Results From the United Arab Emirates’ 2016 Report Card on Physical Activity for Children and Youth

Mouza Al Zaabi, Syed Mahboob Shah, Mohamud Sheek-Hussein, Abdishakur Abdulle, Abdulla Al Junai, and Tom Loney

Background: The Active Healthy Kids 2016 United Arab Emirates (UAE) Report Card provides a systematic evaluation of how the UAE is performing in supporting and engaging physical activity (PA) in children and adolescents. Methods: The Active Healthy Kids Global Alliance framework and standardized set of procedures were used to perform the systematic assessment of PA in UAE youth and children. Indicator grades were based on the proportion of children and youth achieving a defined benchmark: A = 81% to 100%; B = 61% to 80%; C = 41% to 60%; D = 21% to 40%; F = 0% to 20%; INC = incomplete data. Results: Overall Physical Activity Level and Active Transportation both received a grade of D-. Sedentary Behavior and Family and Peers both received a C- minus grade and School was graded D. Minus grades indicate PA disparities related to age, gender, nationality, socioeconomic status, and geographic location. Government Strategies and Investments received a B+ grade. Sport Participation, Active Play, and Community and the Built Environment were graded INC due to a lack of nationally representative data for all 7 emirates. Conclusions: The majority of UAE children are not achieving the daily recommended level of PA. The UAE leadership has invested significant resources into improving PA through school- and community-based PA interventions; however, inter- and intraemirate population-based strategies remain fragmented.

Keywords: adolescent, environment design, motor activity, sedentary lifestyle, social environment, youth sports

The United Arab Emirates (UAE) is a young country that was formed in 1971 following the federation of 7 emirates (Abu Dhabi, Dubai, Sharjah, Ajman, Umm Al-Qwain, Ras Al Khaimah, and Fujairah). Since formation and the expansion of commercial oil production in the 1970s, the UAE has witnessed tremendous economic and industrial development, resulting in an increase in the affluence of the Emirati population. Based on global economic indicators, the UAE is considered a high-income developing country that has passed through the epidemiologic transition. The UAE population has grown substantially over the past 4 decades (census population estimates: 557,887 in 1975, 4.1 million in 2005, 8.3 million in 2010), and this is primarily due to high net inward migration of expatriate workers and the high natural growth of the Emirati population. Mass recruitment of migrant workers has created an unusual population structure as the native Emirati population constitutes approximately 11% (~950,000) of the total UAE population and the remainder is composed of multinational expatriates. Moreover, the UAE population has a youthful age distribution; for example, in the emirate of Abu Dhabi (largest emirate in terms of population size; 2,334,563 in 2010) 49% of the native Emirati population, 15% of the expatriate population, and 22% of the total UAE population were under the age of 19 years in the year 2010.

Over the past 4 decades there has been a shift from a traditional seminomadic physically active lifestyle to a modern, urbanized, and technology-driven lifestyle characterized by reduced occupational, domestic, and leisure-time physical activity (PA), coupled with the overconsumption of energy-dense convenience foods with poor nutritional content. Consequently, there has been a dramatic increase in the prevalence of obesity, diabetes, and cardiovascular disease in both the indigenous Emirati and expatriate adult populations. Recent research has reported high rates of overweight, obesity, vitamin D deficiency, hypertension, and metabolic syndrome among UAE children and adolescents. Although physical inactivity is one of the most important independent risk factors for future chronic disease, PA has only recently been added as a key item on the public health agenda. As such, the primary aim of the Active Healthy Kids 2016 UAE Report Card is to raise awareness of the national PA trends and the current state of PA opportunities within families, schools, and the community. This paper presents the key findings of the inaugural Active Healthy Kids 2016 UAE Report Card. It is hoped that the report will serve as a knowledge translation tool that can be used as the foundation of evidence-based interventions and policies aimed at increasing PA in both UAE children and adults.

