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Original Article

EDUCATORS' PERCEIVED IMPACT OF PHYSICAL EDUCATION AND SPORTS ON CHILDREN WITH SPECIAL NEEDS

IMPACTO PERCEBIDO PELOS EDUCADORES DA EDUCAÇÃO FÍSICA E DO ESPORTE NO DESENVOLVIMENTO DE CRIANÇAS COM NECESSIDADES ESPECIAIS

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RESUMO

Este estudo qualitativo explora as percepções dos educadores sobre como a educação física (EF) e os esportes influenciam o desenvolvimento de crianças com necessidades especiais. A pesquisa baseia-se em entrevistas semiestruturadas com 30 educadores (12 homens, 18 mulheres, com idades entre 25 e 50 anos) de instituições de educação especial em Istambul e Ancara. Os participantes foram selecionados por meio de amostragem proposital para garantir uma representação diversificada de profissionais, incluindo professores de educação especial, especialistas em desenvolvimento infantil e terapeutas, todos com experiência em trabalhar com crianças com Transtorno do Espectro Autista, síndrome de Down, paralisia cerebral e deficiências intelectuais. Os resultados revelam melhorias notáveis nas habilidades motoras, interação social, regulação emocional e autoestima dessas crianças por meio do engajamento regular em atividades de EF. No entanto, foram identificados desafios significativos, como recursos inadequados, treinamento especializado limitado para educadores e dificuldades em projetar atividades inclusivas que atendam às diversas necessidades dos alunos. O estudo destaca a necessidade de maior investimento em programas de EF adaptada, desenvolvimento profissional abrangente para educadores e recursos personalizados para criar ambientes de educação física mais inclusivos e eficazes. Essas mudanças são essenciais para maximizar os benefícios desenvolvimentais da EF para crianças com necessidades especiais.

Palavras-chave: Educação física adaptada, Crianças com necessidades especiais, Desenvolvimento de habilidades motoras, Interação social, Bem-estar emocional, Educação inclusiva, Educação especial.

ABSTRACT

This qualitative study explores educators' perceptions of how physical education (PE) and sports influence the developmental growth of children with special needs. The research draws on semi-structured interviews with 30 educators (12 males, 18 females, aged 25-50 years) from special education institutions in Istanbul and Ankara. Participants were selected using purposive sampling to ensure a diverse representation of professionals, including special education teachers, child development specialists, and therapists, all with experience working with children with Autism Spectrum Disorder, Down syndrome, cerebral palsy, and intellectual disabilities. The findings reveal notable improvements in motor skills, social interaction, emotional regulation, and self-esteem among these children through regular engagement in PE activities. However, significant challenges were identified, including inadequate resources, limited specialized training for educators, and difficulties in designing inclusive activities that meet the diverse needs of students. The study underscores the need for increased investment in adaptive PE programs, comprehensive professional development for educators, and tailored resources to create more inclusive and effective physical education environments. These changes are essential to maximize the developmental benefits of PE for children with special needs.

Keywords: Adaptive physical education, Children with special needs, Motor skill development, Social interaction, Emotional well-being, Inclusive education, Special education

Introduction

Children with special needs face complex barriers that significantly impact their ability to engage meaningfully with the world around them[1,2]. These challenges span multiple domains. Physically, they may struggle with motor coordination or strength due to conditions such as cerebral palsy or muscular dystrophy[3,4]. Cognitively, they may experience learning difficulties, attention deficits, or intellectual disabilities, which hinder their academic and developmental progress[5,6]. Emotionally, they often deal with heightened levels of anxiety, frustration, or difficulty processing their emotions. Socially, they face challenges in forming

relationships with peers and participating in group activities, which can lead to further isolation from mainstream opportunities[7–9].

Within this context, physical education (PE) and sports are emerging as powerful interventions that offer significant benefits to children with special needs[10,11] by providing structured environments where children can move, interact, and play, PE and sports open avenues for improving physical health, enhancing self-confidence, promoting social integration, and stimulating cognitive processes. Activities focusing on movement, coordination, and physical exertion can help children develop fundamental motor skills, often delayed or impaired due to their conditions[12]. Moreover, physical activities offer a platform for children to practice communication, learn teamwork, and build relationships, fostering essential social skills that may not be as easily developed in traditional academic settings[13,14].

