

Sport practice among private secondary-school students in Dubai in 2004

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ممارسة الرياضة بين طلاب المدارس الثانوية الخاصة في دبي في عام 2004
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الخلاصة: أجرى الباحثون دراسة حول ممارسة الرياضة والمعارف والمواقف حولها بين 1475 من طلاب المدارس الثانوية الخاصة في دبي، بالإمارات العربية المتحدة، سنة 2004. وكان الطلاب الإماراتيون يمارسون الرياضة أكثر من غير الإماراتيين (مستويات جيدة من الأنشطة لدى 33.9% من الطلاب الإماراتيين مقابل 18.7% من غير الإماراتيين)، ولم يكن هناك اختلاف يُعْتَدُّ به إحصائياً في إيجابية المواقف نحو ممارسة الرياضة (87.1% من الإماراتيين مقابل 86.2% من غير الإماراتيين). ولوحظ المستوى الجيد من الرياضة (تمارين عنيفة ثلاث مرات أو أكثر في الأسبوع لمدة عشرين دقيقة) أكثر بين الذكور (26.0%) منه بين الإناث (14.7%). وكان هناك ترابط يُعْتَدُّ به إحصائياً بين زيادة الوزن والبدانة وتدخين التبغ وبين المستويات المنخفضة من ممارسة الرياضة. وتمس الحاجة إلى تدخلات تثقيفية صحية لتحسين ممارسة الرياضة بين الشباب.

ABSTRACT A study was made of sport practice and of knowledge, attitude and practice towards sport among 1475 private secondary-school students in Dubai, United Arab Emirates (UAE) in 2004. UAE students practised sport more than non-UAE students (33.9% versus 18.7% had good levels of activity) but there was no significant difference in positive attitudes towards sport practice (87.1% and 86.2% respectively). A good level of sport (vigorous exercise ≥ 3 times per week for 20 min) was higher among males (26.0%) than females (14.7%). There was a significant association between overweight and obesity as well as tobacco smoking and low levels of sport practice. Health education intervention is needed to improve sport practice among young people.

Activité sportive chez les élèves des établissements d'enseignement secondaire privés à Dubaï en 2004

RÉSUMÉ Une étude a été menée en 2004 sur la pratique d'une activité sportive et sur les connaissances, les attitudes et les pratiques en matière de sport chez 1475 élèves des établissements d'enseignement secondaire privés à Dubaï (Émirats arabes unis). Les élèves des Émirats arabes unis faisaient plus de sport que les autres (33,9 % contre 18,7 % avaient de bons niveaux d'activité), mais il n'y avait pas de différence significative en ce qui concerne les attitudes positives vis-à-vis de la pratique sportive (respectivement 87,1 % et 86,2 %). Le pourcentage d'élèves ayant un bon niveau sportif (exercice énergique au moins 3 fois par semaine pendant 20 minutes) était plus élevé chez les garçons (26,0 %) que chez les filles (14,7 %). Il existait une association significative entre le surpoids et l'obésité mais aussi le tabagisme et les faibles niveaux de pratique sportive. Une action en matière d'éducation pour la santé doit être menée afin d'améliorer la pratique sportive chez les jeunes.

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Introduction

Physical activity has considerable health benefits for children and adolescents. Regular physical activity improves aerobic endurance and muscle strength [1,2]. Among healthy young people, physical activity and physical fitness may favourably affect risk factors for cardiovascular disease such as body mass index (BMI), blood lipid profiles and resting blood pressure [3]. Also, weight-bearing exercise increases bone mass density among young people [4]. Regular physical activity among children and adolescents with chronic disease risk factors decreases blood pressure in adolescents with borderline hypertension [5], increases physical fitness in obese children [6], and decreases the degree of overweight among obese children [7].

Physical activity among adolescents is consistently related to higher levels of self-esteem and self-concept and lower levels of anxiety and stress [8]. Healthy active living benefits both individuals and society in many ways, for example, by increasing productivity, improving morale, decreasing absenteeism, reducing health-care costs, and heightening personal satisfaction. Other benefits include improved psychological well-being, physical capacity, self-esteem and the ability to cope with stress [9].

