

# Wellness appraisal among adolescents in Jordan: a model from a developing country: a cross-sectional questionnaire survey

LINDA G. HADDAD<sup>1\*</sup>, ARWA OWIES<sup>2</sup> and AMANI MANSOUR<sup>3</sup>

<sup>1</sup>Virginia Commonwealth University School of Nursing and Institute for Drug and Alcohol Studies, Richmond, VA, USA, <sup>2</sup>Faculty of Nursing, Jordan University of Science and Technology, Irbid, Jordan and <sup>3</sup>Ministry of Health, Irbid, Jordan

\*Corresponding author. E-mail: lhaddad2@vcu.edu

---

## SUMMARY

The demographic and economic transition that many developing countries, including Jordan, are undergoing is producing important changes in diet and lifestyle that greatly impact the development of chronic illness. The health behavior of adolescents in developing countries constitutes one of the most serious global challenges we face. The purpose of this study was to explore the wellness appraisal of Jordanian adolescents. It specifically describes the (i) self-care and health history pattern, (ii) to assess physical activity and nutrition appraisal, (iii) quality of life appraisal and (iv) school and outside activities appraisal. A self-administrated questionnaire collected the data from adolescent groups (boys and girls). A multi-stage stratified random sample was obtained from six public schools by first selecting the educational directorate located in the city of Irbid, which is located in the north of Jordan. A random sub sample of six individual schools was then selected. Individual classes were then

selected. A total of 269 boys and 261 girls (12–17-year old) were included in the analysis. The results showed that the students engaged in risky health behaviors which could lead to short- and long-term health problems. The most alarming finding of this study was students' nutritional habits, including less than the daily requirements of fruits, vegetables, milk and meat, while the intake of fast food, soft drinks and sweets were higher than recommended. School-based health promotion and wellness programs should be established in Jordan to influence the health behaviors of adolescents and parents and to avoid further deterioration of their health. Jordanian school curriculum needs to integrate more precise health education programs about diet, exercise, self care and other life style behaviors. More detailed studies are needed with more elaborate instruments about food habits, physical activities and psycho social life.

**Key words:** wellness appraisal; adolescents; Jordan; questionnaire survey

---

## INTRODUCTION

Jordan is a developing country, with a current population of 5 703 000 million that is projected to grow to 8.5 million in 2025. At the same time, the adolescent group comprises about 1 400 000 of this total number, while children below the age of ten years total about 1 353 000 million (World Health Organization, 2007). Consequently,

adolescents account for one-third of the Jordanian population. Therefore, it is important to investigate this group. Unfortunately, little information exists about Jordanian adolescents' health-related behaviors. Indeed, as the majority of Jordanians are under the age of 20, health promotion programs need to be started sooner rather than later (Jordan's Human Development Index, 2004). Without such programs, all segments of

the population, young to old, will ultimately be affected (Haddad *et al.*, 1999; Zindah *et al.*, 2008).

Furthermore, the demographic and economic transition that many developing countries are undergoing is producing important changes in health and lifestyle that greatly impact disease risks. Among the risk behaviors associated with socioeconomic transition and urbanization are excessive dietary fat intake, sedentary lifestyle, tobacco use, stress management and environmental contamination (McCrindle, 2001). Combined with a reduced infant mortality and increased life expectancy, those risk factors lead to an increasing prevalence of chronic diseases such as non-insulin-dependent diabetes and coronary heart disease. Problems such as these are a relatively new phenomenon in developing countries where health programs have traditionally focused on 'acute' interventions only (Kann *et al.*, 2000).

It is evident that healthy lifestyle behaviors during adolescence are essential to maintain adolescents' well-being and decrease their risk of chronic diseases such as non-communicable diseases later in life (Willcox and French 2001; Pinhas-Hamiel and Zeitler, 2005). Consequently, enhancing the wellness of an overall population, and of individuals, can be realized only through coherent strategies that address all the factors that determine health (Zindah *et al.*, 2008). Those factors include everything from personal health habits and behaviors as well as social and economic factors such as poverty, lack of job opportunities, poor nutrition and school dropout rates.

