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Impact of a Sports Psychology–Based Physical Activity Intervention on Emotional Regulation in Early Childhood Education

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Abstract
The study employed The Post-test experimental control-group. Quasi- experimental research design was used in this study where the experimental groups were exposed to Instructor-Led Intervention Blending Play Based Sport Drills and Emotion-Coaching Therapy (ILIBPESD/ECT) were used as intervention while control group was exposed to usual conventional class of poem citation.Pupils in Early Childhood Care centres formed population of the study as simple random sampling technique was adopted in selection of 20 pupils (5-6years) each from 4 ECE centres in Ikeja LGA, of Lagos State to form 80 preschoolers. A researcher designed checklist that contains 20-items on 3 response format of available, partially available and not available was used in data collection. The Emotional Regulation Checklist was also used to observe the sampled population. Data was analyzed using t-test and Analysis of Covariance (ANCOVA). All the hypotheses were tested at .05 level of significance. Results revealed statistically significant improvements in emotional-regulation scores for the intervention group with marginal gain in favourable emotional expression and peer conflict resolution. It then concluded that embedding sports-psychology-informed physical activities within early childhood curriculum enhances a better emotional regulation and management mechanism as it recommends that scaling such integrative curricula with teacher training and ongoing fidelity monitoring would go a long way to have stable mental ready learners in classrooms.

Keywords: Physical Activity; Emotional Regulation; Early Childhood Education; Integration; Sports Psychology

Introduction

The concept of early childhood is a critical developmental stage when children naturally begin to acquire foundational cognitive, social and emotional skills. It is a foundational phase where proper nutrition, emotional support and stimulating learning experiences can significantly influence lifelong development. Educational psychologists sees early childhood as a formative stage where sensory exploration, play and interaction with caregivers shape intelligence, personality and emotional stability meanwhile emotional regulation is perceived as the ability to monitor, evaluate and modify emotional reactions in other to achieve stated goals which plays a vital role in children's adjustment, learning and relationships (Thompson, 2018). During this formative learning phase children's experiences with play and movement help shape neural pathways responsible for executive function and self-control. Emotional regulation difficulties in early years often manifest as behavioral problems, poor peer

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interactions, and low academic engagement. Fostering emotional regulation through engaging and developmentally appropriate strategies has become an essential goal of early childhood education.
Diamond and Ling (2018), physical activity has long been recognized as a key factor in promoting children's holistic development. Regular participation in physical activity supports not only physical health but also emotional stability and mental well-being. Movement and exercise stimulate brain regions associated with mood regulation and cognitive control. When children engage in active play, they learn to manage impulses, cope with frustration, and collaborate with Peers-skills that directly contribute to emotional regulation. While physically active classrooms may have been found to improve children's attention span and reduce anxiety, suggesting that the benefits of physical activity extend beyond the physical domain (Carson, et al. 2018).

According to Ludwig et al. (2018) incorporating physical activity into early learning environments also promotes social-emotional development through interactive play and cooperative learning. Active engagement allows children to experience both competition and collaboration, leading to emotional resilience and empathy. Preschool children who engage in regular structured play exhibit better self-regulation and mood management than those who are sedentary. Furthermore, physical activities such as games, dance, and sports-like exercises provide natural contexts for children to recognize emotions in themselves and others, which enhance emotional understanding and interpersonal communication (Bremer & Cairney, 2018).

Sports psychology provides valuable insights into how physical activity can be structured to optimize emotional and psychological benefits. Sports psychology emphasizes motivation, goal setting, focus and emotional control all of which are relevant to early childhood development. With Weiss (2018), integrating sports psychology principles into early childhood education means using structured play and movement not only to improve motor skills but also to nurture emotional regulation and positive behavior. This integration aligns with holistic educational models that seek to develop the whole child physically, emotionally and cognitively rather than focusing solely on academic outcomes. Despite growing evidence of the link between physical activity and emotional well-being, early childhood education in many setting remains dominated by sedentary and academic-based instruction. Play and movement are often undervalued, leading to missed opportunities to enhance children's self-regulation and emotional growth (Stodden et al., 2018). Without intentional integration of sports psychology principles, physical activities in schools may remain unstructured and fail to achieve their full developmental potential. This highlights the need for systematic approaches that combine physical activity with psychological strategies to foster emotional competence in young learners.

