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THE ROLE OF PSYCHOSOCIAL RESOURCES IN THE DEVELOPMENT OF BALANCE AND GENERAL COORDINATION IN CHILDREN WITH SPECIAL EDUCATIONAL NEEDS

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Abstract

This study synthesizes the specialized literature published between 2016 and 2026 regarding the role of psychosocial resources in the development of balance and motor coordination in children with special educational needs (SEN). 77 studies from international scientific databases were analyzed.

The findings show that psychosocial resources - such as the concept of self-efficacy, social support, emotional intelligence, family involvement, peer relationships, and inclusive environments - are essential for the development of motor skills in children with special educational needs. Research has shown that interventions combining psychosocial aspects and organized physical activities (dance, adapted football, motor therapy, virtual games) lead to significant improvements in balance and motor coordination, in addition to the psychosocial health of children.

Introduction

The physical development of children with special educational needs (SEN) often leads to balance and general coordination problems. These difficulties do not only appear at the physical level, but are closely linked to psychosocial factors that significantly influence motor development. In the last 10 years, scientific studies have focused more on exploring why psychosocial resources (self-efficacy, social support, emotional intelligence, and a supportive environment) lead to improved motor performance in this at-risk population. Balance and overall coordination are fundamental to the level of functional independence, social inclusion, and quality of life experienced by children with. Balance and general coordination problems can affect not only the physical performance but also the self-esteem, friendships, and academic results of children with SEN. Recognizing the relationship between biological, psychological, and social determinants leads to an emphasis on holistic educational and therapeutic intervention.

Material-method

The current study is a synthesis of current knowledge from the scientific literature published between 2016 and 2026, which illustrates the psychosocial resources in the development of balance and coordination in children with SEN. Using the bibliographic method, the search was conducted using systematic searches in international scientific databases and selected the most relevant 77 studies. Specifically, the document explores and identifies the theoretical foundations, as well as the key psychosocial resources, their impact on motor development, the interventions and programs developed in the literature, and practical recommendations.

Results

1. Theoretical Foundations

1.1. Special Educational Needs - Definition and Categories

Children who experience special educational needs represent a diverse population that includes numerous categories of disabilities and developmental disorders. Specialized literature indicates that it includes children with intellectual disabilities, autism spectrum disorders, developmental coordination disorders, cerebral palsy, and other characteristics that affect physical, cognitive, emotional, or social development [11], [15], [13].

Developmental coordination disorder is one of the most common conditions affecting balance and motor coordination, with these disorders being marked by significant deficits in the acquisition and execution of coordinated motor skills [11]. Children with intellectual disabilities may also have serious issues related to balance and bilateral coordination [1], [12]. Cerebral palsy significantly affects both motor and psychosocial functioning and the quality of life of a person [16].

1.2. Developing balance and motor coordination

Balance and motor coordination are basic behaviors that are related to participation in any level of physical activity or daily life. Balance is the ability to maintain the center of gravity within the limits of the base of support in static and dynamic situations. Motor coordination is the execution of a complex and completed action by integrating movements from different segments of the body into a harmonious movement.

Research has shown that there are severe deficiencies in the areas of activity for children with special educational needs compared to children with typical development. Nobre et al. (2023) observed significant differences in gross motor coordination between children with intellectual disabilities and those with typical development [11]. Pitetti et al. (2017) showed in a study that boys with intellectual disabilities scored significantly lower on static and dynamic balance tests than the norms for the average male population [12].

The balance function is important for the psycho-verbal development of children with SEN, including sensory information processing, concentration ability,

auditory perception, and cognitive development [17]. In some cases, balance deficits can affect not only mobility, including motor skills, but also self-esteem, self-efficacy, social participation in life, as well as psychological stability and overall psychomotor status [5].

1.3. Psychosocial Resources: Conceptual Framework

In the case of children with special educational needs, psychosocial resources mediate the relationship between physical deficiencies, functional deficiencies, disability, and quality of life outcomes. Thru cognitive and social support, children gain additional motivation and resilience to overcome most challenges.