In addition, there is evidence that many health promoting or damaging habits are established during the adolescent years (Muzio *et al.*, 2000; Yusufali, 2002). Unhealthy habits and lifestyle choices established in adolescence produce disability and diseases later in life. Accordingly, adult mortality and morbidity could be reduced by improving health habits in adolescence. Furthermore, a recent prevalence of important risk behaviors and protective factors monitoring Survey of Jordanian School Children revealed that 14.3% of students were at risk of becoming overweight, 14.6% of students ate at fast food restaurant, 15.7% of students felt lonely most of the time and 18.0% were seriously considering attempting suicide. Moreover, the survey found that only 14.3% of students were physically active while 83% of students participated in insufficient physical activity (Center for Disease Control and Prevention, 2007).

Due to these findings, accurate and appropriate systematic assessment of wellness behaviors among Jordanian adolescents is essential for health care professionals in developing priorities, implementing cultural specific intervention programs, establishing trends in the prevalence of health risk behaviors and protective factors for use in evaluation of school health and youth health promotion in Jordan. Thus, the purpose of this study is to then describe wellness appraisal of Jordanian adolescents between the ages of 12 and 17, specifically to the importance of: (i) self-care and health history and habits; (ii) physical activity and nutrition; (iii) quality of life and (iv) school and outside activities. This is done in order to direct intervention strategies to improve the health promotion activities targeted toward Jordanian adolescents.

## METHODOLOGY

The study was carried out in the city of Irbid in the northern part of Jordan; Irbid is the second largest city in the country. A multi-stage stratified random sample was obtained by first selecting the public school educational directorate located in the city of Irbid. Irbid's school district contains 73 middle and high schools that represent 56.8% of the adolescents in the entire city of Irbid. The total enrollment of these schools was 8818 students, with 5055 enrolled in schools for boys and 3763 in schools for girls. Public schools in Jordan are single sex. The system for selecting participants was as follows: six individual schools were randomly selected by random drawing. Individual classes of students were then selected, randomly using simple random sampling technique until a sample size of 550 was achieved.

## Procedures

Two classes of 30–35 students were randomly selected from each school. Data were collected from both classes of students at each study site on the same day. Identical instructions were given to each class. A brief description of the study's purpose was given to students before the questionnaire was distributed, and voluntary consent was obtained. Participants were informed that their responses would be kept confidential and that all results would be presented as an aggregate. The committee for

protection of human subjects at Jordan University of Science and Technology approved the study design and consenting methods.

### Instrumentation

A modified Adolescent Wellness Appraisal (AWA) questionnaire was used to collect data for this study. This questionnaire was originally developed by the University of Michigan Fitness Research Center and used in the Michigan model for a comprehensive school health curriculum (University of Michigan, 1988, 1991). The AWA questionnaire consists of 55 items aims that assess basic health knowledge and behaviors that most influence the health of adolescents. The AWA questionnaire is composed of seven subscales including: self care and health history; health habits and knowledge; safety and violence; nutrition habits; drugs, alcohol and tobacco; quality of life; and both school and out of school activities. Two subscales, drugs, alcohol, and tobacco and safety and violence, were excluded because contents of these subscales are not culturally applicable to Jordanian adolescents. The remaining subscales consisted of 34 items which were used for the purpose of data collection.

Since Arabic is the native language in Jordan, the investigator with permission from the original author, translated the questionnaire into Arabic using a comprehensive method to ensure equivalence and validity. The Arabic version of the instrument was then pilot tested on a group of Jordanian adolescent students ( $n = 60$ , 30 male and 30 female) in order to test data collection procedures and compute the reliability coefficient and validity of the Arabic version. According to the pilot study result, two questions were modified. They were not clear to most of students. Content validity of the modifying instrument was assessed by two faculty members both of whom are experts in the area of adolescent's and children's health. The final Arabic AWA version was composed of the following four subscales: (i) self-care, health history and habits subscale; (ii) eating habits subscale, 10 items related to eating habits were modified to be appropriate to Jordanian culture and norms and included the daily allowances of the recommended nutritional serving for adolescents; (iii) quality of life subscale and (iv) school and out of school activities subscale. All four subscales items were scored on different Likert-type scale.

## RESULTS

The total number of adolescent students who participated in the study was 530, of which 261 (49.2%) were girls and 269 (50.8%) were boys. Seventh grade students ( $n = 264$ ) and eighth grade students ( $n = 266$ ) were almost equally distributed. The majority of participants (90%) lived with both parents. The majority of students (54.5%) described their own health status to be 'Excellent,' whereas only 0.2% described their health to be 'poor'.