Methods

Report Card Team Roles and Responsibilities

The 2016 Active Healthy Kids United Arab Emirates Report Card was developed by the Chief Scientific Officer (corresponding author) of Active Healthy Kids UAE, a Scientific Officer (first author), and a Research Working Group (RWG) consisting of researchers from 2 universities in the UAE (1 federal and 1 private; remaining

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4 coauthors. The main role of the Chief Scientific Officer was to manage the overall project and recruit specific local experts for the RWG. Both the Chief Scientific Officer and the Scientific Officer were responsible for searching, retrieving, reviewing, and preparing the available evidence for the grading meeting with the RWG. The Chief Scientific Officer and the Scientific Officer were also responsible for developing the short form of the Report Card, and creating a communication strategy for both the Arabic and English media outlets. The primary role of the RWG members was to serve as content experts during the grade assignment meeting for each of the 9 indicators.

**Report Card Indicators**

The Active Healthy Kids Global Alliance used a standardized framework based on the 9 core indicators and procedures used by the original Active Healthy Kids Canada Report Card Model:16


**Data Sources**

Two major sources of data were used to inform the grades for each of the 9 PA indicators: (i) data from the World Health Organization (WHO) Global School-based Student Health Survey (UAE-GSHS) for 200518 and 201019—a nationally representative survey of all private and public schools from the 7 emirates of the UAE; and (ii) the UAE Indoor Air, Health, and Nutrition Study—a cross-sectional study conducted in 628 randomly selected households in all 7 UAE emirates (October 2009 to May 2010). In addition, numerous school-based studies providing data on representative samples from single emirates (eg, Abu Dhabi) were considered by the RWG during the grading meeting (see Table 1 for an overview of the data sources). Physical activity data from the 200518 and 201019 UAE-GSHS was reanalyzed in the data file provided by the WHO to provide consistency in the cut-offs and benchmarks used for each indicator. For example, the UAE-GSHS 200518 survey reported the proportion of students who were physically active for a total of at least 60 minutes per day on all 7 days of the week during the past 7 days whereas the UAE-GSHS 201019 survey reported the proportion of students who were physically active for a total of at least 60 minutes on 5 or more days during the past 7 days. Data analysis was completed by the Chief Scientific Officer.

**Benchmarks and Consensus**

Data included in the grading meeting and report card spanned a 16-year period from 199820 to 201421 (see Table 1 for an overview of the data sources). The grading meeting was chaired by the Chief Scientific Officer who delivered a PowerPoint presentation that displayed the relevant data for each of the 9 indicators and benchmarks. The RWG and scientific officers worked cohesively to evaluate the available evidence provided in resource packs that contained all relevant data. The resource packs also provided specific study details (eg, age, sample size, study design, sampling and recruitment, response rates, geographic location, and representativeness) that were used to discuss the quality of the evidence. Following a series of group discussions, a grade for each indicator was assigned once consensus had been reached. In accordance with the Active Healthy Kids Canada Report Card Model and the standardized framework employed in the Global Matrix 1.0, for example in England,22 specific benchmarks were stipulated for each of the 9 indicators to allow a grade to be awarded corresponding to the proportion of children classified within the intervals of the following letter graded approach: A = 81% to 100%; B = 61% to 80%; C = 41% to 60%; D = 21% to 40%; F = 0% to 20%; INC = incomplete data. Regional and national disparities in PA (for example, age, gender, nationality, UAE nationals versus expatriates, socioeconomic status, and geographic location—eg, emirate, rural vs. urban) and changes in national PA trends over the report time period (1998–2014) were taken into consideration during the grading process. Specifically, a “+” or “−” was assigned to a grade if any of the disparities increased or decreased the grade to the upper or lower limit of the grade boundary; or there was evidence to suggest a changing trend over time. Discussing and developing ideas for the cover story was the final task that was completed during the grade assignment meeting. The RWG identified the main themes, drivers, and environmental factors related to the PA indicators and several possible cover stories were discussed before consensus was achieved. The Chief Scientific Officer drafted a front cover for the 2016 United Arab Emirates Physical Activity Report Card that was distributed via e-mail for review and approval (Figure 1).

