Bahrain Medical Bulletin, Vol. 32, No. 3, September 2010

Adolescent Health Risk Screening in Primary Care Setting

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Objective: To identify the most common health risks in adolescents and establish the value of health screening in primary care setting.

Design: Prospective cross sectional study.

Setting: Primary care clinics.

Method: Three hundred and ninety-six adolescents were randomly selected. The subjects were interviewed and assessed by general medical and physical examination.

Result: One hundred twenty-three (31%) adolescents are eating fast food almost daily. Fifty-four (13.6%) adolescents are eating fruits. One hundred and seven (27%) are either overweight or obese. Females are less active and more obese than males. Two hundred seventy-seven (69.9%) have sedentary life style. Thirty-two (8.1%) had seriously considered attempting suicide. Females are feeling alone and had suicidal thoughts more than males. Males are more involved in physical fights compared to females. Three hundred and five (77%) adolescents are not using seat belts in the car. The most common medical problems were acne, dermatitis and scoliosis, which were found in eighteen (4.5%) of the adolescents.

Conclusion: The high prevalence of risky behaviors in adolescents highlights the need for implementing comprehensive screening in primary care setting and to stress the role of psychosocial counseling.

Most of the adolescents are physically inactive, have unhealthy dietary habits and sedentary life style, which emphasize the urgent need to stimulate physical activity in schools and homes.

Bahrain Med Bull 2010; 32(3):

In the national monitoring of adolescents' health, the concept of wellbeing is used in a broad definition of health. WHO defines health as state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity[1].

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This definition identifies health as a positive entity. Departure from "complete" health such as disease is important to evaluate during health examination. However, the absence of disease does not necessarily mean that the person is "healthy"[2].

Identification of health risk behaviors and evaluating mental health are prerequisite of reducing preventable adolescent morbidity and mortality; comprehensive health risk screening of adolescents is accepted as an integral element of "best practice"[3].

Young people have low mortality rates compared to adults and children, adolescent's death is both a personal and social tragedy. A review of mortality among young people aged 10-24 years showed an overall three-fold rise in death rate among males internationally; the rise in death is largely due to injuries[4].

Middle adolescence (15-17 years) is filled with challenging new experiences and for most adolescents it is a time of unparalleled potential and creative energy. At that age, they begin to probe more deeply to discover their individual identity and sort out values and beliefs in their quest for a clearer sense of self[5]. Implementation of preventive and health promotion services is very efficient at this stage of the human life cycle.

It is important that preventive services for adolescents age group is to reflect the common morbidities and mortality of adolescence, which are preventable. There is a need to reinforce positive health behaviors, for example, exercise and good nutrition while discouraging potentially health-risk behaviors, for example, violence and unsafe driving. The goal of health screening is to promote optimal physical and mental health, to support healthy physical, psychosocial growth and development.

The aim of this study is to identify the most common health risks in adolescents and establish the value of comprehensive health screening in primary care setting.

METHOD

A prospective cross sectional study was performed on adolescents in April and May 2009. The setting was primary care clinics selected from five governorates of the Kingdom of Bahrain.

A checklist was designed to document the personal characteristics, which includes date of birth, sex and level of education.

A practitioner nurse conducted the interview questionnaire. The questionnaire was designed according to psychosocial history, taking the framework of HEADSS (home, education, activities and peers, depression, safety and suicide); Nutrition and physical activity were documented as well.

General physical examination was done. The examination included body mass index, visual acuity, examination of the head and neck, skin, cardiovascular, respiratory systems, and musculoskeletal for scoliosis. Examination for scoliosis was made by Adam's forward bend test and palpation of the spine[6].

Clinical findings, risk behaviors, mental health, concern or psychological issues were identified and recorded. The action taken for the identified and diagnosed cases varied from doing simple investigations, referral to allied health staff and follow up with patient's family physician.

Data were analyzed using SPSS software version 17.

