Physical Education Theory and Methodology
Теорія та методика фізичного виховання

ISSN 1993-7989 (print)
ISSN 1993-7997 (online)
ISSN-L 1993-7989

Original Scientific Article

The Effect of Adapted Physical Activity and Inclusive Sport on the Motivation and Psychological Health of Children with Disabilities: A Randomized Control Trial

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Authors' Contribution: A – Study design; B – Data collection; C – Statistical analysis; D – Manuscript Preparation; E – Funds Collection

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Accepted for Publication: April 28, 2025
Published: May 30, 2025

DOI: 10.17309/tmfv.2025.3.21

Abstract

Background. Adapted activities have relied on pedagogical, organizational and material adaptations to ensure equitable and beneficial participation for all students.

Objectives. This study aimed to examine the influence of adapted physical education and involvement in school para-athletics on the motivation to engage in sports practice and the psychological well-being of students with motor disabilities.

Materials and methods. The present study involved 96 students with motor disabilities (mean age: 16.79 ± 0.87 years) enrolled in Moroccan public schools. Participants were categorised into three groups based on para-athletics classification: 30 % in class 30, 40 % in classes 40, and 30 % in class 50. Participants were randomly assigned to one of three groups: a control group with no structured intervention, a group following an adapted physical education (APE) programme (24 sessions), and a third group combining the APE programme with additional para-athletics training, including competitions, over a three-month period (24 sessions).The study utilised the SMS-28 scale to measure motivation and Carol Ryff's scale to assess the level of psychological well-being, with evaluations conducted pre- and post-intervention.

Results. The findings indicated that the APE+Para-Athletics group showed notable enhancements in nearly all domains of motivation, including a 205 % increase in intrinsic motivation to stimulation. Additionally, it was observed improvements in psychological well-being, particularly in autonomy and positive relationships with others. In comparison, the control group demonstrated minimal change, while the APE group also recorded improvements, albeit to a lesser extent than the group combining the two programs.

Conclusions. This study confirms that the combination of APE and inclusive sport, including para-athletics, is an effective strategy for optimizing the motivation and psychological well-being of students with motor disabilities.

Keywords: parasports in schools, psychological health, adapted sports, inclusive education, social relations, personal development.

Introduction

The existing literature demonstrates that the school including of students with disabilities in the educative environment represents a significant challenge for modern education, as it is confronted with a multitude of obstacles (Ballas et al., 2022; Chomistek et al., 2019; Haegele et al., 2018; Lieberman et al., 2002; Ríos Hernández, 2009; Sammon et al., 2020). One of the most crucial elements of this incorporation is involvement in physical sports activities, which facilitate the student's comprehensive growth and development (Bahadirovna, 2024; Setyawan et al., 2024). The efficacy of adapted activities in enhancing not only physical health but also psychological and social well-being has been demonstrated (Ben Rakaa et al., 2025a; Block & Obrusnikova, 2007). Notwithstanding, students with disabilities frequently encounter significant challenges that

impede their involvement in these activities. Nevertheless, students with disabilities frequently encounter substantial obstacles that restrict their involvement in inclusive activities (Ben Rakaa et al., 2024c). The aforementioned barriers may be classified as either physical, structural, or behavioral. This underscores the necessity for the implementation of suitable educational strategies to overcome these barriers (Direction des Curricula, 2019a, 2019b, 2019c; Goodwin & Watkinson, 2000). The findings of a prior investigation yielded indisputable evidence of the correlation between personality characteristics and academic performance, establishing a pivotal connection of considerable significance (Alderotti et al., 2023). She emphasized the necessity of considering the psychological dimension in order to more accurately comprehend student conduct and to furnish them with suitable psychological assistance (Bouiri et al., 2021). Subsequently, affective, cognitive, and metacognitive learning strategies have been demonstrated to be effective with respect to academic outcomes, as they engender constructive academic results (Bouiri et al., 2021). Subsequently, affective, cognitive, and metacognitive learning strategies have been demonstrated to be effective in enhancing academic performance, as they facilitate the generation of constructive academic outcomes (Bouiri et al., 2021). These learning strategies assist in elucidating the subtleties of learners' mental processes. It thus appears imperative to intensify our endeavors to enhance the efficacy and applicability of educators' pedagogical interventions (Bouiri et al., 2021). In this sense, adapted physical education (APE) and school-based para-sport can be effective instruments for encouraging regular physical exercise and intrinsic motivation towards physical activity in these students (Shields & Synnot, 2016).