During the 20th century, the leading causes of death shifted from infectious to chronic diseases: cardiovascular disease, cancer, and diabetes are now among the most prevalent, costly and preventable of all health problems. The Youth Risk Behavior Surveillance System (YRBSS) in the United States of America monitors priority health risk behaviours that contribute markedly to the leading causes of death, disability and social problems among youth [10]. These behaviours, often established during childhood and early adolescence, include tobacco use, unhealthy dietary behaviours,

inadequate physical activity, alcohol use and others.

In 2003 the World Health Organization (WHO) emphasized the importance of behaviour risk factor surveillance as a first step for prevention of noncommunicable diseases, including obtaining data on tobacco and alcohol use, dietary habits and physical inactivity [11]. Our study in the United Arab Emirates (UAE) was conducted to get information about sport practice and to determine some of the risk factors of physical inactivity to inform future intervention programmes. Specifically, the aims were to: study sport practice among private secondary-school students in Dubai; compare the knowledge, attitude and practice of students towards sports for local (UAE nationality) and non-local (expatriate, non-UAE) students; and study some of the risk factors that affect sport practice.

Methods

Sample

A survey study using a stratified random sample was carried out in Dubai city in 2004. Stratification was based on the geographical distribution of schools in Bur Dubai sector and Deira sector of the city, language spoken (Arabic or non-Arabic), sex (male or female) and also according to secondary-school level (grades 10, 11 or 12). A random selection was made of 10 schools (5 from Deira and 5 from Bur Dubai), with 25 students randomly chosen from each grade of male or female sectors taking into consideration the proportion of both sexes.

The sample size for assessment of sport non-practice was calculated as 1500 students using the *Minitab* statistical computer program, version 12, taking into consideration that the sample size for random sampling

was 1475 as a minimal sample size, non-response or absenteeism (1.67%), power of the test 80.04%, alternative probability 33% [12], and hypothesized probability, established through a pilot study, was 36.1%; the alternative probability was less than the hypothesized probability.

Questionnaire

The selected sample of students was given a questionnaire about personal history and questions to assess knowledge level about sport practice. Also assessed were 6 attitudes and 3 practices of students towards sport practice, according to time and frequency (regular or irregular) and also according to nature of practice (vigorous or non-vigorous).

The knowledge questionnaire included 8 closed-ended questions; 3 about the benefit of sport on physical, mental and social health and 5 to assess knowledge regarding the dangerous effects of not practising sport on body weight, diabetes, hypertension, lipid profile and coronary heart disease. Each question was evaluated with a score of 10 as a full mark where the maximum sum of all questions was 100%. Level of knowledge regarding sport benefit was classified as high (66%–100%); acceptable (33% – < 66%); and low (< 33%) [13].

Attitude towards sport practice was classified as: positive (student agreed that sport practice has an effect on obesity or diseases such as diabetes or heart disease); negative (student agreed that sport practice leads to loss of money, effort or time); and indifferent (student neither agreed that there were beneficial effects nor that there were disadvantages).

Actual sport practice of students was classified into: good (student did vigorous exercise ≥ 3 times/week for about 20 min/session and also > 30 min of moderate physical activity most days of the week

[14]); acceptable (student did vigorous exercise < 3 times/week for about 60 min and > 30 min of moderate physical activity most days of the week); poor (student did no vigorous activity or irregularly practised vigorous exercise < 60 min/week and < 30 min of moderate physical activity most days of the week; and none (did not practise physical activity at all).

Time trends of sport practice were classified into: regular (student practised sport regularly every day or every other day or at least 3 times/week every month throughout the year); irregular (student practised sport in an irregular manner, not constantly and not every week or month throughout the year); and occasional (student practised sport occasionally ≤ 1 time/month throughout the year).

Smoking habits were classified as: smoker (currently smoked at least 1 cigarette/day or 1 cigar/week or 1 ounce of tobacco/month for at least 1 year); passive smoker (exposed to tobacco smoke exhaled by smokers in an enclosed environment); ex-smoker (smoked at least 1 cigarette/day over the year and had not smoked for 6 months or more at the time of study); and non-smoker (never smoked or exposed to passive smoke [15]).