Although many studies emphasise the outcomes from the perspective of clinical or therapeutic interventions, much of the current research addresses PE's physical, emotional, and cognitive advantages for children with special needs from teachers who interact daily with these children [15,16]. However, these studies often highlight motor results or general behavioural changes while giving little thought to how teachers see and modify PE to fit different developmental needs. Most earlier studies in this area focused on gross motor development and physical coordination without considering more general psychosocial effects or practical issues[17,18]. Still, there is a significant knowledge gap on how teachers, crucial in planning and executing PE programs, view the consequences of these efforts in inclusive environments[15,19]. Very few studies have qualitatively looked at teachers' insights, adaptations, and perceived developmental changes in their students brought about by physical education, especially in the Turkish context [20,21]. Although a few recent studies have been done in Türkiye, their scope is still restricted, and they do not adequately investigate the more significant institutional and experiential aspects of teachers' responsibilities in inclusive PE[7-9,14]. Earlier research frequently neglected the lived experiences and practical challenges teachers in inclusive PE settings encountered[10,11]. The current study seeks to close this gap by focusing on teachers' perspectives to steer inclusive PE policies and practices. Despite increasing awareness of the benefits of PE and sports for children with special needs, there remains a significant gap in research addressing how these activities impact this group [22–24]. While much of the existing literature focuses on the general benefits of physical activity—particularly its role in enhancing physical fitness and mental health for children without disabilities—there is less understanding of the day-to-day educational effects of regular PE and sports participation for children with special needs[9,10,12]. Most research leans toward therapeutic interventions, leaving gaps in understanding how PE and sports within school settings contribute to the overall development of these children.

Educators who work closely with children with special needs play a vital role in identifying the effects of physical activities on their students. These professionals monitor children's progress and provide insights into how various academic and physical activities influence their development [25]. Through daily interactions in PE settings, educators can observe how physical activities affect children's physical, emotional, social, and cognitive growth, including improved coordination, confidence, and emotional regulation[13]. Furthermore, educators are not just observers; they actively shape children's experiences in PE settings. By adapting sports activities to meet the diverse needs of each child, they foster inclusive environments that encourage participation and cooperation among peers. Their involvement allows them to assess short-term benefits, such as mood improvements or focus after a session, and long-term outcomes, such as better social interactions or increased physical independence[11,26]. PE and sports play a crucial role in the holistic development of children with special needs, particularly in motor skills, social interaction, emotional well-being, and cognitive function[9,12]. Educators' observations highlight how physical activities help children improve coordination and balance while fostering peer communication and cooperation[10,13].

Additionally, participation in sports has been linked to enhanced emotional regulation, boosted self-esteem, and improved cognitive abilities, such as problem-solving and attention[5,11]. This study aims to explore educators' perceptions regarding how physical education and sports influence the development of children with special needs.

Methods

Research Design

This study employs a qualitative research design to explore the nuanced perspectives of educators working with children with special needs. A descriptive qualitative approach was used to explore the educators' experiences and observations[27]. Semi-structured interviews were the primary data collection method, providing consistency across participants and the flexibility to explore individual insights in greater detail[28].

Data Collection Method

Semi-structured interviews lasting between 45 to 60 minutes were conducted face-to-face or via secure video conferencing[29].

Ethical Considerations

Informed consent was obtained from all participants, and pseudonyms ensured confidentiality[30].

Participants

The study involved 30 educators from special education institutions in Istanbul and Ankara, selected through purposive sampling to capture a range of perspectives. These educators came from diverse professional backgrounds, including 10 special education teachers, five child development specialists, eight classroom teachers, four psychologists, and three speech and language therapists. Their professional roles are visually summarized in Figure 1. These professionals had teaching experience ranging from 3 to 20 years, with an average of 10 years. The group consisted of 12 males and 18 females, aged between 25 and 50 years, with an average age of 35. They were employed in various institutional settings, including public schools, private special education institutions, and specialized rehabilitation centres. The educators primarily worked with students aged 7 to 12 years and were experienced in supporting children diagnosed with Autism Spectrum Disorder, Down Syndrome, Cerebral Palsy, and Intellectual Disabilities.

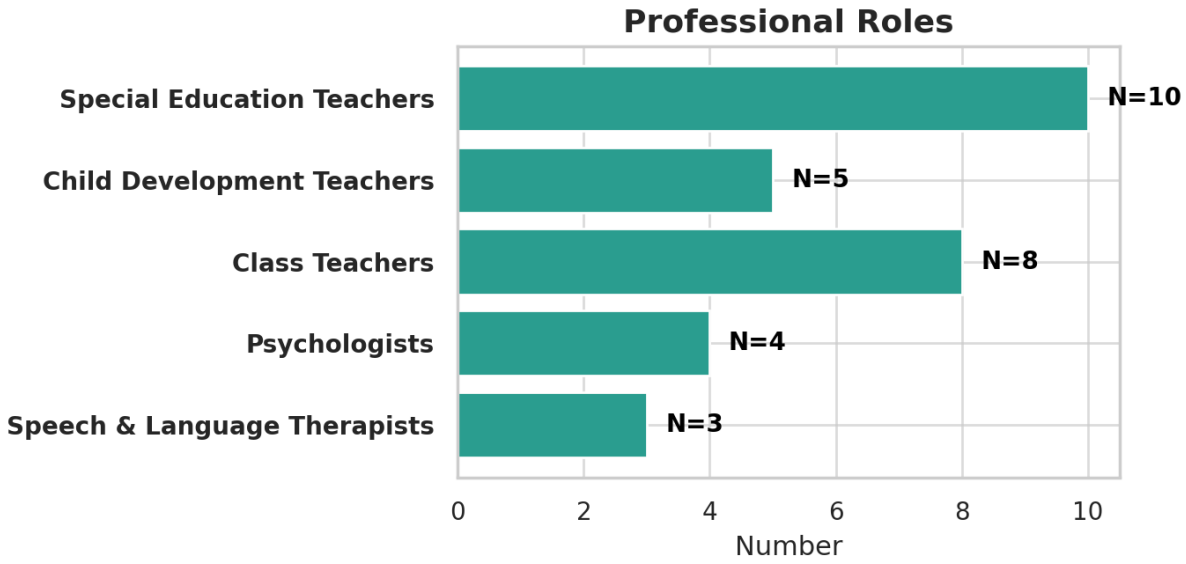

Figure 1. Distribution of Participants by Professional Roles
Source: The authors.

