

Results From Malaysia's 2016 Report Card on Physical Activity for Children and Adolescents

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Background: The 2016 Malaysia Active Healthy Kids Report Card aims to collect, assess, and grade current and comprehensive data on physical activity (PA) and associated factors in Malaysian children and adolescents aged 5 to 17 years. **Methods:** This report card was developed following the Active Healthy Kids Canada Report Card protocol. The Research Working Group identified the core matrices, assessed the key data sources, and evaluated the evidence gathered for grade assignments. A grade was assigned to each indicator by comparing the best available evidence against relevant benchmark using a standardized grading scheme. **Results:** Overall Physical Activity, Active Transportation, and Sedentary Behavior were assigned the *D* grade. The lowest grade of *F* was assigned to Diet, while School and Government Strategies and Investments were graded higher with a *B*. Five indicators were assigned *INC* (incomplete) due to a lack of representative data. **Conclusions:** The report card demonstrates that Malaysian children and adolescents are engaging in low levels of PA and active commuting, high levels of screen time, and have extremely low compliance with dietary recommendations. More efforts are needed to address the root causes of physical inactivity while increasing the opportunities for children and adolescents to be more physically active.

Keywords: evaluation, guidelines, recommendations, sedentary behavior

Despite the acknowledged importance of physical activity (PA) in promoting overall health and well-being,¹ physical inactivity remains a pervasive public health problem in children and adolescents worldwide. The global analysis of combined data from the Global School-based Health Survey (GSHS) and the Health Behaviour in School-aged Children (HSBC) survey revealed that 80.3% of adolescents did not meet the PA recommendation of doing at least 60 minutes of moderate- to vigorous-intensity PA (MVPA) per day.² In Malaysia, findings from the Malaysian School-Based Nutrition Survey 2012³ and Nutrition Survey of Malaysian Children (SEANUTS Malaysia)⁴ show that more than half the children and adolescents were classified as having low levels of PA^{3,4} and high levels of sedentary behavior,⁴ suggesting the need for immediate and effective approaches to tackle this “inactivity epidemic.”

PA behavior is complex and influenced by various personal (eg, sex, self-efficacy, and diet behavior) and environmental factors (eg, family support for PA, neighborhood safety, neighborhood park, and recreation facilities), as well as by interactions at both individual and social levels (eg, family, school, neighborhood, and community).⁵ Therefore, the use of multilevel analytic approaches is deemed important and necessary for examining PA in children and adolescents. With this perspective in mind, the Malaysia Active Healthy Kids (MAHK) Report Card was introduced in 2016 as a

collaborative effort with the Active Healthy Kids Global Alliance (www.activehealthykids.org), with the aim of providing a comprehensive, evidence-based evaluation of PA indicators at various levels of the socioecological model among Malaysian children and adolescents aged 5 to 17 years. It is anticipated that this report card will act as a tool to increase the exchange of knowledge between researchers and policy makers in developing effective strategies to promote active and healthy lifestyles in the population.

The purpose of this article is to present an overview of how the first MAHK Report Card was developed and to summarize the results of the 2016 Report Card, which is based on the best available evidence synthesized from numerous national surveys and health reports published since 2009.

Methods

The 2016 MAHK Report Card was developed and produced by a Research Working Group (RWG) comprising 7 of the authors (RS, KHC, NHZ, MLO, JEW, HAS, BKP) of this paper. The responsibilities of the RWG involved determining the specific core matrices to be used to grade the PA indicators, identifying and assessing the key data sources, evaluating the evidence gathered, and assigning grades to each indicator following the Active Healthy Kids Canada Report Card protocol.⁶ The proposed grades and supporting evidence by the RWG were then validated by an external expert (JJR) from the Active Healthy Kids Global Alliance and reviewed by a Steering Group Committee consisting of 7 experts in the field of child and adolescent PA and health from different universities and a nongovernmental organization. Following approval by the Steering group, the proposed grades were presented, discussed, and agreed upon during a consensus meeting held with a Stakeholder group. This Stakeholder group comprises 8 members—with interests in PA promotion from government and nongovernmental organizations.

