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Factors Influencing Motor Skill Development in Preschool

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ABSTRACT

This study aimed to review and synthesize literature on factors influencing motor skill development in preschool children. Research articles, books, and reports were examined to identify recurring determinants of locomotor and object control skills. The review found that biological attributes such as growth and maturation, gender-specific tendencies, environmental conditions, pedagogical approaches, and cultural expectations all played significant roles in shaping motor competence. These findings occurred because motor skills do not develop solely through maturation but require structured opportunities, supportive environments, and inclusive educational practices. Evidence across contexts demonstrated that preschool programs emphasizing only locomotor activities risk neglecting object control skills, thereby limiting children's balanced development. By integrating insights from diverse studies, this review contributes a comprehensive understanding of motor development during early childhood. The impact of this synthesis is to inform curriculum design, teacher training, and policy decisions that promote inclusive, balanced, and evidence-based early physical education.

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1. INTRODUCTION

Motor skills form a critical foundation for children's overall development, shaping physical health, cognitive performance, and social interaction during early years (Wahyuni *et al*., 2024). Research consistently highlights that early childhood is a sensitive period in which structured movement activities significantly (Aguh *et al*., 2021; Agarry, 2022; Yusuf *et al*., 2023; Sopekan, 2024; Oghenerume, 2026; Albion *et al*., 2021; Abidin *et al*., 2021; Salman & Yahaya, 2025; Wijaya & Nandiyanto, 2022; Obafemi *et al*., 2023; Rahayu & Ismail, 2023; Samson & Agboola, 2022). Indeed, it influences future learning and participation in physical activity. While locomotor and object control skills represent core domains of gross motor ability, their acquisition patterns differ across genders, requiring context-specific investigation (Francis *et al*., 2023).

Globally, studies have shown that girls tend to achieve higher proficiency in locomotor skills such as running and hopping, while boys often demonstrate greater competence in object control skills, including catching and throwing (Robinson *et al*., 2015). Despite these well-documented patterns, there remains limited empirical evidence from South Asian contexts, particularly Sri Lanka, where preschool education has traditionally prioritized general movement without focusing on gender differences. The lack of local studies restricts the development of evidence-based curricula tailored to children's diverse motor needs.

This review aims to synthesize existing research on factors influencing motor skill development in preschool children. By examining biological, environmental, and pedagogical determinants, it seeks to clarify how these elements interact in shaping both locomotor and object control skills. The novelty of this review lies in integrating evidence from diverse contexts to provide a holistic understanding of motor development at the preschool stage. The findings are expected to guide curriculum planning, inform teacher training, and influence policy recommendations. The broader impact is to promote inclusive and balanced physical education programs that support early childhood growth and long-term participation in active lifestyles.

2. METHODS

This study employed a literature review approach to identify and analyze factors influencing motor skill development in preschool children. Relevant publications were gathered from peer-reviewed journals, books, and reports in the fields of physical education, early childhood development, and psychology. Sources were selected using keywords such as "gross motor skills," "preschool children," "locomotor skills," "object control skills," and "factors influencing motor development." Articles published in the last two decades were prioritized to ensure relevance to current educational practices. Inclusion criteria required studies to focus on children aged three to five years and to provide empirical or theoretical insights into motor skill development. Exclusion criteria eliminated studies focusing solely on older children or those without clear relevance to preschool education. The selected literature was then categorized into thematic areas, including biological attributes, gender, environmental influences, pedagogical approaches, and sociocultural factors, to facilitate synthesis and discussion.

3. RESULTS AND DISCUSSION

3.1. Locomotor Skills Performance

Locomotor skills represent a notable strength among preschool girls in this study, with seventy-six percent of participants performing within the average or above-average range.

This finding aligns with global literature, which suggests that young girls often develop stronger locomotor proficiency than boys in early childhood. Skills such as running, hopping, and jumping were observed to be particularly well-executed, reflecting early coordination, rhythm, and balance that are typically nurtured through both structured and unstructured play. Running and hopping, for instance, are commonly practiced in preschool environments and at home, which may explain the high competence observed.