The extant literature indicates that APE have a significant impact on student motivation, particularly by enhancing their sense of competence and facilitating constructive learning experiences (Montilla et al., 2023; Vazou et al., 2005). Moreover, involvement in para-athletic pursuits at the educational level can be instrumental in fostering not only competitive physical activity, but also a constructive sporting identity in students with disabilities (Hutzler, 2011). Nevertheless, in the pursuit of a more profound exploration into the effects of APE and para-athletics on the motivation of pupils with motor disabilities, it is essential to conduct a thorough examination of the specific context in which these interventions are implemented. The motivation to engage in physical activity and the psychological well-being of pupils with disabilities are shaped by a complex interplay of influences. These encompass both individual factors, such as expectations of achievement and feelings of competence, and contextual elements, including the availability of teacher and peer support, as well as the accessibility of sports facilities (Deci & Ryan, 2000). In the specific context of students with motor disabilities, motivation to engage in physical activity is significantly influenced by the quality of the educational intervention and the availability of inclusive physical activity opportunities. Recent research findings have indicated that participation in the APA programme has the potential to enhance various domains of functioning, including physical capacities (Lourenço et al., 2025), self-esteem, and overall well-being (Ben Rakaa et al., 2025b; Wickman et al., 2018). Adapted pedagogical interventions play an instrumental role in fostering a secure and encouraging learning atmosphere (Belabbes et al., 2025; Ben Rakaa et al., 2025a), wherein students can nurture their motor abilities at a pace that aligns with their unique capabilities (Healy et al., 2013). Furthermore, involvement in para-sport provides students with motor disabilities with the chance to engage in structured sporting events, which can enhance their sense of efficacy and autonomy (Alexander, 2023).

A study has demonstrated that participation in adapted competitive sports not only facilitates improvement in students' physical fitness (Lourenço et al., 2025), but also fosters a sense of achievement and reinforces intrinsic motivation to engage in regular physical activity (Orr et al., 2021). Conversely, the integration of APE and involvement in para-sport, including para-athletics, para-swimming, amputee soccer, and so forth, within the school environment represents a promising strategy for motivating pupils with motor disabilities to engage in physical exercise (Vazou et al., 2005). The integration of these two elements in a coherent and sustainable manner has the potential to encourage greater participation of students with disabilities in sport, as much as facilitating their personal and social development by offering them significant opportunities for success and inclusion (Hutzler, 2011; Vazou et al., 2005). In light of the difficulties encountered when inclusion learnings with impairments into APE programs and promoting their involvement in school-based para-sports, particularly para-athletics, a potential solution could be to combine these two approaches in order to foster motivation for exercise in these children with motor disabilities. It is therefore essential to evaluate the effectiveness of APE programs and para-athletics in this context. This perspective gives rise to a key question: what is the impact of para-athletics and APE on the motivation and psychological well-being of learnings with motor disabilities to engage in PE? This research aims to ascertain the impact of APE and participation in school para-athletics on motivation to take part in sport activities and the well-being of pupils with motor disabilities.

Materials and Methods

Study Design and Participants

The research included 96 participants with motor disabilities, aged 16.79±0.87 years, enrolled in mainstream public schools across various regional academies in Morocco. Among them, 35% resided in rural areas, while 65% lived in urban settings. The selection criteria encompassed enrolment in a general education classroom alongside able-bodied peers, possession of a disability certificate issued by Entraide Nationale, and a medical certificate confirming their physical ability to participate in physical education courses. Written informed consent was obtained from parents or legal guardians for both participation in the study and publication of its findings.