### Self care and health history and habits

The students reported that the most common chronic illnesses of parents and grandparents were diabetes (53.5%) and hypertension (50.9%), whereas the least common chronic illness reported were heart attacks and stroke. Table 1 presents findings related to self care, history and health habits. Findings indicated that the majority of students (56.2%) missed less than 2 days of school in the past year, whereas 10.8% of students missed more than 1 week of school days in the past year. The majority of students (55.1%) had a physical exam at least once a year, teeth checked every 6 months or yearly (55.5%), brushed teeth once a day (52.8%) and slept from 7 to 9 h or more at night (53.2%). Moreover, a majority of students (52.5%) did exercise three to six times weekly, while 24.7% exercised once a week or less, and 48.5% reported that they were physically active. The results showed that there was a significant difference between boys and girls in regard to exercise ( $X^2 = 42.232$ ,  $df = 1$ ,  $p = 0.01$ ), where boys were more active than girls in the amount of weekly exercise.

### Nutritional habits

Table 2 presents findings related to nutritional habits. Findings indicate that more than half of students eat breakfast 5–7 days per week, and about 17% of students eat breakfast 1 day or less per week. The majority of students indicated that they had eaten fruits less than four times daily (77.5%), vegetables less than four times daily (81.7%) and bread/rice one to three times daily (76.1%). Also, the majority of students indicated that they drank milk or dairy products less than four times daily (81.8%). They had eaten meat two to four times weekly (62.1%). Moreover, a majority of students

**Table 1:** Self-care and health habits ( $n = 350$ )

Variable	Frequency	Percentage	Female (%)	Male (%)
Days of school missed				
Not missed school	150	28.3	33.0*	23.8
Less than 2 days	148	27.9	29.1	26.8
Two to four days	175	33.0	27.6	38.3*
More than a week	57	10.8	10.3	11.2
Have a regular physical exam				
Once a year or more	292	55.1	57.1	53.2
Every 2 years	57	10.8	7.3	14.1**
Every 3 years or less often	181	34.2	35.6	32.7
Teeth checked by a dentist				
Every 6 months	154	29.1	21.1	36.8
Every year	140	26.4	30.3	22.7
Every 2 years	52	9.80	8.8	10.8
Every 3 years or more	184	34.7	39.8*	29.7
Times of brushing teeth				
Once a day or more	280	52.8	61.3**	44.6
Four to six times a week	84	15.8	13.0	18.6
Two to three times a week	105	19.8	21.5	18.2
Once a week or less often	61	11.5	4.2	18.6**
Hours of night sleeping				
Five hours or less	55	10.4	7.3	13.4
Six hours	80	15.1	17.6	12.6
Seven hours	113	21.3	21.5	21.2
Eight hours	157	29.6	29.5	29.7
Nine hours or more	125	23.6	24.1	23.0
Times of weekly exercise for 20 min				
Six or more times a week	178	33.6	22.6	44.2*
Three to five times a week	100	18.9	17.6	20.1
Two times a week	121	22.8	31.0	14.9**
Once a week or less often	131	24.7	28.7	20.8
Perception to physical activity				
Very physically active	257	48.5	44.1	52.8
Moderately physically active	252	47.5	50.6	44.6
Not very physically active	21	4.00	5.4	2.6

\* $p < 0.05$ , \*\* $p < 0.01$ .**Table 2:** Nutritional patterns ( $n = 530$ )

Item	Frequency	Percentage	Female (%)	Male (%)
Times a week ate breakfast				
Seven days	240	45.3	31.4	58.7*
Five to six days	59	11.1	10.0	12.3
Two to four days	142	26.8	37.5*	16.4
One day or less	89	16.8	21.1*	12.6
Fruits intake per day				
Once	235	44.3	48.3*	40.5
Two to three times	176	33.2	29.9	36.4
Four times or more	116	22.5	21.8	23.0
Vegetables intake per day				
Once	274	51.7*	53.3	50.2
Two to three times	159	30.0	28.7	31.2
Four times or more	97	18.3	18.0	18.6
Bread/rice intake per day				
Once	179	33.8	37.9	29.7
Two to three times	224	42.3	42.5	42.0
Four times or more	127	24.0	19.5	28.3
Drink milk or its products				
Once	271	51.1	53.3	49.1
Two to three times	170	32.7	31.4	32.7
Four times or more	89	16.8	51.3*	18.2
Meat intake per week				
Once	201	37.9	46.0	30.1
Two to three times	196	37.0	33.0	40.9
Four times or more	133	25.1	21.1	29.0
Sweets or candy intake per day				
Once	164	30.9	26.4	35.3*
Two to three times	177	33.4	36.0	30.9
Four times or more	189	35.7	37.5	33.8
Soft drink intake per day				
Once	280	52.8	57.1	48.7
Two to three times	137	25.8	26.4	25.3
Four times or more	113	21.3	16.5	26.0*
Fast food intake per week				
Once a day	272	52.8	48.3	54.3
Two to three times a week	137	25.8	41.4*	27.9
Four times or more	113	21.3	10.3	17.8