The emphasis on locomotor skills in daily preschool routines likely provides children with frequent opportunities to refine these movements. Activities such as singing games, playground running, and simple sports naturally integrate locomotor components, making them a consistent part of the children's experiences. This suggests that environmental exposure plays a key role in reinforcing skill development. Furthermore, locomotor skills tend to emerge earlier in the developmental sequence compared to object control skills, which may explain the higher levels of competence found in this study. Despite these strengths, approximately one-quarter of the children were rated below average in locomotor performance. Skills such as galloping and sliding appeared to present more difficulty, requiring a combination of balance, rhythm, and coordinated limb movement that may not be as commonly practiced in informal play settings. This finding emphasizes that even within locomotor categories, variability exists, and certain movements may demand more targeted instruction. The implication is that while girls generally excel in locomotor activities, there remain areas where specific pedagogical strategies are necessary.

3.2. Object Control Skills Performance

In contrast to locomotor performance, object control skills emerged as a developmental challenge. Object control skills, including catching, throwing, and striking, require more than physical ability; they demand practice with equipment and guided feedback. For example, catching involves perceptual-motor coordination, hand-eye synchronization, and timing. Without structured exposure, children may struggle to develop the precision and reaction speed needed for effective performance. The difficulties observed in catching and throwing can be attributed to limited opportunities for targeted practice, as traditional preschool activities in Sri Lanka may prioritize free movement and play over skill-specific drills.

This variability is consistent with previous findings that object control skills develop more slowly and often require intentional practice opportunities (Robinson *et al*., 2015). Unlike locomotor skills, which can be reinforced through everyday activities, object control typically requires external resources such as balls, bats, or hoops. Access to such materials may be uneven across preschools, further contributing to disparities in skill proficiency. The current findings emphasize the importance of integrating structured object control training into preschool programs to balance children's motor development.

3.3. Correlation with Physical Attributes

Beyond performance categorizations, the study also examined the relationship between physical attributes and motor skills. Pearson correlation analysis revealed moderate positive associations between children's height, weight, and motor skill proficiency. Specifically, taller and heavier children tended to perform better in both locomotor and object control domains. This suggests that physical growth provides a developmental advantage, potentially enhancing strength, coordination, and balance.

The correlation coefficient of 0.45 for locomotor skills indicates that nearly half of the variance in skill proficiency could be linked to height and weight. Similarly, the correlation of

0.37 for object control suggests a moderate but meaningful relationship. While these findings do not imply causation, they highlight the role of physical growth as a supporting factor in skill acquisition. Children with greater body mass and stature may find it easier to generate momentum for running or jumping and may also possess improved stability for object manipulation tasks. However, it is essential to interpret the data with caution. Physical growth alone cannot account for skill development without environmental support and structured learning experiences. A child's height and weight may facilitate motor performance, but exposure, practice, and instruction remain critical for mastering complex skills. This underscores the importance of integrating motor development into educational curricula, ensuring that all children, regardless of physical attributes, receive equitable opportunities to strengthen both locomotor and object control skills.

3.4. Comparative Discussion with Existing Literature

The observed patterns in this study align with the broader body of research highlighting gender differences in motor skill development. Girls often show early advantages in locomotor tasks, while boys tend to outperform in object control. The present findings reaffirm this trend within the Sri Lankan context, demonstrating that preschool girls excel in activities such as hopping and jumping but struggle with throwing and catching. This indicates that the gender-specific patterns reported globally are also applicable in South Asian preschool populations.

Moreover, Robinson *et al*. (2015) emphasized in their systematic review that interventions focusing on fundamental motor skills often yield improvements when they incorporate structured, repetitive, and feedback-based practices. The deficits observed in object control skills in this study suggest that Sri Lankan preschool curricula may benefit from incorporating such interventions. For example, structured ball-handling exercises could provide children with the necessary practice to enhance catching, throwing, and striking abilities. This aligns with global best practices that recommend early intervention to address developmental gaps before they become entrenched in later childhood.

