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Original Article

Effect of a Social Support Intervention on Intrinsic Motivation, Enjoyment and Participation in Physical Activity among Primary School Students

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Abstract

Introduction: The impact of social support (SS) interventions on enhancing children's motivation and engagement in physical activity (PA) is an area that has not been extensively explored.
Objective: This research aimed to examine the effects of a SS intervention on intrinsic motivation (IM), enjoyment, and participation in PA among children.
Methods: This research utilized a quasi-experimental framework, incorporating both pre-test and post-test evaluations alongside a control group. Participants were 40 male children aged 9 to 11, who were subsequently divided to either the intervention or control groups. Intrinsic Motivation Scale, Physical Activity Enjoyment and RAPA were utilized to assess the study's variables. Over an eight-week period, a SS program was implemented for the parents. Data analysis was conducted using paired and independent t-tests with SPSS version 27.
Results: The findings indicate a significant increase in IM in the intervention group following intervention (3.41±1.07 vs. 4.18±0.81, t=-5.574, P<0.001). Additionally, participants in the intervention group reported an increase in enjoyment of PA (2.41±0.15 vs. 3.02±0.49, t=-4.987, P<0.001). Finally, participants in the intervention group engaged in PA more in the posttest compared to the pretest (3.55±0.60 vs. 4.51±0.42, t=-5.742, P<0.001).
Conclusion: The home and family environment play a crucial role in shaping PA patterns of children, as parents serve as vital sources of SS. Establishing an active lifestyle during these formative years is likely to influence an individual's future levels of PA.

Keywords: Social Support, Exercise, Motivation, Pleasure, Child

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1. Introduction

Industrialization has undeniably contributed significantly to human progress, yet it has also introduced challenges, particularly concerning health, with physical inactivity emerging as a critical issue (1). This shift has led to a decline in physical activity (PA) and an increase in obesity rates (2). The essential role of PA in promoting both current and future health is well-established; however, there is rising alarm regarding the sedentary lifestyles adopted by children today (3,4). From a dynamic systems perspective, individual developmental changes are shaped by a variety of factors, including those that facilitate or hinder movement (5). The interplay between the individual, their environment, and the tasks they undertake is crucial in understanding movement patterns (6). While maturity is a key element in developing fundamental motor skills, it is not the sole determinant; environmental conditions, opportunities for practice, encouragement, and educational contexts significantly influence the growth and development of these skills (7). Furthermore, health-related behaviors are largely formed during childhood and adolescence within the family, which serves as a pivotal influence on a child's participation in PA (8). The level of social support (SS) from family members and other significant figures is positively correlated with an individual's participation in PA (9,10).

Childhood is a crucial developmental stage marked by significant physical, emotional, mental, and social changes that lay the groundwork for the transition into adolescence and adulthood (11). The behaviors and lifestyle choices formed during this period can have lasting effects, particularly regarding health-related habits such as PA. Unfortunately, modern conveniences and urban lifestyles appear to diminish children's enthusiasm for participating in sports and PA (4). Various factors influence their motivation to participate, and according to ecological systems theory, understanding individual development requires considering the broader context in which a person exists. While targeted interventions can yield positive results, sustainable behavior change is more likely when social, cultural, and physical environments collectively promote an active lifestyle (12). Consequently, researchers are increasingly focused on

identifying the variables and factors, including SS, that influence PA during childhood.

SS encompasses the belief that an individual is valued, respected, and loved, and is part of a network characterized by mutual relationships and commitments. It involves a range of people who can provide assistance when needed, highlighting the importance of perceived SS, which refers to an individual's assessment of the availability and suitability of help in their environment (13). A prominent model of perceived SS categorizes it into dimensions based on relationships with family, friends, and other significant figures, such as teachers and classmates (14). Historically, family and community support networks have been essential to social structures, drawing the attention of policymakers in social care. The family serves as a critical environment for education and learning, interacting effectively with schools (15). Establishing positive social connections can enhance individuals' quality of life, as society provides the foundation for relationships that facilitate SS. Engaging in community activities, such as sports, offers students valuable opportunities to build these essential social ties (16). Parents significantly influence their children's PA behaviors through a variety of settings and their own actions. Two key factors that can be modified are parental support for PA and their active participation in such activities. By fostering an encouraging atmosphere and engaging in physical pursuits alongside their children, parents can significantly impact their children's inclination towards an active lifestyle (17,18).