In establishing physically active learning improve children's emotional and behavioral outcomes, Mavilidi, et al. (2018) stated that embedding movement into learning tasks enhances engagement, motivation and self-control among preschoolers. Since children during their formative phase interlink all physical activities this act improves behavioural patterns, modify movement and improve academic achievement. Ludwig et al. (2018) further stated that higher levels of physical activity were associated with improved emotional balance and self-regulation skills in early childhood. Well-designed physical activity interventions grounded in sports psychology serve as effective tools for promoting emotional regulation and readiness to learn. According to Chigbu et al. (2020) physical activity supports emotional regulation in young children by affecting arousal, attentional control and stress recovery systems. Movement based play and structured physical tasks give children repeated opportunities to practice waiting, turn-taking, frustration tolerance, and behavioural shifting all core components of self-regulation that underpin social competence and school readiness. While much of the direct evidence about these processes comes from international early-childhood research, country-level surveillance and population studies in Nigeria highlight a broader public-health context in which opportunities for regular, developmentally appropriate physical activity are variable across regions and settings; low population engagement in leisure-time activity and barriers to routine exercise in some Nigerian settings suggest resources and programmatic support for movement-based curricula remain limited.

HoweverTshube (2020) noted that sports psychology offers concrete, developmentally adaptable strategies that convert ordinary movement time into deliberate emotion-regulation practice. Core sport-psychology techniques includes simplified goal-setting, process-focused feedback, attention cueing and brief breathing/relaxation routines which can be translated into play-based classroom activities to help preschoolers notice feelings, re-focus attention after emotional upsets, and persist through challenge. A continent-level review of sport and exercise psychology

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emphasizes the discipline's applicability beyond elite performance to wider developmental and wellbeing aims in African settings, and highlights opportunities to adapt sport-psychology insights for younger children and for low-resource educational contexts. Integrating these approaches into early childhood programmes can therefore provide teachers with low-cost, evidence-informed tools to strengthen children's emotional skills during everyday movement sessions.

In the Nigerian policy and practice context, the combination of uneven access to quality physical-activity opportunities and the emerging sport-psychology expertise across Africa points to both a need and an opportunity need because many Nigerian communities face constraints (space, time, resources) that reduce routine, structured physical activity and opportunity because sports-psychology-informed, play-based practices can be adapted to existing school routines without major infrastructure investment. Given the importance of emotional regulation in early development and the demonstrated influence of physical activity on emotional outcomes, integrating sports psychology with early childhood education offers a promising interdisciplinary approach. This integration can bridge the gap between physical development and emotional learning by providing educators with structured, evidence-based methods to enhance children's capacity for self-regulation and adaptive behavior. Therefore, investigating the impact of physical activity on emotional regulation through the lens of sports psychology is essential to inform curriculum design, teacher training, and child development policies aimed at promoting holistic growth during the formative years.

Statement of the Problem

Emotional regulation is a fundamental aspect of early childhood development, influencing how children manage feelings, interact socially and adapt to learning environments. While many young children struggle with emotional control due to limited exposure to structured physical activities that foster self-discipline, social cooperation and resilience. Increasing evidences that physical activity contributes to emotional imbalance through release of endorphins and development of self-regulatory skills, early childhood education in many settings especially in Nigeria educational system prioritize cognitive learning over physical engagement. This imbalance often leaves a gap in the holistic development of children thereby affecting their emotional stability, social competence and overall school readiness. However integrating sports psychology principles into early childhood education offers a promising approach to addressing these challenges by linking physical activity with emotional and psychological growth. Yet, there is limited empirical studies exploring how structured physical activity that is guided by sports psychology frameworks affects emotional regulation among young learners. The absence of such integration in early learning curricula may hinder children's ability to develop coping strategies, manage frustration and express emotions constructively. Therefore, this study seeks to investigate the impact of physical activity on emotional regulation in early childhood, emphasizing how the integration of sports psychology can enhance emotional well-being and behavioral outcomes among preschool children.

