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Dietary and lifestyle habits among adolescent girls in Saudi Arabia

A comparison between private and government schools

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Abstract

Purpose – The main purpose of this study was to explore the differences in dietary habits and lifestyle between girls in government and private schools in Saudi Arabia.

Design/methodology/approach – A cross-sectional multistage stratified survey was carried out on schoolgirls aged 12-19 years. The total sample was 512 girls (291 and 221 girls from government and private schools, respectively). A pretested questionnaire was used to collect the data.

Findings – The findings revealed that girls in private schools were significantly more likely to consume vegetables, fruits, red meat, and chicken than those in government schools. Furthermore, private schoolgirls were less prone to watch television and use the internet daily than girls in government schools.

Originality/value – Intervention for promoting healthy lifestyles in schoolchildren should not exclude private schools.

Keywords Behaviour, Dietary intake, Lifestyles

Paper type Research paper

Introduction

Unhealthy dietary habits and lifestyles among adolescents are considered risk factors for several nutrition-related diseases in adulthood (WHO, 2003). Statistics show that children and adolescents in Arab countries, including Saudi Arabia, suffer from paradoxical nutritional problems: those associated with unsound food habits and nutrient deficiencies such as iron deficiency anaemia, calcium and vitamin D deficiencies, and underweight; and those associated with overnutrition and changes in lifestyle such as obesity, elevated blood pressure, and diabetes (Musaiger *et al.*, 2011a, b). This situation has created a great challenge for the Saudi Health Authority to address. However, studying the current food habits and lifestyles among various age groups in the Saudi community is the first step to establishing an effective intervention strategy.

Food habits and lifestyle in Saudi Arabia have been the focus of a number of studies. Farghaly *et al.* (2007) found that the diets of schoolchildren in Abha, Saudi Arabia, were rich in carbohydrates and deficient in fiber. About 49 percent of secondary school children consumed breakfast regularly. Amin *et al.* (2008) reported that children aged 10-14 years in Al-Hassa, Saudi Arabia, either missed or had an



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infrequent intake of breakfast at home, had a frequent intake of fast foods, and a low intake of fruit, vegetables, and milk. High consumption of sugar-sweetened beverages was also reported among schoolchildren in this country. It was found that the intake of such beverages was positively associated with the poor dietary choices of these children (Collison *et al.*, 2010). In Jeddah, Saudi Arabia, Washi and Ageib (2010) showed that the poor dietary habits among schoolgirls aged 13-18 years were related to the impaired nutritional status of the these girls. Nevertheless, almost all the published studies related to food habits and lifestyle in this country have been carried out in government schools. Al-Hazzaa *et al.* (2011) investigated some dietary habits and the lifestyle of schoolchildren aged 14-19 years in three regions of Saudi Arabia by including a sub-sample from private schools, but they did not study the differences in these habits between children in the government and private schools. Therefore, the aim of this study was to examine the differences in dietary and lifestyle habits between secondary school girls in government and private schools in Jeddah, Saudi Arabia.

Methods

Girls aged between 12 and 19 years were the target group of this study. To obtain participants from this age range, preparatory and secondary schools were included. A multistage stratified sampling method was used. The city of Jeddah was divided into two main geographical areas, and the schools were selected randomly from each area taking into consideration the proportion of students in schools. As a result, five private schools (three preparatory and two secondary schools) and four government schools (two preparatory and two secondary) were selected. One class from each educational level (levels 8-12) was selected from each school by simple random method. The total sample obtained was 512 (291 and 221 girls from government and private schools, respectively). The study was approved by School Health Department, Ministry of Education, Jeddah city. The data were collected in the 2005-2006 school year.

A previously tested and validated questionnaire was used to obtain information on the frequency of the intake of certain food items and on lifestyle (Musaiger and Radwan, 1995). The questionnaire consisted of two sections: food frequency intake per week, and lifestyle habits. The questionnaires were distributed to students in their classes and explained to the students by a qualified nutritionist. Consent was obtained from each school for the study. The frequency of the intake of foods per week was then grouped according to two categories: <4 and ≥4 times per week. Lifestyle habits included hours of watching television per day, eating while watching television, and the frequency of eating breakfast, practicing exercise, and using internet per day.

The questionnaires were then sent to Bahrain for analysis. The data were first entered in an excel file and then analyzed using the Epi-Info statistical software package (CDC, 2007). The χ^2 test was used to examine the significance of the association between lifestyle and type of schools.

