

Results From South Korean 2022 Para Report Card on Physical Activity for Children and Adolescents With Disabilities

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South Korea has developed its first Para Report Card on physical activity (PA) for children and adolescents with disabilities. Five national surveillance databases were used to evaluate PA indicators based on the benchmarks and grading rubric provided by Active Healthy Kids Global Alliance. Report card evaluation committees were invited to grade and assess the results using strengths, weaknesses, opportunities, and threats analysis. Five indicators (overall PA, D+; organized sports and PA, D–; active transportation, D–; physical fitness, D+; and government, A+) and one additional indicator (sleep, C–) were assigned a letter grade. The other five indicators were graded as incomplete. The Para Report Card revealed a significant gap between the behavioral-indicator grades (D– to D+) and the policy-indicator grade (A+), suggesting that government strategies and investment have not yet been translated into behavioral PA among children and adolescents with disabilities.

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Engaging in regular physical activity (PA) improves physical, mental, and social health among children and adolescents (Carson et al., 2016). Overall, physical inactivity is prevalent among children and adolescents globally (Guthold et al., 2020). Children and adolescents with disabilities (CAWD) are also more vulnerable to preventable secondary conditions, comorbidities, mental health issues, and increased risks for obesity, Type 2 diabetes, and premature death (Ginis et al., 2021).

The Active Healthy Kids Global Alliance (AHKGA) is a not-for-profit organization that facilitates global efforts to promote PA among children and adolescents, including the preparation and promotion of a county-level report card on the PA (Colley et al., 2012). Global Matrix initiatives of the AHKGA combine and compare results from multiple countries' report cards in an effort to enhance the grades through cross-national learning (Aubert et al., 2018). As more countries in the AHKGA had access to data on disabilities, the Global Matrix Para Report Cards on CAWD (referred as Para Report Cards) was an initiative running in parallel to the Global Matrix 4.0 (Ng et al., in press).

Over 75% of CAWD were found to be physically inactive globally (i.e., not meeting the guidelines; Ginis et al., 2021). To date, no study has examined the levels of PA participation or rates of meeting PA guidelines among South Korean CAWD. As such, a comprehensive evaluation of PA-related behavioral indicators and the sources of influence would be a first step to inform future programs and interventions that are tailored for CAWD in South Korea. Furthermore, the Para Report Card would provide an opportunity to compare these indicators over time and with other participating countries.

Therefore, 2022 South Korea Para Report Card on PA for CAWD was developed, the first of its kind in South Korea. The purpose of this study was to summarize the process and results of the 2022 South Korea Para Report Card and assess the results using a strengths, weaknesses, opportunities, and threats (SWOT) analysis.

Methods

In this Para Report Card, children and adolescents with 15 disability types and chronic conditions (physical, brain lesions, vision, hearing, language, facial, kidney, heart, liver, respiratory, intestinal and urinary fistula, epilepsy, intellectual, mental, and autism) were included. Following the AHKGA guidelines (Aubert et al., 2018), the principal investigator (i.e., corresponding author) invited five experts in the field of PA and health to be part of the research working group (RWG). Furthermore, eight members from higher education institutions ($n = 4$), Korea Institute of Sport Science ($n = 1$), Seoul metropolitan government ($n = 1$), Korean Paralympic Committee (KPC; $n = 1$), and Ministry of Culture, Sport, and Tourism ($n = 1$) participated in the final grading of the Para Report Card as a report card evaluation committee. A series of meetings were held among RWG members from October 2021 to January 2022 for data collection and interpretation as well as evidence synthesis and preparation for the Para Report Card. The RWG and report card evaluation committee joint online meeting was held on January 25, 2022, to grade each indicator based on the evidence accumulated and synthesized by the

RWG whereby views and comments were collected. During joint meeting, report card evaluation committee members unanimously agreed with all final grades after discussions. After final grades were submitted for external audit of the South Korean Para Report Card as described elsewhere (Ng et al., in press), 13 participants, including RWG members and eight stakeholders (five additional members who did not participate in the grading process) who were adapted PA researchers, a practitioner, a special school teacher, and parents of CAWD, participated in a further validating process. On May 6, 2022, an online meeting was held to discuss the final grade of the South Korean Para Report Card. Participating members submitted their written answers to open-ended questions on how to promote PA participation in South Korean CAWD as well as agreed upon the final grade before the meeting. Based on the discussions and the results of the South Korean Para Report Card, a SWOT analysis was performed by RWG members.