BMI measures were the Centers for Disease Control and Prevention criteria for children and adolescents [16]: obese (BMI ≥ 95 th percentile); overweight (BMI ≥ 85 th percentile); average (BMI 5th–85th percentile); and underweight, suggesting acute malnutrition (low weight-for-height, BMI < 5th percentile [17]).

Data analysis

The data were analysed using chi-squared for categorical data, likelihood ratio when the chi-squared test was not valid and the Student *t*-test for comparison of 2 means. After data collection the power of the test

for sport non-practice was 100% for a single proportion. The data were analysed using *SPSS*, version 9.

Results

Characteristics of study groups

The response rate was 98.3% (1475 out of 1500 secondary-school students). The studied sample was 233 UAE nationality students and 1242 non-UAE students, with no statistically significant difference between them according to sex. The study sample comprised similar numbers from grades 10, 11 and 12 of secondary school. There were 640 females and 835 males.

Overall, 73.8% of UAE students and 68.2% of non-UAE nationalities had fathers with university level of education, with no significant difference between them. Similarly, 51.9% of UAE students and 56.0% of non-UAE students had mothers with university education (not significant).

Knowledge about sport

Table 1 shows that the mean [standard deviation (SD)] score for knowledge about the benefits of sport was 77.8% (SD 32.3%) for the total sample. The scores for level of knowledge about the benefits of sport showed that 22.0% had a low level, 13.3% an acceptable level, while 64.7% had a high level. There was no statistically significant difference in knowledge score between

UAE and non-UAE students: 81.2% (SD 31.1%) and 77.2% (SD 32.5%) respectively.

Attitude towards sport

Table 2 shows that the majority of UAE and non-UAE students had a positive attitude towards the practice of sports (87.1% and 86.2% respectively), with no significant difference between them. Table 2 also shows that 21.2% of the sample reported not practising sport and 48.8% had poor practice. On the other hand, 21.1% and 8.9% of schoolchildren reported practising sport to a good and acceptable level respectively. Good and acceptable sport practice among UAE nationality students (33.9% and 12.9% respectively) was significantly better than among non-UAE (18.7% and 8.1% respectively).

Practice of sport

More than three-quarters (80.2%) of female secondary-school students and less than two-thirds (62.3%) of male secondary school students had none or poor practice of sport (Table 3). Also, this table showed that among high-school students, only 14.7% of girls and 26.0% of boys reported a good level of sport practice (i.e. they exercised vigorously for 20 min on at least 3 of the previous 7 days).

Table 4 shows that the mean time spent per week in practising vigorous exercise was significantly higher among UAE nationality females and males [1.62 (SD 1.84) h and 2.89 (SD 3.21) h respectively] than non-UAE females and males [0.95 (SD 1.35) h and 2.21 (SD 2.71) h respectively].

A high percentage of students of illiterate fathers did no sport or a low level of sport-practice (31.8 % and 63.7 % respectively) compared with those of other education levels (Table 5). On the other hand, more than one-fifth of students of secondary- or

Table 1 Knowledge score about the benefits of sport according to nationality

Nationality	No.	Mean (SD) knowledge score (%)	Significance
UAE	233	81.2 (31.1)	$t = 1.81; P > 0.05$
Non-UAE	1242	77.2 (32.5)	
Total	1475	77.8 (32.3)	

UAE = United Arab Emirates; SD = standard deviation.

Table 2 Attitude towards sport practice and reported level of sport practice according to nationality

Variable	Nationality					
	UAE		Non-UAE		Total	
	No.	%	No.	%	No.	%
<i>Attitude towards sport</i>						
Negative	16	6.9	54	4.3	70	4.7
Indifferent	14	6.0	118	9.5	132	8.9
Positive	203	87.1	1070	86.2	1273	86.3
Total	233	100.0	1242	100.0	1475	100.0
$\chi^2_2 = 5.32; P > 0.05$						
<i>Sport practice</i>						
None	44	18.9	269	21.7	313	21.2
Poor	80	34.3	640	51.5	720	48.8
Acceptable	30	12.9	101	8.1	131	8.9
Good	79	33.9	232	18.7	311	21.1
Total	233	100.0	1242	100.0	1475	100.0
$\chi^2_3 = 39.14; P < 0.05$						

