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Physical activity of children and adolescents with disabilities in Poland - First Para Report Card

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ABSTRACT

Background: This study provides a comprehensive evaluation of the Polish Para Report Card, which assesses various aspects of physical activity (PA) and related indicators among Polish children and adolescents with disabilities. This area has been under-researched, especially in the Polish context.
Methods: The research methodology included systematic literature searches from 2014 to 2022, utilizing databases such as PubMed, EBSCO, and Google Scholar. This was complemented by outreach to governmental institutions for additional reports and data. The search strategy was aligned with the Global Matrix methodology and aimed at evaluating ten distinct indicators: Overall PA, Organized Sport and PA, Active Play, Active Transportation, Sedentary Behavior, Family and Peers, School, Community and Environment, Government.
Results: Grades were assigned to three of ten indicators. The Overall PA, Sedentary Behavior, and Government indicators each received a D-grade.
Conclusions: The study reveals the need for an extensive system to monitor PA among Polish children and adolescents with disabilities, and the development of effective strategies to enhance PA in this group. Children with disabilities in Poland are under-researched in the area of PA compared to their their counterparts without disabilities.

1. Introduction

Physical activity (PA) offers more significant benefits in improving quality of life, cognitive function, and physical function for people with disabilities than for the general population, and regular PA specifically for children and adolescents with disabilities (CAWD) not only enhances participation and inclusion but also helps in reducing the risk of secondary health conditions unique to this group.[1–5] Additionally, no evidence suggested that PA may be harmful to population of people living with disabilities.[4] Current data on physical PA among children and adolescent indicate a large proportions do not meet recommended amount of PA for health.[6] The World Health Organization (WHO) strategy called the Global Action Plan on Physical Activity 2018–2030, has an ambitious target to reduce physical inactivity of adolescents by 15 % by 2030.[7] One of the objectives of the strategy is to improve data systems and capabilities that will enable regular population surveillance of PA and sedentary behavior in various domains of PA and broader array of factors influencing behavior.[8]

In recent years, there has been an increased awareness to produce data on CAWD.[9] In 2022 UK Chief Medical Officers' published PA guidelines for children and adolescents with disabilities which might be considered an example of specific approach to PA promotion in this group.[4] Children and adolescents living with disabilities have been also recognized as a specific group in the most recent WHO guidelines on PA and sedentary behavior.[1] The new 2020 guidelines for children aged between 5 and 17 years old specify that individuals should participate in at least, an average of 60 min per day of moderate-to-vigorous intensity, mostly aerobic PA, across the week.[1] These guidelines are the same among the general population,[10] although surveillance to monitor population level of PA among CAWD is lacking, with certain exceptions.[11,12] As such, drawing conclusions from surveillance systems to monitor progress in PA among this population group can be challenging.

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One of the worldwide initiatives that aims to improve understanding and comprehensively assess PA of children and adolescents on international level was undertaken by the Active Healthy Kids Global Alliance (AHKGA). In 2014 AHKGA initiated the Global Matrix (GM) – the initiative which aims in preparing and disseminating comparative report cards on PA of children and adolescents from different countries and regions. In the wake of the third edition of initiative – GM 3.0 in the countries such as Finland,[13] Netherlands,[14] Hong Kong,[15] and USA[16] analysis on PA in CAWD was carried out and reported as separate or integrated report. The results obtained from these reports demonstrate consistent patterns; in the majority of the countries surveyed, there is a notable insufficiency of data required for the assessment of established benchmarks. Additionally, the levels of PA were often found to be suboptimal, accompanied by prevalent sedentary behaviours. Since then, more and more countries are committed to the inclusion of CAWD in their evaluation, recognizing the need for specific information regarding PA in CAWD as well as specific challenges to PA surveillance in CAWD. In 2022, alongside the GM 4.0 14 countries or jurisdictions engaged in a project that focused solely on disability data.[17] This was called the Para Report Cards (PRC) on PA in recognition to the parallel project to the GM 4.0, and its focus on CAWD in a harmonized manner, that enabled for some international comparisons.

Information about PA and sedentary behavior levels in Poland were collected in representative samples of children and adolescents i.e. in a GM 3.0, 4.0 and the Health Behaviour in School-age Children (HBSC) study. However there have been no comprehensive assessment of PA in CAWD.[18,19] There are some reports confirming that the level of PA is insufficient among people with disabilities in Poland, but the research about PA in CAWD is limited.[20] In Polish HBSC study,[21] 14.9 % of children and adolescents declared the presence of chronic conditions and disabilities. Acknowledging the relevance of PA among CAWD, this paper aims to present up-to-date data on 10 indicators related to PA among Polish CAWD. This effort is designed to act as a resource and advocacy tool, influencing the enhancement of PA in this specific population as well as contributing to identifying gaps of knowledge regarding the topic.