Data Collection Process

The semi-structured interviews allowed educators to provide rich, qualitative data about how physical education and sports influence children's development in key areas. Semi-structured interviews are a common method in qualitative research as they enable flexibility, allowing researchers to explore additional insights based on participants' unique experiences while consistently addressing key themes[31]. This approach is beneficial in capturing detailed narratives in education and health-related studies, as it provides flexibility for exploring complex experiences while maintaining a structured data collection process[32].

In this research, the semi-structured interview method, guided by a well-defined protocol, helped elicit detailed responses from the participants[33]. A coding system (e.g., "P1," "P2") was employed to maintain confidentiality and anonymity in reporting findings. This approach aligns with previous studies in the field, ensuring both consistency and depth in the qualitative data collected[33].

Data Saturation

Data saturation was reached during the data collection process, as no new themes or insights emerged from the later interviews. The semi-structured interviews with 30 educators provided comprehensive data that allowed an in-depth exploration of the study's research questions. The recurring themes, such as improvements in motor skills, social interaction, and emotional well-being, were consistently reported by multiple participants, reinforcing the validity of the findings. This approach aligns with the concept of data saturation as described by Guest, Bunce, and Johnson, where saturation occurs when no additional data is being found that contributes to the development of new themes[34]. Fusch and Ness also emphasize that data saturation is achieved when information becomes redundant, ensuring no further coding is necessary[35]. Furthermore, additional data collection would likely have produced similar results, as no new significant insights or themes were identified in the final stages of the analysis, aligning with the criteria for saturation as outlined by Creswell and Poth[27].

Data Analysis

The data analysis followed a systematic thematic analysis approach outlined by Braun and Clarke, allowing the identification and interpretation of patterns within the data[36]. The analysis began with transcribing all semi-structured interviews, ensuring that every detail was captured verbatim to maintain the accuracy and authenticity of participants' responses[37]. This process is essential to prepare the data for deeper engagement and analysis. Familiarization was the first step after transcription, where researchers immersed themselves in the data by reading and re-reading the transcripts. This step ensured a thorough understanding of the content, enabling researchers to grasp the nuances of participants' experiences before proceeding with coding[36]. Familiarization also provided an opportunity to reflect on emerging patterns that could guide the subsequent stages of analysis.

Following familiarization, initial coding was conducted. The researcher systematically analyzed the transcripts by assigning labels or "codes" to data segments that represented significant concepts, recurring ideas, or patterns[38]. This coding process was inductive, allowing themes to emerge naturally from the data, and deductive, using predefined concepts to structure the analysis. The coding was not done in isolation; instead, multiple coders reviewed the transcripts to ensure consistency in the coding process. Inter-rater reliability was employed to measure agreement between coders and ensure that the data was interpreted consistently and objectively. Any discrepancies between coders were resolved through discussion, enhancing the reliability and credibility of the analysis[33]. Once the initial codes were generated, they were organized into broader themes that encapsulated key patterns in the data. These themes were refined through an iterative process. Themes were reviewed for coherence, ensuring that each theme was distinct and well-represented in the data[33]. This process also involved merging overlapping themes and discarding any themes that needed to provide significant insight. Illustrative quotes from the interviews were selected to support each theme and ensure that the themes represented the participants' experiences meaningfully. For clarity, the final themes were presented, structured, and supported by narrative descriptions and tables. This structured presentation ensured that the findings were easy to follow and allowed the themes to be clearly understood in the context of the broader research questions. By providing detailed examples and highlighting recurring patterns, the thematic analysis offered a comprehensive understanding of the impact of physical education and sports on children with special needs.

Results

The analysis revealed four overarching themes, each corresponding to a significant area of development impacted by physical education and sports: physical development, social interaction, emotional well-being, and challenges in PE implementation.

Theme 1: Physical Development and Motor Skills

Most educators noted marked improvements in the physical development of children who participated regularly in physical activities. Physical education helped these children enhance their gross motor skills (e.g., running, jumping, climbing) and fine motor skills (e.g., hand-eye coordination, object manipulation).