**Results and Discussion**

The 2016 UAE Physical Activity Report Card is the first systematic assessment of how the UAE is performing in supporting and engaging PA in children and adolescents. Sufficient high-quality representative data from all 7 UAE emirates were available to create the inaugural Report Card documenting the systematic evaluation of how the UAE is performing in supporting and engaging PA in children and adolescents. The cover story of the report card was drafted during the grading meeting and depicts the low level of overall physical activity and high levels of sedentary behavior in UAE children due to the transition from a physically active and outdoor lifestyle to a technology-driven and indoor existence. Grades awarded to each indicator are presented in Table 2 and a detailed description and discussion of each indicator is provided in the subsections below.

**Overall Physical Activity Level: D/F-**

The benchmark for Overall Physical Activity Levels was the proportion of children achieving the current PA guidelines (ie, physically active on all 7 days for a total of at least 60 minutes per day during the past week). Data from the 200518 and 201019 UAE-GSHS17 studies showed that only 19.9% (2005) and 17.2% (2010), respectively, of secondary school children achieved the current PA recommendations. This dataset was considered to be of high-quality due to the large representative sample, stratified sampling methodology, and standardized WHO GSHS instrument. In 200518 there was considerable variability in the proportion of students achieving the PA recommendations with respect to age, gender, nationality (UAE nationals versus expatriates), and geographic location (emirate). The proportion of Emirati children achieving the PA recommendations was 16.3% in Abu Dhabi (males [M] 21.3%; females [F] 12.9%), 17.4% in Dubai (M 22.9%; F 12.8%), 15.9% in the Northern Emirates (M 21.0%; F 11.0%), and 15.0% in Sharjah (M 19.1%; F 10.2%). These estimates were significantly lower compared with
### Table 1: Overview of Data Sources Used in the UAE Report Card (Chronological Order From 1998 to 2014)

