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Physical activity level of Thai children and youth: Evidence from Thailand's 2018 report card on physical activity for children and youth

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ABSTRACT

Background: While enabling and supporting factors have been in place to facilitate the pupils to be more active, only a fourth of Thai children have met the WHO recommendation.**Objective:** This study aims to present the physical activity (PA) level of Thai children and youth, based on the indicators established by Active Health Kids Global Alliance's Report Card (RC).**Methods:** The 2016 Thailand RC Survey and the 2015–2017 Thailand's Surveillance on Physical Activity (SPA) were employed for the analysis. PA of Thai children aged 6–17 years old was assessed in 9 aspects 1) Overall PA, 2) Organized Sports and PA, 3) Active Play, 4) Active Transportation, 5) Sedentary Behavior, 6) Family and Peers, 7) School, 8) Community and Environment, and 9) Government.**Results:** Only 26.2% of Thai children and youth met the recommended level of 60 min MVPA. Boys are generally more active compared to girls in all age groups (34.9% versus 16.3%, respectively). Almost half had participated in organized sports and/or PA program, but only 8.7% of Thai children and youth engaged in unstructured/unorganized active play. The settings and source of influence indicators achieved better grades, shown by 71.0% of family members (e.g., parents, guardians) facilitated PA and sports opportunities for their children.**Conclusion:** Although schools' facilities are available, Thai curriculum provides less opportunity for the children to move during classes and have enough playing time during recess. As there is no standardized guidance for PA in Thai schools, Thailand needs to promote a unified PA in order to improve PA and to reduce recreational screen time of children and youth.© 2020 The Society of Chinese Scholars on Exercise Physiology and Fitness. Published by Elsevier (Singapore) Pte Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Studies have documented consistent findings in low level of PA among children and youth.^{1–6} Four out of five young people worldwide do not meet the recommended PA level of 60 min daily as it is recommended by WHO.^{2,3,7–9} The pandemic of physical inactivity has urged the government of many nations to call up an action by joining a global movement called The Global Matrix Report Card (RC) initiated by Active Healthy Kids Global Alliance (AHKGA). The RC is a synthesis of the existing programs and policy addressing PA for children and youth which comprises a set of

standard indicators to enable comparison between countries and enable countries to assess their current situation of PA.¹⁰

Global Matrix 1.0 was first released on May 20th at the 2014 Global Summit on the PA of Children in Toronto, Canada and involved 15 countries from 5 continents.¹¹ The Global Matrix 2.0 was launched on November 16th at the 2016 International Congress on Physical Activity and Public Health in Bangkok Thailand, and was attended by 38 countries from 6 continents. The Global Matrix 3.0 was released on November 27th, at 2018 the Movement to Move event in Adelaide, Australia where 50 countries from 6 continents have stated their commitments on joining the movement by submitting a total of 500 grades.

Much have been done by the Thai government to enable Thai young population physically active. The Bangkok Declaration 2016 marked the Thailand's national movement to increase PA by involving multi-sector leadership, partnership and sustained commitment.¹² Enabling and supporting factors have also been in

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place to facilitate the pupils to be more active. Nevertheless, only a fourth of Thai children have met the WHO recommendation of daily 60 min moderate-vigorous PA (MVPA) during 2013–2017.^{13–18} The 2016 Thailand RC also revealed only 23.4% of Thai children and youth accumulated the daily levels (>60 min) of MVPA as recommended.¹⁹

Socio-ecological model suggests the determinants of PA participation related to intrapersonal, interpersonal, organizational, environmental, and policy factors, while influences on behaviors interact across these different levels.^{20,21} Based on the indicators established by Active Health Kids Global Alliance, this study aims to present the PA level of Thai children and youth in 2018. Our examination towards the global matrix indicators also accompanied by observation of gaps between the existing programs and policy, in order to provide further recommendation for Thai government in improving PA level of the young population.

