

Results From Chile's 2016 Report Card on Physical Activity for Children and Youth

Nicolas Aguilar-Farias, Andrea Cortinez-O'Ryan, Kabir P. Sadarangani, Astrid Von Oetinger, Jaime Leppe, Macarena Valladares, Teresa Balboa-Castillo, Carolina Cobos, Nicolas Lemus, Magdalena Walbaum, and Carlos Cristi-Montero

Background: The 2016 Chilean Report Card on Physical Activity for Children and Youth is a review of the evidence across indicators of behaviors, settings, and sources of influence associated with physical activity (PA) of Chilean children and youth. **Methods:** A Research Work Group reviewed available evidence from publications, surveys, government documents and datasets to assign a grade for 11 indicators for PA behavior based on the percentage of compliance for defined benchmarks. Grades were defined as follows: A, 81% to 100% of children accomplishing a given benchmark; B, 61% to 80%; C, 41% to 60%; D, 21% to 40%; F, 0% to 20%; INC, incomplete data available to assign score. **Results:** Grades assigned were for i) 'Behaviors that contribute to overall PA levels': Overall PA, F; Organized Sport Participation, D; Active Play, INC; and Active Transportation, C-; ii) 'Factors associated with cardiometabolic risk': Sedentary Behavior, D; Overweight and Obesity, F; Fitness, F; and iii) 'Factors that influence PA': Family and Peers, D; School, D; Community and Built Environment, C; Government Strategies and Investments, C. **Conclusions:** Chile faces a major challenge as most PA indicators scored low. There were clear research and information gaps that need to be filled with the implementation of consistent and regular data collection methods.

Keywords: advocacy, policy, health promotion

There is a common misconception that noncommunicable diseases (NCDs) do not affect children and/or start in childhood, even though existing evidence has shown that NCD risk factors have an enormous impact on their health.¹ Chile, newly considered as a high-income country, has more than 75% of children and adolescents not meeting the World Health Organization (WHO) Physical Activity (PA) guidelines.^{2,3} As the lack of PA is highly prevalent among nations, the WHO included physical inactivity in the 9 voluntary global targets to address NCDs.⁴ Following this perspective, national and local governments are required to set a life course strategy for NCDs prevention to offer a better opportunity for an intergenerational and population-based change in PA behavior.¹

To register the evidence on PA for children and youth, Active Healthy Kids Canada started the compilation and grading of this information in 2005 in a report card to be used as a communication tool for improving effectiveness of advocacy for PA promotion.⁵ Mexico was the first Latin American country to adopt this model in 2012, followed by Colombia in 2014.⁶ Since then, the Active Healthy Kids Global Alliance has been successful in influencing policies and programs for the community and stakeholders aiming

at improving PA opportunities for children and youth.⁷ Due to these benefits, other Latino American countries, including Chile, Brazil, and Venezuela, have registered as participating countries in this new global report card.

The purpose of the present article was to summarize the results of the first Chilean Report Card on Physical Activity for Children and Youth. Since this is the first Chilean review of its kind, and to properly encompass any sources of suitable and updated information, a 10-year time frame (2005–2015) was established for gathering national academic and nonacademic published or unpublished sources.

Methods

The Research Group on Physical Activity and Health, "UFRO Activate" (www.ufroactivate.org) at Universidad de La Frontera, Temuco, organized and coordinated a Research Work Group (RWG) for the development of the Chile's first Report Card on Physical Activity (PA) in Children and Youth, consisting of 11 PA researchers from 7 universities (Universidad de La Frontera, Universidad