RESULT

Three hundred and ninety-six adolescents were included in the study. One hundred and seventy-five (44.2%) were males and two hundred twenty-one (55.8%) were females. The average age was 15 years; the range was from 14-19 years.

Three hundred and ninety (98.5%) adolescents are living with their parents, only six teenage (1.5%) are living with relative other than parents. Three hundred and eighty-two (96.5%) are feeling comfortable with the people they are living with.

The favorite subject for the adolescents is Mathematics 332 (84%) followed by English 320 (81%). Mathematics is favorite subject for males 34 (8.6%), while English is the most preferred subject for females 60 (15.2%). The difference between males and females is significant, *P=0.001*.

One hundred thirty-two (33.3%) adolescents achieved good results in their school performance. The pattern is the same for both sexes.

One hundred twenty-three (31%) adolescents are eating fast food almost daily. Sixty-five (16.4%) males are eating fast food compared to fifty-eight females (14.6%). Three Hundred and fifty (88.4%) are eating fast foods 2 or more times per week.

Two hundred and five (51.8%), adolescents are eating breakfast most of the time or always during the past one month. One hundred and seventeen (29.5%) male adolescents are eating breakfast compared to eighty-eight (22.2%) females.

Fifty-four (13.6%) adolescents are eating fruits four times or more per day as recommended by WHO; twenty-three (5.8%) were female adolescents compared to thirty-one male adolescents (7.8%).

One hundred sixty-five (41.7%) adolescents are physically active at least 4-6 times a week for approximately 30 minutes each time. Fifty-four (13.6%) female adolescents are less physically active compared with 111 (28%) male adolescents. The difference between males and females is significant, *P<0.001*.

Figure 1 shows BMI of the adolescents. One hundred ninety-nine (50.2%) adolescents have normal BMI. One hundred and five (26.5%) are under weight, their BMI is below 18.5. Forty-

seven (11.9%) adolescents are over-weight, their BMI is between 25 and 30 and forty-five (11.4%) are obese with BMI more than 30.

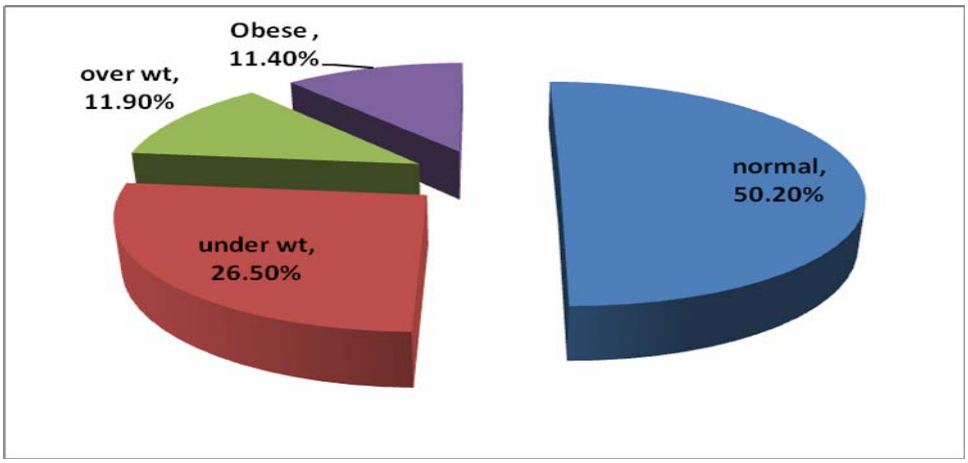

Figure 1: BMI of the Adolescents

Figure 2 shows the BMI according to the sex. The prevalence of obesity in girls is 8.3% (n=33), it is more than double of male adolescents 3.3% (n=13).