The emphasis on locomotor skills in preschool environments may inadvertently overshadow the importance of object control development. Teachers and caregivers often rely on readily available spaces and activities that encourage movement but may not prioritize specialized training for object manipulation. This imbalance in exposure could explain why a higher percentage of children performed poorly in object control compared to locomotor tasks. Addressing this imbalance requires both policy-level curriculum adjustments and practical training for preschool educators.

3.5. Variability within Locomotor Skills

Although the overall performance in locomotor skills was encouraging, the variability observed within specific movements is important to highlight. While running and hopping demonstrated consistent proficiency, skills such as galloping and sliding were notably weaker. These skills demand a higher degree of rhythm, coordination, and spatial awareness, which may not naturally develop without deliberate practice. The absence of structured activities emphasizing these movements in preschool settings could be a major contributing factor.

Locomotor skills typically follow a developmental progression, where basic forms such as walking and running emerge naturally, but more complex skills like galloping and sliding require explicit modeling and repetition. The fact that nearly one-quarter of the participants scored below average suggests that natural maturation alone is insufficient to guarantee skill mastery. This observation supports the argument for targeted pedagogical strategies that

provide children with intentional opportunities to practice these less common locomotor activities.

Additionally, cultural play practices may shape children's exposure to certain movements. In many Sri Lankan communities, traditional games emphasize running and jumping but may not involve coordinated sliding or galloping. This cultural dimension of motor skill acquisition is critical because it highlights the role of socio-environmental context in shaping developmental outcomes. Without structured inclusion of diverse locomotor activities in preschool curricula, children may fail to reach their full potential in these areas.

3.6. Variability within Object Control Skills

Object control skills revealed greater variability and more pronounced developmental gaps. Catching and throwing were identified as particularly weak, while skills such as kicking showed relatively better performance. This discrepancy may reflect the influence of environmental availability and cultural practices. For instance, informal play involving kicking is more common because children often engage in ball games. Conversely, catching and overhand throwing require more structured practice, which preschools may not consistently provide.

Robinson *et al*. (2015) underscored that object control skills do not emerge automatically but must be taught and reinforced through repeated exposure. The high percentage of below-average scores in this study demonstrates that without structured instruction, many children fail to develop these essential competencies. This is particularly concerning because object control skills are foundational for later participation in organized sports and physical education. Weaknesses in these areas during early childhood could have long-term implications for physical activity engagement and social participation.

Furthermore, disparities in access to resources may also play a role. Preschools with limited equipment—such as balls, bats, or hoops—may be unable to provide sufficient practice opportunities. This highlights a structural inequality that extends beyond individual ability. Schools in lower-resource settings may unintentionally disadvantage children in developing object control skills, further widening developmental gaps between different groups.

3.7. Gender-Specific Trends and Educational Implications

The study's findings are consistent with established gender-specific trends, where girls outperform in locomotor skills while boys typically excel in object control. These trends may reflect both biological predispositions and environmental reinforcement. However, it is crucial not to view these differences as fixed or unchangeable. Instead, they should inform the design of gender-sensitive curricula that actively work to balance skill development across domains.

For preschool girls, this means providing targeted interventions to strengthen object control while continuing to nurture locomotor proficiency. Such an approach prevents reinforcing stereotypes that girls are naturally less capable in object manipulation. If left unaddressed, these developmental disparities could discourage girls from participating in sports or physical activities that heavily rely on object control, such as cricket, basketball, or volleyball. Ensuring balanced skill acquisition at an early age can therefore promote more equitable participation in physical education and sports throughout schooling.

