

Study of Students Health via Injuries which effect on their Absences in school

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Abstract: Background: Study on the prevalence and pattern of the occurrence of injuries on school children and its effect on the health and education of students is considered very important. Material and Methods: 2003 school children from the elementary, guidance and high school in Pakshar were recruited in a cross-sectional study with cluster sampling method. Health Behavior in School-aged Children (HBSC) was used as questionnaire in survey. Results: 44.2% of the subjects had a history of injury in the last 12 months with a higher prevalence in boys than in girls ($p<0/01$) and with more incidence of trauma in the lower age. 50.4% of the total injuries have resulted to school absences with a mean of 6/16 days ($SD=1/16$) and 64.6% had absences of 3 days or less. Conclusion: Education on injury prevention in schools especially among the boys is necessary and attention must be given more to children on the lower age.

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1. Introduction

Events leading to injuries are the fundamental problem of the modern world and are the leading cause of death, hospitalization and disabilities in all age groups from 1 to 45 in the United States [1]. 71% of all of the total deaths in this country in the ages ranging from 10-24 were due to four main causes namely: vehicular accidents, other unintentional injuries, suicide and murder [2]. These accidents in addition to injuries such as poisoning, burns, falls, gunshot wounds and the ingestion of foreign objects are the leading cause of children's death in such a way that these preventable deaths have resulted to 40-50% deaths in the early and middle childhood and 75% of adolescents' deaths. Annually, approximately 32 million American children die as a consequence to these incidents, thousands suffered injuries and others survive but are suffering permanent brain damage and physical disabilities [3]. These injuries, especially for students in an athletic training environment are of great importance and are significant. A study conducted in Canada have showed that per hundred of youth who participated in sports activities annually, 40.2% of these injuries need to be seen by a doctor and 8.1% of these injuries needs urgent attention [4]. A cohort study conducted in America has found that 9032 high school students from 1995 to 1997 who actively performed physical exercises have been reported to suffer injuries of which 23.4% were accounted to the boy's football while the injuries for girl's football

totaled to 26.7% [5]. Studies have shown that more than 50% of injuries obtained from sprains and dislocations and other injuries requiring surgery as well have been mainly related to the knees [6]. On the student's side, more academic and social skills must be gained for their future lives. Students' excessive absences could lead to educational failure especially if this group of students will have more than 11% of absences from the total number of school days. Annually, 1-3 students will be referred to the emergency department due to minor injuries but its impact on the school attendance was not given much attention. Therefore we could conclude that minor injuries do not require any hospitalization and this has no effect on the ability and mobility of the students to care for themselves [7]. Also a study conducted by Hyman and associates in 2007 have shown that an injured student's social and economic background has its impact on the school attendance and injuries have significant impact on the students' social status and school performance and on their family as well [8,9]. A study conducted in Yazd in the year 2000 have shown that 24% of injuries existing in the society are individuals less than 20 years belonging to the age groups of 7-20 years old, children and adolescents living in the city and the male sex are more vulnerable to various injuries [10]. Considering the social and economic consequences brought about by injuries and the importance of giving more attention to school children and adolescent students for the reason that the majority of

the population is composed of this group, this study was conducted for the purpose of evaluating the prevalence of the types of injuries and their effect on the students' absences in Pakdasht schools.

2. Methods

This cross-sectional study was implemented on the school children from the fifth grade (11years), guidance school (13 years) and first year high school (15years) respectively and based on international research standards, a study on the health behaviors of school age children in the city of Pakdasht was conducted. In order to fulfill of Health Behavior in School-aged Children (HBSC) questionnaire, a number of school health personnel of the health and treatment networks were trained to implement the educational programs. The cluster sampling was employed in such a manner that the list of school children in the 5th grade elementary, second year of the guidance school and the first year high school students of the city were obtained and with the use of a random number table, the number of classes segregated by gender were selected. After coordinating with the Ministry of Education, the interviewers were present in the schools selected as pilot of this project and were responsible for the

distribution of the questionnaire to the students and explain any questions that arise, then the questionnaire were completed by the students themselves. Data results were analyzed with the use of descriptive statistics (absolute and relative frequency of average and standard deviation) and inferential statistics (Chi-square tests, T-test and ANOVA), 95% confidence level of the statistical test was considered.