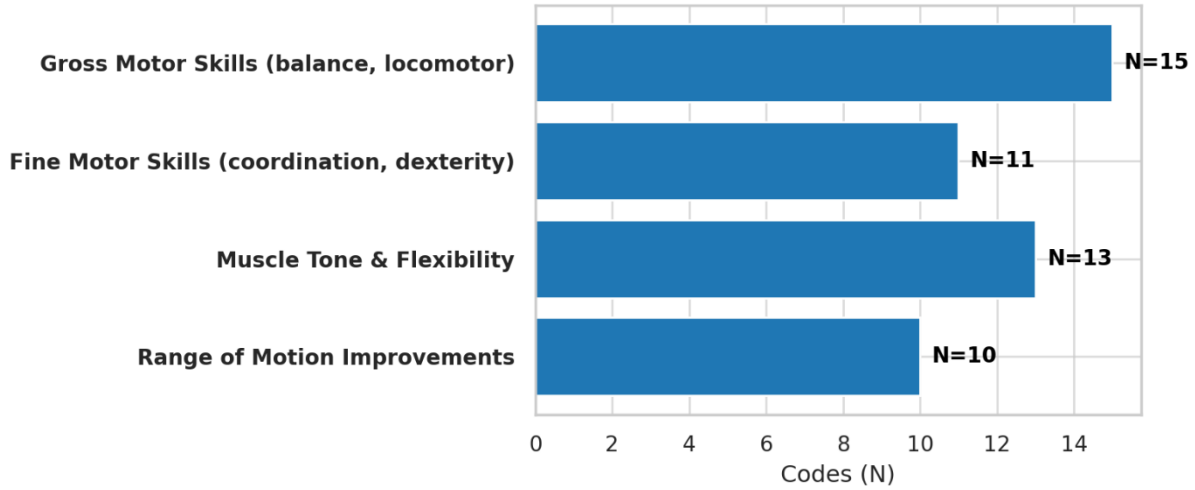

Figure 2. Educators' Observations on Physical Development and Motor Skills in Children with Special Needs.
Source: The authors.

Below are some participant comments:

> *We have seen children with autism who had difficulties with basic coordination begin to develop stronger balance and motor control after consistent PE sessions. (P1)*
> *Children with Down syndrome showed significant muscle tone and flexibility improvements through adapted sports activities. (P4)*
> *For children with cerebral palsy, even small improvements in range of motion through adaptive exercises made a huge difference in their daily functioning. (P9)*

These comments highlight educators' observations that adaptive PE has a significant impact on the physical development of children with disabilities. Improvements in gross motor coordination, muscle tone, and range of motion—especially in children with conditions like cerebral palsy and Down syndrome—were frequently cited. The visual summary in Figure 2 further highlights the emphasis placed on specific physical outcomes, such as enhanced balance, locomotor skills, and muscle flexibility, as observed across participant responses.

Theme 2: Social Interaction and Peer Relationships

The majority of educators also highlighted that PE and sports facilitated social interaction among children with special needs, particularly those with ASD who often struggle with social communication. Team sports and group activities created an environment where children could practice essential social skills, such as sharing, taking turns, and cooperating.

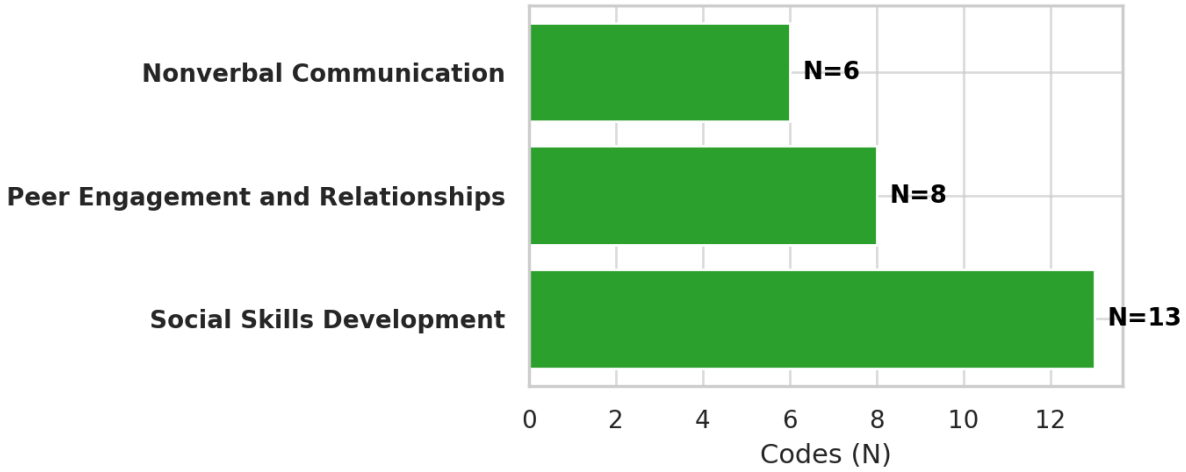

Figure 3. Educators' Observations on Social Skills and Peer Relationships in Children with Special Needs.
Source: The authors.

Below are some participant comments:

> *Sports are a natural setting for learning social skills. Children who usually struggle with interaction begin communicating, even non-verbal, when engaged in team sports. (P7)*
> *Children who have limited verbal abilities often find new ways to communicate during sports, either through gestures or through the dynamics of teamwork. (P11)*
> *We have seen children with autism become more engaged with their peers during sports activities, which is a huge step in reducing their social isolation. (P13)*

Educator reflections consistently emphasized the role of sports in fostering peer collaboration and reducing social isolation, particularly among children with autism spectrum disorder. These observations demonstrate how PE serves as a platform for learning nonverbal and verbal communication strategies in a group setting. Figure 3 visually reinforces these findings, showing high reference rates for themes such as teamwork, peer engagement, and cooperative behaviour.