Data Sources for Behavioral Indicators

The RWG searched potential data sources for behavioral indicators and identified five data sources outlined next. After the identification of these data sources, official letters with description and importance of the Para Report Card were sent to the presidents or directors of the organizations responsible for the data. All five organizations agreed and provided the data.

2017–2019 National Sports Participation for Individuals With Disabilities

The total number of survey participants was approximately 10,000. In this study, we included only 456 participants aged 10–18 years (boys = 303, girls = 153).

2017 National Survey of People With Disabilities

The National Survey of People with Disabilities is a population-based, triannual survey ($N = 3,032$). This survey aimed to understand and identify factors associated with health and quality of life. A total of 178 CAWD participants (boys = 111, girls = 67) aged 2–18 years were included.

2018 National Disability and Life Dynamics Panel Survey

The National Disability and Life Dynamics Panel Survey comprises self-reported data ($N = 6,121$) that include the demographic and socioeconomic characteristics of individuals, factors related to disability experiences, and household variables such as income and expenditure, including medical costs. In this study, a total of 1,001 CAWD participants (boys = 594, girls = 407) aged 2–18 years were included.

2020 Special Education Longitudinal Survey

The 2020 Special Education Longitudinal Survey included 89,530 South Korean students with disabilities (aged 3–17 years) who were enrolled in public or private schools. This survey is a population-based study, which collects data every 3 years to evaluate items related to classroom behaviors among special education students as well as their educational achievements and adaptive behaviors. In addition,

parents' satisfaction with their children's educational achievements, and attitudes toward schools among students with disabilities were included.

2019–2021 National Center for Physical Fitness and Health for People With Disabilities

The National Center for Physical Fitness and Health for People With Disabilities is a nationwide fitness center located in nine regions in South Korea that assesses physical fitness of people with disabilities (i.e., intellectual disability, spinal cord injury, and sensory disabilities). In this study, CAWD aged between 13 and 18 years ($N = 3,638$) were included to analyze physical fitness.

Data for Sources of Influence Indicators

Among the four sources of influence indicators, enough data were only available for the government indicator. The indicator was evaluated by applying a Health Enhancing Physical Activity Policy Audit Tool (version 2) and the scoring rubric analysis Ward et al. (2021) developed by the national approaches working group of the WHO HEPA Europe network that provided a framework covering all the policy domains informed by the report card (Bull et al., 2015). The annual financial report, annual budget plan, and official documents from the official website of the Ministry of Culture, Sports, and Tourism, Ministry of Education, and Ministry of Health and Welfare were used to analyze and grade.

Statistical Analysis

The estimated percentages of CAWD achieving the benchmark for each indicator were reported alongside chi-square test of independence to compare estimates between boys and girls. All analyses were conducted using SPSS (version 25; SPSS Inc.), and $p < .05$ was considered statistically significant. Based on the result, RWG achieved consensus to assigned letter grades based on the proportion of CAWD achieving the benchmark for each indicator according to the following grading scheme utilized in the earlier AHKGA reports (Aubert et al., 2018).

Results

Behavioral Indicators

Three core indicators and one additional indicator were graded as follows: overall PA, D+ (34%–39%); organized sports and PA, D– (20%–26%); active transportation, D– (20%–26%); physical fitness, D+ (34%–39%); sleep, C– (40%–46%).

Sources of Influence Indicators

Out of four influence indicators, government was graded as A+ (94%–100%); more detail is available in [Supplementary Table S1](#) (available online). The indicators active play, sedentary behaviors, family and peers, school, and community and environment were graded incomplete (INC) due to a lack of available evidence. Grades for all indicators are presented in [Table 1](#).

