

Education-Family Physician Corner**Non-Intentional Injuries in Adolescents and Youth: Facts and Figures**

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Unintentional injury is the leading cause of death in 15-24 years old and is considered the main reason for premature morbidity and mortality. In the United State, 14,089 deaths were recorded at this age group due to unintentional injuries in 2008¹.

An injury is defined as “The physical damage that results when a human body is suddenly subjected to energy in amounts that exceed the threshold of physical tolerance”².

Injuries are considered either intentional such as assaults, homicide, suicide or unintentional such as road traffic accidents, drowning, poisonings, fires, sports and recreation, falls and work-related injuries.

In addition to the socio-cultural factors, biology plays an important role in engaging of adolescent's in risk-taking behaviors. The brain maturation occurs in late adolescence, which protects individual from risk of impulsive behavior that lead to injuries³.

A study in Bahrain primary-care setting showed that 11% of the adolescents between 11-19 years old attending primary-care health centers are due to injuries. The rate is higher in males (16.2%) than females (5.3%)⁴.

School based student health surveys had been conduct in some Arab countries and showed that the percentage of adolescents whom seriously injured in one-year duration varies in different countries: Oman is the lowest 26.3%, UAE 30.7%, Tunisia 37.2%, Egypt 38.5%, Jordan 43.7%, Morocco 44.7% and Yemen is the highest 70.4%⁵⁻¹¹.

The objective of this review is to raise the awareness of injuries in adolescents and youth and to highlight the causes, consequences and prevention.

Road Traffic Injuries

Nearly 3,500 people die on the world's roads every day¹². In 2004, nearly 1.3 million people of

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all ages were killed in road traffic accidents around the world. Deaths are just the tip of the iceberg; however, up to 50 million more were injured or disabled¹³.

Adolescents and young drivers are a special risk group. For a given distance driven, 16 years old drivers are twice likely compared to drivers aged 18-19 years and four times likely compared to drivers older than 19 years to be involved in a fatal passenger vehicle accident¹⁴. In Bahrain, the estimated road traffic death is 12.1 per 100,000 population (Police data, defined as any death caused directly by road traffic injury, regardless of time)¹⁵.

Youths of 15-24 years old sustain the most serious injuries and deaths of all age groups. In 2008, fatal injuries in the driver at this age group was 43.2%; injuries due to motor cycle accidents constituted 31% of the total injuries. Passengers' injury at the age of 15-24 years old group was 33.4% of the total. Drivers between the age of 15 and 24 years, which have been stopped by police due to traffic violation were 31.5% of all drivers violations¹⁶.

The percentage of death and injuries in drivers are considerably more in males (77.5%) than females (22.5%)¹⁶. Global Road Safety report showed that the traffic fatalities in Bahrain were 91 individuals (males were 91% and females were 9%) in 2007¹⁵. Males' fatalities is almost the same in GCC countries, see figure 1¹⁵.