Theme 3: Emotional Well-being and Self-esteem

One of the most prominent themes was the positive effect of physical education on children's emotional well-being and self-esteem. Educators frequently observed that children with special needs experienced reduced anxiety, better emotional regulation, and greater self-confidence due to participating in PE and sports.

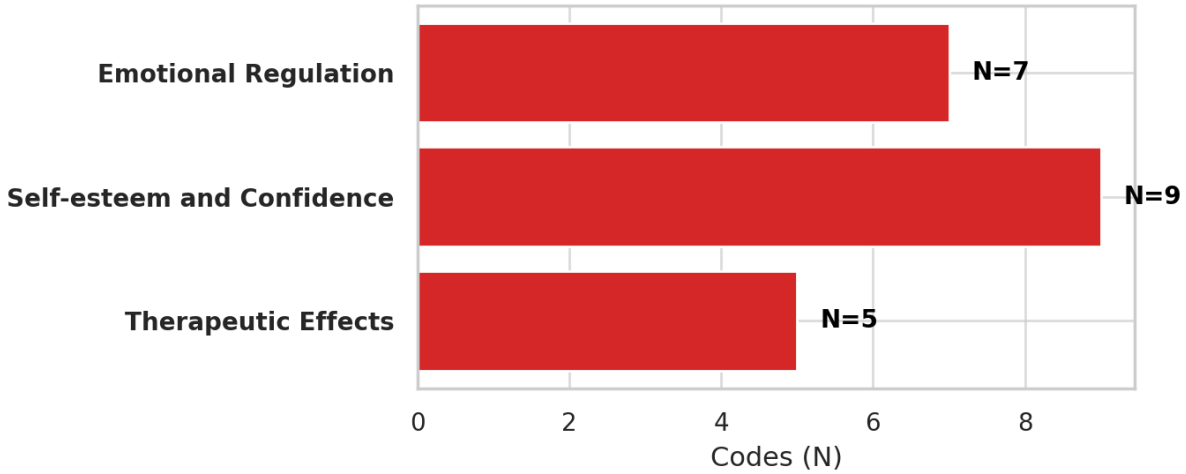

Figure 4. Educators' Observations on Emotional Well-being and Self-esteem in Children with Special Needs.
Source: The authors**.**

Below are some participant comments:

> *Children with ADHD can release a lot of their pent-up energy through physical activity, which makes them calmer and more focused afterwards. (P5)*
> *Physical activity gives children a sense of accomplishment. They feel proud when they achieve even small physical goals, which boosts their confidence in other areas of life. (P12)*
> *Sports act as an emotional outlet for many children. They learn how to handle frustration, and achieving physical goals boosts their self-esteem. (P19)*

These comments highlight the therapeutic benefits of physical activity, especially for children experiencing challenges related to ADHD or low self-confidence. Educators observed reductions in aggression and anxiety, as well as increases in emotional regulation and confidence. Figure 4 complements this narrative by illustrating the prevalence of educator-reported outcomes associated with emotional release and improvements in self-esteem.

Theme 4: Challenges in Implementing PE Programs

Despite the overwhelming benefits reported by the educators, several significant challenges were identified in implementing effective physical education programs for children with special needs. The most frequently mentioned barriers were a lack of specialized equipment, inadequate training for educators in adaptive PE, and limited resources for tailoring activities to children with severe physical or cognitive disabilities.

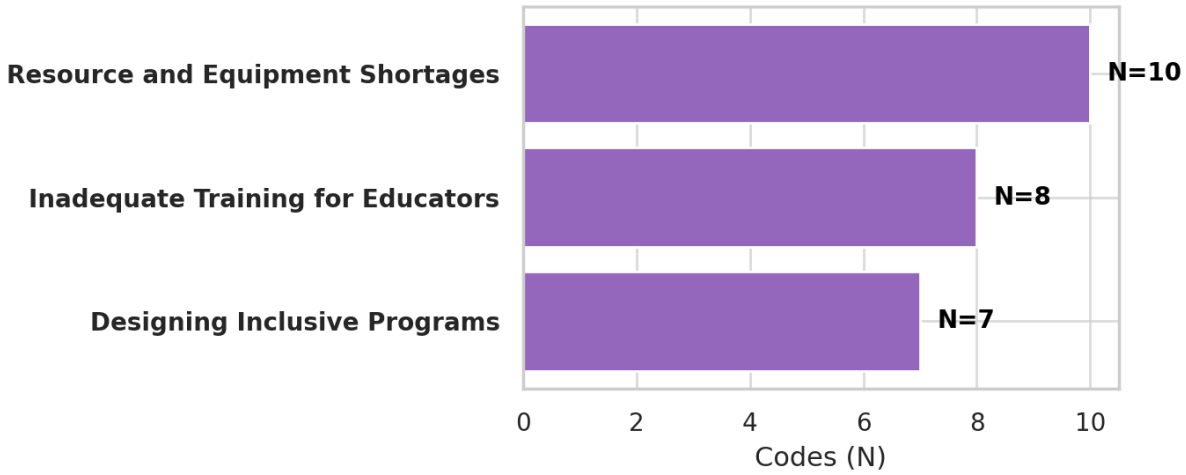

Figure 5. Educators' Observations on Challenges in Implementing Physical Education Programs for Children with Special Needs.
Source: The authors.