Educational policy must also consider teacher training as a central factor. Preschool teachers often focus on general play rather than specific skill instruction. Professional development programs should emphasize the importance of teaching object control skills

explicitly, ensuring that teachers are equipped with both the knowledge and strategies to foster balanced motor development. This requires curriculum guidelines that clearly outline developmental benchmarks and provide structured activities targeting both locomotor and object control domains.

3.8. Role of Physical Growth in Motor Skill Acquisition

The moderate correlation between physical attributes and motor skill performance suggests that children's height and weight provide some developmental advantage. However, the findings also highlight that physical growth alone cannot guarantee skill mastery. For example, taller and heavier children may perform better in generating momentum for locomotor activities, but without sufficient practice, they may still struggle in object control.

This relationship reflects the interplay between biological maturation and environmental stimulation. Motor development is not solely determined by maturation but is also shaped by opportunities for practice and reinforcement. In this study, children with favorable physical growth demonstrated some advantage, but the variability in performance underscores the critical role of structured exposure. This reinforces the idea that while growth facilitates motor potential, education and practice actualize it.

These findings have significant implications for inclusive education. Relying solely on physical growth as an indicator of motor skill competence may overlook children who are physically smaller but equally capable of acquiring skills with proper training. An equitable curriculum must ensure that all children, regardless of stature or body weight, receive equal opportunities to engage in structured motor activities.

3.9. Cultural and Contextual Considerations

Motor skill development cannot be separated from cultural and contextual influences. In Sri Lanka, preschool education has traditionally emphasized basic movement and play without explicit focus on skill differentiation. The emphasis on free play provides valuable opportunities for locomotor development, but may neglect object control. Additionally, gender norms may influence the types of activities encouraged for boys versus girls. For example, boys may be more frequently encouraged to play games involving balls, while girls may be guided toward less object-focused play.

These cultural patterns reinforce the developmental differences observed in this study. Addressing them requires a deliberate shift in curriculum design to provide equal opportunities for both boys and girls. Encouraging preschool girls to engage with equipment, practice throwing and catching, and participate in structured ball games can help bridge the developmental gap. Importantly, these changes should be framed not as compensating for deficits but as ensuring balanced and holistic development.

Moreover, the broader societal perception of girls' participation in sports may also play a role. In some communities, girls may face restrictions or lack encouragement to engage in physical activities that involve strength or coordination. Such cultural barriers may limit exposure to object control practice, further reinforcing developmental disparities. Overcoming these barriers requires community engagement and parental awareness programs that emphasize the importance of balanced motor development for all children, regardless of gender.

3.10. Implications for Curriculum Development

The findings of this study provide concrete evidence for rethinking preschool curricula in Sri Lanka. Current practices appear to favor locomotor development, which has yielded strong

results in that domain. However, the neglect of object control skills is evident in the below-average performance of nearly half the participants. To address this imbalance, preschool curricula should explicitly integrate structured object control activities alongside locomotor training.

Practical strategies may include designing lesson plans that incorporate daily ball-handling exercises, throwing and catching drills, and cooperative games that emphasize coordination and teamwork. Teachers should also be encouraged to create playful environments where object control is practiced in engaging and age-appropriate ways. For example, integrating throwing games into storytelling activities or using colorful objects can make practice enjoyable while reinforcing skill development.

The inclusion of object control in preschool programs not only promotes physical competence but also fosters cognitive and social development. Catching and throwing, for example, require anticipation, timing, and interaction with peers, which can enhance problem-solving and communication skills. By embedding these activities within preschool education, children can develop a holistic set of abilities that extend beyond physical competence.

3.11. Importance of Early Interventions

While preschool girls exhibit strong locomotor abilities, significant gaps remain in object control skills. These findings stress the importance of early interventions, particularly during the preschool years, which represent a critical developmental window. According to Robinson *et al*. (2015), fundamental motor skills developed during early childhood serve as the building blocks for more complex skills acquired later in life. Failure to establish proficiency in both locomotor and object control skills during this period may limit children's readiness for school-based physical education and organized sports participation.