Results

The frequency intake of certain foods among girls according to the type of school is presented in Table I. In general, the frequency intake (≥ 4 times/week) of vegetables (37.9 percent), fruit (37.3 percent), and fish (10.4 percent) was low. Girls in private schools were significantly more likely to consume (≥ 4 times) vegetables ($p < 0.0000$), fruit ($p < 0.0000$), and red meat and chicken ($p < 0.0159$) than their counterparts

Food frequency	Private school		Government school		<i>p</i> -value	Total		Dietary and lifestyle habits
	No.	%	No.	%		No.	%	
<i>Vegetables</i>								
<4	113	51.1	205	70.4	0.0000	318	62.1	
4 +	108	48.9	86	29.6		194	37.9	
<i>Fruits</i>								
<4	107	48.4	213	73.2	0.0000	320	62.5	
4 +	114	51.6	78	26.8		192	37.5	
<i>Milk and dairy products</i>								
<4	81	36.7	119	40.9	0.3303	200	39.1	
4 +	140	63.3	172	59.1		312	60.9	
<i>Red meat and chicken</i>								
<4	59	26.7	107	36.8	0.0159	166	32.4	
4 +	162	73.3	184	63.2		346	67.6	
<i>Fish</i>								
<4	203	91.9	256	88.0	0.1535	459	89.6	
4 +	18	8.1	35	12.0		53	10.4	
<i>Chocolates and sweets</i>								
<4	96	43.4	92	31.6	0.0060	188	36.7	
4 +	125	56.6	199	68.4		324	63.3	
<i>Soft drinks</i>								
<4	129	58.4	150	51.5	0.1249	279	54.5	
4 +	92	41.6	141	48.5		233	45.8	
<i>Fast foods</i>								
<4	185	83.7	214	73.5	0.0060	399	77.9	
4 +	36	16.3	77	26.5		113	22.1	

Table I.

Frequency intake of certain foods among Saudi adolescent girls according to type of school

in government schools. However, the frequency of intake of chocolate and sweets ($p < 0.0000$) and fast foods ($p < 0.0060$) was higher among girls from government than private schools (68.4 percent vs 56.6 percent for chocolate and sweets, and 26.5 percent vs 16.3 percent for fast foods, respectively).

The lifestyle factors among girls are shown in Table II according to the type of school. Highly significant differences observed between girls from the two types of school in relation to hours of watching television per day, practicing exercise, and hours of using the internet. Girls from private schools were less likely to watch television for more than 3 hours each day ($p < 0.0003$) and use the internet daily ($p < 0.0000$) than girls from government schools; they were also more likely to practice exercise either in or outside school (60.2 percent vs 39.9 percent, respectively).

Discussion

Two main findings can be obtained from this study. First, the girls in general practiced unhealthy dietary and lifestyle habits such as having a low intake of vegetables, fruit, and fish, and missing breakfast, as well as they spent a large amount of time viewing TV. Second, girls in private schools generally had better eating habits and lifestyle than girls in government schools.

The consumption of vegetables and fruit, as well as fast foods, sweets and chocolates reported by adolescent girls in this study is consistent with that reported by Al-Hazzaa *et al.* (2011) in Saudi Arabia, who found that, of girls aged 14-19 years,

Table II.
Lifestyle factors
among Saudi adolescent
girls according to type
of school

Lifestyle	Private school		Government school		<i>p</i> -value	Total	
	No.	%	No.	%		No.	%
<i>Hours of watching TV/day</i>							
<3	106	48.0	94	32.3	0.0003	200	39.1
3 +	115	52.0	197	67.7		312	60.9
<i>Eating while watching TV</i>							
Always	156	70.6	231	77.3	0.1324	387	75.0
Rarely or none	65	29.4	60	22.7		125	25.0
<i>Eating breakfast</i>							
Always	74	33.5	111	38.1	0.5332	185	36.1
Frequently	86	38.9	108	37.1		194	37.9
None	61	27.6	72	24.7		133	26.0
<i>Practicing exercise</i>							
Yes	133	60.2	116	39.8	0.0000	263	51.4
No	88	39.8	175	60.1		249	48.6
<i>Hours using internet/day</i>							
Not used	7	3.2	10	3.4	0.0000	17	3.3
1 –	158	71.5	131	45.0		289	56.4
2 +	56	25.3	150	51.5		206	40.2