2. Methods

This research was prepared according to the adapted methodology used from the Global Matrix 4.0 project[6] and in accordance with the PRC.[17] The adaptions included changing the benchmarks to be specific to data on CAWD (Supplementary Table 1.). The research team consisted of three PA academic researchers from two Polish universities with an international expert involved in formulating PRC as a consultant. Following the guidelines of PRC,[17] the relevant stakeholders were reached as part of the data gathering process. However, they have not been included in the grading process.

The PRC constituted of 10 indicators, which include five behavioral indicators (Overall PA, Organized Sport and PA, Active Play, Active Transportation, SB), Physical Fitness and four sources of influence indicators (Family and Peers, School, Community and Environment, Government). The best data were searched for, and then summarized as letter grades according to the Global Matrix methodology (i.e. percentage meeting the benchmark representing a grade between F >20 %, and A < 80 %). Where there were insufficient data, the indicator was graded as incomplete (INC). Prior to finalizing the grades, a matrix of data and rationale were sent to two experienced researchers who are familiar with both the GM 4.0 and the Para Report Cards to act as blind auditors. Feedback were given back to the author team to revise the grades where necessary.

Comprehensive searches with combination of key words comprising of all indicators used in the Global Matrix 4.0, terms such as disability, with disabilities, special needs, special education and country and regions in Poland were conducted on PubMed, EBSCO and Google Scholar databases from January 2014 to September 2022. All types of empirical studies, including cross-sectional observational studies, intervention studies, cohort studies, and others, were eligible for inclusion in the analysis. Also, the grey literature, and later other web search engines were used to identify additional sources of information on the Internet and specifically, websites of public institutions conducting research related to PA. The searches were conducted in English and Polish. Throughout the data gathering process Ministry of Sport and Tourism, Ministry of Education, Office of the Government Plenipotentiary for Disabled People and State Fund for the Rehabilitation of the Disabled, have been contacted with request to refer sources of information on PA in CAWD or other internal documents, such as programs evaluation, that would add to the project.

For data sources assessment, a modified Downs and Black checklist for non-randomized studies was used.[22] Data were extracted, and a grade for each indicator was assigned based on the available evidence and the consensus of the research group. The grading process was prepared according to uniformed report cards development process.[17] Additionally, for assessing a grade Government indicator, the scoring rubric from Ward et al.[23] were used. Detailed information about the methods of data collection has been published elsewhere.[19]

3. Results

The results of this study represents, for the first time, a summary of data on CAWD in field of PA in Poland. Taking into account the search criteria, we found 46 articles, 6 of which met the eligibility criteria and were reviewed. Out of ten core Para Report Card indicators, three of them were assigned letter grades (Overall Physical Activity, Sedentary Behaviours and Government) and seven of indicators were graded as INC (Organized Sport and Physical Activity, Active Play, Active Transportation, Physical Fitness, Family and Peers, School, Community and Environment). The grades and rationale are presented in Table 1.

4. Discussion

The first PA report card for Polish CAWD provides crucial insights into the current state of PA indicators within this demographic in Poland, emphasizing areas requiring immediate attention. Although the goal was to evaluate ten indicators for CAWD, sufficient data was available to grade only three: Overall Physical Activity, Sedentary Behaviors, and Government. In contrast, for children without disabilities, eight indicators were assessed, with school-related activity achieving the highest mark of B+, while the remaining indicators varied from C+ to D. For CAWD.[19]

In this research, a grade of D-was given to the overall PA levels of CAWD, signifying that merely 20 %–26 % of Polish CAWD adhered to the 2010 WHO PA recommendations. This suggests that a substantial majority, over three-quarters, of CAWD fail to partake in adequate PA for their health. Importantly, this evaluation did not take into account the revised WHO PA guidelines. Future studies and monitoring in the PA field for CAWD should incorporate these updated recommendations, particularly emphasizing strength-focused activities at least three times per week.[1,10] Additionally, PA in HBSC study has been measured through self-reports, and by the Physical Activity Questionnaire (PAQ) when applied to children with intellectual disability.[26] More standardized ways of measuring PA in CAWD need to be developed to allow comparisons between children and adolescents with and without disabilities, and also between disability groups.

The sedentary behavior, graded D-, is another critical area requiring improvement. This grade reflects that only 20%–26 % of Polish CAWD adhere to the benchmark of a maximum of 2 h of screen time per day. For sedentary behavior only the amount of time spent in front of a screen (screen time) was surveyed. Similar to many children and adolescents,[19] Polish CAWD were found to spend a significant portion of their day engaged in screen-based sedentary activities.[26] Therefore, promotion of PA and reduce screen time to improve health outcomes among this

Table 1
Overview of indicators, grades and summary of their rationales.