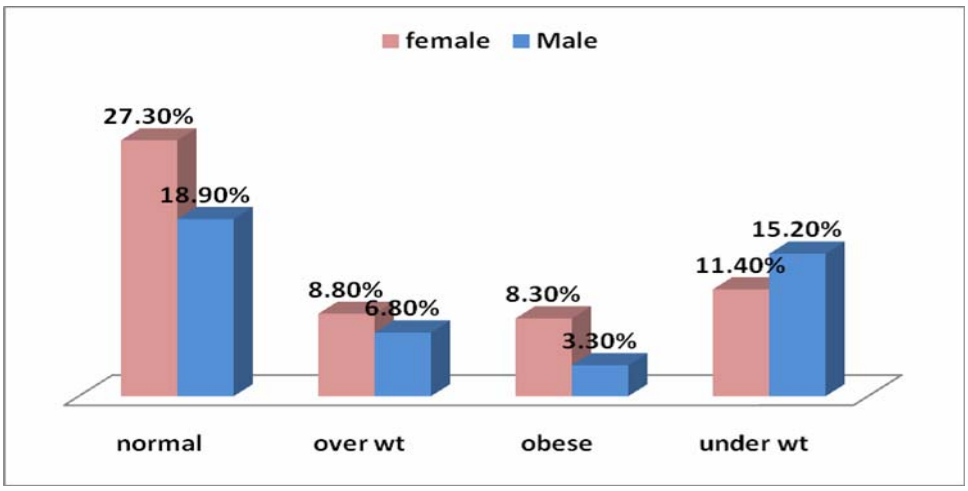

Figure 2: BMI According to Sex

Figure 3 shows the activity of the adolescents after school time. 277 (69.9%) are engaged in sedentary activity such as video and internet games and watching TV. Only 8.8% (n=35) of our adolescents are reading during their free time.

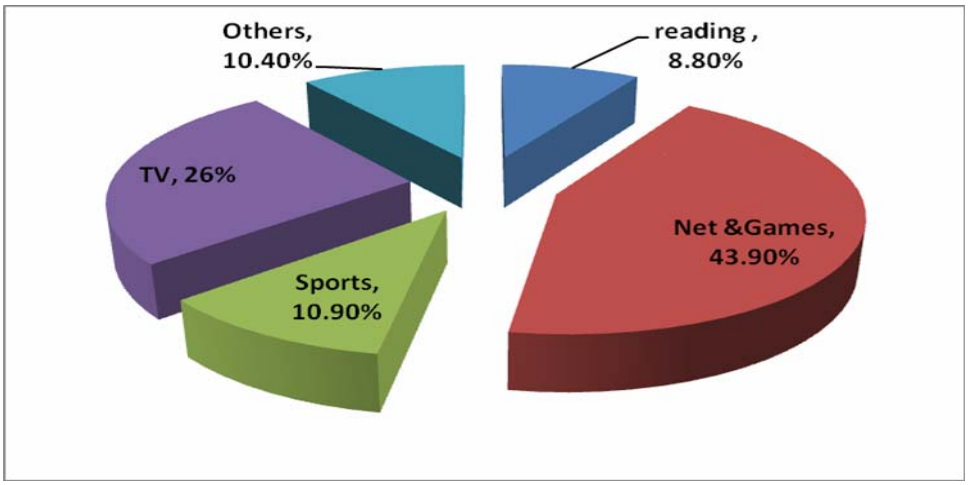

Figure 3: After School Activity of the Adolescents

Seventy-five (18.9%) of the adolescents had felt lonely most of the time during the past three months. Fifty (12.6%) females are feeling lonely compared to 25 (6.3%) males. The difference between males and females is significant, *P=0.001*.

Seventy-eight (19.7%) of the adolescents had felt so sad or hopeless almost every day for two weeks or more in row that they stopped doing their usual activities (a symptom of depression). Fifty (12.6%) female adolescents have symptoms of depression compared to 28 (7%) male adolescents.