<table>
<thead>
<tr>
<th>Data Source Study Name</th>
<th>Year of Data Collection</th>
<th>Study Design and Setting</th>
<th>Sample Size and Characteristics</th>
<th>Indicator</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al Ain School-Based Study(^{20})</td>
<td>October 1998 to April 1999</td>
<td>Cross-sectional school-based study (convenient sampling) in the city of Al Ain (Eastern Region of Abu Dhabi emirate)</td>
<td>Two female-only governmental schools (Emirati students) providing a sample of N = 58 female students aged 11–16 years.</td>
<td>Sedentary Behaviors</td>
<td>Proportion of children and youth who met the AAP sedentary behavior or screen-time guidelines(^{**})</td>
</tr>
<tr>
<td>Dubai School-Based Study(^{16})</td>
<td>2004</td>
<td>Cross-sectional school-based study (proportionate stratified random sampling) in Bur Dubai and Deira Districts of Dubai emirate</td>
<td>Random selection of 10 private secondary schools (five from Deira and 5 from Bur Dubai), with a proportionate sample of 25 students randomly chosen from each grade of male or female sectors providing a total sample size of N = 1475 students (predominantly expatriate; 84%).</td>
<td>Organized Sport Participation</td>
<td>Proportion of children and youth who participated in organized sport and/or physical activity programs (sport practiced at least 3 times a week throughout every month of the year).</td>
</tr>
<tr>
<td>UAE-GSHS 2005(^{18})</td>
<td>March to April 2005</td>
<td>Cross-sectional school-based study (two-stage cluster sampling) across 4 UAE regions: Abu Dhabi, Dubai, Sharjah, and the Northern Emirates (Ajman, Fujairah, Ras Al Khaimah, and Umm Al-Qwain aggregated into 1 group).</td>
<td>A total of 200 schools were randomly selected to participate (25 governmental schools (Emirati students) and 25 private schools (expatriate students) from each of the 4 regions) producing a total sample size of 15,596 students</td>
<td>Overall Physical Activity Levels</td>
<td>Proportion of children achieving the current PA guidelines(^{*})</td>
</tr>
<tr>
<td>UAE Indoor Air, Health and Nutrition Study(^{8})</td>
<td>October 2009 to May 2010</td>
<td>Cross-sectional household survey (proportionate stratified random sampling) of 628 randomly selected Emirati households from all 7 UAE emirates</td>
<td>Emirati female adults (≥19 years; N = 478), Emirati adolescents (11–18 years; N = 276) aged 276, and Emirati children (6-10 years; N = 253)</td>
<td>Sedentary Behaviors</td>
<td>Proportion of children and youth who met the AAP sedentary behavior or screen-time guidelines(^{**})</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Overall Physical Activity Levels</td>
<td>Family and Peers</td>
<td>Proportion of parents who met the physical activity guidelines for adults(^{***})</td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>Data Source Study Name</th>
<th>Year of Data Collection</th>
<th>Study Design and Setting</th>
<th>Sample Size and Characteristics</th>
<th>Indicator</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al Ain School-Based Study</td>
<td>March to April 2010</td>
<td>Cross-sectional school-based study (proportionate stratified random sampling) in the city of Al Ain (Eastern Region of Abu Dhabi emirate)</td>
<td>Representative sample of UAE national and expatriate adolescents (aged 12-18 years; N = 1,018)</td>
<td>Overall Physical Activity Levels</td>
<td>Proportion of children achieving the current PA guidelines*</td>
</tr>
<tr>
<td>UAE-GSHS 2010</td>
<td>2010</td>
<td>Cross-sectional school-based study (two-stage cluster sampling) across 4 UAE regions: Abu Dhabi, Dubai, Sharjah, and the Northern Emirates (Ajman, Fujairah, Ras Al Khaimah, and Umm Al-Quwain aggregated into 1 group). A total of sample of N = 2581 students was randomly selected from governmental (Emirati students) and private (expatriate students) schools from 4 UAE regions. Available data were stratified by gender and grade (ie, 8, 9, and 10) but not by nationality or emirate.</td>
<td></td>
<td>Overall Physical Activity Levels</td>
<td>Proportion of children achieving the current PA guidelines*</td>
</tr>
<tr>
<td>WHO Global Health Observatory Database</td>
<td>2010</td>
<td>UAE Ministry of Health and Prevention collect and provide the WHO Global Health Observatory with specific data for WHO health indicators. Adults aged ≥18 years. Total sample size and data sources used were not available.</td>
<td></td>
<td>Family and Peers</td>
<td>Proportion of parents who met the physical activity guidelines for adults***</td>
</tr>
<tr>
<td>Abu Dhabi School-Based Study</td>
<td>2014</td>
<td>Cross-sectional school-based study (convenient sampling) in the Central Capital District of Abu Dhabi Emirate. A total of sample of N = 439 (53.5% female) 9th grade students was conveniently recruited from 5 private high schools.</td>
<td></td>
<td>Overall Physical Activity Levels</td>
<td>Proportion of children achieving the current PA guidelines*</td>
</tr>
</tbody>
</table>