Methods

The 2018 Thailand Report Card (TRC) assesses the current level of PA among Thai children aged 6–17 years old by taking into account the ten core indicators developed by the Active Healthy Kids Global Alliance Global Matrix 3.0 which includes 1) Overall PA, 2) Organized Sports and PA, 3) Active Play, 4) Active Transportation, 5) Sedentary Behavior, 6) Family and Peers, 7) School, 8) Community and Environment, and 9) Government and Investments with an additional indicator (10) Physical Fitness.

Most of the indicators (1, 2, 4, 5, 6, and 8) in 2018 TRC were driven from two surveys: the 2016 Thailand RC Survey and Thailand's Surveillance on Physical Activity (SPA) 2015–2017. As the baseline estimate, the 2016 Thailand RC data was originated from Thailand Physical Activity Children Survey (TPACS) conducted in 2015. TPACS was a school-based survey collecting data from 16,788 children aged 6–17 years from 336 schools in 27 provinces in 9 regions and Bangkok. The SPA 2015–2017 data was employed to calculate the rate of change in PA and further be used in the forward survival method to estimate the current PA level by calculating the population of each age that survived from the beginning of the time period to the end point. A total of 1480; 1404; and 1267 children and youth aged 5–18 years old were involved in SPA 2015, 2016 and 2017, respectively. Both TPACS and SPAs were nationally representative surveys where multi-stages random sampling was applied to select the participants by considering the gender, age, urban/rural, and school size. Global Physical Activity Questionnaires (GPAQ) v.2 was used for TPACS and SPAs.

Feel-fit accelerometer was employed to measure steps, calories, and the duration of MVPA for *Active Play* indicator, while *School* data were collected from the Office of Basic Education Commission of the Ministry of Education (MoE). *Family and peers'* indicators were drawn from questions related to support such as "How often do your parents play or exercise with you?" and "How do your parents support you to exercise or play sports?"

We listed the existing policies at the national level for the *Government* indicator, and requested the expert panels to state the status and impacts of relevant policies in promoting PA for children and youth nationwide by considering the following criteria: leadership, commitment, funding, resources and initiative in PA promotion.

Results

To enable comparison among countries, the Thailand 2018 RC adopted the global agreement grading scheme.²²

Behavioral indicators

The overall PA of Thai children and youth is considered low (D-). A grade of D- indicates that the proportion of children and youth who met the recommended level of 60 min MVPA ranged between 20 and 26% (Table 1). Fig. 1 shows that boys are generally more active compared to girls in all age groups (34.9% versus 16.3%, respectively). The proportion of boys with an adequate level and intensity of PA is likely to increase with age, whereas for girls, PA is likely to decline with age.

Almost half (44.1%) of Thai children and youth had participated in organized sports and/or PA program. The proportion of boys who participated is slightly higher compared to girls, but the largest discrepancy was found among the 12–14 age group, where the proportion of boys was almost twice (60.6%) than girls (32.3%). The *Active Play* indicator received the lowest grade (F) among the nine indicators with only 8.7% of Thai children and youth engaged in unstructured/unorganized active play at any intensity for more 2 h a day (Table 1).

The proportion of boys who met the Canadian Sedentary Behavior Guidelines of having less than 2 h screen time per day was slightly higher (27.9%) than girls (23.0%). However, unlike other indicators where boys are more active, girls (54.7%) used active transportation modes such as walking, cycling, using a wheelchair, in-line skating or skateboarding more than boys (52.4%) (Table 2). Chi-square test results indicated that age group and gender statistically significant in differentiating all physical activity indicators (Table 2).

Source of influence indicators

Unlike the behavior indicators that mostly obtained low grades, the settings and source of influence indicators achieved better grades. About 71.0% of family members (e.g., parents, guardians) facilitated PA and sports opportunities for their children (e.g., volunteering, coaching, driving, and paying for membership fees and equipment). In addition, of 30,297 schools in Thailand, 70.1% are considered 'supportive', showed by the provision of regular access to facilities and equipment that support PA (e.g., gymnasium, outdoor playgrounds, sports fields, multi-purpose space for PA, and equipment in good condition). In terms of the community and environment, 64.2% of children or parents reported having facilities, parks and playgrounds available in their community.