UAE = United Arab Emirates.

higher-educated fathers practised sport to a good level, with a statistically significant difference between them ($P < 0.05$). A higher proportion of students with illiterate mothers did no sport or a poor amount of sport practice (25.8% and 61.3% respectively) compared with other educational levels (Table 5). On the other hand, those with secondary- or high-school level mothers had a higher rate of acceptable or good sport practice. There was no statistically significant difference in sport practice according to mother's education.

About two-thirds of UAE and non-UAE students said they did not practise any kind of sports due to lack of time from study workload (Table 6). Also, health, social and economic problems played a role in not practising sport.

Table 6 shows the regularity of sport practice among local and non-local students. Regular sport practice among UAE students (50.6%) was significantly higher than non-UAE students (39.5%) ($P < 0.05$). Table 6 also shows that 35.2%, 31.1% and 31.2% of the students practised sport at home, school

Table 3 Reported level of sport practice according to sex

Sex	Sport practice									
	None		Poor		Acceptable		Good		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Female	224	35.0	289	45.2	33	5.2	94	14.7	640	100.0
Male	89	10.7	431	51.6	98	11.7	217	26.0	835	100.0
Total	313	21.2	720	48.8	131	8.9	311	21.1	1475	100.0
$\chi^2_3 = 143.87; P < 0.05$										

Table 4 Mean time spent in sport practice among female and male students according to nationality

Sex	Mean (SD) time in sport practice (hours/week)		Significance
	UAE	Non-UAE	
Female	1.62 (1.84)	0.95 (1.35)	$t = 3.66; P < 0.05$
Male	2.89 (3.21)	2.21 (2.71)	$t = 2.50; P < 0.05$

UAE = United Arab Emirates; SD = standard deviation.

and clubs respectively. UAE nationality students practised sport more than non-UAE in clubs, at home and at school.

Comparing reported level of sport practice by nutritional status (Table 7) showed that 22.3% of average weight students had a good level of sport practice compared with 17.6% of obese students. Sport practice among average weight students was significantly better than among obese ones.

More than two-thirds (69.5%) of female smokers had no or a poor level of sport practice compared with less than one-third (30.6%) who had acceptable or good level

(Table 8). On the other hand, 61.9% of male smokers had no or a poor level of sport practice compared to 38.1% who had a good or acceptable level. The association between sport practice and smoking habit was significant among male students, but not females.

Discussion

The Department of Health and Medical Service of Dubai supervises only private schools. By law expatriates are not allowed

Table 5 Relation between reported level of sport practice and parent's education level

Parent's education	None		Poor		Sport practice Acceptable		Good		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
<i>Father</i>										
Illiterate	7	31.8	14	63.7	0	0.0	1	4.5	22	100.0
Literate	49	25.0	106	54.1	16	8.1	25	12.8	196	100.0
Secondary	49	20.6	109	45.8	24	10.1	56	23.5	238	100.0
High	208	20.4	491	48.2	91	8.9	229	22.5	1019	100.0
Total	313	21.2	720	48.8	131	8.9	311	21.1	1475	100.0
Likelihood ratio ₉ = 22.82; $P < 0.05$										
<i>Mother'</i>										
Illiterate	8	25.8	19	61.3	1	3.2	3	9.7	31	100.0
Literate	60	23.2	137	52.9	18	6.9	44	17.0	259	100.0
Secondary	75	20.4	166	45.1	44	12.0	83	22.5	368	100.0
High	170	20.8	398	48.7	68	8.3	181	22.2	817	100.0
Total	313	21.2	720	48.8	131	8.9	311	21.1	1475	100.0
Likelihood ratio ₉ = 15.66; $P > 0.05$										

Table 6 Reason for not practising sport, regularity of sport practice and place of sport practice according to nationality