Longitudinal correlational studies indicate that students who receive greater SS tend to experience less decline in their PA levels over time (19-21). A systematic review focusing on SS and PA among adolescents highlights that SS is crucial not only for children's initial engagement in PA but also for their sustained participation in exercise (22). This underscores the necessity of incorporating SS into intervention programs aimed at enhancing PA and promoting overall health and fitness. Furthermore, research reveals that the impact of SS on PA is initially influenced by parental support, which diminishes as adolescents grow older, while the role of friends becomes more significant during late adolescence (23,24). This variability is evident in findings that show both parental and friend support positively correlate with PA, although only friend support is associated with PA (9).

In addition, intervention studies have highlighted the significance of family involvement, particularly in school-based programs, demonstrating the beneficial impact of incorporating a family component (25,26). Researchers have underscored the critical role of SS, especially parental support, in fostering positive outcomes (9,27). The exploration of SS theory in psychology originated in the 1960s, focusing on how life stress influences both physical and mental health. Since then, this topic has garnered extensive attention and analysis from numerous leading scholars, establishing it as a vital area of research. However, the influence of SS interventions on children's motivation and participation in PA has not been extensively explored. Consequently, this study aimed to examine the effect of a SS intervention on intrinsic motivation (IM), enjoyment and participation in PA among primary school students. It was hypothesized that participating of parents in a SS intervention could positively and significantly affect IM, enjoyment and participation in PA of primary school students

2. Methods

2.1. Design and Participants

This quasi-experimental study utilized both pre-tests and post-tests alongside a control group to assess the impact of an intervention. The research focused on male primary school students aged 9 to 11 years, with a sample of 40 participants recruited through convenience sampling from two schools. These participants were randomly divided into intervention and control groups, using a simple random sampling method, each consisting of 20 students (Figure 1). The sample size was calculated using G*Power software, establishing a significance level of 0.05 and a power of 0.95. In the intervention group, the mean PA scores (Daily MVPA) increased from 26.74 at pretest to 35.71 at posttest, while the control group showed minimal change, with scores of 25.14 and 26.19, respectively (28). Inclusion criteria mandated that participants be male primary school students without physical or psychological disorders, not on specific medications, and free from recent injuries. Those who did not comply with the intervention protocol or chose to withdraw were excluded from the study. This study was performed based on the ethical considerations in the Declaration of Helsinki. All parents gave informed written consent.

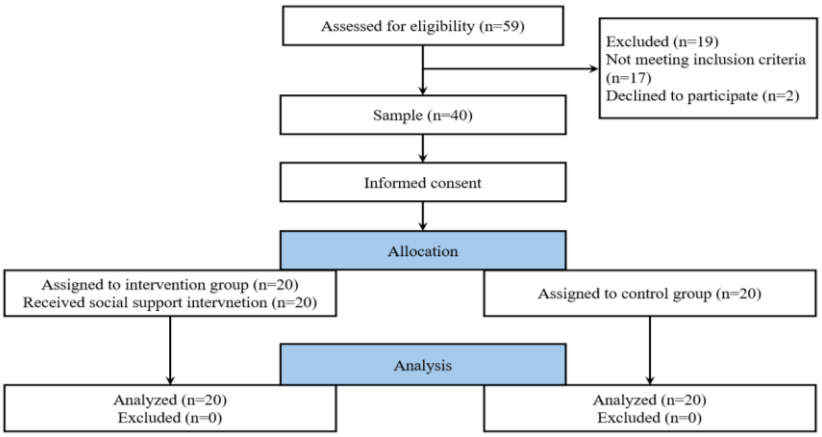

Figure 1. The CONSORT Flow Diagram of the Study.