3. Results

The questionnaires were distributed among the students and 1,872 students responded to the questions (93.5%). During the 12 months prior to the study, 55.8% of the students did not obtain any injuries and 12.9%, 9, 5.3% and 5.1% have obtained injuries for once or four times respectively. The frequency of injury in boys was significantly higher than in girls ($P<0.01$). The higher the educational level of the students, the lesser the injuries obtained in such a manner that the 5th grade elementary and 2nd year guidance school students significantly obtained more injuries than the first year high school students ($P<0.01$) but between the 5th grade elementary and 2nd year guidance school students, no significant difference was noted (Table 1).

Table 1: Relative frequency of occurrence of different types of injuries that have resulted to students' treatment in Pakdasht city segregated by sex and educational level

Educational Level	5 th grade elementary		2 nd year guidance school		First year high school		Total	
	Girls No=326	Boys No=309	Girls No=317	Boys No=311	Girls No=303	Boys No=306	Girls No=946	Boys No=926
Number of occurrence								
None	58.6	39.2	63.4	46	74.3	53.6	65.2	46.2
Once	22.7	31.7	22.1	27.3	15.2	21.2	20.1	26.8
Twice	8.6	10.4	7.9	12.9	5.3	12.7	7.3	12
3times	4	9.1	4.4	6.1	3.3	7.2	3.9	7.5
4 times	6.1	9.7	2.2	7.7	2	5.2	3.5	7.6
Total	100	100	100	100	100	100	100	100

Approximately, 40% of the students' injuries occurred at home of which, in this ratio the girls significantly obtained more injuries than the boys ($P<0.01$) but boys obtained more injuries in school in comparison to the girls ($P<0.01$). Also sports related injuries in school and in the street and or those injuries obtained on their way to school are significantly higher among the boys than in girls ($P<0.01$) but with regards to other cases, the ratios were relatively closer (Table 2).

Regarding injuries that occurred during the performance of activities, the highest injuries were obtained during playing or sports activities and bicycling and these related injuries were significantly higher in boys than in girls ($P<0.01$) while in other activities, the girls significantly obtained more injuries than the boys (Table3).

Table 2: Relative frequency of location in the occurrence of injury among students in the city of Pakdasht segregated by sex

Sex	Girls (Percent)	Boys (Percent)	Total (Percent)
Location of the occurrence of injury	No=303	No=468	No=771
At home or in the backyard	50.8	30.3	38.4
School	15.2	20.5	18.4
Stadium or sports field	4.3	14.1	10.2
Street, road or parking	7.3	15.4	12.2
Business or workplace	2.3	2.4	2.3
Outside the city	3.6	4.1	3.9
Other highways	16.5	13.2	14.5

60% of the problems that occurred as a result to the injuries include: bone fractures, joint dislocations, sprains, muscle strains and wounds. 44.6% of these injuries were treated in the doctor's clinics while 11.6% of cases were treated in the emergency department and in this case, treatments

were significantly higher among the boys in comparison to the girls (Table 4).