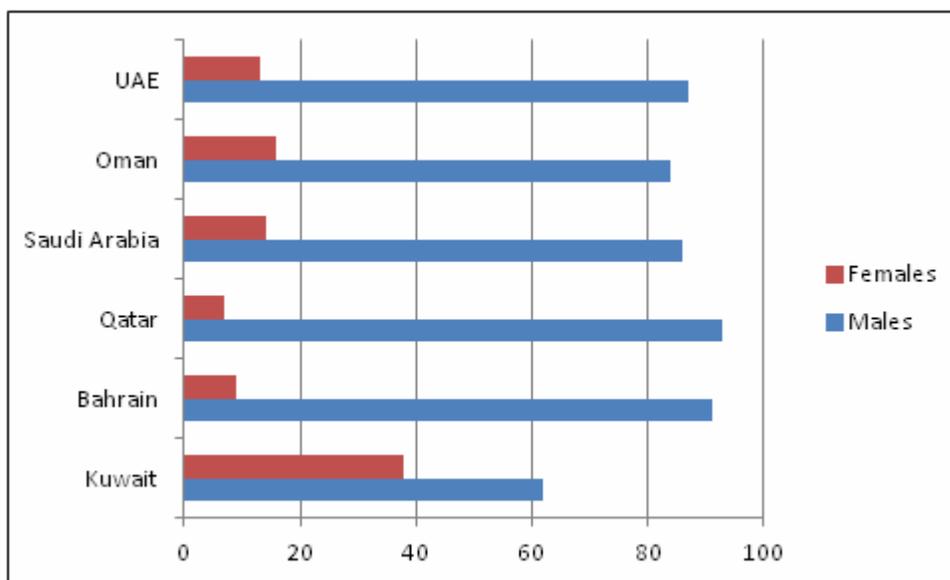


Figure 1: Reported Road Traffic Fatalities According to Sex in the GCC Countries

Bahrain had the lowest rate of road traffic death per 100,000 populations in the Arab countries, see figure 2¹⁵. Nevertheless, efforts should be sustained and monitored to keep the rate of road traffic death to the minimum.

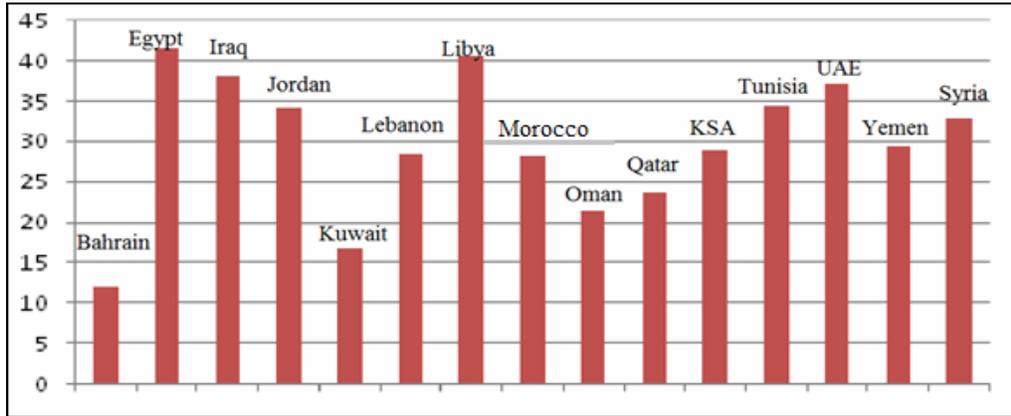


Figure 2: The Estimated Road Traffic Death Rate per 100,000 Populations in the Arab Countries

Injuries are more serious in those who did not use the seat belt. National seat belt law in the Bahrain is not strictly applied to all occupants of the vehicle. A study showed that 77% of adolescents 14-19 years are not using seat belts; no statistical difference between boys and girls in using the seat belts was found¹⁷.

Death due to alcohol abuse was 7.7% of all road traffic mortality in 2007¹⁶. However, alcohol consumption is restricted to certain places in the Kingdom of Bahrain and there is drink-driving law, but until now, there are no random breath testing or police checkpoints for blood alcohol concentration (BAC). Nevertheless, in suspected cases of road traffic accidents, the drivers are subjected to blood alcohol testing.

There is no data available in Bahrain about the use of cell phone while driving. Drivers are prohibited by law not to use the cell phone except through the speaker or blue tooth.

Violence

Violence is considered public health issue in the past few decades. It becomes wide spread among adolescents and youth, a fact considered as unavoidable behavior rather than preventable¹⁸. There are multiple factors that contribute to violence, including social, cultural, political, biological and psychosocial issues.

Violence and bullying are prevalent among adolescents; males are significantly more involved in physical fights than girls are. A study showed that Bahraini adolescents whom being bullied was 18.9%¹⁷. Adolescents who had been involved in physical fight once or more during the past 12 months was 27%. Boys (36%) are more involved on physical fights compared to girls (17.7%)¹⁷. That study showed lower rate of Bahraini adolescents involved in fights compared to other countries such as Oman, UAE, Jordan, Yemen, Tunisia, Morocco and Egypt, see figure 3⁵⁻¹¹.