Thirty-two (8.1%) adolescents had seriously considered attempting suicide during the past 12 months. Suicidal thoughts are significantly more prevalent in female adolescents, 26 (6.6%), than in male adolescents, 6 (1.5%). The difference between males and females is significant, *P=0.003.*

One hundred and seven (27%) adolescents had been involved in physical fight one or more times during the past 12 months. Sixty-eight (17.2%) male adolescents were involved in physical fights compared to thirty-nine (9.8%) female adolescents. The difference between male and female is significant, *P<0.001*.

Seventy-five (18.9%) adolescents had been bullied in school more than 3 times during the past one month. Both females and males are almost equally prone to bullying.

Three hundred and five (77%) adolescents are not using seat belts in the car. There is no statistical difference between females and males.

Two hundred forty-three (61.4%) adolescents of both sexes had not visited primary care health centers during the past three months.

The average age of menarche is 12.3 years old and it ranges from 10-16 years old. Fifty-two (23.5%) of the females had irregular menstrual cycles. Ninety-eight (44.3%) of them are complaining from dysmenorrhea.

Skin diseases were the most common medical problems, forty-five (11.4%) of both sexes had complained of acne and eighteen (4.5%) had complained of dermatitis.

Ten adolescents (2.5%) had heart murmur, found incidentally during the physical examination; all cases were asymptomatic. Thyroid Goiters had been found incidentally during physical examination in five female adolescents (1.3%), which constitute 2.3% of females.

This study showed high prevalence of abnormal visual acuity, eighty-five (21.5%) had abnormal visual acuity during the screening. Fifty-seven (14.4%) female adolescents had visual acuity problems compared to 28 (7.1%) male adolescents.

Scoliosis, mild to moderate, was found in eighteen (4.5%) adolescents, fourteen females (3.5%) compared to four males (1%). The scoliosis was assessed based on Adam's forward bending test and palpation of the spine[6].

DISCUSSION

The percentage of the adolescents (13.6%) eating fruits in this study is considerably low compared to Oman (29.3%) and Jordan (25.2%)[7,8].

Figure 4 shows high rate of Bahraini adolescents eating fast food almost daily compared to Oman or United Arab Emirates[7,9].

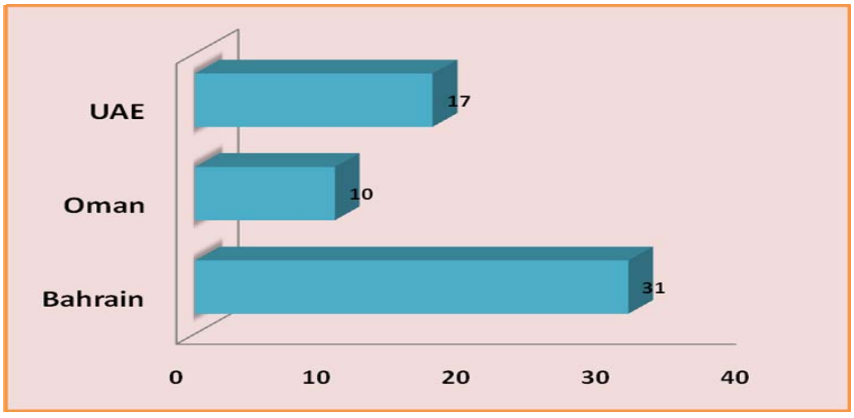

Figure 4: Fast Food Eating Habits in Bahraini Adolescents Compared to Omani and Emirati Adolescents

The percentage of eating breakfast in Bahrain is 51.7%, which is comparable to Oman (50.3%) and UAE (56.3%)[7,9]. In all the three GCC countries, males are more likely to eat breakfast than females.

Figure 5 shows low physical activity in Bahraini adolescents compared to Omani and UAE; Bahraini adolescents are more active than Yemenis and Moroccan[7,9-11]. In all these Arab countries, males are more active than females.