Variable	UAE		Nationality		Total	
	No.	%	No.	%	No.	%
<i>Reason for not practising sport</i>						
Health problem	6	13.6	19	7.1	25	8.0
Social problem	3	6.8	6	2.2	9	2.9
Economic problem	2	4.5	5	1.9	7	2.2
Family problem	0	0.0	6	2.2	6	1.9
Study workload	29	65.9	177	65.8	206	65.8
Study workload and health problem	0	0.0	5	1.9	5	1.6
Not interested	2	4.5	19	7.1	21	6.7
Other	2	4.5	32	11.9	34	10.9
Total	44	100.0	269	100.0	313	100.0
Likelihood ratio ₇ = 10.93; <i>P</i> > 0.05						
<i>Regularity of sport practice</i>						
None	44	18.9	269	21.7	313	21.2
Regular	118	50.6	490	39.5	608	41.2
Irregular	62	26.6	472	38.0	534	36.2
Occasional	9	3.9	11	0.9	20	1.4
Total	233	100.0	1242	100.0	1475	100.0
$\chi^2_3 = 23.46; P < 0.05$						
<i>Place of sport practice</i>						
None	44	18.9	269	21.7	313	21.2
School	24	10.3	179	14.4	203	13.8
Club	42	18.0	152	12.2	194	13.2
Home	44	18.9	233	18.8	277	18.8
Road	2	0.9	63	5.1	65	4.4
School and club	20	8.6	73	5.9	93	6.3
School and home	2	0.9	68	5.5	70	4.7
School, club and home	53	22.7	119	9.6	172	11.7
Other	2	0.9	86	6.9	88	6.0
Total	233	100.0	1242	100.0	1475	100.0
$\chi^2_8 = 68.38; P < 0.05$						

to attend government schools. However, the private schools in Dubai include all social categories (high and low socioeconomic groups) and also national and international schools. According to school health registry office statistics, expatriates formed the bulk of private school children in 2004 in Dubai.

The present study showed that the overall mean knowledge score about the benefits of sport among the study sample was high, and was not significantly different between local UAE and non-UAE students. No knowledge is more crucial than knowledge about health. Without it, no other life goal can successfully be achieved [18].

Table 7 Relation between reported level of sport practice and nutritional status among study sample

Nutritional status	None		Poor		Sport practice Acceptable		Good		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Underweight	12	26.7	28	62.2	3	6.7	2	4.4	45	100.0
Average	177	23.1	347	45.2	72	9.4	171	22.3	767	100.0
Overweight	87	18.8	239	51.5	35	7.5	103	22.2	464	100.0
Obese	37	18.6	106	53.3	21	10.6	35	17.6	199	100.0
Total	313	21.2	720	48.8	131	8.9	311	21.1	1475	100.0

Likelihood ratio₉ = 21.73; $P < 0.05$

The majority of UAE and non-UAE students had positive attitudes towards sport practice (87.1% and 86.2% respectively) with no significant difference between them. In agreement with our study Zakarian et al. in 1994 revealed that positive attitudes toward physical education was positively associated with physical activity among young people [19]. Biddle's research found that a number of motives exist for sport, including fun, social aspects and skill de-

velopment [20]. Gill, Gross and Huddleston assessed the major participation motives through the Participation Motivation Questionnaire [21]. Factor analysis revealed that basic motives for involvement in sport were: achievement/status, team atmosphere, fitness, energy release, skill development, friendship and fun. Simple descriptions of motives, however, will not necessarily provide information about how young people view the sport experience, hence further

Table 8 Relation between reported level of sport practice and smoking habit according to sex

Sex and sport practice	Non-smoker		Passive		Smoking habit Ex-smoker		Smoker		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
<i>Female</i>										
None	165	35.0	35	33.0	9	34.6	15	41.7	224	35.0
Poor	216	45.8	50	47.2	13	50.0	10	27.8	289	45.2
Accepted	26	5.5	4	3.8	2	7.7	1	2.8	33	5.2
Good	65	13.8	17	16.0	2	7.7	10	27.8	94	14.7
Total	472	100.0	106	100.0	26	100.0	36	100.0	640	100.0
Likelihood ratio ₉ = 9.69; $P > 0.05$										
<i>Male</i>										
None	43	9.3	23	9.7	11	26.2	12	13.0	89	10.7
Poor	254	54.7	116	48.9	16	38.1	45	48.9	431	51.6
Accepted	52	11.2	32	13.5	1	2.4	13	14.1	98	11.7
Good	115	24.8	66	27.8	14	33.3	22	23.9	217	26.0
Total	464	100.0	237	100.0	42	100.0	92	100.0	835	100.0
Likelihood ratio ₉ = 18.58; $P < 0.05$										

exploration of motivation is required using a theoretical approach.