Interventions at this stage are especially effective because neural plasticity is at its peak, enabling children to acquire new skills more efficiently. Introducing structured object control activities—such as guided catching and throwing games—can help overcome deficiencies before they solidify into long-term developmental patterns. By contrast, delaying these interventions until later childhood may require greater effort and yield less robust outcomes. This underscores the urgency of integrating balanced motor skill development within preschool curricula to maximize developmental potential.

3.12. Long-Term Implications for Physical Activity

A key concern raised by the results is the potential long-term impact of weak object control skills. Studies have shown that proficiency in object control is strongly associated with sustained participation in physical activity and sports during later childhood and adolescence (Robinson *et al*., 2015). Without adequate competence in these skills, children may feel less confident, leading to lower motivation to engage in sports and group physical activities. This lack of participation can have cascading consequences for physical health, social integration, and psychological well-being.

For girls, in particular, the lack of object control competence may exacerbate existing disparities in sports participation. In many cultural contexts, girls already face social and institutional barriers to active involvement in organized sports. If motor skill proficiency is also lacking, these barriers become even more pronounced. Therefore, addressing the developmental gap in object control at the preschool level is not merely a matter of physical development but also of promoting equity and long-term health outcomes.

3.13. Teacher Training and Pedagogical Practices

The current literature highlights the role of teacher training in shaping motor skill development. Preschool teachers are often generalists rather than specialists in physical education, and as a result, they may lack both the knowledge and confidence to deliver structured motor skill instruction. Locomotor activities are relatively easy to facilitate in the classroom, requiring little to no equipment. However, object control skills demand specific strategies, demonstrations, and resources, which many teachers may be unprepared to provide.

Professional development programs should therefore prioritize equipping teachers with practical knowledge about motor development. Training workshops can demonstrate how to introduce simple object control activities using readily available and low-cost materials, such as beanbags or soft balls. By embedding motor skill training within teacher education, preschool educators can better balance locomotor and object control development. Furthermore, curriculum guidelines should provide explicit expectations for motor skill benchmarks, ensuring that both domains are systematically addressed.

3.14. Policy-Level Considerations

At the policy level, the findings of this study have important implications for early childhood education in Sri Lanka. Current preschool frameworks may not adequately emphasize motor skill development, particularly object control. This oversight risks reinforcing developmental disparities and limiting children's preparedness for school-based physical education. Policymakers should consider revising curriculum standards to ensure that motor skills are explicitly included as core developmental outcomes in preschool education.

Such revisions should include not only locomotor benchmarks but also clear objectives for object control proficiency. Standardized assessments, like the TGMD-2 used in this study, can serve as valuable tools for monitoring progress and identifying areas of need. By institutionalizing regular motor skill assessments, preschools can ensure that no child is left behind in either locomotor or object control development. In turn, this creates a foundation for lifelong physical activity and holistic development.

3.15. Cross-Cultural Comparisons

The current literature also invites comparison with international findings. Research from Western contexts consistently shows that girls are more advanced in locomotor skills while boys dominate in object control (Robinson et al., 2015). The current findings from Sri Lanka suggest that these global patterns hold in South Asia as well, although the magnitude of the disparities may be shaped by cultural and contextual factors.

For instance, in countries where sports such as baseball or basketball are commonly played in early childhood, object control skills may develop more rapidly among both boys and girls. In Sri Lanka, however, cultural play practices may emphasize running, hopping, and group movement games rather than object manipulation. This cultural emphasis likely contributes to the observed strength in locomotor skills and weakness in object control. Cross-cultural comparisons, therefore, highlight the importance of considering local practices when interpreting developmental outcomes.

3.16. Equity and Inclusion in Motor Skill Development

Another important dimension to consider is equity in motor skill development. Not all children have equal access to resources and opportunities that facilitate balanced skill acquisition. Preschool environments with limited equipment may struggle to provide object control practice, disproportionately affecting children from lower-resource settings. This inequity reinforces the importance of adopting inclusive educational policies that ensure all children, regardless of socioeconomic background, have access to structured motor skill opportunities.

