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Integration of Mental Education through Sports to Improve Personal Resilience of Adolescents in Elementary, Junior and Senior High School Students

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ABSTRACT

This study investigates the effectiveness of integrating mental education through sports at the elementary, junior, and senior high school levels as an approach to enhancing adolescent personal resilience. The primary objective of this research is to assess the impact of sports on improving mental resilience across different educational stages (elementary, junior high, and senior high school) to determine which level experiences the most significant improvement. The study employs an experimental research design with multiple treatments and a control group, using a pretest-posttest format. The findings indicate that the integration of mental education through sports significantly enhances student resilience at all educational levels. Specifically, the Paired Samples Test revealed notable improvements in resilience, with average differences between pretest and posttest scores of -19.191 for elementary school, -46.070 for junior high school, and -16.205 for senior high school. The results from junior high school students exhibited the most substantial effect, as evidenced by the highest t-value of -96.677 and the smallest standard deviation (4.015), suggesting data homogeneity. All test results were statistically significant ($p < 0.001$), confirming that mental education through sports has a positive influence on student resilience, with the most pronounced effect observed in junior high school students.

Keywords: integration; mental education; sports; teenage personal resilience; school memory.

INTRODUCTION

Sports participation has been shown to have a positive impact on adolescent mental resilience scores. Through self-esteem and social support, sports participation acts as a protective factor against depression and suicidal ideation in adolescents (Panza et al., 2020). This is supported by research showing that sports involvement can improve self-efficacy, subjective well-being, existence, and adaptability to interpersonal relationships in high school students. In addition, participating in sports activities can reduce tension, anger, and depression in overweight adolescents, increase positive health and self-satisfaction (Wang et al., 2022).

In addition, sport participation can contribute to the development of personal relationships within the sport community, providing psychosocial support, personal control and social identity that contribute to mental well-being (Johnston et al., 2020). This suggests that engaging in sport may provide a valuable avenue for adolescents to address issues related to body image, self-esteem and social feedback (Panza et al., 2020). Sports participation can play an important role in fostering mental resilience values among adolescents. Sports participation can contribute to the development of personal relationships within the sports community, providing psychosocial support, personal control, and social identity that contribute to mental well-being. In terms of psychotherapeutic applications, physical activity has many additional benefits for adolescents (Hilliard et al., 2019). It is possible that by improving physical fitness, enhancing physical performance, reducing body mass, and promoting better body shape and structure, exercise through sports can improve self-image and positive social feedback from peer groups (Hafiar et al., 2023, 2024; Wang et al., 2022).

Overall, sports participation can have a positive impact on adolescent mental resilience scores. In short, sports participation can be a protective factor against mental health problems such as depression and suicidal ideation in adolescents (Hilliard et al., 2019). Sports participation can increase self-esteem, social support, and self-efficacy in adolescents, thereby contributing to their mental resilience scores (Panza et al., 2020; Purnomo et al., 2024). Sports participation has a positive impact on adolescent mental resilience values, including self-esteem, social support, and self-satisfaction. Sports participation has been shown to have a positive impact on adolescent mental resilience values (Hwang et al., 2017; Purnomo, et al., 2024).

The role of sport in enhancing personal resilience in adolescents has received attention in recent years (Ho et al., 2017). A number of studies have explored the relationship between sport participation and a variety of psychological and psychosocial health outcomes in adolescents (Panza et al., 2020). Sports provide a unique platform for adolescents to develop and strengthen their personal resilience. Through participation in sports, adolescents learn important skills such as goal setting, persistence, teamwork, and problem solving, which contribute to their overall resilience. Additionally, sports can help adolescents develop a sense of self-efficacy, which plays a mediating role between physical exercise and mental health (Huang et al., 2021; Purnomo et al., 2024). Overall, sport serves as a powerful tool in building adolescents' personal resilience by improving physical, psychological and social well-being. A systematic review of the psychological and social benefits of sport participation for children and adolescents: informing evidence-based policy and program development (Marheni et al., 2021; Panza et al., 2020).