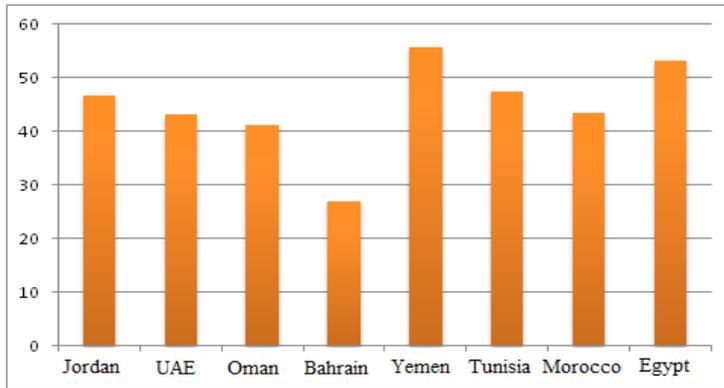


Figure 3: Involvements of Adolescents in Physical Fights in Arab Countries

Sports

Sport is considered the main cause of injury in adolescents¹⁹. According to the Centers for Disease Control and Prevention, nearly 50% of injuries in children and adolescents can be prevented.

The risk of sport-related injuries in adolescents and children are due to inappropriate practice, improper protective equipments, incorrect education, muscle weakness and imbalance. Most of these injuries can be prevented and treated conservatively with accurate and early diagnosis²⁰.

In Bahrain, 41.7% of the adolescents are physically active at least 4-6 times a week for approximately 30 minutes each time. Girls (13.6%) are significantly less active than boys (28%) and only 10.9% of adolescents are participating in sport activity after school¹⁷.

The main objective in sport is to encourage adolescents and youth to participate in physical activities, but providing them with safe and healthy environment to prevent injuries and disabilities.

Drowning

Drowning is the fourth leading cause of unintentional injury related deaths for adolescents between 10-14 years old and the sixth leading cause of death for ages 15-24 years²¹. It is estimated that for each death due to drowning, there are at least 1-4 children who suffered a severe non-fatal submersion incident and most of them end up with permanent disabilities²².

About 80% of the drowning victims are males, despite the fact that men of all age groups, race, and educational background have greater swimming skills than women^{21,23}.

Some important factors that may prevent drowning are training and participating in swimming lessons in childhood; it could reduce drowning by 88%²⁴. Other issues are the availability of supervisions and lifeguards with qualified CPR training, which have been shown to improve

outcomes in drowning victims. The quick intervention usually yields a better result²⁵. Alcohol is estimated to be involved in 30% to 50% of adolescent and adult drowning^{26,27}.

Alcohol increases the risk of drowning by impairing judgment and performance and through direct physiologic effects that affect survival once a submersion occurs²⁶.

Some medical conditions may increase the risks of drowning such as seizures, autisms and long Cardiac arrhythmias, in particular long QT syndrome. These adolescents must be examined properly and should have physician's permission before being allowed to practice swimming.

Recommendations

- Kingdom of Bahrain needs to implement the five most effective interventions to prevent injuries in adolescents and youth according to WHO: control of speed, enforcement of seatbelt laws, promotion of child restraint use in cars, enforcement of standard motorcycle helmet use and establishment of the true prevention of alcohol related accidents by applying random breath alcohol test²⁸.
- Provide programs to help parents recognize behavioral problems in their children and prevent negative behaviors, as well supervising and training their children for swimming and other sports before active involvements.
- Effective program that promote skills in reducing risk-taking behaviors that often lead to injury and violence.
- Establishing high quality after-school programs, which target at risk adolescents such as those suffering from family and social problems, poverty, learning disabilities, smokers ...etc.
- Empower peer educator and advocates. It is well known that adolescents are highly influenced by peers than older educators.
- Provide schools with sufficient qualified councilors for the adolescents.

CONCLUSION

Death and disability in adolescents are tragedies in the community. The cost and treatment of injury and disability are incentives for health authorities to invest in preventive strategies. This could be achieved through national collaboration of the authority and the community in the kingdom because many unintentional injuries could be prevented. One of the most important tools for prevention is education, which has a significant role, especially when it is paired with technology and legislation.

Potential conflicts of interest: No

Competing interest: None **Sponsorship:** None

Submission date: 30 January 2012 **Acceptance date:** 6 February 2012.

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