2.2. Measures

IM was evaluated using an eight-item questionnaire based on the Intrinsic Motivation Scale (29), rating from 1 (strongly disagree) to 7 (strongly agree), with the overall score derived by averaging the responses. For this study, eight experts validated this scale, yielding a content validity index (CVI) of 0.90 and a content validity ratio (CVR) of 0.88. Additionally, the reliability of the Persian version was confirmed in this study, achieving an alpha of 0.92.

The enjoyment of PA was evaluated using a questionnaire consisting of three items rated on a Likert scale ranging from never (1) to always (5). This questionnaire was validated by eight experts, achieving a CVI and CVR of 1.00. Additionally, the reliability of the questionnaire was confirmed with an alpha of 0.96.

PA was evaluated using the Rapid Assessment of Physical Activity (RAPA) Scale, which comprises seven items requiring binary 'Yes' or 'No' responses (30). The total score on this scale can vary from 0 to 7. This questionnaire was validated by eight experts, achieving a CVI and CVR of 0.92 and 0.94, respectively. Additionally, the reliability of the questionnaire was confirmed with an alpha of 0.93.

2.3. Procedure

The study began with initial permission from the Department of Education to secure the necessary approvals. Prior to starting the research, an orientation session was organized for students and their parents, where the study's objectives and methodology were outlined. The discussions emphasized the critical role of SS, particularly parental involvement, in enhancing children's health. Following this, health assessments were conducted by a qualified physician, and health certificates were provided to the students. A consent form outlining the terms of participation was subsequently provided, and each parent was given a copy to sign upon their agreement. Additionally, a pre-test was administered to evaluate IM, enjoyment, and PA levels before the intervention commenced. Following the initial phase, the intervention group participated in a SS program for eight weeks, while the control group received no specific training during this time. At the end of the intervention, all participants underwent a post-test, which was administered under the same conditions as the pre-test.

2.4. Intervention

Group sessions focused on SS interventions for parents were held weekly over an eight-week period, with each session lasting 40 minutes. The intervention protocol was carefully designed to build and fortify SS for children. Key components included creating a SS network chart, enhancing emotional support systems, and fostering social connections among children's peers, all aimed at strengthening the overall support network for the children involved (28). The strategies used for the intervention in this study was included facilitating activities that encourage teamwork, cooperation, and positive interactions among students, giving students choices and a sense of control over their PA can boost their IM, providing specific and encouraging feedback to help students feel competent and motivate and fostering a sense of belonging and encourage students to support each other.

2.5. Data Analysis

The Kolmogorov-Smirnov test was utilized to assess the normality of the data distribution. To compare the baseline data (pretest) between groups, an independent t-test was performed. Furthermore, a paired t-test was conducted to investigate the effect of SS intervention on IM, enjoyment, and PA. All statistical analyses were executed using SPSS version 27, with a significance level set at 0.05.

3. Results

The demographic characteristics of the study groups are summarized in Table 1. The intervention group had an average age of 10.23 years (±0.45), while the control group averaged 10.19 years (±0.53). Statistical analysis indicated no significant age difference between groups (P=0.883). Furthermore, there were no significant differences in the educational levels of the parents across the groups (P=0.579 and P=0.427, respectively for father and mother). Additionally, the analysis showed that body mass index (BMI) did not significantly differ between the groups (P=0.667).

Table 1. The Baseline Demographic Data in the Intervention and Control Groups

Groups	Age	Parental Education (Father)	Parental Education (Mother)	Height	Weight	BMI
Intervention	10.23±0.45	2.12±0.11	1.83±0.08	137.6±2.35	33.47±1.08	17.7±0.69
Control	10.19±0.53	2.19±0.17	1.89±0.10	136.8±2.20	33.71±1.13	18.0±0.72
Comparison	P=0.883	P=0.579	P=0.579	P=0.935	P=0.713	P=0.667

BMI: Body Mass Index

According to Table 2, the findings indicated that IM levels for participants in the intervention and control groups were 3.41±1.07 and 3.36±0.71, respectively, reflecting a moderate level of IM towards PA. The independent t-test results confirmed that there were no statistically significant differences between the groups in the pre-test (P=0.851). Furthermore, the average enjoyment scores from PA were 2.48±0.68 for the intervention group and 2.39±0.85 for the control group, again indicating moderate enjoyment, with no significant differences observed (P=0.709). Lastly, regarding PA levels, the average scores were 3.55±0.60 for the intervention group and 3.48±0.64 for the control group, suggesting moderate levels of activity, with no significant differences identified (P=0.707). These results indicate that both groups were comparable in terms of the research variables at the outset of the study prior to the intervention.