The current study revealed that 21.2% of the students did no sport and 48.8% had a poor level of sport practice. Only 21.1% of schoolchildren had a good level of sport practice and this was significantly better among UAE than non-UAE students. In concordance, Sallis demonstrated that although children and adolescents are more physically active than adults, many young people do not engage in moderate or vigorous physical activity (at least 3 days a week) [22]. Also, the United Nations Interagency Task Force on Sport for Development and Peace revealed that about one-third of youth are physically inactive [12].

Among our high-school students in Dubai, 80.2% of females and 62.3% of males were not practising sport or had a poor level of sport practice. Significantly fewer girls than boys reported that they exercised vigorously for 20 min on at least 3 of the previous 7 days. In the United States, the Centers for Disease Control in the Youth Risk Behavior Surveillance found that girls were less active than boys [10]. Similarly, UAE nationality girls spent less time on average practising sport than UAE boys, as did non-UAE girls and boys.

Fewer children of illiterate fathers and mothers practised sport to a good level than did children of higher educated fathers and mothers. The level of sport practice was significantly related to father's but not mother's level of education. The results can be explained on the basis that socioeconomic level and economic accessibility to sport practice mainly depends on the father's education level.

A high study workload was the main reason given for not practising any kind of sport among both UAE and non-UAE nationalities. Also, health, social and economic problems played a role in lack of sport practice. The explanation for social

and economic problems limiting sport practice in our community is mainly due to the unavailability of places for sport practice at home due to the small size of apartments, the high cost of sport clubs and the high temperature and humidity outside for much of the year. In agreement with the present study, Kelder et al. concluded that lack of time is negatively associated with physical activity among adolescents [23]. WHO revealed that many factors prevent young people from regular physical activity, including lack of time and motivation, insufficient support and guidance from adults, feeling of embarrassment or incompetence, lack of safe facilities and locales for physical activity and simple ignorance of the benefit of physical activity [24].

Hamlin and Ross found that social, behavioural and physical changes that characterize adolescence act as barriers to physical activity during this period. Major barriers included a reduction in active transport, altered community design, less physical education time at school, a rise of the 2-income family, an increase in labour-saving appliances, and a shift away from active to passive leisure and entertainment pursuits [25]. It was concluded that society must work to decrease the influence of these barriers and, wherever possible, enhance and support opportunities for young people to become physically active.

Regular sport practice among local UAE students (50.6%) was significantly higher than among non-UAE students. UAE nationality students practised sport more than non-UAE students at home, in clubs and at school. The results can be explained on the basis that sports clubs are more affordable for UAE than expatriate students. Also, the UAE students' houses are larger and more suitable for sport practice than many expatriate houses. The level of knowledge about the benefits of sport was also higher among UAE than non-UAE students.

Our study found that sport practice among average weight students was significantly better than obese ones. Henry et al. concluded that the amount of physical activity undertaken by adolescents in the UAE was very low [26]. Cultural and weather restrictions and social change of the community in the UAE are not conducive to physical activity and play a major role in levels of physical inactivity. This may explain, in part, the rise in the incidence of obesity in this population [27].

More than twice as many female and male smokers practised no sport or a poor level of sport than an acceptable or good level of sport. The association between sport practice and smoking habit was significant among male students but not female

students. The practice of physical exercise during adolescence as part of a health prevention programme might interfere with the factors that lead young people to start smoking and thereby contribute to a reduction in the prevalence of tobacco use in the population as a whole [28].

Conclusion

The current study concluded that there was a strong relationship between sport practice and ideal body weight and also smoking. The present work indicates the need for a health education intervention programme to improve sport practice among young people.

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