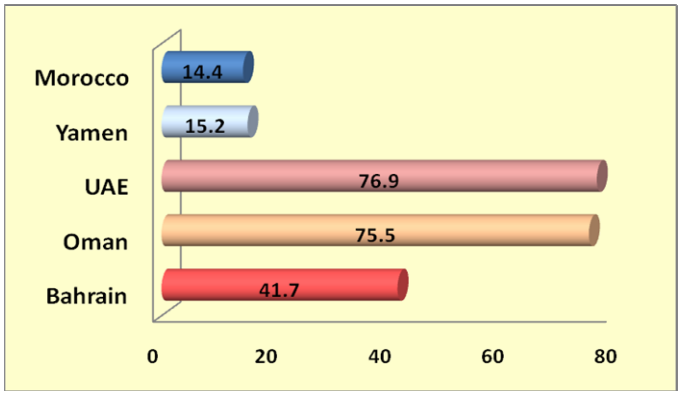

Figure 5: Physical Activity of the Adolescents in Bahrain Compared to Other Arab Countries

Adolescents seems to utilize their free time in internet, TV viewing and video games (69.9%) instead of sports.

Nearly two-thirds of premature deaths and one-third of the total disease burden in adults are associated with conditions or behaviors that began in youth, for example, lack of physical activity or exposure to violence. Promoting healthy practices during adolescence and protection of this age group from risks will ensure longer, more productive lives for many years to come[12].

According to WHO reports, at least 20% of young people will experience some form of mental illness, such as, depression, mood disturbances, substance abuse, suicidal behaviors or eating disorders[12].

The feeling of being alone seems to be higher in this study than in UAE, Jordan, Morocco, Tunisia or Egypt, see figure 6[8,9,11,13,14].

In this study, the prevalence of sadness or depression is lower (19.7%) compared to UAE (35.2%)[9]. Females feeling alone and depressed are more than males in Bahrain and UAE.

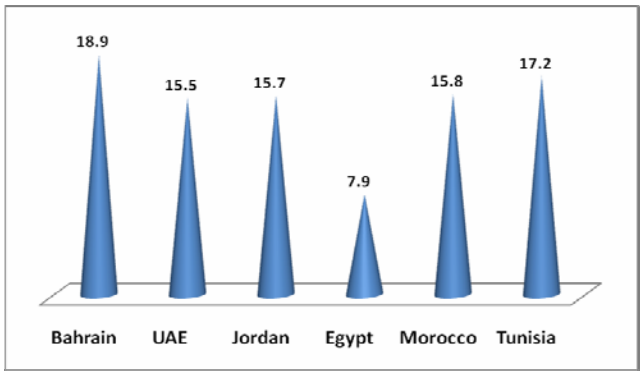

Figure 6: The Feeling of Being Alone in Bahraini Adolescents Compared with Other Arab Countries

About 4 million adolescents attempt suicide each year. Suicide is the third leading cause of death among adolescents[12]. The rate of suicidal thoughts is lower in this study (8.1%) compared to Jordan (18%) or Tunisia (19.8%)[8,13].

This study shows low rate of physical fights compared to Oman, UAE or Jordan, see figure 7. Most of the studies show that males are more engaged in physical fights than females. An American study of students showed that engagement in violence-related behaviors ranged from 13% to 23% among boys and 4% to 11% among girls. Bullying others and being bullied were consistently related to violence-related behavior for both boys and girls[15].

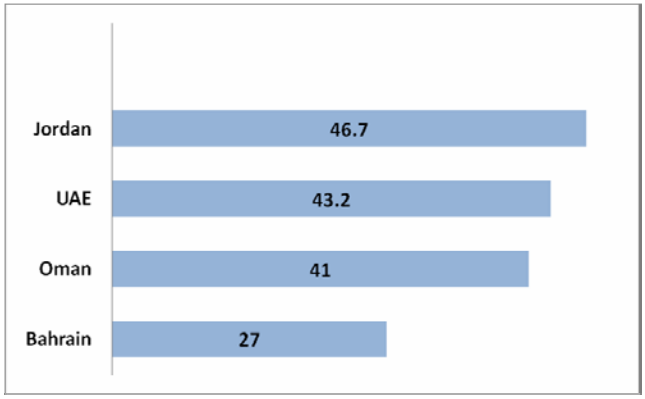

Figure 7: Physical Fights in Bahraini Adolescents Compared with Other Countries

Violence among adolescents is major concern, bullying is infrequently addressed in national data. The percentage of adolescents whom being bullied in this study is considered lower than UAE, Oman, Jordan and USA, see Figure 8[7-9,16].