62 and 69 percent did not consume vegetables or fruit, respectively; and, also that the proportion of girls who consumed sweets and chocolates or fast foods more than three times per week was 53 and 25 percent, respectively. These tendencies towards unhealthy diets have also been reported among girls in Bahrain (Musaiger *et al.*, 2011a, b), Kuwait (Honkala *et al.*, 2006), Syria (Nasreddine *et al.*, 2009), and Palestine (Al-Sabbah *et al.*, 2007). The results that Saudi girls were watching television daily for a relatively long time, and eating breakfast infrequently were documented in Saudi Arabia (Al-Hazzaa *et al.*, 2011) and also in some Arab countries (Musaiger *et al.*, 2011a, b; Nasreddine *et al.*, 2009). It is strongly believed that the rapid changes in socioeconomic conditions, urbanization, globalization, and westernization have led to marked transition in dietary habits of the people in many developing countries, including Saudi Arabia (Pingali, 2006). The traditional Saudi Arabian diets, which consisted of fruit, vegetables, foods low in fat, and whole grains, have changed to more westernized diets, which are high in fat, sugar, and salts (Musaiger and Al-Hazzaa, 2012). The rapid spread of supermarket chains, food courts in commercial malls, and various fast-food restaurants has strengthened the consumption of Western diets in this country.

The higher prevalence of the practice of exercise among girls in private schools than for their counterparts in government schools is mainly due to there being more classes related to physical activity in private schools. The highly significant differences in dietary and lifestyle behaviour between girls in private and government schools could be attributed to socioeconomic background. Although not studied, it seems that girls in private schools belong to a higher socioeconomic class than those from government schools. This means that the parents of private school girls have a higher income and higher education level. Therefore, the families of girls from these schools are probably better able to afford vegetables, fruit, and red meat and chicken than the families of girls from government schools. The higher education level of parents is another

contributing factor, as educated parents are more likely to offer healthy foods at home and practice healthy lifestyles than less educated parents (Xie *et al.*, 2003). It has been found that the dietary habits of adolescents are formed by the availability of foods at home and the dietary behaviour of parents (Arcan *et al.*, 2007).

The present study suggested that the adolescent girls in Saudi Arabia have unhealthy dietary and lifestyle habits that could be associated with the occurrence of chronic non-communicable diseases during adulthood. The evidence has shown that lack of intake of fruit and vegetables (Hung *et al.*, 2004) as well as lack of practice of physical activity (Haskell *et al.*, 2007) are linked with several chronic diseases. Missing breakfast (Arora *et al.*, 2012) and the long time spent watching television (Robinson, 2001) have been found to be associated with a high risk of obesity. Therefore, programs to promote the well-being of adolescents in Saudi Arabia should focus on amending the poor dietary and lifestyle habits. Furthermore, to obtain information on the complete situation of the health of schoolchildren, private schools should be included in any school surveys of health and nutrition and intervention.