Before inclusion, participants underwent classification according to the International Paralympic Committee's disability system, assessed by volunteer experts in the field (International Paralympic Committee, 2016). The classification results indicated that 40% qualified for field events (throwing disciplines), while 60% were eligible for track events (running and/or jumping). Within the track-

eligible group, 30% had cerebral disabilities, 40% had limb amputations or similar conditions, and 30% had motor impairments resulting from spinal cord injuries.

This randomized controlled trial (RCT) evaluated the efficacy of two adapted programme: an APE program and a combined APE+Para-athletics program. Participants were stratified into three groups: Control: No structured APA engagement. APE: Two 1-hour weekly APE sessions for three months, focusing on skill development in throwing and running/jumping within pedagogical cycles. APE+Para-athletics: APE sessions plus two supplemental 1.5-hour weekly Para-athletics trainings, emphasizing performance optimization and participation in multi-level inclusive school competitions (provincial to national).

Program Structure : The school-based APA curriculum targeted motor disabilities (e.g., cerebral palsy, amputations, spinal cord injuries) to enhance physical engagement in PE and phased integration into competitive sports. PE teachers designed ability-tailored APE learning cycles aligned with students' needs, followed by Para-athletics training protocols to prepare students for inclusive competitions. The intervention followed three progressive phases—initiation (foundational skill acquisition), development (technical refinement), and consolidation (performance application)—with intensity calibrated to individual abilities. Session content was dynamically adjusted via biweekly assessments and individualized progress tracking. Inclusive competition participation was embedded to foster physical and social growth. Pre- and post-test evaluations included the OMSAT-4 sport competency assessment, Sense of Pedagogical Inclusion Scale, and Sense of School Inclusion Scale (SSI).

Research Instruments

Psychological well-being: The Ryff Psychological Well-Being Scale is a multidimensional tool designed to assess six key aspects of well-being: autonomy, environmental mastery, personal growth, positive relationships, purpose in life, and self-acceptance. Developed in 1989, it utilises a Likert scale to measure these dimensions. This instrument is widely used to evaluate psychological well-being across diverse cultural and clinical settings (Ryff, 1989).

Motivation to practice sports: The Sport Motivation Scale (EMS-28) is a tool designed to assess the degree of intrinsic and extrinsic motivation of individuals to engage in sporting activities. The scale assesses seven concepts, including intrinsic motivation for accomplishment, knowledge, and stimulation; external, introjected, and identified regulation; and amotivation. The scale consists of 28 items in total, with four items representing each of the seven subscales. Participants are requested to indicate their degree of agreement with each statement on a scale of 1 to 7 points (Brière et al., 1995).

Data Analysis

A descriptive analysis was performed for all the examined variables, after which a one-way ANOVA was applied to assess differences between the pre- and post-test results concerning motivation types and well-being. When statistically significant differences were identified, the percentage variation was computed using the following formula: (Post-Test – Pre-Test)/Pre-Test * 100. To further analyse the impact of each variable pair within the three groups (control, APE, and APE + para-athletics), a Bonferroni-adjusted repeated-measures ANOVA was conducted. Finally, Pearson's correlation test was employed to determine the strength of associations among the studied variables.

Results

This section employs a three-tiered analysis. Initially, it provides a detailed description of the descriptive statistics, including the mean and standard deviation of various psychological motivation and well-being indicators, recorded prior to and following the experimental protocol. Subsequently, it examines the differences among the three study cohorts at both the pre- and post-intervention stages. Finally, it explores the correlations between the assessed skills.

Comparison of Pre- and Post-Test Psychological Variables

Table 1 presents a comparison of the effects of distinct interventions on various forms of motivation and psychological well-being across three groups: a control group, a group engaged in an adapted physical education program (APE), and a group combining APE and para-athletics practice. For the control group, the results indicate minimal notable changes in the observed variables. Indeed, the majority of variables associated with intrinsic and extrinsic motivation did not exhibit a significant alteration following the intervention.

The APE program resulted in notable enhancements across multiple domains of motivation and psychological well-being. For example, there was a notable increase in intrinsic motivation accomplishment (+30.71%, $p < .000$), as well as external regulation (+23.907%). Furthermore, participants exhibited a notable enhancement in psychological well-being, with an increase in personal growth from 2.81 to 4.42 ($p = .002$) and a significant rise in positive relationships with others (+4.077%).