Aguilar-Farias and Cortinez-O'Ryan are with the Dept of Physical Education, Sports, and Recreation, Universidad de La Frontera, Chile; UFRO Activate Research Group. Sadarangani is with the School of Physiotherapy, Faculty of Health Sciences, Universidad San Sebastian, Chile; and the Dept of Physical Education, Sports, and Human Movement, Universidad Autonoma de Madrid, Spain. Von Oetinger is with the School of Physiotherapy, Faculty of Rehabilitation Sciences, Universidad Andres Bello, Chile. Leppe is with the School of Physical Therapy, Universidad del Desarrollo, Chile. Valladares is with the Laboratory of Bionanotechnology, Universidad Bernardo O'Higgins, Chile. Balboa-Castillo is with the Dept of Public Health, Universidad de La Frontera, Chile. Cobos is with the Dept of Health Promotion and Citizen Participation, Division of Healthy Public Policies and Promotion, Subsecretary of Public Health, Ministry of Health Chile. Lemus is with the Unit of Curriculum and Assessment, Ministry of Education, Chile; and the Pedagogy in Physical Education, Sports, and Recreation, Universidad Mayor, Chile. Walbaum is with the Dept of Non-Communicable Diseases, Disease Prevention and Control Division, Ministry of Health, Chile. Cristi-Montero is with the IRyS Group, School of Physical Education, Pontificia Universidad Catolica de Valparaiso, Chile. Aguilar-Farias (nicolas.aguilar@ufrontera.cl) is corresponding author.

San Sebastian, Universidad del Desarrollo, Universidad Mayor, Universidad Bernardo O'Higgins, Universidad Andres Bello, and Pontificia Universidad Catolica de Valparaiso) and 2 institutions from the public sector (Ministry of Health of Chile [Department of Health Promotion and Citizen Participation and Department of noncommunicable diseases] and the Ministry of Education of Chile [Unit of Curriculum and Assessment]). The dissemination of information and media strategy through a website (www.chil-eactivate.com), social networks (Facebook and Twitter), printed materials, and press releases, was developed by "UFRO Activate" with collaboration from the Department of Physical Education, Sports, and Recreation at Universidad de La Frontera, Temuco, and the Institute of Regional Development (Instituto de Desarrollo Regional, IDER) at Universidad de La Frontera. We also informed the Chilean scientific community about the forthcoming Chilean Report Card with a letter to the editor in the *Medical Journal of Chile (Revista Medica de Chile)* authored by the RWG.⁸

The RWG based the structure of the Chilean Report Card on the design of previous report cards⁵ and the first global matrix of grades that included 15 countries.^{7,9–12} Eleven indicators of PA behavior were included and categorized according to relationships with overall levels of PA.⁸ The first category comprised behaviors contributing to PA levels: 1) Overall PA Levels, 2) Organized Sport Participation, 3) Active Play, and 4) Active Transportation. The second category included factors associated with elevated cardiometabolic risk: 5) Sedentary Behaviors, 6) Overweight and Obesity, and 7) Fitness. The third category comprised factors that influence PA: 8) Family and Peers, 9) School, 10) Community and the Built Environment, and 11) Government Strategies and Investments. The researchers were organized in to subgroups for each indicator to conduct a systematic search and literature review of published and unpublished data or documents, such as academic papers, government documents, public datasets, and national surveys. Manual search on nonelectronically available government reports, emails, and telephone calls were made, when necessary, to obtain additional information and access datasets from recent national surveys. The RWG provided key articles (ie, national or local government reports) and complementary sources (ie, databases) to other subgroups as well. Evidence selection and its consequent assessment were based on aspects such as representativeness of the data (eg, national versus regional/local-based), how the sample was obtained (ie, sampling frame/procedure and response rate), age range of children surveyed, sample size obtained, quality of data metric (eg, how the question was asked, objective versus subjective, reliability and validity data), and reporting on specific subgroups (eg, sex, age, socioeconomic status).¹² Then, each subgroup summarized the evidence and assigned grades to be discussed with the research coordinators.