In the field of special educational needs (SEN), social resources help shape adaptive strategies to cope with difficult situations. In the specialized literature, there are several types of psychosocial resources related to motor development. Self-efficacy, defined as an individual's own judgment of their abilities to perform particular tasks, influences motivation, effort, and persistence in motor activities [11]. According to the literature, social support, which is provided by family, teachers, peers, and the community, serves as a support mechanism that offers important socio-emotional, informational, and instrumental resources for development [15], [13].

Emotional intelligence (the ability to understand, identify, express, and control our emotions, as well as those of others) plays a crucial role in adaptation and psychosocial functioning in a group context [14]. An appropriate cultural approach, with acceptance, tolerance for diversity, and equitable participation opportunities, promotes the acquisition of social and psychological competence [2], [6].

The bio-psycho-social model of disability indicates that the nature of health, personal, and environmental factors converge toward disability. Such a holistic perspective recognizes that improving psychosocial resources will at least partially address physical limitations and promote an optimal form of development in children with SEN [9], [4].

2. The main psychosocial resources identified in the specialized literature

2.1. Self-efficacy and perceived competence

Specialized literature considers self-efficacy to be one of the important psychological resources that ensure motor development in children with special educational needs (SEN). Nobre et al. (2023) identified that perceived self-efficacy predicted the development of gross motor coordination in children with developmental coordination disorder, significantly for children with the disorder ($b = 0.19$, $p = 0.004$) alongside physical activity and lower limb strength. This study emphasizes that positive feelings about one's own abilities lead to superior motor and psychosocial outcomes, influencing perceptions of competence, self-concept, and feelings of belonging and confidence [11].

A child with special educational needs who perceives a high level of motor competence will have increased motivation to participate in physical activities. Children who see themselves as motorically competent are also more likely to engage in activities that promote balance and coordination, thus contributing to a positive and protective cyclical development process [11]. That is, children with special educational needs (SEN) have a particularly strong relationship between motor domains, such as motor performance and perceived self-efficacy.

Self-esteem and confidence in one's abilities are essential components of self-efficacy that influence motor performance. Recent studies indicate that improving self-esteem indirectly supports the acquisition of motor skills by enhancing motivation and resilience to face obstacles [3]. The development of a positive self-concept is essential for psychological functioning and participation in the process of motor learning and development.

2.2. Social Support and Interpersonal Relationships

Social support is a fundamental psychosocial resource that influences motor development thru several mediating processes. Ștefănică et al. (2024) observe in a study that the physical parameters of children with special educational needs correlate positively with social interaction and mention that more developed physical skills are associated with superior social support [15].

Motor skills and psychosocial well-being are significantly influenced by peer relationships. Salvador-García et al. (2021) found that extracurricular physical education programs significantly improve social competence and peer relationships among children diagnosed with autism spectrum disorders [13]. Interaction with typically developing children in inclusive environments allows for observational learning, motor behavior modeling, and exposure to practice in real social settings [6].

The importance of family support and parental involvement for the successful implementation of motor interventions is highlighted in the specialized literature. Demchenko et al. (2022) emphasize the potential of parents to help overcome fears, increase competence, and develop positive attitudes in children with special educational needs (SEN). Providing emotional support by parents plays an important and positive role in the development of motor skills and the psychological well-being of the child with special educational needs [4].

The support of teachers and therapists is another important aspect of social support. In a scientific article, Kolbina (2022) highlights that the psychological training of teachers for inclusive education and their ability to provide individualized support significantly influence the outcomes of children with special educational needs (SEN). Teachers who create a supportive environment, provide positive feedback, and adapt activities to individual needs facilitate the development of both motor skills and psychosocial competencies [6].