Furthermore, the findings indicate a significant increase in IM for PA among participants following parental involvement in the SS intervention, with an average rise of 0.77 points from pretest to posttest (3.41±1.07 vs. 4.18±0.81, P<0.001, Cohen's d=-0.43). In contrast, the control group showed no significant change in IM, with scores remaining relatively stable (3.36±0.71 for the pretest and 3.31±0.51 for the posttest,

P=0.666). Additionally, participants reported an increase in enjoyment of PA, with scores rising by an average of 0.61 points post-intervention (2.41±0.15 vs. 3.02±0.49, P<0.001, Cohen's d=-0.39), while the control group exhibited no significant differences (2.38±0.11 vs. 2.49±0.77, P=0.163). Finally, the results revealed that participants engaged more in PA in the posttest compared to the pretest (3.55±0.60 vs. 4.51±0.42, P<0.001, Cohen's d=-0.48), whereas the control group did not show significant changes in activity levels (3.48±0.64 vs. 3.50±0.65, P=0.083).

Table 2. Pretest and Posttest Scores of the Intervention and Control Groups

Variables	Phase	Group		Between-Group Comparison
		Intervention	Control	
		M±SD	M±SD	
Intrinsic Motivation	Pretest	3.31±1.07	3.36±0.71	t=0.189 P=0.851
	Posttest	4.18±0.81	3.31±0.55	t=4.061 P<0.001
	Within-Group Comparison	t=-5.574 P<0.001	t=0.438 P=0.666	
Enjoyment	Pretest	2.48±0.68	2.39±0.85	t=0.376 P=0.709
	Posttest	3.02±0.49	2.49±0.77	t=2.595 P=0.013
	Within-Group Comparison	t=-4.987 P<0.001	t=-1.453 P=0.163	
Physical Activity	Pretest	3.55±0.60	3.48±0.64	t=0.379 P=0.707
	Posttest	4.51±0.42	3.50±0.65	t=5.717 P<0.001
	Within-Group Comparison	t=-5.742 P<0.001	t=-1.831 P=0.083	

SD: Standard Deviation

4. Discussion

This study sought to investigate how a SS intervention could influence IM, enjoyment, and participation in PA among primary school students. The results revealed that parental involvement in the intervention significantly boosted students' IM, enjoyment, and overall participation in PA when compared to pre-test measurements. These findings not only corroborated the research hypothesis but also highlighted the beneficial effects of parental SS on fostering motivation and PA levels in primary school children. Furthermore, the study's outcomes were consistent with previous research findings (9,10,20,22,28), reinforcing the importance of SS in promoting PA among youth.

To interpret these findings, it can be stated that SS plays a crucial role in various theoretical frameworks, including environmental theory, social cognitive theory, social environmental theory, and ecological systems theory, all of which suggest that a range of factors from physical to social environments can interact to shape the health behaviors of children and adolescents (31). Social cognitive theory posits that the behaviors, attitudes, and values of parents significantly influence their children's actions, underscoring the importance of social learning in the relationship between parental behavior and children's PA. Additionally, self-determination theory (SDT) and family systems theory highlight the critical role of parenting in determining behavioral outcomes (32). Cognitive theory further elucidates key parental factors that affect children's PA, detailing the connections between parental attitudes towards PA and the support they provide. Parental orientation encompasses parents' perceptions of their own and their children's behaviors, including their engagement in and enjoyment of PA, as well as their assessment of their child's physical capabilities (33). Furthermore, the motor development model indicates that advancements in motor competence are shaped not only by individual traits but also by social influences. Ecological systems theory reinforces the idea that understanding individual development requires consideration of the broader context in which individuals exist. While interventions targeting individual behavior can be effective, sustainable behavior change is more likely when various social, cultural, and physical factors collectively promote an active lifestyle (34).