\* $p < 0.05$ .

indicated that they had eaten sweets and candy two to four times or more daily (69.3%) and drank soft drinks more than once daily (64.7%).

On the other hand, the majority of the students (52.8%) had eaten fast food once a day, while 45.7% had eaten fast food two to four times or

**Table 3:** Quality of life ( $n = 530$ )

Items	Frequency	Percentage	Female (%)	Male (%)
Have a friend or family member				
Yes	425	80.2	83.1	77.3
No	64	12.1	10.0	14.1
I'm not sure	41	7.70	6.9	8.6
Communications with adults				
Good	359	67.7	65.5	69.9
Fair	146	27.5	31.4	23.8
Poor	25	4.70	3.1	6.3
Have a control over events				
Almost always	91	17.2	11.9	22.3
Most of the time	226	42.6	43.3	42.0
Sometimes	169	31.9	35.6	28.3
Hardly ever	44	8.30	9.2	7.4
Consideration of happiness				
Very happy	116	21.9	18.4	25.3
Happy for the most part but something could be better	235	44.3	41.8	46.8
Something's are okay but I'm unhappy most of time	155	29.2	39.1**	19.7
Very unhappy	24	4.50	0.8	8.2
Exposed or involved in a violent argument				
Four or more times	130	24.5	21.8	27.1
Two to three times	74	14.0	11.1	16.7
Once	129	24.3	23.4	25.3
Never	118	22.3	26.4	18.2
Not sure	79	14.9	17.2	12.6
Feeling lonely				
Never	209	39.4	31.8	46.8**
Rarely	107	20.2	27.6**	13.0
Sometimes	154	29.1	34.1	24.2
Often	60	11.3	6.5	16.0**
Do you think your life will be better than your parents or grandparents life				
Yes	164	30.9	27.6	34.2
About the same	96	18.1	19.5	16.7
No	54	10.2	11.1	9.3
Not sure	216	40.8	41.8	39.8

\*\* $p < 0.01$ .

more daily (48.3% were females and 54.3% were males). Boys were significantly better in regard to eating daily breakfast ( $X^2 = 24.782$ ,  $df = 4$ ,  $p = 0.01$ ). A total of 61.7% of students considered themselves to have a normal weight, and half of the students tried to lose weight very quickly. The methods of losing weight that were most commonly used were not drinking water (49.6%), vomiting to get rid of food (49.1%), using laxatives (47.5%) and using diet pills (49.1%).

### Quality of life

Table 3 presents findings related to quality of life style. Finding shows that majority of students indicated that they have the friends and family support if needed (80.2%), good communication with adults (67.7%) and control

over what happens to them (59.8%). The majority of students indicated that they are happy (60.2%) and involved in violent argument from one to four or more times in the last year (62.8%). Less than half of the students (39.4%) reported that they are feeling lonely, and that their life might be better or the same as that at their parents (49%). The most recurrent event that happened to students last year was death of a close friend. Interestingly, girls significantly felt more unhappy ( $X^2 = 30.782$ ,  $df = 2$ ,  $p = 0.01$ ) than the boys, whereas boys significantly ( $X^2 = 30.782$ ,  $df = 2$ ,  $p = 0.01$ ) perceive themselves as lonely.