Indicator	Grade	Rationale
Overall Physical Activity	D-	24,2 % young adolescents aged 11-, 13-, and 15-years old CAWD met the 2010 WHO recommendation of at least 60 min of moderate- to vigorous-intensity PA daily (31 % boys, n = 231 and 17.4 % girls, n = 253).[20]
Organized Sport and Physical Activity	INC	The identified data referred only to the number of children and adolescents in the programs aimed at PWD. In total, in 2019, 10.006 CAWD participated in the sports sections, events, Polish Championships, Polish National Cups and sports camps. This was carried out as part of the program for promoting sports of people with disabilities coordinated by Ministry of Sport and Tourism, which constitutes 21.1 % of the total number of participants of this program and approximately 4–5% of all CAWD in Poland (based on data from 2014).[24] In total, in 2020, 6.884 children and adolescents participated in the sports sections, events, Polish Championships, Polish National Cups and sports camps carried out as part of the program for promoting sports of people with disabilities, which constitutes 17.6 % of the total number of participants of this program approx. 3–4% of all CAWD in Poland.
Active Play	INC	There is a lack of evidence to grade this indicator.
Active Transportation	INC	There is a lack of evidence to grade this indicator.
Sedentary Behavior	D-	On average 29 % CAWD aged 11-, 13-, and 15-years old (n = 793) spent less than 2 h per day watching TV. 37 % CAWD aged 11-, 13-, and 15-years old (n = 793) spent less than 2 h per day hours playing computer games or using it. 38 % of boys were watching TV for less than 2 h per weekday and 18 % during weekend. 38 % of girls were watching TV for less than 2 h per weekday and 23 % during weekend. 52 % of boys were playing computer games for less than 2 h per weekday and 25 % during weekend. 43 % of girls with were playing computer for less than 2 h weekday and 30 % during weekend.[25] Screen time[a] during school days in children and adolescents with ID was 3.38 h/day, while on weekends it was 3.85 h/day.[26]
Physical Fitness	INC	There is a lack of evidence to grade this indicator.
Family and Peers	INC	There is a lack of evidence to grade this indicator.
School	INC	This indicator was not assigned a grade due to insufficient evidence. Based on the identified study there is still a lack of integrative sports facilities in Poland; the availability of, primarily, properly prepared indoor swimming pools and sports halls is hindered. In Poland, despite the visible improvement, some CAWD still do not have access to a safe and universal sports infrastructure, especially in smaller regions.[27]
Community and Environment	INC	There is a lack of evidence to grade this indicator.
Government	D-	In 2013–2015, public funds at the disposal of the Minister of Sport and Tourism together with PFRON in the total amount of PLN 143.4 million (approx. $32.9 million) were allocated to co-finance grassroots and competitive sports of PWD. From this amount the Minister of Sport and Tourism donated PLN 99.1 million ($22.8 million), including PLN 41.3 million ($9.5 million) for grassroots sport and PLN 57.8 million ($13.3 million) for competitive sports. The Minister's annual co-financing of sport for PWD in these years increased, both, in grassroot sport (by 12.1 %), and in competitive sport (by 20.8 %). The Supreme Chamber of Control of the Republic of Poland[28] estimates that despite the allocation of PLN 143.4 million ($33.0 million) in the years 2013–2015, only about 62.5 thousand of PWD (2 % of PWD in Poland) were supported with this founds. Additionally, audit carried out for this period (2013–2015), indicated that the amount of expenses allocated to the promotion of sport in those years was insufficient.[28] Furthermore, in 2020–2022 Polish Ministry of Sport and Tourism allocated PLN 56.4 million ($13.0 million) for PWD sport and PA: 1) 2020 - PLN 18.7 million ($4.3 million)[29] Supporting the organization of sports activities for PWD - PLN 6.4 million ($1.5 million); Supporting the organization of sports events for PWD - PLN 5.2 million ($1.2 million); Supporting the organization of the Polish Championships and Polish National Cups for PWD -PLN 2.3 million; Supporting the organization of sports camps for PWD - PLN 3.7 million ($0.9 million), promotion of sport in PWD PLN 0.98 million ($0.23 million). 2) 2021 - PLN 17.0 million ($3.9 million) Supporting the organization of sports activities for PWD - PLN 6.5 million ($1.5 million); Supporting the organization of sports events for PWD - PLN 5.2 million ($1.2 million); Supporting the organization of the Polish Championships and Polish National Cups for PWD - this task has been move to competitive sport; Supporting the organization of sports camps for PWD - PLN 4.0 million ($0.9 million), promotion of sport in PWD-PLN 1.38 million ($0.3 million). 3) 2022 - PLN 20.1 million ($4.6 million) (no detailed data). The second important source for funding of sport for PWD is PFRON with consistently supports sport for all for PWD via various programs. The number of people supported through such financing was steadily increasing annually between 2018 (n = 13 369) and 2021 (n = 22 288). In 2020 the Ministry responsible for physical culture also launched a program to support promoting sport of PWD named Promoting Sport of PWD. It is however important to note that none of the aforementioned programs are aimed specifically to children and adolescents. Children and adolescents are just a small part of beneficiaries of Ministry of Sport and Tourism programs, while in case of PFRON exact number CAWD participants is unavailable. Analyzed using HEPA PAT v2 and the scoring rubric published by Ward et al.[23] indicate the three programs (PFRON tasks, Promoting sport of PWD program, Promotion of Disabled People's Sport in 2021) received an average score of 82 %. This score was used only as a supplementary measure.[19]