Research indicates that SS, particularly from family and peers, significantly impacts individuals' motivation to exercise (35-37). This support is crucial for fostering autonomous motivation, which aligns with SDT, as it includes both intrinsic drives and fully internalized external motivations. Children who receive strong SS often report greater exercise efficacy and a stronger sense of achievement (35). Such support reinforces their internal motivations, like the desire to participate in PA, thereby enhancing their overall motivation and exercise behavior. When children understand that participating in PA boosts their competence and self-confidence, they are more likely to develop a greater interest in exercise and maintain consistent routines (37). This interplay between their inherent motivation for PA and the encouragement from their social networks effectively nurtures their autonomous motivation to stay active.

SS encompasses the care, affection, and assistance individuals receive from family, friends, and their broader social networks, enhancing overall PA. Families, in particular, are vital sources of support during times of change, with members positively influencing one another in challenging situations (9). They provide a crucial environment for education and learning, fostering continuous interaction with schools. Research indicates that SS contributes significantly to individuals' PA by fostering feelings of gratitude and connection; conversely, a lack of perceived support can lead to physical inactivity (10). Engaging with society generally promotes a sense of calm and well-being compared to isolation, which can

enhance PA. In our study, we found that students who felt supported by their families and significant others reported improved PA (20). Thus, creating opportunities for meaningful interactions among students, teachers, peers, and various learning environments is essential. This can be facilitated through both tangible support from parents, such as transportation and involvement in extracurricular activities, and intangible support, including verbal encouragement and a positive attitude towards physical engagement (22).

While this study offers valuable insights into the use of SS interventions among primary school students, it is not without its limitations. The sample consisted solely of participants aged 9 to 11, which raises questions about the applicability of the findings to other age groups. Additionally, it is important to note that the SS program involved in the study received ongoing support from the research team throughout the intervention, suggesting that similar positive outcomes may require comparable training and assistance. Future research should focus on identifying the essential components of a social-motivational climate that can enhance the sustainability and broader applicability of these results. As well, this study used self-reported questionnaire for measuring study variable, which may result in bias. Also, a lack of follow-up test hinders the long-term effects of SS intervention among children. Future studies should use longitudinal design with instrument-based measurements for more validated data. Finally, the sample selection method (convenience sampling) may reduce generalizability.

4.1. Conclusions

The decline in PA across all age groups can be attributed to technological advancements and evolving lifestyles. This trend is particularly concerning among children and adolescents, as their engagement in physical and sports activities diminishes over time. Various factors contribute to this decline, suggesting a need for targeted interventions to enhance adolescents' participation in PA, thereby promoting an active lifestyle and preventing health issues. The perception of PA as a chore rather than a source of enjoyment may contribute to reduced engagement as individuals age. Additionally, the home and family environment play a crucial role in shaping PA patterns of youth, as parents serve as vital sources of SS. Establishing an active lifestyle during these formative years is likely to influence an individual's future levels of PA. Given the critical role of SS in enhancing PA levels, it is recommended that research be conducted to explore the impact of various SS dimensions. These dimensions include instrumental support, which encompasses tangible assistance such as providing sports equipment or facilitating transportation to exercise venues; psychological or emotional support, which involves fostering motivation and encouragement for engaging in PA; and educational support, which focuses on counseling and discussing the significance and methods of participating in PA.

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Footnotes

Authors' Contribution: This study was carried out solely by the corresponding author.

Conflicts of Interest

Non to declare.

Data Availability: The data that support the findings of this study are openly available upon request from the corresponding author.

Ethical Approval: The author confirms that all steps and requirements of this study comply with ethical guidelines. Participants were informed about the characteristics of the study and gave written informed consent.

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Informed Consent: Informed written consent was obtained from all participants

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