The group that participated in the APE, with the inclusion of Para-Athletics, demonstrated remarkable increases in nearly all of the variables that were measured. There was an impressive 205.044% increase in intrinsic motivation to stimulation, while external regulation increased by 180.63%. These findings indicate a significant progression in both dimensions of motivation. With regard to psychological well-being, this group also exhibited noteworthy improvements, including enhanced autonomy (+7.646, $p < .000$) and positive relationships with others (+7.501).

Measuring the Impact of Experimental Protocols on Psychological Variables Such as Motivation and Well-Being

Tables 2 and 3 present the findings of a repeated-measures analysis of variance (ANOVA) investigating the influence of diverse intervention modalities on psychological variables, including motivation and well-being. The results indicate that all the variables examined show significant differences between groups, with F values ranging from 7.804 for self-acceptance to 138.682 for intrinsic motivation towards knowledge. In all cases, the

Tabel 1. Development of motivation and psychological well-being before and after intervention

Variables	Experimentation											
	Control			p	APE			p	APE+ ParaAthletics			p
	Avant	Après	F		Avant	Après	F		Avant	Après	F	
Knowledge	2.69 ± 0.39	3.06 ± 0.74	3.960	NS	3.26 ± 0.80	4.43 ± 0.86	34.046	.000	3.48 ± 1.10	6.15 ± 0.79	132.224	.000
Accomplishment	2.82 ± 0.54	3.01 ± 0.69	2.136	NS	3.29 ± 0.90	4.34 ± 0.73	30.711	.000	3.54 ± 1.19	6.34 ± 0.61	122.739	.000
Stimulation	2.95 ± 0.70	2.95 ± 0.74	0.026	NS	3.37 ± 1.11	4.35 ± 0.96	14.679	.000	3.30 ± 0.93	6.40 ± 0.66	205.044	.000
Identified regulation	2.92 ± 0.71	2.97 ± 0.74	0.256	NS	3.64 ± 1.35	4.44 ± 1.16	5.625	.021	3.64 ± 0.76	6.55 ± 0.60	233.586	.000
Introjected regulation	2.87 ± 0.68	2.98 ± 0.66	0.428	NS	3.48 ± 1.18	4.40 ± 0.83	14.649	.000	3.58 ± 0.82	6.47 ± 0.75	183.455	.000
External regulation	2.90 ± 0.72	3.03 ± 0.70	0.357	NS	3.38 ± 1.05	4.54 ± 0.83	23.907	.000	3.46 ± 0.76	6.31 ± 0.83	180.630	.000
Amotivation	2.91 ± 0.85	2.98 ± 0.87	0.000	NS	3.31 ± 0.93	4.43 ± 0.77	19.258	.000	3.63 ± 0.94	6.42 ± 0.72	167.111	.000
Autonomy	2.18 ± 1.40	2.18 ± 1.40	0.000	NS	4.16 ± 1.44	5.39 ± 1.84	-2.775	.009	4.16 ± 1.74	6.50 ± 0.76	-7.646	.000
Environmental mastery	2.88 ± 1.49	2.76 ± 1.54	0.318	NS	3.45 ± 1.52	5.42 ± 1.96	-4.151	.000	3.72 ± 1.53	6.31 ± 0.78	-8.824	.000
Personal growth	2.27 ± 1.26	2.52 ± 1.25	-0.713	NS	2.81 ± 1.64	4.42 ± 2.00	-3.432	.002	3.03 ± 1.75	5.34 ± 1.45	-6.136	.000
Positive relations with others	2.48 ± 1.52	2.21 ± 1.27	0.727	NS	2.84 ± 1.63	4.74 ± 2.02	-4.077	.000	3.28 ± 1.82	5.91 ± 1.23	-7.501	.000
Purpose in life	2.73 ± 1.86	2.48 ± 1.44	0.643	NS	2.94 ± 1.93	5.90 ± 1.68	-7.178	.000	3.47 ± 1.87	6.28 ± 1.37	-6.378	.000
Self-acceptance	2.39 ± 1.68	2.88 ± 1.58	-1.174	NS	2.61 ± 1.73	4.26 ± 2.28	-3.437	.002	2.78 ± 1.62	5.13 ± 1.98	-5.850	.000