### School and out of school activities

Table 4 presents finding related to school and out of school activities. Findings indicated that

**Table 4:** School and outside activities ( $n = 530$ )

Items	Frequency	Percentage	Female (%)	Male (%)
Grades in school				
High (90–100)	190	35.8	37.5	34.2
Above average (80–89)	178	33.6	31.4	35.7
Average (70–79)	130	24.5	26.4	22.7
Below average (<70)	32	6.00	4.6	7.4
Student want to complete				
High school	71	13.4	13.0	13.8
Two years of college or less	55	10.4	11.9	8.9
Four years of college	91	17.2	22.2	12.3
More than 4 years	313	59.1	52.9	65.1
Hours spent on homework				
Four hours	122	23.0	27.6	18.6
Three to four hours	122	23.0	21.1	24.9
One to two hours	187	35.3	29.9	40.5
Less than 1 h	99	18.7	21.5	16.0
Number of school activities				
None	254	47.9	49.0	46.8
One to three activities	225	42.5	43.3	41.6
Three or more activities	51	9.60	7.7	11.5
Number of non-school activities				
None	356	67.2	68.2	66.2
One to three activities	118	22.3	22.6	21.9
Three or more activities	56	10.6	9.2	11.9

most participants reported to be performing well in school (94%), with a grade point between high and average. Two-thirds had excellent to very good grades. A majority of students (59.1%) planned to pursue higher education. A total of 81.3% of all students reported an average study time between 1 and 4 h. A majority of students (52.1%) reported that they participated in one to three or more school activities, where only 32.9% of students participated in non-school activities.

## DISCUSSION

### Self care and health history

The results of this study showed that although majority of students (54.5%) described their

health status to be 'excellent,' other appraisal findings show contradictory evidence of increased risk for physical and psychological health among students. It is worth knowing that these results are consistent with the other recent Jordanian study by Zindah *et al.* (Zindah *et al.*, 2008) in which students declared themselves to be in either 'great' or good health while they were involved with many health-risk behaviors.

This study found that one-third of students had a regular physical exam every 3 years. This implies that students did not have regular annual physical exams. One of the possible explanations for this finding is the fact that Jordanian society believes that people visit doctors only in case of pain or harm. Health promotion and prevention concepts are not yet rooted in the Jordanian society. It is worth knowing that the School Health Department at the Ministry of Health conducts only two free general physical exams, one each for the sixth and tenth grade in the public schools. These two grades were not included in this survey (World Health Organization, 2005).

The present findings further showed that only 44% of students had annual dental checkups. This means that over half of the students did not access any preventive dental care at all. This result is alarming, adding to the fact that only about half of the students brushed their teeth once a day or more. The national data regarding the prevalence of healthy dental behaviors in adolescents are limited. However, these findings are supported by Rajab *et al.* (Rajab *et al.*, 2002) where they find that only 11% of same age group had dental check-ups, and where only 31% of the schoolchildren brushed their tooth twice a day. Socioeconomic and insurance status may affect utilization of preventive dental care (Rajab *et al.*, 2002). The oral prevention behavior of Jordanian adolescents seems most irregular compared to the industrial countries (World Health Organization, 2000). In the Middle East, the oral hygiene habits of the Jordanian teenagers are poor compared to similar age groups in Kuwait (Vigild *et al.*, 1999) and Saudi Arabia (Al-Tamimi and Petersen, 1998).

Moreover, the results of this study showed that majority of students met the required recommended amount of sleeping hours (at least 7 h) (Dahl, 1999). Still, 47% of students sleep less than these recommended hours. In Jordan

and the Middle East, sleeping hours data are scarce and no reports are available on sleep patterns and hygiene. However, compared to the West, these results are on line with the findings of the US epidemiological data, where over one-quarter of adolescents ages 12 to 17 years report that they do not get enough sleep (National Sleep Foundation, 2000). Overall, this finding implies the need for further research to identify the antecedents of insufficient sleep among adolescents and to make use of the resulting findings to inform programs designed to improve adolescent sleep habits.

Although 48.5% of students perceived themselves as very physically active, findings showed that only 33.6% of students, mostly boys, did a minimum of 20 min of exercise six or more times a week. This is consistent with the findings of the recent 2007 Global School-Based Students Health Survey that indicates one-third of adolescents failed to meet the current public health recommendations of three or more sessions of continuous moderate to vigorous physical activity per week (Center for Disease Control and Prevention, 2007). From a Middle Eastern perspective, the physical exercise and activity were also poor in a similar age group in the Palestinian territories (Al Sabbah *et al.*, 2007).