Note: Grades for each indicator were based on the percentage of children and adolescents meeting a defined benchmark: A+ is 94–100 %, A is 87–93 %, A− is 80–86 %, B+ is 74–79 %, B is 67–73 %, B− is 60–66 %, C+ is 54–59 %, C is 47–53 %, C− is 40–46 %, D+ is 34–39 %, D is 27–33 %, D− is 20–26 %, F is <20 %, and INC is incomplete/insufficient data.

[a] Total screen time (hours per day) was calculated as the average time spent on the following activities: TV/videos, viewing, computer usage (both entertainment and homework), and using video games in weekdays and weekend days.

group is priority.

The Government indicator was graded D-. In Poland, activities for the benefit of people with disabilities in field of PA and sport were implemented since the period of the Iron Curtain (communism time in Poland). One of the milestones realized in 2008, when Poland signed the United Nations Convention on the Rights of Persons with Disabilities. Since then, some actions to improve the situation of people with disabilities in Poland have been strengthened at the legislative level and several initiatives for PWD at the government level appeared, however none of the national programs were aimed specifically to CAWD in the field of health and PA. The main funding sources of PA in CAWD in Poland are: Ministry of Sport and Tourism 'Sport for all' programs and PFRON programs. The obtained score for assessing the Government indicator through the HEPA PAT v2 [23] was high. However, this information was treated as a supplementary measure, akin to the approach taken in the GM 4.0 Report Card.[19]

The overall low score concerning the Government indicators may be attributed to three factors: lack of leadership regarding PA in CAWD in Poland (such as no current strategic document regarding PA promotion), lack of specific policies regarding PA in CAWD (and knowledge on CAWD PA and SB), and low funding of PA promotion and sport in CAWD. In the latest national Report Card, the situation regarding overall PA and sedentary behaviors was particularly worrying, with grades of INC, and D, respectively,[19] while the government was graded higher (C). Many government sports programs target all children, but we lack data on CAWDs. More publicly available data could provide better evidence of the efforts on the national level and could improve implementation as well as policies for better promotion of PA. This would include monitoring CAWD in programs, rather than just the number of children and adolescents reached.

4.1. Call for action for Polish researchers and practitioners

Based on the data that would better characterize behaviors and sources of impact on PA in Polish CAWD, the next step would be to define priority needs and create strategies as well as interventions addressed for this population. First of all, the lack of consistent definitions and measures of disability, contribute to plenty of challenges in reviewing and comparing studies. The most frequently used document among CAWD in Poland is a certificate of special educational needs, which mainly concerns the area of education and is sometimes confused with a disability.[30] In addition to it, a certificate of disability is also issued at the request of a parent, and not everyone does it. Thus, few concepts/terms are used most often in scientific practice: special education needs, CAWD, chronic conditions and long term illness and disability.[17,25,31] As in other studies, the consensus of the authors chose the term of CAWD. Consequently, these highlighted issues and challenges should be urgently prioritized to improve any research and interventions.

Presently, it is recommended to employ items based on the Washington Group on Disability Statistics for the creation of such data.[32] Self-report versions of the child functioning module are still being developed,[33] and further validation is needed from the proxy report version. Based on our results, we recognize that before formulating specific policies is to gather data on PA-related indicators and set a PA-related prevalence and surveillance system that would enable better understanding of the current state of PA behaviors and sources of influence in CAWD in Poland. In terms of PA behaviors in CAWD, research is required to gather the data after the pandemic restrictions. We lack current data in reference to all PA related behaviors, as the most recent large-scale published study on CAWD PA behaviors in Poland have been conducted in 2013/2014 as a part of HBSC study.[25] Despite 2018 HBSC studies in Poland[21] have been published, it lacked the outputs on PA and SB in CAWD.