2.3. Emotional Intelligence and Psychological

Well-being Emotional intelligence, representing the ability to recognize, understand, and manage one's own emotions and those of others, is an important psychosocial resource for children with special educational needs. Sandu et al. (2023) examined emotional intelligence among children with special educational needs, revealing its contribution to psychosocial adaptation and effective participation in group activities. The ability to manage negative emotions, such as frustration or anxiety associated with motor difficulties, influences persistence and motivation in physical activities [14].

The overall psychological health of a person, including the sense of well-being, lack of anxiety and depression, and life satisfaction, is closely linked to motor development. Karras et al. (2019) demonstrate in a study that motor deficiencies negatively affect the psychological health of children with developmental coordination disorder, children whose quality of life is significantly lower than that of children without such conditions. This bidirectional relationship suggests that interventions promoting psychosocial well-being may indirectly benefit the development of motor skills [5].

Psychological well-being involves strong motivation and the belief that physical activity is beneficial, which affects the decision to participate in motor activities. Choi et al. (2016) showed that a structured 8-week physical activity program significantly improved the psychosocial behaviors of children with intellectual disabilities, including motivation and attitudes toward physical activity. For sustained motor development, establishing a positive relationship with movement and exercise is essential.

Psychological resilience, which refers to coping with and navigating thru adversities, is very important for children with special educational needs who repeatedly face challenges in the motor domain. Krotova et al. (2024) studied the social and psychological resources of children with special educational needs, as well as the need for resilience when facing educational and social stress. Children with this type of resilience are able to overcome motor challenges and have a more favorable attitude toward learning [7].

2.4. The Inclusive Environment and Educational Support

The inclusive environment, characterized by acceptance, respect for diversity, and equal participation opportunities, represents a fundamental psychosocial resource for the development of children with SEN. Bethere et al. (2018) emphasize that inclusive education facilitates the development of adolescents' physical, emotional, and social balance, creating a context in which children with special educational needs can interact with individuals without disabilities and benefit from positive motor and social behavior models [2].

Kolbina (2022) highlights that an inclusive environment promotes social activity, the formation of values and attitudes, and the development of intellectual processes corresponding to the child's physical and mental abilities. Social

interaction with peers improves social competence, communication skills, and positive relationships with peers, all of which contribute to emotional and social well-being and, indirectly, to the motivation to participate in motor activities [6].

Individualized educational support, including individualized education plans and curricular adaptations, is essential for the success of children with special educational needs. Kolbina (2022) emphasizes the importance of developing an Individual Educational Plan for each student, specifying the hours for corrective activities and other activities. This personalized approach ensures that motor interventions are tailored to the specific needs, abilities, and interests of each child, thereby maximizing the effectiveness of the interventions [6].

The training and attitudes of teachers toward inclusive education significantly influence the quality of the educational environment for children with special educational needs. Demchenko et al. (2022) emphasize the importance of the psychological preparation of teachers for inclusive education and their ability to provide individualized support. Teachers who have positive attitudes toward inclusion, who understand the specific needs of children with special educational needs, and who are prepared to adapt teaching methods create an environment that facilitates the optimal development of both motor skills and psychosocial competencies [4].

Innovative educational technologies, including multisensory approaches, multi-level learning, problem-based learning, and gaming technology, represent important resources in an inclusive educational environment. Lyndina et al. (2023) describe the use of neurotechnologies and educational technologies for children with special educational needs, highlighting the potential of these tools to facilitate motor and psychosocial development thru personalized learning experiences [8].

3. The Impact of Psychosocial Resources on Balance and Motor Coordination

3.1. The Relationship Between Self-Efficacy and Motor Performance

The relationship between self-efficacy and motor performance in children with special educational needs is well documented in recent literature. Nobre et al. (2023) demonstrated that perceived self-efficacy significantly explains the variation in gross motor coordination in children with developmental coordination disorder ($b = 0.19$, $p = 0.004$), alongside physical activity ($b = 0.25$, $p < 0.001$) and lower limb strength ($b = 0.38$, $p < 0.001$). This finding suggests that interventions aimed at improving self-efficacy can directly contribute to the development of motor skills [11].

