	7274 (100.0)

Table (4) Percentages of subjects' health status, age groups and biomass indicators

Subjects	Frequency (%)
Health Status	
No disease	6351 (87.3)
Disease	923 (12.7)
Age groups	
11-14	5738 (78.9)
15-19	1536 (21.1)
Biomass indicators	
Normal	3727 (51.2)
Abnormal (Lower)	1370 (18.8)
Abnormal (upper)	2177 (29.9)

Table (5) Cross-tabulation between subjects' age groups; and body mass and asthma complaints

Age groups	Biomass			p-value	Asthma complaints		p-value
	Normal	Abnormal lower	Abnorma upper		No Asthma	Asthmatics	
11-14	2927(51)	1187(20.7)	1622(28.3)		3576 (93.8)	358 (6.2)	
15-18	800 (52)	183 (11.9)	555 (36.1)	0.00	1448 (94.1)	90 (5.9)	0.6

Frequencies (%)

Table (6) Comparison between school location and proportions of disease and body mass of students.

Schools location	Normal	Abnormal lower	Abnormal upper	No disease	Disease
Alzahra	274 (51.3)	92 (17.2)	168 (31.5)	420 (78.7)	114 (21.3)
Alsalmia	475 (57.3)	166 (20)	189 (22.7)	737 (88.9)	92 (11.1)
Alremaithia	627 (52.1)	175 (14.5)	403 (33.4)	966 (80.1)	240 (19.9)
Heteen	396 (49.5)	148 (18.5)	256 (32.)	746 (93.3)	54 (6.8)
Mishrif	293 (50.6)	118 (20.3)	169 (29.1)	510 (87.8)	71 (12.2)
Biaan	540 (49.2)	216 (19.7)	342 (31.1)	962 (87.8)	134 (12.2)
Aljaberia	315 (52.4)	90 (14.9)	197 (32.7)	569 (94.4)	34 (5.6)
Salwa	327 (49.2)	166 (25)	172 (25.9)	605 (91)	60 (9)
Alshaab	209 (49.3)	94 (22.2)	121 (28.5)	380 (89.6)	44 (10.4)
alsalam	269 (50.2)	105 (19.6)	162 (30.2)	455 (85)	80 (15)
Chi-square test			P<0.00		P<0.00

Frequencies (%)

Table (7) Cross-tabulation between subjects' body mass and asthma complaints

Asthma complaints	Subjects body mass		
	Normal	abnormal lower	abnormal upper
Asthma	210(5.6)	67(4.9)	171(7.9)
No asthma	3516(94.4)	1302(95.1)	2006(92.1)
Chi-square test			P<0.00

Frequencies (%)

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