Below are some participant comments:

> *We often do not have the right equipment for adapted sports. Wheelchair-accessible sports are particularly challenging to organize without the necessary resources. (P6)*
> *Many of us need more training in adaptive PE. We have had basic instruction, but effectively engaging children with diverse physical needs is insufficient. (P18)*
> *It is difficult to design inclusive activities that cater to children with severe physical impairments while also engaging those who are more capable. (P22)*

Educators' narratives revealed substantial barriers to effective PE delivery, including limited equipment, insufficient training, and the difficulty of creating inclusive environments. These challenges, as illustrated in Figure 5, highlight systemic issues that impede the consistent implementation of adaptive physical education. The comments also suggest that educators often rely on improvisation and peer collaboration in the absence of formal institutional support.

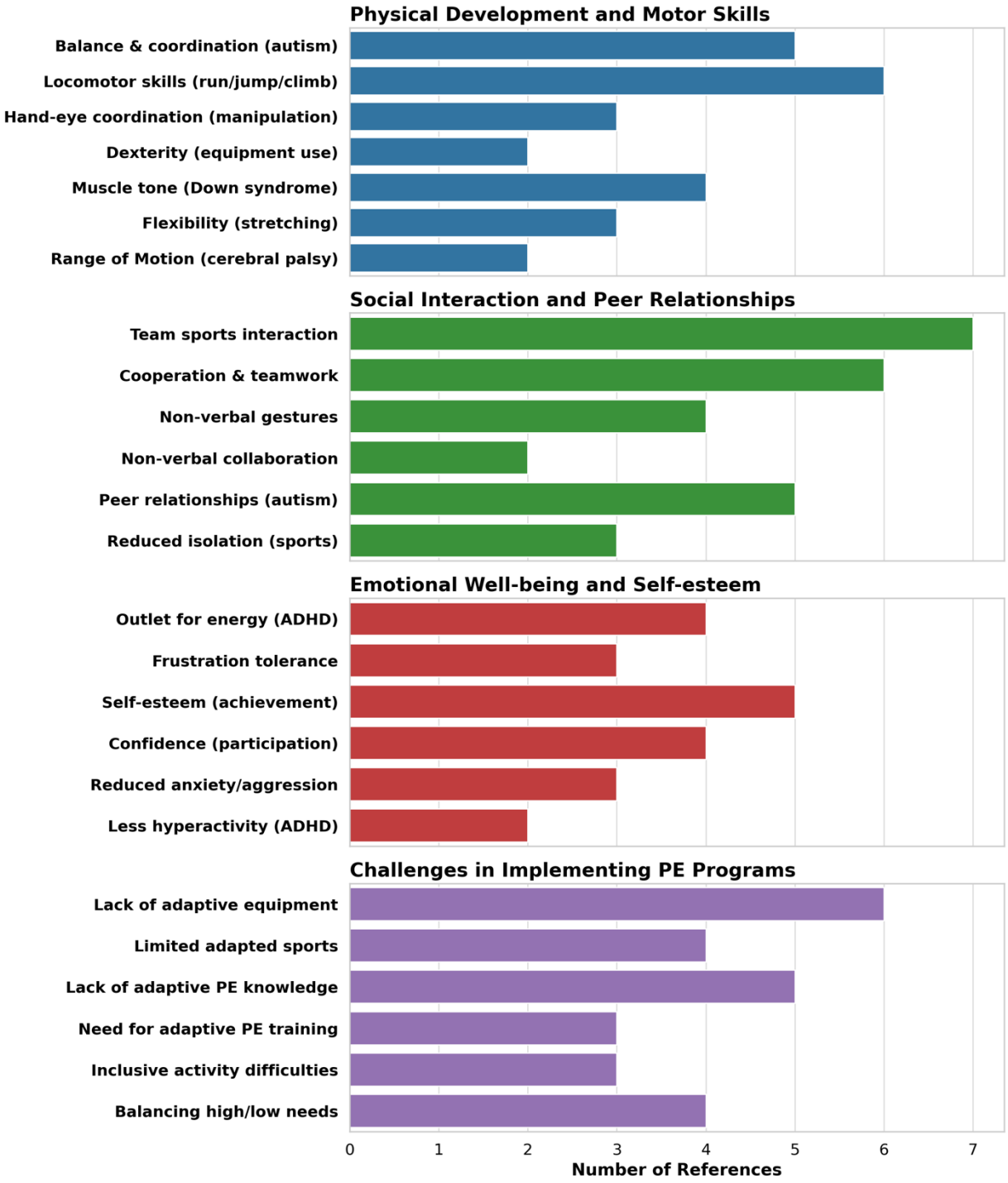

Figure 6. Themes, Categories, Codes, and Their Distribution.
Source: The authors.