All results are written as mean±standard deviation, Significant p < .05, NS. Not significant

Table 2. Effect of protocol on motivation and psychological well-being variables

Variables	SC	df	Mean square	F	p
Knowledge	122.568	2	61.284	138.682	
Accomplishment	133.683	2	66.842	121.18	
Stimulation	117.464	2	58.732	104.013	
Identified regulation	150.909	2	75.454	108.594	
Introjected regulation	144.177	2	72.088	111.184	
External regulation	119.978	2	59.989	98.04	
Amotivation	140.106	2	70.053	88.278	.000
Autonomy	367.354	2	183.677	85.724	
Environmental mastery	168.935	2	84.467	39.269	
Personal growth	109.262	2	54.631	22.36	
Positive relations with others	168.553	2	84.277	32.563	
Purpose in life	187.625	2	93.812	30.204	
Self-acceptance	57.293	2	28.646	7.804	

SC. Somme des carrés de Type III, M. Motivation, BE-P. Bien-Etre Psychologie, Significative p < .05

observed differences were statistically significant at the 0.05 level. The most pronounced differences were observed in intrinsic motivation for knowledge (F = 138.682, p = 0.000) and intrinsic motivation for accomplishment (F = 121.18, p = 0.000), while the smallest differences concerned self-acceptance (F = 7.804, p = 0.001). Table 3 demonstrated that there were also notable differences between the groups (p < .05) for the majority of the parameters examined, particularly for all dimensions of motivation, intrinsic and extrinsic, as well as for amotivation. However, some measures of psychological well-being, such as autonomy, environmental mastery and purpose in life, exhibited non-significant (NS) differences between select pairs of groups, notably between APE and APE + Para-Athletics.

Relationship between Psychological Variables Such as Motivation and Well-Being

Table 4 illustrates the correlations between the various motivational variables and those pertaining to psychological well-being. The results demonstrate robust and highly significant correlations between the various dimensions of motivation, with coefficients reaching 0.966 between extrinsic motivation (external regulation) and amotivation.

Table 3. Pairwise comparison of psychological variables

Variables	Control		APE		APE+ ParaAthletics	
	APE	APE+ ParaAthletics	Contrôle	APE+ ParaAthletics	EPA	Contrôle
Knowledge	.000	.000	.000	.000	.000	.000
Accomplishment	.000	.000	.000	.000	.000	.000
Stimulation	.000	.000	.000	.000	.000	.000
Identified regulation	.000	.000	.000	.000	.000	.000
Introjected regulation	.000	.000	.000	.000	.000	.000
External regulation	.000	.000	.000	.000	.000	.000
Amotivation	.000	.000	.000	.000	.000	.000
Autonomy	.000	.000	.000	NS	.000	.000
Environmental mastery	.000	.000	.000	NS	.000	.000
Personal growth	.000	.000	.000	NS	.000	.019
Positive relations with others	.000	.000	.000	.019	.000	.000
Purpose in life	.000	.000	.000	NS	.000	.001
Self-acceptance	.000	.001	NS	.000	.001	.000

Significative p < .05, NS. Non Significative

Table 4. Correlation between types of motivation and well-being

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Knowledge	1												
2. Accomplishment	.951**	1											
3. Stimulation	.895**	.953**	1										
4. Identified regulation	.839**	.899**	.952**	1									
5. Introjected regulation	.846**	.896**	.924**	.957**	1								
6. External regulation	.853**	.857**	.877**	.914**	.963**	1							
7. Amotivation	.838**	.869**	.863**	.891**	.944**	.966**	1						
8. Autonomy	.634**	.688**	.721**	.747**	.711**	.693**	.673**	1					
9. Environmental mastery	.564**	.605**	.642**	.688**	.657**	.655**	.638**	.833**	1				
10. Personal growth	.478**	.484**	.531**	.587**	.569**	.601**	.554**	.565**	.565**	1			
11. Positive relations with others	.685**	.657**	.682**	.690**	.683**	.734**	.708**	.659**	.587**	.626**	1		
12. Purpose in life	.567**	.588**	.613**	.630**	.620**	.605**	.575**	.672**	.636**	.498**	.532**	1	
13. Self-acceptance	.386**	.382**	.410**	.417**	.418**	.454**	.443**	.383**	.253*	.476**	.419**	.244*	1