Inclusive approaches may involve government-funded provision of basic physical education equipment to preschools, teacher training programs that emphasize low-cost activity design, and community engagement initiatives that encourage families to support motor development at home. By addressing inequities in access and exposure, policymakers and educators can ensure that all children benefit from balanced motor skill development, not just those in better-resourced environments.

3.17. Integration with Cognitive and Social Development

It is also crucial to recognize that motor skills do not develop in isolation but are intertwined with cognitive and social growth. Locomotor activities such as hopping and jumping enhance not only physical coordination but also executive functioning, as children must plan movements, regulate timing, and respond to environmental cues. Object control activities, on the other hand, demand perceptual-motor coordination, problem-solving, and peer interaction, particularly in cooperative games.

The weaknesses in object control skills observed in this study, therefore, have implications beyond physical competence. Limited proficiency in these areas may restrict opportunities for children to engage in social play, practice teamwork, and build confidence in peer interactions. By addressing these developmental gaps, educators can simultaneously foster children's social and cognitive skills, ensuring a more holistic approach to early childhood education.

3.18. Implications for Future Research

The findings of this study highlight several directions for future research. First, longitudinal studies are needed to examine how early motor skill proficiency influences later physical activity, academic outcomes, and social development. Understanding these trajectories can help policymakers justify greater investment in early motor interventions. Second, gender comparisons should be conducted within the Sri Lankan context to determine whether boys exhibit the expected advantage in object control skills. Such comparisons would provide a more comprehensive picture of gender-specific developmental patterns.

Additionally, qualitative studies exploring teacher perceptions and classroom practices could shed light on why object control receives less emphasis in preschool education. Identifying barriers from the perspective of educators—such as lack of training, equipment, or confidence—can inform the design of targeted professional development initiatives. Finally, intervention studies testing specific teaching strategies for object control skills would provide evidence-based models for curriculum design and teacher training.

3.19. Integrating Theoretical Perspectives

This study can be better understood within the framework of motor development theory. Developmental model posits that motor skills evolve through interaction between biological

maturation, environmental influences, and practice opportunities. The proficiency in locomotor skills among preschool girls observed here reflects the natural sequence of maturation supported by environmental exposure, as these skills are frequently embedded in play activities. However, the weaker performance in object control highlights the absence of sufficient practice opportunities, reinforcing the role of environmental context in shaping developmental outcomes.

In developing the TGMD-2, motor proficiency is not uniformly distributed across children but depends heavily on exposure and structured instruction. This theoretical perspective explains why even within the same age group, variations in performance emerged. Those with greater access to structured play, supportive teachers, or parental involvement may have achieved higher levels of object control proficiency. The findings thus validate the theoretical assertion that motor development results from the dynamic interplay between intrinsic and extrinsic factors.

3.20. Practical Recommendations for Preschool Settings

The evidence presented underscores the need for practical adjustments in preschool environments. First, curricula should explicitly balance locomotor and object control training. While running, hopping, and jumping are naturally reinforced in daily play, activities such as catching, throwing, and striking require intentional inclusion. Teachers can integrate these into routine lessons without requiring substantial resources. For example, beanbags or improvised soft balls can be used for catching practice, while rolling activities can develop coordination and anticipation.

Second, motor skill activities should be designed to encourage repetition and progression. Robinson *et al*. (2015) found that systematic repetition, feedback, and increasing complexity are essential for developing proficiency. Preschools can implement progressive lesson plans where children begin with simple object control tasks and gradually move toward more challenging activities. This ensures both engagement and skill consolidation.

Third, schools should adopt inclusive practices that accommodate children with varying levels of physical growth and ability. As the correlation analysis in this study suggests, taller and heavier children may have some advantages in motor proficiency. However, structured teaching can ensure that smaller or less physically developed children are not disadvantaged. Teachers should provide differentiated instruction, allowing all children to participate meaningfully and build confidence in their abilities.