Note. *Current PA guidelines for children were defined as physically active on all 7 days for a total of at least 60 minutes per day during the past week; **Current AAP sedentary behavior or screen-time guidelines were defined as limiting total media time (including new media such as cell phones, tablets, and social media) to no more than 2 h/d; ***Current PA guidelines for adults were defined as adults attaining a minimum of 30 minutes of moderate-intensity aerobic (endurance) physical activity on 5 days each week or 20 minutes of vigorous-intensity aerobic physical activity for a minimum on 3 days each week.
expatriate (non-UAE citizens) children: 23.0% in Abu Dhabi (M 24.0%; F 21.7%), 23.2% in Dubai (M 25.1%; F 20.7%), 23.0% in the Northern Emirates (M 28.1%; F 17.1%), and 24.5% in Sharjah (M 28.6%; F 19.3%). Emirate stratified data were not available for the UAE-GSHS 2010 survey; however, there were age and gender differences for the whole sample. In 2010, 22.5% of boys and 13.3% of girls achieved the PA recommendations and this decreased across school grade (G) for the whole sample (G8 18.8%; G9 18.4%; G10 14.4%) and girls (G8 18.0%; G9 12.7%; G10 9.3%) but not boys (G8 19.7%; G9 26.6%; G10 21.5%). In addition, data from the UAE Indoor Air, Health and Nutrition Study, a nationally representative household survey that included PA data on male and female Emirati children (aged 6 to 10 years; N = 253) and adolescents (aged 11 to 18 years; N = 276); a school-based study conducted in 2010 using a representative sample of UAE national and expatriate adolescents (aged 12 to 18 years; N = 1018) from the city of Al Ain (Abu Dhabi emirate); and a school-based study conducted in 2014 using a convenient sample of expatriate children (N = 439 9th grade high-school) were used to inform the grade for Overall Physical Activity Levels. Based on these findings a split grade of D-/F- was awarded with the minus sign indicating disparities between subgroups and a reduction in PA over time.

Active Transportation D-/F-

Active Transportation was benchmarked against the proportion of children and youth who use active transportation to and from school. Nationally representative data were available from the UAE-GSHS 2005 (N = 15270) and 2010 (N = 2581) surveys providing self-reported data on this indicator. Data from the 2005 and 2010 UAE-GSHS studies showed that only 18.5% and 20.5%, respectively, of secondary school children reported walking or cycling to school at least once during the past 7 days. In 2005, there was considerable variability in the proportion of students achieving the PA recommendations with respect to gender. In 2005, 28.7% of boys and 15.6% of girls reported using active transport to school during the past week compared with 28.7% of boys and 14.7% of girls in 2010. Low participation in Active Transportation may be due to issues related to urban planning, traffic infrastructure, pedestrian and cyclist segregation routes, and safety. Gender differences in Active Transportation may be due to the cultural acceptability of females, especially adolescents, walking and cycling to and from school. However, we have no empirical evidence to support either of these notions. Based on these findings a split grade of D-/F- was awarded with the minus sign indicating disparities between males and females.

Organized Sport Participation: INC

Organized Sport Participation was benchmarked against the proportion of children and youth who participated in organized sport and/ or physical activity programs. To our knowledge, only 2 school-based cross-sectional studies assessing organized sport participation have been conducted in the UAE. In 2004, a study on 1475 private secondary school students in the emirate of Dubai showed that 41.2% of school children ‘regularly’ (defined in the study as sport practiced at least 3 times a week throughout every month of the year) participated in sport and 13.2% reported participation in sports clubs based outside of schools. In 2014, a school-based study conducted in using a convenient sample of expatriate children (N = 439 9th grade high-school) from 5 private high schools in Abu Dhabi city reported that 66.0% of the sample participated in at least 1 or

Table 2 Grades According to Physical Activity Indicator in the 2016 UAE Report Card on Physical Activity for Children and Youth

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Physical Activity Levels</td>
<td>D-/F-</td>
</tr>
<tr>
<td>Organized Sport Participation</td>
<td>INC</td>
</tr>
<tr>
<td>Active Play</td>
<td>INC</td>
</tr>
<tr>
<td>Active Transportation</td>
<td>D-/F-</td>
</tr>
<tr>
<td>Sedentary Behaviors</td>
<td>C-</td>
</tr>
<tr>
<td>Family and Peers</td>
<td>C-</td>
</tr>
<tr>
<td>School</td>
<td>D-</td>
</tr>
<tr>
<td>Community and the Built Environment</td>
<td>INC</td>
</tr>
<tr>
<td>Government Strategies and Investments</td>
<td>B+</td>
</tr>
</tbody>
</table>

Note. The grade for each indicator is based on the percentage of children and youth meeting a defined benchmark: A is 81% to 100%; B is 61% to 80%; C is 41% to 60%, D is 21% to 40%; F is 0% to 20%; INC is Incomplete data. Minus grades indicate disparities in age, gender, nationality (UA nationals versus expatriates), socioeconomic status, and geographic location (e.g., emirate, rural vs. urban). Positive grades indicate improvement during the time period (1998–2014) that provided data for the report card.
more sports teams during the past 12 months. The RWC decided that there was a lack of robust and nationally representative data for all 7 emirates related to organized sport participation. Accordingly, Organized Sport Participation was assigned a grade of INC. In order for future UAE Report Cards to assess this indicator, the sports council of each individual emirate needs to collect data pertaining to participation in sport and PA programs.