One opportunity for PA surveillance of CAWD is to recognize CAWD as a specific group in the ongoing PA surveillance of children and adolescents in Poland. Up to 2020 HBSC results were the indicators in the Sport Development Programs – the main sport and PA strategic document in Poland. Another repeatable study which has a PA component in Poland is conducted within Childhood Obesity Surveillance Initiative (COSI) project, although there are no indicators for disabilities in COSI,[34] and it is parent report, which not fully align with benchmarks in this report card. Recognizing CAWD as important studied group in those projects would ensure regular data on CAWD PA behaviors in Poland. These studies go into general schools, and there is no information of whether CAWD are permitted or excluded from data collection. Thus, as outlined by Sit et al. (2023), we urge institutions financing or conducting such research to secure recognition of CAWD.

We also recommend conducting studies that would enable understanding of the current state of sources of influence on PA in Poland, including – perspectives of children and adolescents and their parents or care givers. Given that the school indicator was found a base for PA of children and adolescents in the PA Report Card in Poland,[19] our suggestion is in particular to ensure good understanding of school environment impact on PA in CAWD. Little is known about CAWD physical education (PE) and access to PA in schools and preschools, whether it comes from the students or the teachers. As specific factors might impact PA in CAWD, more research is needed to map the current state in Poland. Studies on perceived quality of PE, access to PE by participants and parents or care givers, perceptions on barriers to conducting and organizing PE classes in CAWD among teachers and school directors as well as research using measures to analyse PE quality should be supported by the ministries responsible for education, health and sport in Poland which finance PA-related programs of CAWD and develop relevant policies.

Another obtainable step that would improve understanding of PA of CAWD in Poland would be to ensure gathering data on disability within PA promotion ministry-led programs aimed at general population of children and adolescents. In most of the programs, the involved sport clubs, coaches, and teachers have the flexibility to choose a group they work with and only some decide so. These programs are often far-reaching, necessitating the collection of data on beneficiaries (including physical fitness).[36] One of the most recent programs named *Wychowanie Fizyczne z AWF* (*Physical Education with University of Physical Education*) might be considered a good practice as data on disability of participants was gather.[35] We also recommend ensuring that data on fitness of CAWD participating in ministerial programs is gathered, as an opportunity to monitor physical fitness of individuals involved. Importantly, lack of access to data on physical fitness in CAWD has been identified as a theme in the cross-national SWOT synthesis on Para Report Cards in other countries.[37]

Based on results the crucial suggestion for the national and local governments in Poland is to improve understanding of PA in CAWD. A few other recommendations regarding PA promotion in CAWD were defined. Firstly, in terms of accessibility of various facilities in Poland in 2019[38] the act on ensuring accessibility for people with special needs came into force that aimed to improve accessibility to various public facilities and services. It is critical to understand whether and how it in fact improves access to PA for CAWD, and what in fact is the current access to such facilities in the context of PA. In the methodology employed for the Para Report Cards, the inclusion of 'access to equipment' was introduced as a specific benchmark for evaluating the Community & Environment indicator. Notably, data on this benchmark was not reported by any of the countries involved in the study.[17] This may lend to the idea that access and appropriate equipment is a core principle in inclusive PA,[39] yet measurement of successful implementation is largely lacking.

With current lack of strategic document in reference to PA promotion among children and adolescents in Poland, an opportunity to set CAWD PA higher on political agenda in the upcoming strategic document arises.[38] We recommend embedding indicators on CAWD PA as a part of the document what should lead to development of CAWD PA

surveillance in Poland. Finally, with increasing investments in elite Paralympic sports we recommend defining policies that aim to achieve societal impact, such as inspiring CAWD to PA or sports.

5. Conclusion

While international institutions are intensifying efforts to promote PA in CAWD, Polish CAWD exhibit worryingly low PA levels and high screen-based sedentary behaviors. The stark contrast in PA evaluations between children with and without disabilities in Poland underscores the pressing need for research focused on CAWD. Currently, there are no specific initiatives observed to enhance PA surveillance in CAWD. Several proposals have been made to bolster research, surveillance, and policy concerning PA among CAWD, such as standardizing disability terminology and creating and executing projects to monitor PA in CAWD.

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Data availability statement

The data presented in this study are available on request from the corresponding author.

Declaration of competing interest

The authors declare that they have no competing interests.

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Appendix A. Supplementary data

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