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Stakeholders reviewed the major decisions made by the RWG: they helped confirm that all relevant Malaysian data for the indicators had been considered; and they supported the draft grades suggested by the RWG.

A total of 11 indicators relating to PA in children and adolescents were assessed in the MAHK Report Card 2016: 1) Overall Physical Activity; 2) Organized Sports and Physical Activity Participation; 3) Active Play; 4) Active Transportation (defined here as any form of human-powered transportation—walking, cycling, etc); 5) Sedentary Behavior (defined here as screen time); 6) School; 7) Physical Education and Physical Activity Participation; 8) Family and Peer Influence; 9) Community and the Built Environment; 10) Government Strategies and Investments; and 11) Diet (defined here as fruit and vegetable intake).

Table 1 summarizes the details of the national surveys and reports which were used as the main data sources for this report card. These data were selected on the basis of the representativeness of the sample (ie, the data source must be nationally-based), age range of the sample surveyed (ie, within the age range of 5 to 17 years), sample size obtained (ie, at least 500 subjects) and how recently the data were collected (ie, analyzed or published from the year 2009 onward). These criteria were set internationally based on the Canadian model,⁶ which noted that recent national survey or cohort study data should be used for grading and that the sample size must be large enough to be representative of the whole population. The grade assignment for each indicator was based on the comparison

of prevalence of the health behavior or outcome, obtained from the best available evidence synthesized from these main data sources, against a specific evidence-based recommendation or benchmark using the following grading framework:⁶ *A* is prevalence of 80% to 100%; *B* is 60% to 79% prevalence; *C* is 40% to 59% prevalence; *D* is 20% to 39% prevalence; *F* is 0% to 20% prevalence; and *INC* is Incomplete, where current data were not available or were inadequate to assign a grade.

Results and Discussion

The 2016 MAHK Report Card (Figure 1) is the first national, evidence-based evaluation of PA and the related contributing factors in Malaysian children and adolescents. The grades assigned for the 11 indicators in the report card are presented in Table 2. Overall, 6 indicators (Overall Physical Activity, Active Transportation, Sedentary Behavior, School, Government Strategies and Investments, and Diet) were successfully graded with a degree of confidence based on the best available evidence; while 5 indicators (Organized Sports and Physical Activity Participation, Active Play, Physical Education and Physical Activity Participation, Family and Peer Influence, Community and the Built Environment) had incomplete data and/or a lack of evidence-based recommendations and were therefore graded *INC*.

The 2016 MAHK Report Card shows that the core indicators related to PA and diet behaviors (including Overall Physical Activity,

Table 1 Main Data Sources

Data source	Descriptions	Study variables	Contribution to PA indicators (1–11)
Global School-based Health Survey—Malaysia (GSHS Malaysia)	A school-based survey of the behavioral risk factors and protective factors in 10 key areas related to the leading causes of morbidity and mortality for students from Form 1–5 (aged 13–17 years) in 2012 (n = 25507). ⁷	Physically active for at least 60 minutes per day on 5 or more days during the past 7 days ¹¹	1
Nutrition Survey of Malaysian Children (SEANUTS Malaysia)	A national nutrition survey for children aged 0.5–12 years in 2010–2011 (n = 3542). ⁸	Usual mode of transport to and from school ¹²	4
		Fulfillment of screen time recommendation ⁴	5
		Fulfillment of fruit and vegetable intake recommendations ¹³	11
Report on School Sports Infrastructure and Programmes Survey (i-KePS Report)	A survey conducted by Ministry of Education for assessing the availability of sports infrastructure and programs at national primary and secondary schools in 2014. ⁹	Percentage of schools with a sports field ⁹	6
Annual Report of Ministry of Health 2012	An annual report prepared by the Ministry of Health on government policies and initiatives in health promotion and disease prevention. ¹⁰	Data on the government strategies and investments in promoting physical activity ¹⁰	10

Note. Indicators: 1) Overall Physical Activity; 2) Organized Sports and Physical Activity Participation; 3) Active Play; 4) Active Transportation; 5) Sedentary Behavior; 6) School; 7) Physical Education and Physical Activity Participation; 8) Family and Peer Influence; 9) Community and the Built Environment; 10) Government Strategies and Investments; 11) Diet.