Active Play: INC

The benchmark for Active Play was the proportion of children and youth who engaged in unstructured/unorganized active play for several hours a day. At present, there is no representative national-, emirate-, or city-level data related specifically to active play (i.e., the proportion of children and youth who engage in unstructured/unorganized active play for several hours a day). Consequently, it was not possible to assess and grade this indicator in the 2016 UAE Report Card and hence, the grade INC was assigned. In agreement with previous PA Report Cards, no specific guidelines are currently available for active play and consensus has not been reached on valid and reliable methods of assessing active play and appropriate benchmarks to inform grading.

Sedentary Behaviors: C-

The American Academy of Pediatrics (AAP) policy statement on children, adolescents, and the media proposes a guideline to limit total media time (including new media such as cell phones, tablets, and social media) to no more than 2 h/d. Accordingly, the benchmark for Sedentary Behaviors was the proportion of children and youth who met the AAP sedentary behavior or screen-time guidelines. Self-reported data from the 2005 and 2010 UAE-GSHS surveys was predominantly used to inform this grade. The UAE-GSHS study questionnaire asked participants to self-report sedentary behavior when not in school or doing homework with the question, “How much time do you spend during a typical or usual day sitting and watching television, playing computer games, talking with friends, or doing other sitting activities?” Data from the 2005 and 2010 UAE-GSHS studies showed that only 61.7% (2005) and 48.7% (2010), respectively, of secondary school children achieved the current AAP recommendation of limiting total media time to no more than 2 h/d, respectively. In 2005, there was considerable variability in the proportion of students achieving the sedentary recommendations with respect to age, gender, nationality (UAE nationals versus expatriates), and geographic location (emirate). The proportion of Emirati children achieving the sedentary behavior recommendations was 56.9% in Abu Dhabi (M 62.5%; F 53.0%), 57.5% in Dubai (M 59.3%; F 55.8%), 63.8% in the Northern Emirates (M 64.1%; F 63.4%), and 60.1% in Sharjah (M 64.2%; F 55.4%). These estimates were similar (slightly lower or higher in some emirates) compared to expatriate (non-UAE citizens) children: 63.8% in Abu Dhabi (M 67.2%; F 59.5%), 55.3% in Dubai (M 53.6%; F 57.0%), 66.2% in the Northern Emirates (M 64.8%; F 67.9%), and 58.5% in Sharjah (M 59.0%; F 58.1%). Emirati stratified data was not available for the UAE-GSHS 2010 survey; however, there were age and gender differences for the whole sample. In 2010, 55.0% of boys and 44.0% of girls achieved the Sedentary Behavior recommendations and this increased across school grade (G) for the whole sample (G8 53.5%; G9 50.5%; G10 41.9%), boys (G8 60.0%; G9 58.2%; G10 46.8%), and girls (G8 49.3%; G9 44.9%; G10 38.1%). Available data from the first school-based cross-sectional study in the UAE assessing PA and sedentary behavior (two female-only governmental schools in Al Ain 1998–1999; N=58), and a more recent school-based study described earlier were considered during grade assignment for this indicator.

Based on these findings a split grade of C- was awarded with the minus sign indicating disparities between subgroups and a reduction in the overall proportion of children achieving the daily sedentary behavior recommendations from 2005–2010.