** Très Significative (p < .01), * Significative (p < .05)

With regard to psychological well-being, although the observed correlations are generally weaker than those observed for motivation, some remain highly significant. For example, a correlation of 0.833 was observed between autonomy and environmental mastery. Conversely, the lowest correlation was observed between self-acceptance and environmental mastery (0.253). These findings suggest strong interconnections between the different facets of motivation and variable links with dimensions of psychological well-being.

Discussion

The findings of this study reinforce the substantial impact of adapted physical education (APE) and school para-athletics on the motivation to engage in sporting activities and on the psychological well-being of young people with motor disabilities. APE has been demonstrated to be an efficacious intervention for enhancing intrinsic motivation in pupils, as it facilitates long-term dedication to physical activity. This increase in intrinsic motivation was particularly pronounced in dimensions linked to knowledge, accomplishment, and stimulation, underscoring the importance of an educational framework that meets the specific needs of students in terms of inclusion and learning (Wickman et al., 2018). However, the assessment of motor impairments should be initiated at an early age.Research findings indicate that children who are subsequently identified as having higher mastery motivation demonstrate superior developmental outcomes in multiple domains, including cognition, problem-solving, language

and fine motor skills, when compared to their peers who exhibit lower mastery motivation (Babik et al., 2024).

Conversely, intrinsic motivation for stimulation demonstrated a more pronounced enhancement, as it reflects the interest and enjoyment that students derive from engaging in physical activity for its intrinsic value, without any anticipation of external rewards (Zheng et al., 2023). These findings align with the tenets of self-determination theory, which posits that the fulfillment of psychological needs for competence, autonomy, and relationships fosters autonomous and enduring motivation (Ryan & Deci, 2017). The APE approach for students with disabilities is tailored to the specific capabilities of each individual, allowing them to engage in the exploration and development of their motor skills at a pace that is appropriate for them (Zamiri & Esmaeili, 2024). This approach has been demonstrated to enhance motivation to persist in participation in physical activities (Healy et al., 2013). A further study has demonstrated a notable disparity in the involvement of students with disabilities in physical sports activities (Ben Rakaa et al., 2024b). Furthermore, the perceptions and feelings of pedagogical competence among physical education teachers with regard to the management of these students have a considerable impact on their inclusion in the classroom (Ben Rakaa et al., 2024c, 2024a).

In addition to APE, participation in a school para-athletics program was found to have a significant synergistic effect on students' motivation and psychological well-being. Students who participated in the combined APE and para-athletics program reported increases in various forms of motivation and essential dimensions of psychological well-being, including autonomy, environmental mastery, and purpose in life. The findings of this study corroborate those of previous research, which indicate that participation in para-athletic competitions has a positive effect on students' sense of competence and achievement (Liska et al., 2024; Martin, 2013). This finding is consistent with the existing literature on the positive effects of structured sports activities on self-esteem and general well-being (Liska et al., 2024; Martin, 2013).

Nevertheless, the implementation of an inclusive leadership approach necessitates collaboration within educational institutions, the empowerment of employees through consistent guidance and support, the fortitude to alter established practices, and an inclination to gain knowledge about diversity and cultural dissimilarities (Okun, 2023). Furthermore, participation in sporting events provides students with invaluable opportunities for constructive social interaction, which has a significant influence on the formation of their identity and self-image (Zhang & Qin, 2023). These interactions are frequently regarded as instances of social recognition, during which students can not only exhibit their capabilities but also receive encouragement and commendation from their peers and instructors (Shields & Synnot, 2016). The social reinforcement that these athletes receive has a considerable and enduring effect on their motivation to engage in sporting activities and on the development of a positive sporting identity (Vazou et al., 2005).