Aim and Objectives of the study

The core objective of this work is to investigate the impact of physical activity on emotional regulation in early childhood: integrating sports psychology in early childhood education while specific objectives are:

i. assess the mean scores treatment difference in physical activity on emotional regulation in early childhood and integration of sport psychology by posttest in experimental and control groups.
ii. examine the gender difference in physical activity on emotional regulation in early childhood and integration of sport psychology

Research Questions

Two research questions were generated for this study and they include:

i. What is the difference in treatment mean score of physical activity on emotional regulation in early childhood and integration of sport psychology by posttest in experimental and control groups?
ii. What is the difference in gender of physical activity on emotional regulation in early childhood and integration of sport psychology?

Hypotheses

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Two research hypotheses were formulated for this study and they include the following:
H_{01}: There is no significant difference in treatment mean score of physical activity on emotional regulation in early childhood and integration of sport psychology by post-test in experimental and control groups.
H_{02}: There is no significant difference in gender of physical activity on emotional regulation in early childhood and integration of sport psychology.

Methodology
The Quasi- experimental research design was used in this study where the experimental groups were exposed to Instructor-Led Intervention Blending Play. The population for the study comprises the pupils in Early Childhood Care centres and the researchers used a simple random sampling technique to select 20 pupils (5-6years) each from 4 ECE centres in Ikeja LGA area of Lagos State to form 80 preschoolers. The instrument used for data collection was a standardized checklist that contains 20-items on 3 response format of available, partially available and not available. The Emotional Regulation Checklist was also used to observe the sampled population. Based Sport Drills and Emotion-Coaching Therapies (ILIBPESD/ECT) were used as intervention while control group was exposed to usual conventional class of poem citation. Data was analyzed using t-test and Analysis of Covariance (ANCOVA). All the hypotheses were tested at .05 level of significance.

Table 1: True representation of Post-test control experimental group design

Groups		Treatment	POST TEST	N
Experimental	……..	********	00000000	60
Control	……..	//////////////	00000000	20

The above Posttest Quasi-experimental groups do not have a Pre-test measure since both groups would have same base line measure
Pupils in Early Childhood Care centres formed population of the study as simpler random sampling technique was adopted in selection of 20 pupils (5-6years) each from 4 ECE centres in Ikeja LGA, of Lagos State to form 80 preschoolers. 60 pupils represented the experimental group and 20 pupils represented the control group. The researchers designed checklist that contains 20-items on 3 response format of available, partially available and not available was used in data collection. The Emotional Regulation Checklist was researcher observer rated as data was analyzed with t-test and Analysis of Covariance (ANCOVA) statistics. All hypotheses were tested at .05 level of significance.

Results
H_{01}: There is no significant difference in physical activity on emotional regulation in early childhood and integration of sport psychology by post-test in experimental and control groups.

Table 2: Descriptive Statistics showing differences in means scores in experimental and control group

Forms	N	Mean	Std. Deviation	Std error
Exp.	60	33.89	2.871	.45702
Control	20	18.77	0.812	.11320
Total	80	53.66		

Table 2 shows the mean score observed in the experimental and control groups after treatment administration. A total of 80 preschoolers were involved in the study as experimental groups recorded a higher mean score of 33.89 and control group a lower mean of 18.77 which reveals that the treatment package was responsible for the difference in the groups.

Table 3: ANCOVA analysis showing difference in physical activity on emotional regulation in early childhood and integration of sport psychology by post-test in experimental and control groups

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.