Table 1 Grades for the 2022 South Korea Para Report Card on Physical Activity for Children and Adolescents With Disabilities

Indicator	Grades	Benchmark	Resources used for grading
Overall PA	D+	Percentage of children and adolescents who meet PA guideline at least 4 days a week	2017–2019 NAPIDS: 163 of 456 (35.7%) met the benchmark (boys: 39.3%, girls: 28.7%; $p = .03$) 2017 NSPD: 45 of 178 (25.3%) met the benchmark (boys: 27.0%, girls: 22.4%; $p = .53$) 2018 NDLDPS: 286 of 1,001 (28.6%) met the benchmark (boys: 34.8%, girls: 19.4%; $p = .62$)
Organized sport and PA	D–	Percentage of children and adolescents who participate in organized sport \geq once/week	2017–2019 NAPIDS: 90 of 456 (19.7%) met the benchmark (boys: 21.5%, girls: 16.2; $p = .27$) 2020 SELS: 21,513 of 89,530 (24.0%) met the benchmark
Active play	INC	Percentage of children and adolescents who participate in nonorganized sport \geq once/week	Nil
Active transportation	D–	Percentage of children and adolescents who use active transportation	2017–2019 NAPIDS: 103 of 456 (22.6%) met the benchmark (boys: 26.1%, girls: 15.7%; $p = .05$) 2018 NDLDPS: 219 of 1,001 (21.9%) met the benchmark (boys: 22.6%, girls: 20.9%; $p = .52$)
Sedentary behaviors	INC	Percentage of children and adolescents who sit continuously <60 min per day	Nil
Physical fitness	D+	Percentage of physical fitness and motor skills comprehensively evaluated by gender- and age-specific ranks from KPC	2019–2021 NCPFHPD: 1,372 of 3,638 (37.7%) met the benchmark (boys: 37.0%, girls: 36.5%; $p = .77$)
Family and peers	INC	Percentage of parents who facilitate PA and sport opportunities for children and adolescents Percentage of friends/peers who encourage and support PA for children and adolescents	Nil

(continued)

Table 1 (continued)

Indicator	Grades	Benchmark	Resources used for grading
School	INC	Percentage of schools wherein the majority of students are offered ≥ 70 min of PE per week Percentage of schools with students who have regular access to facilities and equipment that support PA Percentage of schools that offer PA opportunities to the majority of their students in addition to PE	Nil
Community and environment	INC	Percentage of communities/municipalities that report that they have infrastructure specifically geared toward promoting PA	Nil
Government	A+	HEPA PAT v2	MCST, MOE, and MOHW
Sleep	C-	Percentage of children and adolescents who meet the sleep recommendation within the Canadian 24-hr movement guidelines	2018 NDLDPs: 401 of 1,001 (40.1%) met the benchmark (boys: 38.6%, girls: 42.3%; $p < .01$)

Note. The grade for each indicator is based on the percentage of children and adolescents with disabilities who meet the following defined grading scheme provided by the Active Health Kids Global Alliance: A+ = 94%–100%; C- = 40%–46%; D+ = 34%–39%; D = 27%–33%; D- = 20%–26%. INC = incomplete data; NAPIDS = National Sports Participation for Individuals With Disabilities Survey; NSPD = National Survey of People With Disabilities; NDLDPs = National Disability and Life Dynamics Panel Survey; SELS = Special Education Longitudinal Survey; NCPFHPD = National Center for Physical Fitness and Health for People With Disabilities; HEPA PAT v2 = Health Enhancing Physical Activity Policy Audit Tool; PA = physical activity; PE = physical education; MCST = Ministry of Culture, Sports, and Tourism; MOE = Ministry of Education; MOHW = Ministry of Health and Welfare.

SWOT Analysis

Strong supports from central and municipal governments that promote health-related PA and sports programs for CAWD were identified as strengths (e.g., number of government strategies and financial supports), whereas not enough PA instructors or trainers and tailored exercise or PA programs were identified as weaknesses. Opportunities included a government-led target of construction of 150 new sports and exercise complexes (Bandabi Sport Complex) that were designed specifically for people with disabilities across the country by 2025. Threats included parental factors (a lack of knowledge and awareness of PA, overprotection, and financial burdens) and social factors, such as not being accepted by peers and negative attitudes toward CAWD.