The analysis of the correlations between motivational variables and psychological well-being in the study revealed significant relationships that underscore the interdependence of these dimensions. For example, the findings illustrate a robust correlation between intrinsic motivation for knowledge and autonomy, indicating that students driven by the aspiration to learn and master new competencies are also those who exhibit the most pronounced sense of autonomy within their academic context (Deci & Ryan, 2000). The perception of autonomy has been shown to foster a sense of control over one's actions and decisions, which in turn maintains a high level of intrinsic motivation over the long term (Ryan & Deci, 2017).

Moreover, the significant correlations between environmental mastery and other dimensions of psychological well-being, such as personal development and positive relationships with others, indicate that students who perceive control over their environment are also those who demonstrate indications of personal development and social well-being (Kleinkorres et al., 2023). These findings align with the theoretical proposition that perceived environmental mastery is a significant predictor of psychological well-being (Healy et al., 2013). Moreover, the substantial correlation between extrinsic motivation and amotivation indicates that when students are predominantly driven by external factors, they may be more susceptible to a decline in their overall motivation. This underscores the necessity to cultivate more autonomous forms of motivation (Vazou et al., 2005).

Notwithstanding, certain dimensions of psychological well-being, such as self-acceptance, did not exhibit such pronounced disparities between groups. This result indicates that self-acceptance, as a more complex aspect of psychological well-being, requires more targeted and potentially longer-term interventions to exert a significant influence (Kraiss et al., 2022; Ryff, 1989). It seems reasonable to posit that external factors, such as family support or social experiences outside the university setting, exert a more pronounced influence on the improvement of this specific aspect of psychological well-being (Douwes et al., 2023). These findings suggest that while the APE and para-athletics have beneficial effects on motivation and dimensions of well-being, a more comprehensive approach is necessary to address the full range of psychological well-being in students with disabilites (Shields & Synnot, 2016). The level of well-being of individuals with a physical disability was significantly higher than that of individuals with a hearing disability (Ayyildiz et al., 2024; Ben Rakaa et al., 2025b).

These individuals demonstrate a high level of self-control and utilize a range of coping strategies that facilitate their success in their respective roles (Sun et al., 2024). As the level of education of people with disabilities increases, they are better able to comprehend the relationship between physical activity and health. This enables them to participate in sports at a higher level, which in turn helps to prevent a decline in their external physical motivation as they age. However, there is a need to provide a more detailed explanation of the positive effects of high levels of physical activity, particularly in later life (Ayyildiz et al., 2024). The efficacy of interventions such as APE and para-athletics is contingent upon a multitude of contextual variables, including the level of education, the accessibility of resources, and the level of support from peers and educators (Goodwin & Watkinson, 2000). Therefore, to optimize the impact of these programs, it is imperative to develop individualized approaches that take into account the specific needs of each student (Deci & Ryan, 2000; Wickman et al., 2018).

The personalization of interventions has the potential to enhance student engagement, facilitate greater social inclusion, and promote a more comprehensive approach to personal development (Zurbriggen et al., 2023). In addition to the findings of this study, it is evident that APE and school para-athletics have a beneficial effect on the motivation and psychological well-being of students with motor impairments. The results lend support to the notion that these interventions should be systematically integrated into school programs, thereby maximizing their effectiveness and fostering the inclusion and personal development of these students (Zurbriggen et al., 2023). Further research should concentrate on identifying the underlying mechanisms of these effects and developing strategies to enhance aspects of psychological well-being that have not been significantly influenced by these interventions.

Conclusion

The present study's findings emphasise the considerable impact of APE and school-based para-athletics on the motivation and psychological well-being of learners with motor disabilities. It is noteworthy that interventions integrating both adapted physical education and para-athletics yielded the most substantial enhancements, particularly in cultivating intrinsic and extrinsic motivation alongside diverse facets of psychological well-being. The enhancement in motivation driven by stimulation and life purpose, coupled with strengthened positive social interactions, emphasises the crucial role of these programmes in supporting students' personal and social growth.