The mechanisms by which self-efficacy influences motor performance include increased motivation, effort, and persistence in motor activities. Children with high self-efficacy are more likely to engage in challenging physical activities, persist in the face of difficulties, and invest effort in improving motor skills. This relationship is particularly important for children with special educational needs,

who often experience failures in the motor domain and may develop negative perceptions about their own abilities.

The perception of motor competence, closely linked to self-efficacy, influences the choice of activities and the level of participation. Children who perceive themselves as motor competent are more likely to participate in activities that develop balance and coordination, thus creating a positive development cycle. Interventions that provide successful experiences, positive feedback, and opportunities for the gradual development of skills can improve the perception of competence and, consequently, motor performance [11].

3.2. The Effects of Social Support on Motor Development

Social support influences motor development thru multiple mechanisms, including facilitating participation in physical activities, providing models of motor behavior, and creating a positive emotional context for learning. Ștefănică et al. (2024) identified positive correlations between physical parameters and social interaction in adolescents with intellectual disabilities who participated in an adapted football program, suggesting that improvements in physical abilities contribute to increased social engagement, and social support, in turn, facilitates motor development [15].

Salvador-García et al. (2021) demonstrated that an extracurricular physical education program significantly improved motor performance in children with autism spectrum disorders, with medium to large effects (d = 0.50-0.80). The program also improved social competence and peer relationships, highlighting the holistic nature of interventions that integrate motor and psychosocial components. Interaction with peers in physical activity contexts offers opportunities for learning thru observation, practice in natural social settings, and the development of social skills [13].

Family support, especially parental involvement, is essential for the long-term maintenance of motor progress. Parents who provide emotional support, encouragement, and opportunities for practice at home significantly contribute to the generalization of motor skills learned in therapeutic or educational contexts. Demchenko et al. (2022) emphasize the importance of developing parental competence and positive attitudes toward the child's potential, factors that influence the quality of support provided and, implicitly, the outcomes of motor development [4].

The support of teachers and therapists influences motor development by creating a safe and encouraging learning environment, providing constructive feedback, and adapting activities to individual needs. Kolbina (2022) highlights that the psychological training of teachers for inclusive education and their ability to provide individualized support significantly influence the outcomes of children with special educational needs. Teachers who create a positive emotional climate,

highlight progress, even the smallest, and provide opportunities for success facilitate the development of both motor skills and self-efficacy [6].

3.3. The Impact of Psychological Well-Being on Coordination

Psychological well-being significantly influences the development of motor coordination thru its effects on motivation, attention, information processing, and learning capacity. Karras et al. (2019) demonstrated that motor deficits in children with developmental coordination disorder have a major impact on psychological well-being. This bidirectional relationship suggests that interventions that enhance psychological well-being can indirectly contribute to the development of motor skills [5].

Choi et al. (2016) demonstrated that a structured 8-week physical activity program significantly improved psychosocial behaviors in children with intellectual disabilities, including a reduction in problematic behaviors and an improvement in social skills. These improvements in the psychosocial domain were associated with more active participation in physical activities and a more positive attitude toward exercise, factors that facilitate the continued development of motor skills.

Teixeira-Machado et al. (2017) demonstrated that dance significantly improves functionality and psychosocial adjustment in children with cerebral palsy. The study highlighted improvements in balance, coordination, and motor functionality, alongside improvements in psychological well-being and social adaptation. This holistic approach emphasizes the importance of interventions that simultaneously address the physical and psychosocial dimensions of development [16].

Yefimenko et al. (2023) emphasize that balance function is essential for the psycho-verbal development of children with special educational needs, influencing concentration ability, sensory information processing, and cognitive development. Improving balance contributes not only to motor performance but also to cognitive functioning and overall psychological well-being, highlighting the interconnectedness of different areas of development [17].