Thematic findings are visually presented in the Figures 2-6, which summarize the key themes, categories, and codes identified through qualitative analysis. These visualizations provide a clearer understanding of the frequency and significance of participant observations. For example, improvements in gross and fine motor skills, social skills, emotional regulation, and implementation challenges are each shown in separate visual formats.

Discussion

The findings of this study align with existing research, underscoring the significant benefits of PE and sports for children with special needs. However, the results also point to several important implications and considerations that warrant deeper exploration, especially regarding the challenges educators face in implementing adaptive PE programs effectively. Physical Development and Motor Skills: The improvement in physical development, particularly in motor skills, observed in children with special needs highlights the essential role of adaptive physical activities in their daily lives. Supports the notion that targeted physical activity, such as running, jumping, and object manipulation, can enhance gross and fine motor skills in children with disabilities[39,40]. These improvements are exceptionally vital for children diagnosed with conditions such as cerebral palsy and Down syndrome, where physical limitations often restrict their ability to perform everyday tasks[41,42].

The transformative effect of regular participation in structured PE programs stands out from the educators' accounts. The gradual development of muscle tone, balance, and coordination contributes to children's independence in performing daily activities. For example, children with cerebral palsy often face mobility challenges, yet through tailored exercises, they experience incremental improvements in their range of motion and strength[43,44]. Though often small, these physical gains enable children to lead more independent and fulfilling lives. Moreover, improving body awareness and control directly correlates with enhanced confidence as children begin to feel more capable of their physical abilities[45,46]. These physical improvements are particularly impactful in fostering greater self-reliance, reducing dependence on caregivers, and improving these children's overall quality of life. Despite these positive outcomes, the study also revealed that physical improvements are not uniform across all disabilities[47,48]. Some children, especially those with severe motor impairments, experience slower progress[49,50]. This calls for a more individualized approach to PE, where activities are continuously adapted to each child's specific needs, ensuring that all children can benefit from the program[9].

Social Interaction and Peer Relationships: As highlighted by educators, one of the most significant benefits of PE and sports is the opportunity for social interaction. Children with special needs, particularly those with autism spectrum disorder (ASD), often experience difficulties in forming peer relationships and engaging in social activities due to communication and behavioural challenges[13,51]. However, the structured and interactive nature of team sports and group activities fosters an inclusive environment where these children can practice vital social skills in a non-academic setting[9]. The positive impact on social interaction is wider than just communication improvements. Children learn essential life skills through team sports, such as cooperation, sharing, and conflict resolution[52]. These skills are crucial for their social integration within and outside school settings. For children on the autism spectrum, engaging in group activities where they are required to take turns, follow the rules, and support their teammates represents a significant step towards overcoming social isolation and building meaningful peer relationships[53].

The study also emphasizes the role of educators in facilitating these social interactions. By creating an inclusive and supportive environment, educators enable children to practice and refine their social skills in a controlled, structured setting[9]. These social gains are significant for children with limited verbal abilities, who often communicate through gestures or actions during sports. For these children, sports become a medium for interaction, allowing non-verbal communication to be accepted and encouraged[54]. However, the effectiveness of PE in fostering social skills varies depending on the child’s specific condition. Children with more profound social or cognitive impairments may struggle to engage fully in team activities[55,56]. This

underscores the need for continued professional development for educators, allowing them to better adapt social interaction strategies to the unique needs of each child[9].

Emotional Well-being and Self-esteem: The emotional benefits of physical activity are well-documented in the literature, and this study further supports the idea that PE and sports significantly enhance the emotional well-being and self-esteem of children with special needs. Participation in physical activities provides an emotional outlet for children, allowing them to release pent-up energy and frustration, particularly those with attention-deficit/hyperactivity disorder (ADHD) or emotional regulation difficulties. The sense of accomplishment derived from achieving physical goals—whether completing a task, mastering a skill, or contributing to a team's success—plays a key role in boosting children's self-esteem[57]. For children who struggle with academic tasks, physical education offers an alternative domain where they can excel, reinforcing their sense of capability and self-worth. These emotional benefits extend beyond the PE setting, often resulting in improved behaviour and self-regulation in other areas of their lives, such as the classroom or home. Educators frequently observed that children's participation in sports activities reduced negative behaviours, including aggression and hyperactivity[9]. Physical activity calms children, helping them manage stress and anxiety [58]. For children with emotional or behavioural disorders, PE allows them to channel their energy constructively, reducing the likelihood of disruptive behaviour in academic settings. Despite these benefits, the emotional progress made through PE is not without its challenges. Some children may initially experience frustration or anxiety when participating in physical activities, particularly if they have limited motor abilities. Educators must carefully balance the need for physical challenge with the child's emotional well-being, ensuring that activities remain achievable and rewarding rather than overwhelming[26].