3.21. Community and Parental Engagement

The role of families and communities in motor skill development cannot be overlooked. Preschool activities represent only part of children's daily experiences; much of their motor practice occurs in home and neighborhood environments. Encouraging parents to provide opportunities for object control activities—such as playing simple throwing and catching games—can significantly reinforce skill acquisition. Awareness programs that highlight the importance of balanced motor development could help shift parental attitudes, especially in communities where girls may not traditionally be encouraged to engage in ball games or physically demanding activities.

Community resources, such as playgrounds and sports programs, should also be leveraged. Partnerships between schools and local sports organizations could provide structured opportunities for preschool girls to practice object control in supportive environments. Such initiatives could also help dismantle cultural stereotypes about girls' participation in sports, ensuring long-term benefits for gender equity in physical activity.

3.22. Addressing Cultural Barriers

The cultural context in Sri Lanka may contribute to the disparities observed in this study. Traditional gender roles often influence the types of play encouraged for boys and girls. Boys may be more frequently exposed to object-based games, such as cricket, while girls are encouraged toward less object-focused play. These cultural practices reinforce developmental patterns, with girls excelling in locomotor skills but lagging in object control.

Changing these patterns requires deliberate cultural shifts, beginning with preschool education. Teachers can serve as role models by actively engaging girls in object control activities and normalizing their participation in ball games. Policymakers can also support these efforts by framing gender equity in physical education as a national priority. Over time, such initiatives can transform societal perceptions, ensuring that both boys and girls have equal opportunities to develop a full range of motor skills.

3.23. Broader Educational and Health Implications

The findings of this study extend beyond physical education, offering implications for broader educational and health outcomes. Motor skills are strongly linked to cognitive development, as activities that require coordination, timing, and precision also stimulate executive functioning and problem-solving abilities. For example, catching and throwing not only develop physical coordination but also enhance children's ability to anticipate outcomes and adapt to changing circumstances.

From a health perspective, developing proficiency in both locomotor and object control skills encourages lifelong physical activity. Children who feel confident in their abilities are more likely to participate in sports, maintain active lifestyles, and reduce the risk of obesity and related health problems. Given the global concerns about declining physical activity levels among children, particularly girls, the findings of this study provide timely evidence for promoting structured motor interventions in early childhood.

3.24. Contribution to Policy and Curriculum Development

One of the most significant contributions of this study is its potential to inform policy and curriculum development in Sri Lanka. By documenting the strengths and weaknesses in preschool girls' motor skills, the study provides a data-driven foundation for reforming early childhood education. Policymakers can use these findings to establish national standards for motor development, ensuring that preschools are held accountable for providing balanced opportunities across locomotor and object control domains.

Curriculum developers should also integrate motor skills into broader learning objectives. For instance, object control activities can be incorporated into mathematics lessons through counting throws or measuring distances, thereby integrating physical and cognitive development. Similarly, locomotor games can be linked to storytelling or music, enriching the learning experience while reinforcing movement skills. This interdisciplinary approach ensures that motor development is not treated as an isolated objective but as a fundamental part of holistic education. Finally, this study adds new information regarding physical education, as reported elsewhere (Morbo, 2021; Calixtro Jr., 2021; Escomes & Morbo, 2021; Ledesma *et al*., 2021; Calixtro Jr., 2025; Albar *et al*., 2021; Wahyuningsih *et al*., 2024).

4. CONCLUSION

This review highlights that motor skill development in preschool children is shaped by multiple interrelated factors, including biological growth, gender, environment, pedagogy, and culture. These influences matter because they determine both the strengths and challenges children face in acquiring locomotor and object control skills. By synthesizing existing evidence, this study contributes to the understanding of motor development in early childhood and underscores the need for balanced, inclusive, and evidence-based preschool curricula. The findings provide a foundation for future research and practical reforms in early physical education.

5. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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