Thailand has made a great effort in promoting PA for children and youth. Since 2014, several policies have been implemented to increase the PA level of Thais. The perceived supports have reached to 74.4% which means, most of the policy makers believed that the existing policies in PA have been implemented to promote PA for children and youth nationwide. Physical Fitness indicator cannot be measured due to incomplete data collection process.

Discussion

The Overall PA of Thai children and youth receives grade (D-), implying only 26.2% of Thai children and youth accumulated at least 60 min of MVPA per day on average. Compared to the global PA grades (D), Thailand is among 75% of 49 member countries that failing PA grades.²³ The low level of PA among children and youth suggests that enabling environment and supporting policy only is insufficient to encourage the children to move more when the nature of Thai primary and secondary school curricula limits the students to be physically active during the day (school hours). In addition, while organized PA already occurs in most schools, the quality of PA is lacking and unstandardized since there are no guidelines to specify in what level and intensity of activity best fits

Table 1
Grades and rationales for Thailand’s 2018 PA.

Indicator	Grade	Rational
Overall PA	D-	26.2% of Thai children and youth accumulated at least 60 min of moderate- to vigorous-intensity PA per day on average.
Organized Sport Participation	C-	44.1% of Thai children and youth participated in the organized sports and or PA program.
Active Play	F	8.7% of Thai children and youth engaged in unstructured/unorganized active play at any intensity for more than 2 h a day
Active Transportation	C	53.4% of Thai children and youth used active transportation (walking, cycling, using a wheelchair, in-line skating or skateboarding) to get to and from places
Sedentary Behaviours	D-	25.6% of Thai children and youth met the Canadian Sedentary Behavior Guidelines (5- to 17-year-olds: no more than 2 h of recreational screen time per day)
Family and Peers	B	71.0% family members (e.g., parents, guardians) facilitated PA and sports opportunities for their children (e.g., volunteering, coaching, driving, and paying for membership fees and equipment).
School	B	70.1% of schools with students who have regular access to facilities and equipment that support PA (e.g., gymnasium, outdoor playgrounds, sporting fields, multi-purpose space for PA, equipment in good condition).
Community and Environment	B-	64.2% Thai children or parents reported having facilities, programs, parks, and playgrounds available to them in their community
Government	B+	74.4% of the policy makers believed the existing policies in PA had been implemented; shown by their strong leadership, commitment, funding, resources and relevant initiatives to promote PA for children and youth nationwide.
Physical Fitness	–	Incomplete data.

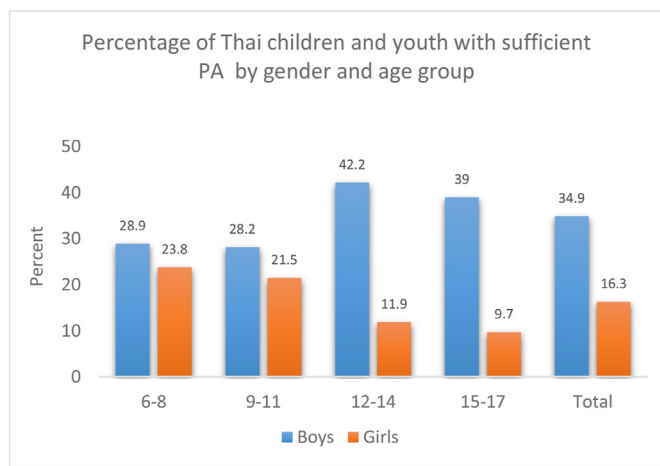


Fig. 1. Percentage of Thai children and youth with sufficient PA by gender and age group.

children’s age and development.²⁴

While physical development increases boys’ level of PA, it reduces girls’ level of PA. Aside from the type of organized sports in Thailand that perhaps suit boys more than girls, the low participation of girls in the sport is culturally gendered constructed. More than their male counterparts, girls do not want to become sweaty and dirty. The cultural belief of Thai girls of the importance of fair skin also has been the significant barriers to engage in outdoor PA especially if they have to be exposed to direct sunlight.^{25,26} Uniform

also may increase the barriers, since girls in primary and secondary schools have to wear skirts for four days in a week.