Table 3: the relative frequency of activities that resulted to students injuries in the city of Pakdasht segregated by sex

Sex	Girls	Boys	Total
Activities that resulted to accident	No=304	No=457	No=761
Bicycling	16.1	28.7	23.7
Playing or practicing a sport or recreational activity	17.7	28.9	24.5
Skating	6.3	3.7	4.7
Walking or running	11.8	8.8	10
Car driving or motor driving	1.3	3.7	2.8
Fight	7.9	8.5	8.3
Work or daily activities	0.3	2.4	1.6
Others	38.5	15.3	24.6

Table 4: Relative frequency on the location of treatment for injured students in the city of Pakdasht segregated by sex

sex place	Girls	Boys	Total
	No=307	No=466	No=773
Doctor's clinic	48.9	41.8	44.6
Clinic or health center	14.7	17.6	16.4
Hospital's emergency department	8.5	13.7	11.6
School clinic	2.6	5.4	4.3
Others	25.4	21.5	23

Regarding the rate of absences from school, data analysis have shown that injuries which have occurred in 371 of cases (50.4%) have resulted to school absences and 219 of cases that reported the number days being absent was an average of 6/16 days(6/10±). 4.64% of this cases have resulted 3days or lesser of school absences. The higher the educational attainment, the days of absences acquired due to injury rises, although the one way ANOVA showed no significant difference.

4. Discussion

The overall rate of injuries among the boys were higher in comparison to the girls and the main reason for this is due to over activity and the intrinsic nature of this gender to be hyperactive as shown in our study and in the researchers conducted by others [10-15]. In similar studies, lower educational level has shown more risk of injuries [10-12]. In the United States in the year 1995 and 1997, 50% of the pattern of problems incurred as a result of injuries especially on cases of dislocation, sprains, and muscle strains were accounted to high school students while dislocation and sprains were among the first 5 injuries among the students [4]. A study conducted by Duggan entitled "A Profile of Injuries Occurring at a Rural Primary School in North East Victoria, the pattern of injury at school has been analyzed according to gender and on the following

criteria: the proportion of injuries occurring in the different age groups, the time of day, week an year when injuries seem to peak, the body part injured, the cause of the injury and the nature of the injury. In this study, the incidence of injury in boys was higher than in girls. The incidence of injury between boys than girls was recorded in the ratio of 1.7to1. From the 28 injuries recorded, 63% of the boys and89% of all girls injured had subsequent absences from school. Also, by comparison, the different pattern of injuries include: 22% head, 51% upper extremities, 21% lower extremities and 6% for others [16].

Also the result of a study conducted among 4-14 years old Irish students has shown that, 75.4% of the injuries involved the lower extremities while 24.5% involved the upper extremity. The injury that caused more absences on the students was fracture and the average duration of absences from school was determined to be 3 days [17].

Another study conducted by Sosnowska and et.al. in 2003 entitled "Epidemiology of school accidents during a six school-year period in one region in Poland" showed that from the total of 50,000 students with the age range of 7-15, the total number of school accidents per 293,000 students-years was 3274 and the pattern of the occurrence of injuries were in the following manner: 36, 6% occurred during recess, and 33.2% during physical education which were most common as shown in this study. This study has also showed on how strategic planning must be employed in order to reduce school accidents [18].

Our study has shown that of the total population under study, 18, 4 % of the injuries happened within the school premises of which the incidence were higher in the boys (20.5%) in comparison to the girls (15.2%) table No. 2.

A study conducted on Chinese students has also showed that 21.7% injuries that have occurred on the boys and 17.6 % of the injuries that has occurred on the girls were in the school premises which are estimated to be close to our findings [11]. The prevalence of 12.2 % injuries that occurred in the roads and streets showed that the importance of this issue in our country must be considered a high priority. Problems and traffic injuries has been considered to be the leading cause of deaths in recent years. Studies have shown that a significant proportion of motor vehicle crashes are on pedestrians, shown as an example is on the age group ranging from 5 to 9 years old having the majority of proportion to vehicular accidents [19] and presents the highest rate of injury and mortality for both gender. The rate of traffic accidents incurred by individuals with an age range from 15 -19 are

doubled in comparison to individuals aged 18 and above.

As a whole, the overall incidence of injury to school children under study and the high rate of absences as a result to these injuries, necessitate awareness for more scientific studies in other regions of the country and to develop action plans for accident prevention through educational programs for students, teachers and families as well.

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