The grading process for each indicator was based on criteria from other report cards,^{5,6} but additional criteria were included to provide a comprehensive assessment. For example, the grading of Overall PA levels not only took into consideration the prevalence of children and youth meeting WHO PA guidelines, but also gender disparities in PA levels. Each criterion was assessed individually and contributed to the final grade for the indicator. The RWG used an international letter grading system (*A* to *F*) for allowing comparisons of indicators between countries, but also adapted this grading system to the Chilean numerical system (1 to 7) to allow national interpretation and significance. The final grade for each criterion and indicator was based on the percentage of children and youth meeting a defined benchmark: The letter grading system was defined as follows: *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%; and *INC* is incomplete data. The

Chilean numerical grading system was defined as 1 is 0% to 20%; 2 is 21% to 35%; 3 is 36% to 50%; 4 is 51% to 60%; 5 is 61% to 75%; 6 is 76% to 90%; and 7 is 91% to 100%. In the Chilean numerical system, scoring under 4 denotes failure. In the case of negative outcomes such as sedentary behavior and overweight and obesity, a reversed order of the percentages was considered for grading.

Primary sources for national data were The Global School-based Student Health Survey 2012 (GSHS),³ the National Health Survey 2009–2010 (NHS),¹³ Study of Adolescent Health Situation 2012 (CLAP),¹⁴ National Survey on Perception of Urban Quality of Life 2010,¹⁵ National Survey on Early Childhood 2010 (ENPI),¹⁶ Longitudinal Survey on Early Childhood 2012 (ELPI),¹⁷ National Survey on Quality of Life and Health 2006 (ENCAVI),¹⁸ National Survey on Socioeconomic Characterization 2013 (CASEN),¹⁹ Education Quality Agency and Ministry of Education,^{20,21} National Survey on Activities in Children and Adolescents 2012 (EANNA),²² and the National Urban Survey on Citizen Security 2014 (ENUSC).²³ Data from regional studies conducted in Chile were also included to highlight local efforts and assess regional trends and differences.

The cover story of the Chilean Report Card is 'Active Play' (Figure 1), defined as freely chosen, spontaneous, and self-directed PA involving an element of fun.²⁴ There is no doubt that overall PA provides health gains in different stages of development, but benefits from active play go beyond the health benefits.²⁵ Active play is a key component for children and adolescents in the development of

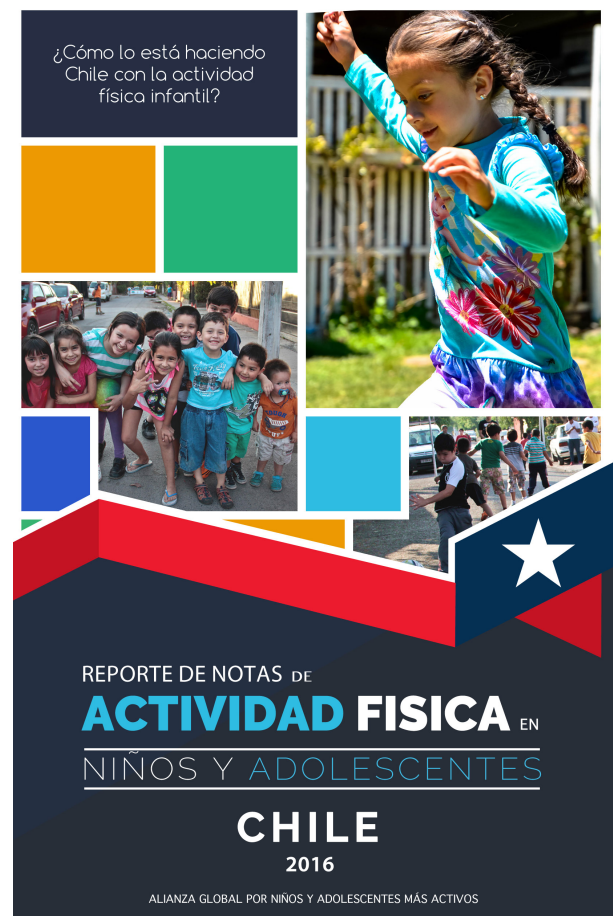


Figure 1 — Front cover of Chile's 2016 Report Card on Physical Activity for Children and Youth.

autonomy, confidence, creativity, self-image, coordination, social interaction, learning, and cultural appropriation,^{24,26} among others characteristics and values that may be the root for the development of a healthy society. Therefore, in our attempt to promote active play not only as an important contributor of PA, but also as an instrument for community engagement and empowerment, the rescue of traditional games and public spaces for children and adolescents plays an important role in the public dissemination of the first Chilean Report Card.