Figure 1 — Front cover of the 2016 Malaysia Active Healthy Kids Report Card.

Table 2 Grades for Each Indicator in the Malaysia Active Healthy Kids Report Card 2016

Indicator	Grades
Overall Physical Activity	<i>D</i>
Organized Sports and Physical Activity Participation	<i>INC</i>
Active Play	<i>INC</i>
Active Transportation	<i>D</i>
Sedentary Behavior	<i>D</i>
School	<i>B</i>
Physical Education and Physical Activity Participation	<i>INC</i>
Family and Peer Influence	<i>INC</i>
Community and the Built Environment	<i>INC</i>
Government Strategies and Investments	<i>B</i>
Diet	<i>F</i>

Note. The grade for each indicator is based on the percentage of children and youth meeting a defined benchmark: *A* is 80–100%; *B* is 60–79%; *C* is 40–59%, *D* is 20–39%; *F* is <20%; *INC* is incomplete data combined with lack of an evidence-based recommendation.

Active Transportation, Sedentary Behavior, and Diet) were generally assigned low grades. Out of the 11 core indicators, Diet was given the lowest grade (*F*), reflecting an extremely low compliance with dietary recommendations for fruit and vegetable intake among Malaysian children and adolescents. On the other hand, both the School and Government Strategies and Investments were assigned high grades (*B*), suggesting that considerable efforts and provision have been invested by the relevant authorities in promoting PA. A brief discussion of the grades assigned to each indicator is provided below with full details available in the long-form version of the report card (available at <http://activehealthykids.org.my>).

Overall Physical Activity: *D*

Overall Physical Activity was assigned a grade of *D*. Among Malaysian secondary school students aged 13 to 17 years, only 22.8% self-reported that they were physically active for a total of at least 60 minutes per day on 5 or more days per week.¹¹ It is important to note that the data used to grade this indicator was not specific in regards to the intensity of the activities as recommended by the guidelines (ie, accumulate at least 60 minutes of moderate-intensity PA daily),¹⁴ considering the fact that there were no nationally representative data available which used objective measures of PA (such as accelerometry).

Organized Sports and Physical Activity Participation: *INC*

Organized Sports and Physical Activity Participation was assigned an *INC* grade because no national data were available on the proportion of children and adolescents who participate in organized sports and/or PA programs on a weekly basis.

Active Play: *INC*

Active Play was assigned a grade of *INC* based on 2 justifications by the RWG: 1) there are no clearly defined benchmarks or guidelines available for active play; and 2) the current active play data available focused only on preschoolers aged 4 to 6 years,¹⁵ which does not fully represent the age range of children and adolescents as defined in this report card and thus was not considered suitable for grading.

Active Transportation: *D*

Active Transportation was assigned a grade of *D*. Only 24.6% of the Malaysian school children aged 7 to 12 years used active transport (ie, walking or cycling) at least part of the way to and/or from school on at least 1 of the 5 school days.¹²

Sedentary Behavior: *D*

Sedentary Behavior was assigned a grade of *D*. It was reported that Malaysian children aged 7 to 12 years spent an average of 3.1 hours on screen-based activities (including television watching, video gaming, and computer use),⁴ with only 31.6% of them meeting the screen time recommendation, that is, not more than 2 hours of recreational screen time per day.¹⁴

School: *B*

School was assigned a grade of *B*. The justification for this grade was that it was estimated that 74.5% of the government primary and secondary schools in Malaysia have a sports field.⁹