About 70% of children and youth taking active transport as their usual means to travel to and from school. Although it is not consistent with previous findings, residential area was found to be significantly associated with children and youth’s participation in PA, especially in active transportation. Children and youth living in urban are less physically active compared to their rural counterparts, especially where the road safety and connectivity is lacking.^{27,28}

The findings of the study also suggested that Thai children are lacking the opportunity to play because the unsafe and unfriendly community environment have restricted parents to allow their children to play outside.^{29,30} Moreover, a high proportion of Thai children and youth engaged more in screen-time activities²⁷ as the digital media is widely available and more affordable for Thai families,^{31–33} and television viewing and playing electronic game is common to keep the children inside the house.^{31,34}

Thai families have been aware on the importance of PA, shown by the availability of supports in terms of volunteering, coaching, driving, and willingness to pay for membership fees and sport equipment for their children. Supporting facilities in the community and schools have also been in place. The Thai Government has also provided substantial supports for PA of children and youth. However, while there have been a good deal of research and intervention taken place in a school setting to burst PA level of children and youth, the major points where PA is structurally limited (school hours) and the unavailability of standardize guideline for PA for children and youth have not been resolved.

Table 2
Percentage of children and youth who met the recommended level of PA by age group and sex.

Indicators	Overall group	Percentage by age group and sex												
		6–8		9–11		12–14		15–17		Total		Chi-square test		
		Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl	Total
1 Overall PA	26.2	28.9	23.8	28.3	21.5	42.2	11.9	39.0	9.7	34.9	16.3	123.9***	201.1***	307.4***
2 Organized Sports and PA	44.1	21.7	31.5	42.6	53.4	60.6	32.3	59.5	45.2	47.3	40.9	188.1***	156.3***	331.8***
3 Active Play	8.7	9.8	7.2	9.4	6.7	14.2	4.1	13.1	3.2	11.6	5.4	7.9*	53.9***	49.6***
4 Active Transportation	53.4	38.0	37.5	52.2	61.0	78.9	62.2	36.2	55.5	52.4	54.7	191.9***	227.4***	352.5***
5 Sedentary Behaviours	25.6	18.6	22.5	25.4	21.6	36.3	18.7	29.4	28.9	27.9	23.0	49.2***	75.8***	116.9***
6 Family and Peers	71.0	59.9	64.4	70.4	67.6	72.4	77.6	73.8	70.5	70.0	70.3	102.2***	94.0***	189.5***

*Significant level at 0.05, ** 0.01, *** 0.001.

Conclusion

Only 26.2% of Thai children and youth met the recommended level of 60 min MVPA, with a higher proportion of sufficiency among the boys. The quantity and quality of PA, therefore, should be improved with a national standardized guideline and comprehensive PA programs based on collaboration between teachers, schools, and the family. The quality of physical education can be improved structurally through the revised curricula where the teachers and schools are challenged to provide varying modes of PA during recess and during school hours. PA could be integrated or incorporated into students' activities either at home or school and, thus, require the cooperation between schools, parents and community in designing age-appropriate play activities to meet the Thai children's and youth's developmental requirements.

To address PA decline among older adolescents and girls, promoting collective PA is deemed necessary. Aside from social support where adolescents are encouraged to set their goals together, collective PA will also increase the self-efficacy of each individual. Although a collective PA program might be difficult to sustain as a regular routine, hence, creative team challenges and rewards could be designed to motivate the team members to maintain their regular PA and gradually increase their PA intensity. In addition, modifying the girls' uniform or allowing them to wear a more flexible attire (such as pants) during the weeks also could provide them more chances to move without barriers.

Author contribution

PK and KP conceived the study; PK performed the formal data analysis; PK and DAW conceptualized the manuscript; DAW drafted the manuscript; PK and DAW interpreted the results; DAW wrote the final manuscript.

All authors have read and approved the final version of the manuscript, and agree with the order of presentation of the authors.

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Declaration of competing interest

We have no conflicts of interest to disclose.

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