Results and Discussion

The 2016 Chilean Report Card is the first assessment of indicators of PA behavior in children and youth. Table 1 summarizes the grades assigned by the RWG for each indicator.

Overall Physical Activity Levels: *F*

The grade of *F* or 2 for Overall PA levels in children and youth was based on 6 criteria: 1) the national and regional prevalence of children and adolescents meeting WHO guidelines for PA (25%²–34.6%²⁷ in children and 12.1%³–18%²⁸ in adolescents); 2) adolescents engaging in leisure PA ranged from 23.1%–33.9%;¹³ 3) a disparity in PA between sexes^{2,3,22,28–30}—for example, females (7%) were less likely than males (11.3%) to meet WHO guidelines for PA in adolescents from the metropolitan area;³ 4) disparity in PA levels between public and private schools—children and adolescents attending public schools reported lower levels of PA;^{27–29} 5) lack of national or regional data on PA for children, particularly in 1 to 5 years of age; and 6) lack of procedures to monitor and evaluate the effectiveness of current programs for the promotion of PA.

Table 1 Grades According to Physical Activity Indicator in the 2016 Chilean Report Card on Physical Activity for Children and Youth

Indicator	Grades	
	International letter system	Chilean system
Overall Physical Activity Levels	<i>F</i>	2
Organized Sport Participation	<i>D</i>	3
Active Play	<i>INC</i>	<i>INC</i>
Active Transportation	<i>C-</i>	3
Sedentary Behaviors	<i>D</i>	3
Overweight and Obesity	<i>F</i>	2
Fitness	<i>F</i>	2
Family and Peers	<i>D</i>	3
School	<i>D</i>	3
Community and the Built Environment	<i>C</i>	4
Government Strategies and Investments	<i>C</i>	4

Note. The grade for each indicator is based on the percentage of children and youth meeting a defined benchmark. Letter grading system is as follows: *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. Chilean numerical grading system is as follows: 1 is 0% to 20%; 2 is 21% to 35%; 3 is 36% to 50%; 4 is 51% to 60%; 5 is 61% to 75%; 6 is 76% to 90%; 7 is 91% to 100%.

Organized Sport Participation: *D*

The grade of *D* or 3 assigned to Organized Sports Participation was based on 5 main criteria: 1) the prevalence of children and youth that reported participation (<25%) in sport facilities or organizations (ie, tennis or municipal halls, gyms, stadiums, clubs, league, associations, and federations);²² 2) government investment of USD\$8.7 million in 2015 for sport programs for children and adolescents, equivalent to 0.16% of the annual budget of the Ministry of Sports;³¹ 3) children and adolescents' participation in sports programs from the Ministry of Sports. From 2013 to 2014 there were increases in participation in programs such as 'Football Schools' (29% increment, total coverage: 320.092 participants), 'Youth in Movement' (10.3% increment, total coverage: 24.523 participants) and the 'National School Sporting Events' (16.9% increment, total coverage: 237.446 participants), among others;³¹ 4) age, gender, and socioeconomic disparities in sport participation among children and adolescents—younger individuals (5–13 years), males, and children from high socioeconomic status (SES) were more likely to participate in sports;²² and 5) both a lack of evaluation of compliance and effectiveness of sports programs and a lack of national data particularly in children under 8 years of age.

Active Play: *INC*

A grade of *INC* was assigned to Active Play due to the lack of a single metric that would provide a complete representation of how Chilean children and youth are performing for this indicator. Two national surveys currently address children play-related questions. Both the ENPI¹⁶ and the ELPI¹⁷ surveys inquired how many times per week a child plays. However, this question included structured and unstructured play, and also active and nonactive play, within the same question. These surveys have even inquired details related to active play, such as if the child owns balls or wheeled toys; preferred places where the child plays; frequency with which parents take children to parks; and the neighborhood safety perception in relation to outside play. However, at least 2 questions addressing 1) the number of days per week the child is active in unstructured play, and 2) the length of time the child is involved in those types of activities, are lacking to accomplish the evaluation of this domain.