Family and Peers: C-

The benchmark for Family and Peers was the proportion of parents who met the PA guidelines for adults; specifically, adults attaining a minimum of 30 minutes of moderate-intensity aerobic (endurance) physical activity on 5 days each week or 20 minutes of vigorous-intensity aerobic physical activity for a minimum on 3 days each week. Nationally representative data on ‘parental’ PA was not available so we used the proportion of adults achieving current PA recommendations for adults as a proxy. The UAE has a young population structure with high total fertility rates; therefore, a large proportion of the UAE adult population will be parents to 1 or more children. Data from the WHO Global Health Observatory Database and the UAE Indoor Air, Health, and Nutrition Study were used to inform this indicator. The WHO Global Health Observatory reported age-standardized estimates for the proportion of adults achieving the adult PA recommendations as 61.6% of adults, 67.8% of males, and 55.4% of females. The UAE Indoor Air, Health, and Nutrition Study used the short form International Physical Activity Questionnaire reported that 41.2% of the adult Emirati females (N = 478) achieved the PA recommendations with a lower proportion in urban areas (37.1%) compared with rural areas (47.8%). The study reported an inverted-u shape for the proportion of adult Emirati females achieving the recommended PA levels by quintile (Q) of wealth index (incorporating household income, assets, housing type, and household size): Q1 (poorest 20%): 26.5%; Q2 54.0%; Q3 50.6%; Q4 51.0%; and Q5 (wealthiest 20%): 23.2%. In addition, the school-based cross-sectional study conducted among 1475 private secondary school students in the emirate of Dubai (2004) explored the relationship between parental education and offspring PA. The study reported that the proportion of children that achieved a ‘Good’ rating for sport participation (i.e., participated in vigorous exercise ≥ 3 times/week for approximately 20 minutes and also ≥30 minutes of moderate PA most days of the week) was higher among children with a Father (22.5%) or Mother (22.2%) that had completed high-school compared with children with a Father (4.5%) or Mother (9.7%) classified as illiterate. In view of the above findings, Family and Peers was awarded a C-grade with the minus sign indicating disparities between adults in rural vs. urban areas and socioeconomic subgroups.

School: D

The benchmark for the School indicator was the proportion of schools where the majority (≥80%) of students are offered at least 150 minutes of physical education per week. Nationally representative data on the proportion of schools from all 7 emirates was not available; therefore, we used the percentage of students who went to physical education class on 3 or more days (≥150 minutes per week) each week during the school year. Data from the 2010 UAE-GSHS was predominantly used to inform the grade and this study reported that 27.8% of adolescents, 29.4% of boys and 26.9% of girls aged 13 to 15 years attended physical education classes on
3 or more days each week during the school year. Data from the school-based study among private secondary schools in the emirate of Dubai (2004)\textsuperscript{23} and the school-based study conducted in 2010 in Al Ain\textsuperscript{14} described previously were taken into consideration. Based on these findings, the School indicator was awarded a D grade. Local health and education authorities are currently collecting detailed information on the number of scheduled and delivered physical education classes, in addition to nonparticipation rates. Such data will be useful for future UAE Report Cards.

Community and the Built Environment: INC

Over the past 2 decades the UAE has experienced unprecedented changes to infrastructure, transport networks, housing, land use, and urban design. Currently, there are a lack of national-, emirate-, or city-level surveys assessing indicators such as community perception of neighborhood safety, access to recreational facilities (eg, parks and playgrounds), and local infrastructure (eg, sidewalks, walking paths) specifically geared toward promoting PA. As such, it was not possible to assess and grade this indicator in the 2016 UAE Report Card. Community and the Built Environment was graded INC (incomplete) due to a lack of nationally representative data for children living in all 7 emirates. Future nation- and emirate-wide public and environmental health surveys collecting this data are required.