There has been a growing interest in the possible effects of neighborhood, community and broader environmental factors—including access to facilities and safe opportunities to exercise both inside and outside of school—on physical activity in adolescence. In many countries in the region, sport is mainly seen as a leisure activity for boys, and schools and community centers are not well equipped to further sporting activities. In addition, although many countries allocate budgets for sport, these are mainly channeled for professional games; this fact might be another explanation for the exercise results.

Opportunities to exercise in the school context appear to vary by the socioeconomic status and urbanism of the country. Lower income countries are less likely than are middle, mixed, or upper income countries to have a playground or sports field in their schools; and in Jordan, where schools are less likely to have a playground or sport field within their walls, this is true most of the time. Opportunities to exercise outside of school are also likely to be important, as the vast majority of the time that

7th–11th graders could spend engaging in physical activity occurs outside of schools, mostly in the community. All these previous facts may explain the results pertaining to exercise and physical activities in Jordan. Furthermore, this study found that boys are more physically active than girls. These findings are more consistent with findings from other studies in which males across all ages reported engaging in regular sports activities more than females across all age groups (Haddad *et al.*, 1999; Al Sabbah *et al.*, 2007). In Jordan and other Arab countries, sports are to some extent not culturally acceptable among women, while boys are encouraged by their families and their social environments to play sports and be physically active.

### Nutritional habits

The study showed that, although 56.4% of students eat breakfast from 5 to 7 days weekly, still there were 16.8% of students who did not eat breakfast at all. This is congruent with Western studies' findings. For example, Lytle (Lytle, 2000) reported that 25% of adolescent girls and boys in USA skipped breakfast on a survey day. Thus, it is very important to assess causes of decreased breakfast intake by students, which could be due to school start times or the access of breakfast in their homes.

Furthermore, data related to nutritional pattern were alarming. The majority of students did not meet the required amount of fruits (three servings), vegetables (five servings), milk or dairy products (five servings), meat (three servings) and even bread or rice, as recommended by Center for Disease Control and Prevention (CDC) (Center for Disease Control and Prevention, 2006). Consistent with the CDC (Center for Disease Control and Prevention, 2007), consumption of sweets and candy, fast food and soft drink is critically high.

Suggested reasons for this lack of consumption of milk and dairy products might be related to increased intake of soft drinks (Soda, tea and coffee). As the results of this survey show, 47.3% of students consume a soft drink two to four times or more daily, while in last year's Center for Disease Control and Prevention survey (Center for Disease Control and Prevention, 2007), it showed that only 38% of the students drank carbonated soft drinks. This means that the rate is going up each year.

Consumption and a high intake of soft drinks may increase the risk of stress fractures and broken bones in youth as well as decrease overall nutrient status. The trend of increasing soft drink consumption and decreasing milk consumption should be of public health concern.

The socioeconomic background of students' families might add to the explanation of the above result. Ease of access to healthy foods and ease of access to unhealthy foods explained nutritional results. The availability of fruits and vegetables at home will increase the fruit and vegetable consumption. Ease of access to unhealthy foods is another possible environmental determinant that can affect nutritional habits. Unhealthy foods are easily available to many school children, either through nearby fast food restaurants or school stores. Media messages are another potentially important antecedent of adolescent nutrition. Just over one-third of all prime time television programs' commercials were advertisements for foods, most commonly for fast food restaurants. There were almost no commercials for fruits and vegetables. Dietary patterns among adolescents are also associated with those of their family members, indicating that family nutrition is a potential antecedent to adolescent nutrition.

Although some dieting behaviors and concerns about body shape are normal during adolescence, teens can engage in these behaviors to the point of risking their physical and mental health. The current study showed that 47.5% of students used laxatives and 49.1% used diet pills to decrease body weight. Those adolescents may develop an eating disorder when they have trouble accepting physical changes that occur to their bodies as they go through puberty. Another possible cause of eating disorders is the increased western advertising and media push for a new culture of ultra thin ideal body size and the products to decrease body weight, which have been found all over Jordan in the recent years (Madanat *et al.*, 2007).

Thus, data related to nutritional practices is alarming, and serious interventions are needed to improve Jordanian adolescents' health and wellness behaviors. However, nutritional health behavior is currently considered as one of the main national health problems in Jordan, especially among school students, and many supplemental programs were started. In general, health education alone has not proven effective.

Programs that try to change behaviors have been more successful; however, maintaining desired behavior changes over time remains a challenge. Family- and community-based approaches to promoting exercise and better nutrition may work.