Active Transportation: *C-*

The grade in this domain reflects only adolescents' active travel behavior, because no national data were available for Chilean population younger than 13 years old. The grade of *C-* or 3 for Active Transportation was based on 4 criteria: 1) the percentage of adolescents who walk or ride a bicycle to or from school (48.6%) at least 3 or more days per week;³ 2) no difference between sexes in the percentage of adolescents physically active in transport to and from school for at least 3 or more days per week ($P = .48$);³ and 3) a lack of procedures to monitor and evaluate the effectiveness of current policies and programs for the promotion of PA. It must be acknowledged that a *C-* could be considered optimistic given that children-derived data were not available, and adolescents usually enjoy greater independence than children, which favors in to active travel.³² This should be carefully considered when comparing this score with other countries where the whole age range is included.

Sedentary Behaviors: *D*

The grade of *D* or 3 assigned to time spent in Sedentary Behaviors in children and youth was based on 5 criteria: 1) the national

prevalence of spending ≥ 2 hours in sedentary behaviors (SB; ie, screen time) in children (1–7 years, 37.1%)¹⁷ and adolescents (11–17 years, 53.8%);³ 2) disparities in time spent in SB between males and females—males 11–17 years were less likely to spend ≥ 2 hours in SB than females of the same age (51.0% vs 56.7%; $P = .01$);³ 3) individual studies indicate that 63.3% of female adolescents (11–12 years) from the VII region (El Maule) spent ≥ 2 hours per day in front of a screen³³ and children (4–5 years) from the IX region (La Araucanía) spent 60.4% of the total time at home in SB;³⁴ 4) a lack of national data on SB in children, particularly those 8 to 10 years of age, and a lack of research using objective instruments; and 5) a lack of initiatives aimed at reducing the time children and youth spend in SB.

Overweight and Obesity: *F*

The grade of *F* or 2 in Overweight and Obesity in children and youth was based on 5 criteria: 1) the national prevalence of overweight (22.7%) and obese (13.6%) children (up to 6 years of age)¹⁶ and the national prevalence of overweight (31.2%³⁵–42.7%³) and obese (13.4%³⁵–14.5%³) adolescents; 2) gender disparities in prevalence of overweight adolescents between women (37.2%) and men (32.4%, $P = .01$);³⁵ 3) most regional studies were focused in the metropolitan region (capital) and public schools population; 4) a lack of national data in the group aged 6 to 12 years. However, a wide range of regional prevalence of overweight (11.2%–33.8%) and obese (6.5%–39.9%) children have been observed in different studies;^{36–38} and 5) overweight and obesity levels have been increasing in children and youth in the last years.^{39,40}

Fitness: *F*

The grade of *F* or 2 assigned to Fitness was based on the results from The National Study of Physical Education.²⁰ The assessment criteria were: 1) the percentage of adolescents achieving a satisfactory level of general fitness (3%, all fitness domains as acceptable according to Chilean norm);⁴¹ 2) the percentage of adolescents with an acceptable level of i) cardiorespiratory fitness (CRF; 32%), ii) flexibility (34%), iii) abdominal strength (79%), iv) lower body strength (39%), and v) upper body strength (13%);²⁰ 3) gender and regional disparities in CRF and lower body strength. For example, female (16%) adolescents were less likely to show acceptable levels of aerobic capacity than males (45%), and adolescents from the southern regions showed better CRF than those from the northern and central regions;³⁵ and 4) a lack of national data on fitness levels in children.