References

- Al-Hazzaa, H.M., Abahussain, N.A., Al-Sobayel, H.I., Qahwaji, D.M. and Musaiger, A.O. (2011), "Physical activity, sedentary behavior and dietary habits among Saudi adolescents relative to age, gender and region", *Int. J. Behav. Nutr. Phys. Act.*, Vol. 21 No. 8, pp. 140-153.
- Al-Sabbah, H., Vereecken, C., Kolsteren, P., Abdeen, Z. and Maes, L. (2007), "Food habits and physical activity patterns among Palestinian adolescents: from the national study of Palestinian schoolchildren (HBSC-WBG 2004)", *Public Health Nutr.*, Vol. 10 No. 7, pp. 739-746.
- Amin, T.T., Al-Sultan, A.I. and Ali, A. (2008), "Overweight and obesity and their relation to dietary habits and socio-demographic characteristics among male primary school children in Al-Hassa, Kingdom of Saudi Arabia", *Eur. J. Nutr.*, Vol. 47 No. 6, pp. 310-318.
- Arcan, C., Newmark-Sztainer, D., Hannan, P., Story, M. and Larson, N. (2007), "Parental eating behaviours, home food environment and adolescent intakes of fruits, vegetables and dairy foods: longitudinal findings from project EAT", *Public Health Nutr.*, Vol. 10 No. 11, pp. 1257-1265.
- Arora, M., Nazar, G.P., Gupta, V.K., Perry, C.L., Reddy, K.S. and Stigler, M.H. (2012), "Association of breakfast intake with obesity, dietary and physical activity behavior among urban school-aged adolescents in Delhi, India: results of a cross-sectional study", *BMC Public Health*, Vol. 17 No. 12, pp. 881-902.
- CDC (2007), Epi-Info, Center of Disease Control and Prevention, available at: www.cdc.gov/epiinfo/
- Collison, K.S., Zaidi, M.Z., Subhani, S.N., Al-Rubcaan, K., Shoukri, M. and Al-Mohanna, F.A. (2010), "Sugar sweetened carbonated beverage consumption correlates with BMI, waist circumference, and poor dietary choices in school children", *BMC Public Health*, Vol. 9 No. 10, pp. 234-246.
- Farghaly, N.F., Ghazali, B.M., Al-Wabel, H.M., Sadek, A.A. and Abbag, F.I. (2007), "Lifestyle and nutrition and their impact on health of Saudi school students in Abha, Southern region of Saudi Arabia", *Saudi Med. J.*, Vol. 28, pp. 415-421.
- Haskell, W.L., Lee, I., Pate, R.R., Powell, K.E., Blair, S.N., Franklin, B.A., Macera, C.A., Heath, G.W., Thompson, P.D. and Bauman, A. (2007), "Physical activity and public health updated recommendation for adults from American College of Sports Medicine and the American Heart Association", *Med. Sci. Sports Exerc.*, Vol. 39 No. 8, pp. 1423-1434.

- Honkala, S., Honkala, E. and Al-Sahl, N. (2006), "Consumption of sugar products and associated life – and school-satisfaction and self-esteem factors among schoolchildren in Kuwait", *Acta Odontologica Scandinavica*, Vol. 64 No. 8, pp. 79-88.
- Hung, H., Joshipura, K.J., Jiang, R., Hu, F.B., Hunter, D., Smith-Warner, S.A., Colditz, G.A., Rosner, B., Spiegelman, D. and Willett, W.C. (2004), "Fruit and vegetable intake and risk of major chronic disease", *J. Natl. Cancer Inst.*, Vol. 96 No. 21, pp. 1577-1584.
- Musaiger, A.O. and Al-Hazzaa, H.M. (2012), "Prevalence and risk factors associated with nutrition-related non-communicable diseases in the Eastern Mediterranean region", *Int. J. Gen. Med.*, Vol. 5, pp. 199-217.
- Musaiger, A.O. and Radwan, H.M. (1995), "Social and dietary factors associated with obesity among university female students in United Arab Emirates", *J. R. Soc. Health*, Vol. 115 No. 2, pp. 96-99.
- Musaiger, A.O., Hassan, A.S. and Obeid, O. (2011a), "The paradox of nutrition-related diseases in the Arab countries: the need for action", *Int. J. Environ. Res. Public Health*, Vol. 8 No. 9, pp. 3637-3671.
- Musaiger, A.O., Bader, Z., AL-Roomi, K. and D'Souza, R. (2011b), "Dietary and lifestyle habits amongst adolescents in Bahrain", *Food Nutr. Res.*, Vol. 55.
- Nasreddine, L., Mehio-Sibai, A., Maryati, M., Adra, N. and Hwalla, N. (2009), "Adolescent obesity in Syria. Prevalence and associated factors", *Child: Care, Health and Development*, Vol. 36 No. 3, pp. 404-413.
- Pingali, P. (2006), "Westernization of Asian diets and the transformation of food system: implication for research and policy", *Food Policy*, Vol. 32, pp. 281-298.
- Robinson, T.N. (2001), "Television viewing and childhood obesity", *Pediatr. Clin. North Am.*, Vol. 48 No. 4, pp. 1017-1025.
- Washi, S. and Ageib, M.B. (2010), "Poor diet quality and food habits are related to impaired nutritional status in 13- to 18-year-old adolescents in Jeddah", *Nutr. Res.*, Vol. 30 No. 8, pp. 527-534.
- WHO (2003), "Diet, nutrition and the prevention of chronic diseases", Technical Report Series 916:i-viii, World Health Organization, Geneva, pp. 1-149.
- Xie, B., Gilliland, F.D., Li, Y. and Rockett, H.R.H. (2003), "Effects of ethnicity, family income, and education on dietary intake among adolescents", *Prev. Med.*, Vol. 36 No. 1, pp. 30-40.

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