Government Strategies and Investments: B+

Government Strategies and Investment was graded a B+ as unpublished data on the implementation of policies, strategies and funding across the 7 emirates over the report period (1998–2014) was used to inform this grade. The UAE government has invested significant funds and resources into developing and implementing policies, strategies, services, and facilities that will increase PA levels in both children and adults. Since 2010, physical education classes have been compulsory in all schools from year 1 of kindergarten to year 12 of secondary/high school across the UAE. Each emirate has mandated a slightly different number of lessons per week ranging from 2 (~120 minutes/week) to 3 or more (≥150 minutes/week) in both public and private schools. Moreover, school health departments across the 7 emirates are working closely with public and private schools to develop a healthy school policy covering both PA and nutrition. Overall, the public health, education, environmental, and urban planning authorities for each emirate have developed strategic plans to improve population health for 2020 and 2030. For example, the Plan Abu Dhabi 2030 focuses on the redesigning urban areas to increase PA by creating neighborhoods linked by shaded walkable streets, regenerating existing and creating new public spaces such as civic plazas and neighborhood parks that are accessible on foot and located within a 5-minute walk for all residents, and developing pedestrianized areas and separate cycle networks. In 2014, the Abu Dhabi Department of Transport launched the Walking and Cycling Master Plan for the emirate which focuses on redesigning the transport network and improving public transport to develop a society which is healthier, safer, sustainable, and defined by movement of people rather than motor vehicles. Similar emirate-level strategic plans are either being implemented or developed for the other emirates. On a national level, one of the aims of the UAE Vision 2021 is to achieve a world class healthcare system with key performance indicators that are related to PA such as achieving a reduction of 12% in the prevalence of childhood (aged 5 to 17 years) obesity by 2012. In view of the progress from 1998–2014, Government Strategies and Investment was graded a B+.

Strengths and Limitations

The main strength of the study was the expertise available and willing to serve on the RWC and the availability of high-quality representative data from all 7 UAE emirates that was primarily provided by the UAE-GSHS\textsuperscript{17} 2005\textsuperscript{18} and 2010\textsuperscript{19} surveys, and the UAE Indoor Air, Health and Nutrition Study.\textsuperscript{9} The RWC were able to review the best available synthesized data and award grades for 6 out of 9 indicators. Although the UAE-GSHS\textsuperscript{17} provided nationally representative data for all 7 emirates in 2005\textsuperscript{18} and 2010,\textsuperscript{19} self-reported (perceived) rather than actual objective estimates of PA and sedentary behavior were used in the survey. Subjective PA estimates are likely to be higher than objective estimates and self-reported time spent sitting is likely to be lower than objectively-assessed sedentary behavior. Future school-based PA surveys would benefit from including accelerometer-derived objective estimates of PA and sedentary behavior in at least a subsample of school children. Finally, only the 2005\textsuperscript{18} UAE-GSHS survey reported data by public/governmental (Emirati children) and private (expatriate children) school for 3 individual emirates and the Northern Emirates (Ajman, Fujairah, Ras Al Khaimah, and Umm Al-Quwain aggregated into 1 group). Future school-based studies should include data from all 7 emirates by nationality. As such, the UAE Report Card team needs to build capacity with stakeholders from all the relevant agencies (eg, health authorities, education councils, environmental agencies) from each of the 7 emirates for future iterations of the UAE Report Card on Physical Activity for Children and Youth.

Conclusion

The majority of children in the UAE are not achieving the daily recommended level of PA. The 7 emirates that form the UAE vary in population size and structure, land mass, financial strength and have both federal and local agencies responsible for the regulation of their health and education systems, and environmental policies. The 2016 UAE Report Card highlighted clear PA disparities within- and across populations in the different emirates with respect to age, gender, nationality, and geographic location. At present, there is a lack of data to elucidate the factors related to these differences. Therefore, future report cards may want to consider conducting bespoke epidemiological studies using nationally representative samples including UAE nationals and expatriates from all 7 emirates to permit a deeper exploration of the factors and/or conditions associated with the variability in PA between subgroups within the UAE population. The UAE leadership has invested significant resources into improving PA in the general population through school- and community-based PA interventions. Population-based strategies remain fragmented both within and across the 7 emirates. Sustained nationwide PA interventions are required at all levels (eg, individual, family, community/schools, and policy) to elicit improvements in health and disease outcomes over the next few decades.

References