The findings of this study have significant practical implications for educators and policymakers. The systematic integration of environmental education and para-athletics into school curricula has the potential to enhance the motivation of pupils with motor disabilities to engage in sporting activities, while simultaneously facilitating their social inclusion and personal development. It is recommended that schools cultivate collaborative relationships with local sports associations to facilitate regular participation in para-athletic activities. Conversely, the less pronounced results with regard to self-acceptance suggest that more targeted and sustained interventions may be required to exert a favorable influence on this aspect of well-being.

Future research should examine the impact of additional variables, such as parental support and access to sports facilities outside the school setting, on the motivation and well-being of disabled pupils. Furthermore, longitudinal studies would enable the evaluation of the long-term sustainability of the observed effects and enhance our comprehension of the long-term impact of these interventions on the developmental trajectories of these pupils. Such research would assist in the refinement of inclusion strategies within educational systems.

Conflict of Interest

All authors declare no conflict of interest.

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Вплив адаптованої фізичної активності та інклюзивного спорту на мотивацію та психологічне здоров'я дітей з інвалідністю: Рандомізоване контрольоване дослідження

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Авторський вклад: A – дизайн дослідження; B – збір даних; C – статаналіз; D – підготовка рукопису; E – збір коштів

Реферат. Стаття: 10 с., 4 табл., 49 джерел.

Історія питання. Адаптовані види активності спираються на педагогічні, організаційні та матеріальні адаптації для забезпечення рівноправного та корисного залучення всіх учнів.

Мета дослідження. Це дослідження мало на меті вивчити вплив адаптованого фізичного виховання та залученості до шкільної параатлетики на мотивацію до спортивної практики та психологічне благополуччя учнів з порушеннями рухових функцій.

Матеріали та методи. У представленому дослідженні взяли участь 96 учнів з порушеннями розвитку моторних функцій (середній вік: 16,79 ± 0,87 років), які навчаються в марокканських державних школах. Учасників було розподілено на три групи відповідно до параатлетичної класифікації: 30 % у класі 30, 40% у класах 40 та 30 % у класі 50. Досліджуваних було рандомізовано в одну з трьох груп: контрольну групу без структурованої інтервенції, групу, яка займалася за програмою адаптованого фізичного виховання (АФВ) (24 заняття), і третю групу, яка поєднувала програму АФВ з додатковими тренуваннями з параатлетики, включаючи змагання, впродовж тримісячного періоду (24 заняття). У дослідженні використовувалася шкала вимірювання спортивної мотивації SMS-28 (The Sport Motivation Scale) та шкала для оцінки рівня психологічного благополуччя за методикою Керол Ріфф (Carol Ryff's scale of Psychological Well-being), причому оцінювання показників проводилося на перед- та постінтервенційному етапах дослідження.

Результати. Результати дослідження свідчать про те, що група учасників програми, у якій застосовувалась методика АФВ та тренування з параатлетики продемонструвала помітне поліпшення показників майже у всіх аспектах мотивації, включаючи 205 % зростання внутрішньої мотивації до стимулювання. Крім того, спостерігалося покращення психологічного благополуччя, зокрема, самостійності та позитивних стосунків з оточуючими. Для порівняння, контрольна група продемонструвала мінімальні зміни, тоді як у групі АФВ також було відзначено поліпшення показників, хоча й меншою мірою, ніж у групі, що поєднувала обидві програми.

Висновки. Це дослідження підтверджує, що поєднання АФВ та інклюзивного спорту, зокрема параатлетики, є ефективною стратегією щодо оптимізації мотивації та психологічного благополуччя учнів з порушеннями рухових функцій.

Ключові слова: параспорт у школах, психологічне здоров'я, адаптовані види спорту, інклюзивна освіта, соціальні відносини, особистісний розвиток.

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Cite this article as: Ben Rakaa, O., Lourenço, C., Bassiri, M., & Lotfi, S. (2025). The Effect of Adapted Physical Activity and Inclusive Sport on the Motivation and Psychological Health of Children with Disabilities: A Randomized Control Trial. *Physical Education Theory and Methodology, 25*(3), 642-651. https://doi.org/10.17309/tmfv.2025.3.21

Received: 27.03.2025. Accepted: 28.04.2025. Published: 30.05.2025