Family and Peers—Infrastructure, Support, Parental/Peer Behaviors: *D*

The grade of *D* or 3 assigned to Family and Peers was based on 5 criteria: 1) the percentage of parents who reported taking their children to play with other children (59.8%)¹⁶ and playing with their children in a park (33.5%¹⁷–78.0%¹⁶) in the last week; 2) disparities in reported responsibility for playing with their children between mothers (40.7%), fathers (3.0%), and both parents (44.3%);¹⁷ 3) a lack of national or regional data in family and peers for adolescents. We also assessed indicators derived from data on adult behavior, considering them as role models for promoting PA in children and youth;^{42,43} 4) the percentage of Chilean adults who use sport facilities (37.6%) and parks (49.4%) in their neighborhoods;¹⁵

and 5) the percentage of Chilean adults who reported leisure PA (15%¹³–25%¹⁸) and participation in sport or recreational activities in the last month (22.7%).¹⁸

School—Infrastructure, Policies and Programs: *D*

The grade of *D* or 3 assigned to the School indicator was based on 5 criteria: 1) disparities in the percentage of physical education (PE) classes taught by PE teachers for first- to fourth-year students between public (38%), subsidized (60%), and private (81%) schools;²¹ 2) the percentage of adolescents who reported 3 or more days of PE per week (33.2%);³ 3) the percentage of fourth-year (81%) and sixth-year (89%) students declaring that their schools promote healthy lifestyles;²⁰ 4) the percentage of time that boys (15.8%) and girls (12.9%) spent in moderate-to-vigorous PA (MVPA) in PE classes from public schools in the metropolitan region,⁴⁴ as current recommendations are for the students to spend at least 50% of PE class time in MVPA;⁴⁵ 5) a lack of national or regional data in school infrastructure for PA, percentage of compliance of PE classes throughout the year, and percentage of schools that offer PA opportunities (excluding PE) to the majority of their students.

Community and the Built Environment—Infrastructure, Policies, Programs, Safety: *C*

The grade of *C* or 4 assigned to Community and the Built Environment was based on 5 criteria: 1) the percentage of parents who reported very good or good development of public spaces (46.0%), sport facilities (38.4%), street lighting (62.0%), and recreational areas for children under 6 years of age (34.5%) in their neighborhoods;¹⁵ 2) the percentage of parents who reported good safety for children to play in the neighborhood anytime (23.2%),¹⁶ during the day (47%),⁴⁶ or at sunset (31%),⁴⁶ and the percentage of families that have reported an increase of crime (42.4%) in the last year;²³ 3) less than 1% of Chilean cities achieved WHO recommendations for maintained greenspaces (9 m²/inhabitants) and observed disparities in greenspace availability between low SES (range 0.4–2.9 m²/inhabitants) and high SES (range 6.7–18.8 m²/inhabitants) councils;⁴⁷ 4) recent national and local efforts for improving infrastructure, such as implementation of a national plan for the development of 190 km of high-standard bike lanes in 32 cities in Chile with an estimated investment of USD\$62 million⁴⁸ and the creation of 34 new urban parks with an estimated investment of USD\$160 million from 2014 to 2017;⁴⁹ and 5) the availability of national data on environmental and infrastructural perceptions in adults¹⁵ (this information, however, is lacking in children and youth).

Government—Strategies, Policies, Investments: *C*

The grade of *C* or 4 for government policies, strategies, and investments was based on 7 criteria: 1) the presence of PA promotion programs with national coverage, including “Elige vivir sano en comunidad” for all ages,⁵⁰ “Chile Crece Contigo” with 19.7% coverage in children up to 4 years of age,¹⁶ “Escuelas Deportivas Integrales” for children from 4 to 17 years of age,³¹ and “Jóvenes en Movimiento” for children and youth in social risk from 10 to 18 years old;³¹ 2) recent implementation of “Calles abiertas” y “Deporte en tu calle,”³¹ a program in which streets are opened to people and closed to cars in different cities in Chile. However, this program needs a clearer definition of quality standards. In Santiago, “Calles abiertas” has