Discussion

Based on the results of this study, the South Korean Para Report Card rated A+ in government and averaged D– in PA behaviors among CAWD. Grading of PA behavioral indicators was based on national surveillance data. However, a huge discrepancy between grades of government and PA behavior indicators is noted.

There are two main reasons for the high grade for the South Korean government on PA promotions. First, a change in government structures in charge of disability sports played an important role not only in the development of disability sports but also overall PA participation among people with disabilities. In 2005, the ministry responsible for sports for people with disabilities moved from the ministry of health and welfare to the ministry of culture, sports, and tourism. This was an important change because it symbolized that sport for people with disabilities was seen as sport itself and not as an act of providing welfare and medical services; therefore, budgets allocated for sports could be used for sports for people with disabilities. As a result, the budget for sports for people with disabilities and the KPC increased seven times within 2 years (2005–2007). The annual budget of 2021 KPC is now over 78 billion Korean Won (US\$ 70 million). Second, since hosting two Paralympic Games in 1988 and 2018 in South Korea, there have been many efforts in various sports and PA promotion for people with disabilities, with the full support of the Korean government. Since 1988, considerable changes have occurred within the community of people with disabilities and within sports participation based on a wider acceptance of human rights, equality, and social integration for people with disabilities, for example: (a) new regulations and laws, (b) para sports programs for people with disabilities, and (c) government organizations for people with disabilities (Oh & So, 2022). The KPC was established to promote PA among people with disabilities and has supported the establishment of social sports and exercise clubs at the community level for people with disabilities (Kim et al., 2015). After the 2018 PyeongChang Winter Paralympic Games, the South Korean government created the PyeongChang 2018 Legacy Foundation to develop and implement programs to sustain the legacies of this event (Byun & Leopkey, 2021). Therefore, the government has funded the construction of 150 Bandabi Sports Centers for people with disabilities to be completed by 2025. These sports centers will provide exercise classes and physical fitness tests run by nationally certified instructors (Byun & Leopkey, 2020).

Despite these efforts by the South Korean government, PA behaviors were graded low among South Korean CAWD as assessed in this Para Report Card. It is most likely that a time lag between the implementation of PA promotion policies and actual PA levels of CAWD exists. In national policy implementation, an extended time lag usually occurs between the interventions and the measurable outcomes (Sit et al., 2022). On the other hand, one of the reasons for the discrepancies between the high grade in the government indicator and the low grade in PA behavior indicators could be that the quality of policies and the processes for policy development are top-down rather than bottom-up (Woods et al., 2021). However, assessments of the qualities of PA policy are beyond the scope of this present study. Therefore, it is important that the Para Report Card should be conducted on a regular basis.

Strengths and Limitations

This project utilized nationally representative data and was based on collaboration among a group of experts working in various PA related fields, which gives the outcomes adequate credibility. This Para Report Card could be used as an advocacy tool to influence stakeholders and policy makers to make effective and sustainable changes to PA promotion programs for CAWD. Specifically, the Para Report Card advisory committee, which included government personnel from the Ministry of Culture, Sports, and Tourism, school principals, and those responsible for planning and implementing PA promotion for CAWD, can use findings of this project in advocating the importance of PA for enhanced health outcomes among South Korean CAWD. Despite its scientific and practical implications, the Para Report Card has a few limitations. Due to the protective measures of privacy and confidentiality in national data, age and school year information was not available for some data; hence, stratification was not possible. Finally, five indicators (active play, sedentary behaviors, family and peers, school, and community and environment) were graded INC due to insufficient data.

Conclusions

The findings from the Para Report Card showed that South Korean CAWD were not sufficiently physically active. On the other hand, government strategies and investment appeared to be supportive and well established. It clearly suggests that systemic and policy-level endeavors have not yet been translated into behaviors among CAWD. More effort and strategic intervention with school, family, community, and government collaboration are needed to increase PA participation levels among South Korean CAWD.

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