Discussions

The comparative analysis of the specialized literature highlights several converging themes and consistent findings regarding the role of psychosocial resources in the development of balance and coordination in children with special educational needs (SEN). First of all, there is a strong consensus that psychosocial resources—especially self-efficacy, social support, and psychological well-being—significantly influence motor development, not just as secondary factors, but as direct determinants of motor performance [11], [15], [13].

Secondly, studies demonstrate that effective interventions for developing balance and coordination in children with SEN must integrate motor and psychosocial components. Programs that simultaneously utilize the physical, cognitive, emotional, and social dimensions of development produce superior results

compared to interventions that exclusively target motor aspects [9], [16], [15]. This finding supports the adoption of a holistic approach in educational and therapeutic intervention.

Thirdly, the specialized literature highlights the importance of the social context and inclusive environment for optimal development. Interaction with typically developing peers, participation in group activities, and access to inclusive educational environments facilitate the development of both motor skills and psychosocial competencies [13], [2], [6]. This finding underscores the value of inclusive education and integrated programs for children with special educational needs.

The study also highlights the variability in the duration and intensity of effective interventions. The evaluated programs range from 8 weeks [3] to 36 weeks [15], suggesting that both intensive short-term interventions and extended long-term programs can produce significant benefits. This variability suggests the need to adapt the duration and intensity of interventions to the specific needs, available resources, and individual goals of each child.

An important aspect highlighted by the specialized literature is the relationship between motor development and psychosocial resources. Improvements in balance and coordination contribute to increased self-efficacy, self-esteem, and social competence, which, in turn, facilitate continued participation in physical activities and the further development of motor skills [11], [15]. This circular relationship underscores the importance of initiating a positive development cycle thru early and effective interventions.

The literature also identifies gaps and limitations in current knowledge. Many studies have small samples and lack longitudinal studies to examine the long-term effects of interventions. There is also a need for research that investigates the specific mechanisms thru which psychosocial resources influence motor development and identifies the factors that moderate the effectiveness of interventions. Future studies should also examine the comparative effectiveness of different types of interventions and identify the optimal combinations of motor and psychosocial components for different subgroups of children with special educational needs.

Conclusions

A comprehensive analysis of the scientific literature published between 2016 and 2026 leads to several main conclusions regarding the role of psychosocial resources in the development of balance and general coordination in children with special educational needs:

1. Psychosocial resources are direct determinants of motor performance. Self-efficacy, social support, emotional intelligence, and psychological well-being are not just secondary factors; they directly influence the development of balance and coordination in children with special educational needs. Studies demonstrate that

perceived self-efficacy significantly explains the variation in gross motor coordination, alongside physical factors such as strength and physical activity [11].

2. Holistic approaches that integrate motor and psychosocial components are superior to unidimensional interventions. Programs that simultaneously address the physical, cognitive, emotional, and social dimensions of development produce significant improvements in both motor balance and coordination, as well as psychosocial well-being [9], [16], [15]. This finding supports the need to adopt a bio-psycho-social perspective in educational and therapeutic interventions.

3. Inclusive environments and social support optimally aid development. Social interaction with typically developing peers, participation in group activities, and access to inclusive educational facilities are important elements for building motor skills and psychosocial competence [13], [2], [6]. Family support, in addition to support from teachers and therapists, is vital for the success of an intervention and for maintaining long-term gains.

4. Different types of interventions demonstrate effectiveness. Dance and rhythm activities, adapted sports, specialized motor therapy, virtual technologies, and structured physical education have been shown to be effective in improving balance and coordination in children with special educational needs [9], [16], [15], [10], [3]. This heterogeneity offers the possibility to personalize interventions based on individual preferences, needs, and resources.

5. Motor development and psychosocial resources are bidirectional. Improvements in balance and coordination promote the growth of self-efficacy, self-esteem, and social competence, which subsequently enables participation in physical activities and further development of motor skills [11], [15]. This is a cycle and underscores the necessity of a positive development cycle that begins with early and effective interventions.

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