The prevalence of adolescents that are not using safety belts in cars is considerably high in this study (77%) compared to a study done in USA, which showed that approximately one third of the teenagers are not always using their safety belt[17].

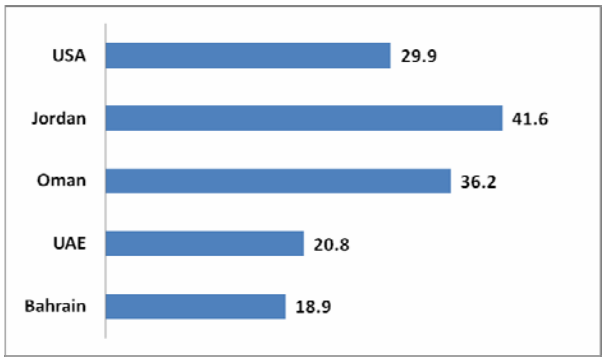

Figure 8: Bullying in Adolescents Compared with Other Countries

The average age of menarche in this study was 12.3 years; it is close to the American average age of 12 years and 4 months[18]. In a study done in Britain, the median age of menarche in contemporary British teenagers is around 13 years[19].

Dysmenorrhea in female adolescents is considered the greatest single cause of lost school hours and works[20]. This study (44.3%) shows comparable figures to USA study, which showed about 45-70% of adolescents have some degree of dysmenorrhea[20].

Scoliosis prevalence in this study (4.9%) is higher than Singapore (3.1%) and USA (2-4%)[21,22]. Most of the studies showed that scoliosis affects females more than males. The American Academy of Pediatrics has recommended scoliosis screening with the Adam's forward bending test during routine health visits at 10, 12, 14 and 16 years of age, though there is no evidence to support such recommendation[23].

The prevalence of abnormal visual acuity is relatively high in this study. Reduced vision may affect academic performance, choice of occupation and socio-economic status in adult life. In Cochrane review, there are no robust trials available for adolescents' vision screening[24].

CONCLUSION

The high prevalence of risky behaviors in adolescents highlights the importance of implementing comprehensive screening in primary care setting.

Most of the adolescents, especially females were physically inactive and leading sedentary life style activity and unhealthy diet habits; this leads us to recommend the following measure:

- **Design an educational program for the adolescent nutrition, balanced diet and importance of eating fruits and vegetables.**
- **Educate the adolescent to reduce the rate of fast food eating habits and the significance of breakfast.**
- **Promote physical education in schools and clubs and ensure maximum physical participation of adolescents, particularly females.**

- **Design recreational program for adolescent's hobbies, voluntary work, or vocational training.**

Violence and bullying are prevalent among adolescents; males are significantly more engaged in physical fights than females. There is a need to control this phenomenon at school level, family environment and communities.

To combat bullying in schools, an anti-bullying school policy and continued counseling should be adopted in school[25].

Promoting mental health requires a range of adolescent-friendly health care and counseling services in communities, activate the role of psychosocial counselor in schools. There is a need for promoting complimentary relation between parents and adolescent early in life to reduce the suicidal attempts. More effective and sensitive care for adolescent victims of violence is needed.

The use of safety belts by adolescent and others should be stressed in national awareness program and the legislation should be vigorously applied to deter the violators.

The majority of the adolescents are not visiting primary care health centers, this requires efforts to increase access to and use of health services for adolescents.

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