Jordanian Mass media communications such as TV programming is now replete with commercials for snack foods and western fast food giants like McDonalds, Pizza Hut, Coca-Cola and Pepsi. Moreover, the picture of health and nutritional status in the Jordan has changed drastically during the past four decades as a result of changes in dietary habits and lifestyle. The chronic non-communicable diseases such as coronary heart disease, diabetes, hypertension and cancer have become the main public health problems in Jordan (Zindah *et al.*, 2008).

There is a need to design health promotion programs to raise students' knowledge about food and nutrition, such as eating a healthy balanced diet and consuming milk and dairy products. Also there is a need to overview schools' canteens and develop school canteen policy about what food is appropriate and desirable to sell to students.

### Quality of life

Findings of this study showed that the general psychosocial health of students still a way of any risk. A total of 80.2% reported that they have enough social support in times of need, and 67.7% reported that they had good communication with adult. Only 11.3% reported often feeling of lonely, and majority are happy (66.2%). The importance of culture and religion among Jordanian adolescents, with the quality of family bonds in Arab cultures, might explain these results. In contrast to western study results, Jordanian adolescents reported low percentage of being exposed to or involved in a violent argument. But because this question asked about violent arguments in the last year, the student's ability to remember this event might have decreased, which might explain this result also. Unsurprisingly, girls were significantly unhappier than boys. The suggested reason for this is that the Arab family power structure has traditionally been clearly delineated along patriarchal lines, with men exerting authority over women and the young showing deference to and obeying their elders. Also, culture and norms still give males more



space and freedom than females in socialization and activity selection.

### School and out of school activities

The majority (67.2%) of students did not participate in out of school activities, and about 50% did not participate in school activities. Civil society organizations play a critical role in constructively engaging youth in their communities and in keeping them off the street. They also provide settings where opinions can be expressed and where adolescents can safely enjoy being young. This study shows that the majority of students were not engaged in activities either in school or out of school. Therefore, the need for more youth centers and other safe environments for entertainment, exercise and leisure time exists. Although there are many existing youth centers that simply provide space without organization or activities, they were not meeting adolescents' needs.

### Limitations

Although the modified AWA questionnaire has documented validity and reliability in English, the translated Arabic version has not been studied before to demonstrate valid and reliable questions in the Arabic speaking world and in the Arab culture. Another limitation could be related to the cross-sectional survey design itself, and the survey was not conducted throughout the year. Seasonal behaviors related to lifestyle practices may not be representative. Finally, the target population of this study was limited to the north urban district of Jordan.

### CONCLUSION

It seems that Jordan is going through a transitional status in which school age children are living a sedentary lifestyle with more empty energy and high fat nutrition foods, which create a major chronic diseases burden in Jordan. The study revealed that there are problems with Jordanian adolescents' wellness in relating to oral health, physical activity, eating and diet and quality of life. The results indicate that policies need to be developed, implemented and evaluated to safeguard health and wellness habits. Moreover, school-based oral health promotion programs should be

established in Jordan to influence the oral health behavior of the children and the parents. Baseline data about adolescent health, activities and socialization were not enough in Jordan. Therefore, further research is needed to help policy maker decrease health-risk behaviors among Jordanian adolescents.

### FUNDING

This study was supported by the Ministry of Health Human Resources Development Directorate, Amman, Jordan, the Faculty of Nursing at Jordan University of Science and Technology, Irbid, Jordan.