Challenges in Implementing PE Programs: While the benefits of PE for children with special needs are clear, this study highlights several critical challenges in implementing effective programs. The most frequently cited issues were the lack of specialized equipment, insufficient training for educators in adaptive physical education, and limited resources for supporting children with severe disabilities. While the findings provide valuable insights into PE's physical, social, and emotional benefits, the theme around challenges in PE implementation could be explored further. Specifically, educators identified several coping strategies they employed to mitigate resource shortages. For instance, some educators reported adapting available equipment or creatively repurposing common items to accommodate students' diverse physical needs. For example, educators might use household items such as balls or ropes when specialized adaptive PE equipment like wheelchair-accessible sports gear is unavailable. This improvisation allows educators to continue delivering engaging activities despite resource limitations.

Additionally, peer-to-peer collaboration emerged as a common strategy. Educators frequently collaborate to share ideas, equipment, and best practices for addressing their students' physical and cognitive needs. This form of collaboration is especially critical in environments with limited professional development opportunities for adaptive PE. Educators sometimes rely on self-study, attending online workshops, or using resources from international PE and special education networks to overcome the lack of specialized training. These strategies enable them to stay current on practical methods and innovative techniques for engaging students with diverse physical and cognitive abilities, even in resource-constrained settings. Despite these innovative approaches, the need for formalized training and resources remains a critical challenge. Educators expressed an apparent demand for increased access to professional development programs and tailored resources that address the unique challenges of implementing inclusive PE programs. These are necessary for educators to be able to rely on personal creativity and external support, which may only sometimes provide the structured solutions necessary for long-term success.

The presence of necessary equipment, such as wheelchair-accessible sports tools or specialized adaptive equipment, increases the inclusivity of PE programs[9,26]. This limits the opportunities for children with severe physical impairments to engage fully in physical activities, exacerbating their exclusion from an already challenging environment. Schools and institutions often need more funding or infrastructure to provide the necessary resources for inclusive sports programs, which undermines the potential benefits for all students[9,26]. Training for educators is another significant barrier. Many educators reported having only basic training in adaptive PE, which is insufficient for addressing the complex and varied needs of children with disabilities[26]. This lack of specialized knowledge hinders their ability to tailor activities effectively, leading to a one-size-fits-all approach that may need to support children with diverse physical and cognitive challenges adequately[8,10]. Investment in professional development programs is crucial for equipping educators with the skills and knowledge to deliver adaptive PE effectively[59]. Lastly, educators cited the difficulty of designing activities accommodating a wide range of abilities in a special education setting[12]. Balancing the needs of children with severe physical impairments against those who are more capable requires careful planning and a flexible approach to PE[26,43]. To overcome this, educators need access to resources and support to create more individualized, inclusive PE experiences for all students[1,52].

Although this paper reveals notable issues, it also emphasises the advantages of PE for children with special needs. Future studies should investigate these difficulties more thoroughly, especially with an eye toward the long-term effects of various adaptive sports on children's general development. Longitudinal studies, for example, could look at how certain adaptive physical activities—such as swimming or wheelchair basketball—affect motor skills, social interaction, and emotional well-being. Furthermore, future research should look at how family participation improves the efficacy of physical education courses for special needs children. Knowing how family support—such as parental involvement in physical activities or home-based exercises—affects children's participation and development in school-based PE programs could help to shape comprehensive intervention plans.

Research should also cover how well professional development programs work for teachers in adaptive PE. Examining how specialised training affects teachers' capacity to carry out inclusive and efficient PE programs could help to highlight best practices applicable in many different educational environments. These studies should also take into account how school infrastructure and resources either support or hinder the performance of adaptive PE initiatives. Finally, comparative studies between nations with different degrees of resources and support for adaptive physical education could offer insightful analysis of global best practices, so as to stress approaches that might be relevant in different socio-economic settings.

Conclusion

This study confirms the significant benefits of physical education and sports for children with special needs, particularly in enhancing their physical development, social interaction, and emotional well-being. Through structured PE programs, children with various disabilities, such as autism spectrum disorder and cerebral palsy, demonstrated improvements in motor skills, emotional regulation, and peer relationships. These findings underscore the importance of adaptive PE programs in fostering the physical and emotional growth of children with special needs.

Limitations

However, this study has several limitations that must be acknowledged. First, the geographic focus on Istanbul and Ankara may limit the generalizability of the findings. The resources, policies, and cultural attitudes toward disability in these urban areas may differ significantly from those in rural or less-resourced settings within Turkiye and internationally. As a result, the study's insights may not fully represent the experiences of educators in diverse environments. Second, the reliance on educators' subjective assessments introduces potential bias. Educators' personal experiences and relationships with their students may have influenced their observations, which shaped their interpretation of the student's progress and the effectiveness of the PE programs. Future studies should incorporate more objective measures, such as standardized assessments, to complement these qualitative insights. Finally, the sample size of 30 educators, while sufficient to achieve data saturation, may limit the depth of understanding regarding the full spectrum of challenges faced in different educational settings and with various disabilities. Expanding future research to include a broader range of educators and institutions could provide more comprehensive insights into implementing adaptive PE programs.

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