been connected to a private initiative called ‘Cicl recreovías’⁵¹ that has been successfully implemented for 10 years. However, this joint initiative needs stronger support by stable government funding to be sustainable;⁵² 3) national investment in PA and sports for children and youth—about USD\$8.7 million was invested in 2015 by the Ministry of Sports in ‘Escuelas Deportivas Integrales,’³¹ which is equal to 0.16% of the annual budget for that Ministry; 4) a lack of indicators of effectiveness of current policies and programs; 5) the discrepancy and overlap between written policies from different ministries or departments in terms of definitions (sport-oriented), goals, and strategic plans; 6) the creation of the Ministry of Sports in 2013 with an annual budget in 2014 of USD\$53 million,³¹ which is equal to 0.02% of the Gross Domestic Product (GDP);⁵³ and 7) a lack of current national PA guidelines and recommendations, though there is an ongoing initiative for designing the new ‘National Policy for Sports and Physical Activity’ coordinated by the Ministry of Sports, Ministry of Health, and Ministry of Education. This policy is being built through a participative process and will be launched in 2017. Grading for this indicator was mostly based on expert opinions, as no benchmark was suitable for most criteria.

The results of the first Chilean Report Card on Physical Activity of Children and Youth present a major challenge for improvement as most indicators scored low. Overall, when comparing our results with other Latino American report cards from the first Global Matrix (Colombia and Mexico) released in 2014,⁶ Chile lags in certain indicators and leads in others. For example, Chile scored lower (*F*) than Mexico (*C+*) and Colombia (*D*) in Overall PA, and lower than Mexico in Active Transport (*C-* versus *B+*). The only indicator with a higher grade for Chile was Community and the Built Environment (*C* versus *F* in Mexico). As reported in most country cards from the first global matrix, including Colombia and Mexico, Active Play was graded *INC*. We scored the same results as Mexico and Colombia for Organized Sport Participation (*D*) and Sedentary Behaviors (*D*). Contrasting with the lack of evidence reported in the first report cards from Colombia and Mexico, we were able to grade Family and Peers a *D*, despite some of the criteria being based on adult reports. Government Strategies and Investments scored lower than Colombia and the same as Mexico.

Strengths and Limitations

The Chilean Report Card on Physical Activity was prepared by a multidisciplinary RWG from different public and private institutions in Chile. An exhaustive and systematic search of literature was conducted by the team to include all published and unpublished national and regional evidence. In most national surveys, data were extracted and analyzed from original datasets to obtain specific information for the indicators of this report. The grades assigned in the Chilean Report Card were based on the best available evidence in Chile, but there are still some important limitations and research gaps to consider in this article. This is the first Chilean Report Card, and as such, there were no baseline grades for comparison. The Report Card included published data in the last 10 years, which may or may not reflect the current status of some indicators; however, most national data from surveys were collected in the last 5 years. Some criteria for indicators (ie, neighborhood safety) were based on adults’ responses and perceptions, as there is lack of evidence on children’s environmental perceptions. In addition, even though we conducted a systematic search and contacted different government offices and departments, it is possible that we may not have accessed all available data sources.

Conclusion

Overall, the 2016 Chilean Report Card indicators for PA behavior scored low. National data from different surveys suggested that PA levels tended to decline as age increased. There were consistent disparities in the PA indicators across genders, socioeconomic status, and school types. We acknowledge efforts made in the last governmental periods, but in terms of community and environmental interventions, school organization, and policies, there is a need for implementing systematic and coordinated process evaluations in their national programs. Currently, Chile is in the process of designing and implementing the new ‘National Policy for Sports and Physical Activity’ that may result in improving the consistency of definitions, goals, and strategies for our future generations. We expect to include this national effort and its results in a future report card. Despite the amount and variety of national datasets or available surveys in Chile, there were important research gaps for some age groups and PA indicators (ie, Active Play). Therefore, by detecting gaps and opportunities for improvement, this report card is a promising tool that may contribute to the guidance for future implementation of surveillance plans in PA and suitable and effective strategies in Chile.

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