Physical Education and Physical Activity Participation: *INC*

Physical Education and Physical Activity Participation was assigned an *INC* grade because the data available on the proportion of children and adolescents who participate in 1 physical education class (not including school sports) every week was not considered eligible for grading due to a high proportion of invalid responses.¹¹

Family and Peer Influence: *INC*

Family and Peer Influence was assigned an *INC* grade because there is currently no data available on the proportion of parents who meet the PA guidelines. According to Malaysian guidelines, Malaysian adults should accumulate at least 30 minutes of moderate-intensity PA on at least 5 to 6 days a week, preferably daily.¹⁶ While data on PA of Malaysian adults are available (64.3% were physically active),¹⁷ it was not possible to identify the proportion of parents who meet the PA guidelines.

Community and the Built Environment: *INC*

Community and the Built Environment was assigned an *INC* grade as there is no national data available on the proportion of children and adolescents living in neighborhoods with at least 1 park or playground area.

Government Strategies and Investment: *B*

The Government Strategies and Investments indicator was assigned a grade of *B*. The grade was based upon the evaluation by the RWG and Steering Group Committee on the many government initiatives and policies [eg, *Nak Sihat* (Want to be Healthy) Campaign, *Doktor Muda* (Young Doctors) Program, “10,000 Steps a day” Campaign, “One Student One Sport” Policy, National Sports Policy] to promote active healthy lifestyle in children and adolescents since year 2009.^{10,18} It is important to highlight that although the government has invested in many programs to promote PA, their implementation and effectiveness remain largely unknown.

Diet: *F*

Diet grading was based on fruit and vegetable intake as a single, summary measure of overall diet for Malaysian children and adolescents is not available. Moreover, fruit and vegetable intake is potentially associated with PA and sedentary behaviors in children and adolescents,^{19–21} and there are clear and widely-accepted recommendations for this behavior. Diet was assigned a grade of *F* as very few Malaysian school children reported achieving the recommended daily intakes of fruit (aged 7 to 9 years: 13.4%; aged 10 to 12 years: 19.6%) and vegetables (aged 7 to 9 years: 9.5%; aged 10 to 12 years: 16.1%).¹³ According to the Malaysian Dietary Guidelines for Children and Adolescents 2013,¹⁴ children and adolescents aged 7 to 18 years are recommended to eat 2 servings of fruit and 3 servings of vegetables daily.

Limitations

Although the grades assigned in the 2016 MAHK Report Card were based on the best recent available data, there are several important limitations in the process of developing the report card that need to be acknowledged. First, all of the data sources used to inform the grades of the PA indicators relied on self-report methods of data

collection and this limited our ability to evaluate the PA levels and patterns of children and adolescents in a more objective way (eg, available data on the intensity of the PA was limited). Second, the nationally representative PA data included in grading^{4,11,12} were collected more than 3 years ago and may not represent the current PA levels of the populations. Next, reports on evaluation of PA programs and initiatives by the public and private sectors are not readily available, making it difficult to justify if they are having an impact on the PA levels of the population. Lastly, nearly half of the indicators in the report card were graded incomplete because of the lack of available evidence and/or guidelines for benchmarking. This lack of data precluded comprehensive evaluation of PA at various levels of the socioecological model. Taken together, these highlight the need for more efforts and timely research to evaluate these important indicators of PA at national level. Despite the presence of a number of incomplete grades in this first Malaysian report card, available data suggest that there is an alarming ‘inactivity epidemic’ currently taking place in Malaysia.

Conclusions

The results of the 2016 MAHK Report Card demonstrate that the majority of Malaysian children and adolescents are engaging in low levels of PA and active commuting, high levels of screen time, and have extremely low compliance with dietary recommendations for fruit and vegetable intake. These undesirable behaviors occur despite considerable efforts and investments by the government and schools in promoting active and healthy lifestyles. This lack of connection between policy and practice/behavior suggests the need for more efforts across sectors to address the root causes of physical inactivity while increasing the opportunities for children and adolescents to be more physically active in Malaysia.

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