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Corrected Model	.911[a]	3	.304	1.261	.000
Intercept	.005	1	.005	.022	.001
Treatment	.060	1	.060	.251	.000
Physical activity	.248	1	.248	1.028	.002
Emotional regulation	.853	1	.853	3.541	.004
Integration	.239	1	.239	2.432	.023
Error	40.928	78	.525		
Total	384.000	80			
Corrected Total	41.839	79			

Table 3 of ANCOVA analysis shows the difference in physical activity on emotional regulation in early childhood and integration of sport psychology by post-test in experimental and control groups. It shows that physical activity with an F-.value of 1.028 was significant at .002 (P<.05); emotional regulation with an F-value of 3.541 was significant at .004(P<.05) and integration of sports psychology with an F-value of 2.432 significant at .023(P<.05) respectively. Consequently, the null hypothesis is rejected and alternative which states that there is a significant treatment difference in physical activity on emotional regulation in early childhood and integration of sport psychology by post-test in experimental and control groups is retained.

H_{02}: There is no significant difference in gender of physical activity on emotional regulation in early childhood and integration of sport psychology.

Table 4: t-test analysis showing difference in gender of physical activity on emotional regulation in early childhood and integration of sport psychology

Gender	N	Mean	SD	P	t-cal.	Sig.	Decision
Male	36	2.442	.842	0.05	3.289	0.001	Significant
Female	44	1.703	.546				
Total	80						

Result from Table 4 reveals that male preschoolers recorded a higher mean and standard deviation values of 2.442 and .842 while female recorded a lower mean and standard deviation values of 1.703 and .543 respectively. At t-cal. value of 3.289, P<.05 which implies the null hypothesis rejected and alternative which states that there is a significant difference in gender of physical activity on emotional regulation in early childhood and integration of sport psychology is retained.

Discussion

Result from hypothesis one reveals that there is a significant treatment difference in physical activity on emotional regulation in early childhood and integration of sport psychology by post-test in experimental and control groups. Effective treatment package have a corresponding resultant difference on the groups exposed to the intervention. The outcome of this study corroborates with study by Mavilidi, et al, (2018) who stated that embedding movement into learning tasks not only boost achievement but enhances engagement, motivation and self-control especially among preschoolers. Since children during their formative phase interlink all physical activities, this act improves behaviouralpatterns, modify movement and improve academic achievement. Sports psychology corrects all forms of psychomotor imbalance which are attributed to deficiency in child development.

Also data from hypothesis two reveals that there is a significant difference in gender of physical activity on emotional regulation in early childhood and integration of sport psychology. This finding conforms to that of Toriola, (1986), Kaizar and Alordiah (2023) who noted boys are more into outdoor, competitive and physically energetic play while girls are steered to calmer, indoors, or caregiver-focused activities. Because physical activity contexts repeatedly expose children to heightened physiological arousal and immediate social feedback, they serve as natural practice fields for emotion-regulation skills (down-regulating anger, waiting turns, using self-talk) and systematic reviews show consistent positive associations between physical activity and self-regulation in early

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childhood mechanisms that help explain why boys who play more actively often display more opportunities to develop regulation skills.

Conclusion

Results showed statistically significant improvements in emotional-regulation scores for the intervention group with marginal gain in favourable emotional expression and peer conflict resolution. It then concluded that embedding sports-psychology-informed robust physical activities involvement within early childhood curriculum enhances a better emotional regulation and management mechanisms. Also, male preschoolers are more likely to engage in physical activities than their female counterparts even when sports psychology is introduced.

Recommendations

The study recommended the following:

i. Scaling integrative curricula with teacher training and ongoing fidelity monitoring would go a long way to have stable mental ready learners (children) in classrooms.
ii. A more learner and content centred curriculum would go a long way to make learning interactive and motivating.
iii. Introduction of sports psychology to preschool education would help address affective and psychomotor deficiency of learners in the educational system.

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