### REFERENCES

- Al-Tamimi, S. and Petersen, P. E. (1998) Oral health situation of school children, mothers and schoolteachers in Saudi Arabia. *International Journal Dental Journal*, **48**, 180–186.
- Al Sabbah, H., Vereecken, C., Kolsteren, P., Abdeen, Z. and Maes, L. (2007) Food habits and physical activity patterns among Palestinian adolescents: findings from the national study of Palestinian schoolchildren (HBSC-WB2004). *Public Health Nutrition*, **10**, 739–746.
- Center for Disease Control and Prevention. (2006) Nutrition for every one: fruits and vegetables. CDC, Georgia, Atlanta, [http://www.cdc.gov/nccdphp/dnpa/nutrition/nutrition\\_for\\_everyone/fruits\\_vegetables/index.htm](http://www.cdc.gov/nccdphp/dnpa/nutrition/nutrition_for_everyone/fruits_vegetables/index.htm) (Retrieved 20 August 2008).
- Center for Disease Control and Prevention. (2007) Global school-based student health survey (GSHS) Jordan GSSHS Report, CDC and World Health Organization.
- Dahl, R. E. (1999) The consequences of insufficient sleep for adolescents: links between sleep and emotional regulation. *Phi Delta Kappan*, **80**, 354–359.
- Haddad, L., Al-Ma'aitah, R. and Umlauf, M. (1999) Health promotion behaviors among Jordanians. *International Quarterly of Community Health Education*, **18**, 223–235.
- Jordan's Human Development Index. (2004) [http://hdr.undp.org/hdr2006/statistics/countries/country\\_fact\\_sheets/cty\\_fs\\_JOR.html](http://hdr.undp.org/hdr2006/statistics/countries/country_fact_sheets/cty_fs_JOR.html) (Retrieved 17 May 2007).
- Kann, K., Kinchen, S. A., Williams, B. I., Ross, J. G., Lowry, R. and Grunbaum, J. A. (2000) Youth risk behavior surveillance United States, 1999. *Morbidity and Mortality Weekly Report*, **49**, 19–94.
- Lytle, L. (2000) Nutrition education for school-aged children: a review of research, prepared for: U.S. Department of Agriculture, Food and Consumer Service, Office of Analysis and Evaluation, September, 2000.
- McCordle, B. (2001) Cardiovascular risk factors in adolescents: relevance, detection, and intervention. *Adolescent Medicine*, **12**, 147–162.
- Madanat, H., Brown, R. B. and Hawks, S. R. (2007) The impact of body mass index and western advertising and media on eating style, body image and nutrition

- transition among Jordanian women. *Public Health Nutrition*, **10**, 1039–1046.
- Muzio, C., Lissner, J., Bierregaard, O. *et al.* (2000) The Youth of Jordan, Jordan Human Development Report 2000. Amman, Jordan: Ministry of Planning and International Cooperation, the Hashemite Kingdom of Jordan, and the United Nations Development Program, <http://hdr.undp.org/en/reports/nationalreports/arabstates/jordan/name,3150,en.html> (Retrieved 26 June 2008).
- National Sleep Foundation. (2000) *Adolescent Sleep needs and Patterns: Research Report and Research Guide*. Washington, DC.
- Pinhas-Hamiel, O. and Zeitler, P. (2005) The global spread of type 2 diabetes mellitus in children and adolescents. *The Journal of Pediatrics*, **146**, 693–700.
- Rajab, L. D., Petersen, P. E., Bakaeen, G. and Hamdan, M. A. (2002) Oral health behavior of school children and parents in Jordan. *International Journal of Pediatric Dentistry*, **12**, 168–176.
- University of Michigan Health Management Research Center. (1988) AWA software *Package*. Author, Ann Arbor, MI.
- University of Michigan Health Management Research Center. (1991) AWA software *Package*. Author, Ann Arbor, MI.
- Vigild, M., Petersen, P. E. and Hadi, R. (1999) Oral health behavior of 12-year-old children in Kuwait. *International Journal of Pediatric Dentistry*, **9**, 23–29.
- Willocx, C. and French, A. (2001) Pattern of health-risk behavior among high school students. *Journal of School Health*, **71**, 23–30.
- World Health Organization. (2000) Health and health behavior among young people. WHO regional office for Europe, Copenhagen.
- World Health Organization. (2005) Health in Jordan, world health organization and Ministry of health. Amman Jordan.
- World Health Organization. (2007) *Demographic and Socioeconomic Statistics*, World Health Statistics, [http://www.who.int/whosis/whostat/2007\\_8demographics.pdf](http://www.who.int/whosis/whostat/2007_8demographics.pdf) (Retrieved 11 May 2007).
- Yusufali, M. (2002) Diet and prevention of coronary heart disease in the Arab Middle East countries. *Medical Principles and Practices*, **11**, 9–16.
- Zindah, M., Belbeisi, A., Walke, H. and Mokdad, A. H. (2008) Obesity and diabetes in Jordan: findings from the behavioral risk factors surveillance system, 2004. *Previous Chronic Disease*, **5**, [www.cdc.gov/pcd/issues/2008/jan/06-0172.htm](http://www.cdc.gov/pcd/issues/2008/jan/06-0172.htm) (Accessed 15 July 2008).