Through sports, teens can build important life skills such as perseverance, teamwork, and problem-solving, which contribute to their overall personal resilience. Additionally, the physical activity and exercise involved in sports have been shown to provide numerous mental health benefits for teens, including reduced anxiety and stress and increased self-esteem (Laurier et al., 2024). Sport also provides a supportive and inclusive environment for adolescents to develop social relationships, foster a sense of belonging, and receive social support, which are important factors in enhancing personal resilience (Wang et al., 2022). Sport serves as a powerful tool in enhancing adolescents' personal resilience by improving physical, psychological and social well-being (Darajat et al., 2024; Panza et al., 2020).

Sport serves as a powerful tool in building adolescent personal resilience by providing opportunities to develop critical skills, improve mental health outcomes, foster social relationships, and increase self-efficacy. In conclusion, the role of sport in improving adolescent personal resilience is significant. Sport plays a significant role in improving adolescent personal resilience. It provides them with opportunities to develop critical skills, improve mental health, build social relationships, and increase self-efficacy (Wang et al., 2022).

Integrating mental health education through sport has emerged as a promising approach to improving personal resilience in elementary, junior, and senior high school students. This approach recognizes the interconnectedness of physical and mental well-being, highlighting the importance of enhancing both aspects to foster resilient individuals. By integrating mental health education through sport, students not only develop physical fitness and skills, but also gain valuable psychological resilience tools such as problem-solving skills, stress management techniques, and self-confidence. With the use of strategies and school curriculum, integrating mental health education through sport can effectively foster a positive and supportive environment that contributes to students' overall mental health and well-being. By combining sport with sport culture and cultural literacy, educators can effectively strengthen physical education to improve adolescent physical and mental health and resilience.

Additionally, integrating mental health education through sport can also help foster a supportive and inclusive school culture. When students are given the opportunity to develop resilience, problem-solving skills and self-confidence through sport, it can create a more positive and collaborative school environment. This, in turn, improves the well-being of the school community as a whole and increases a sense of belonging and connectedness among students.

METHOD

Design

The method used in this study is an experiment with a multiple treatment and control design with pretest-posttest (Alan & Kubilay, 2025). The assumption underlying the selection of this design is because there are three groups that are given mental resilience integration in this study, namely the elementary school group, the junior high school group and the senior high school group. This design is one of the pretest posttest control group designs (Talaie et al., 2024). Here is an image of the design used:

Table 1. Research Design

Group	Pre	Integration	Post
R1	O1	X	O2
R2	O1	X	O2
R3	O1	X	O2

Source: own data

Note: R1: Elementary School Integration Group; R2: Junior High School Integration Group; R3: Senior High School Integration Group; O1: Pretest of Adolescent Personal Resilience; X1: Intervention of Mental Education Integration Through Sports Activities; O2: Posttest of Adolescent Personal Resilience

Research Sample

This study was conducted at 3 levels of schools (elementary, junior and senior high schools) with the aim of determining the level of effectiveness of the implementation of mental education integration through physical education to improve adolescent personal resilience. So, the researcher used a purposive sampling technique in this study to facilitate learning evaluation. This research was conducted in six schools in Padang, West Sumatra, involving two elementary schools, two junior high schools, and two senior high schools. Padang was chosen to provide similar environmental factors, accessibility, and the learning process faced by participants. By selecting schools within the same city, researchers were able to control for external variables that might influence the results, such as cultural differences or differing educational policies in other regions.

Each educational level was selected to encompass students at various ages and educational stages, allowing researchers to evaluate differences in the effectiveness of integrating sports-based mental health education in each group. By selecting two schools at each educational level, researchers were able to obtain more representative data and minimize potential bias that might arise if only one school were sampled.

School selection also took into account the school's readiness and willingness to participate in a sports-based mental health education intervention program. The selected schools had adequate facilities for implementing physical education and sufficient access to implement the program for their students. Based on the explanation above, the research sample data was obtained in the following table 2:

Table 2. Research Sample

No	School level	Number of Samples
1	Elementary School	47
2	Junior High School	71
3	Senior High School	83
Total		201

Source: own data

Overall, the integration program that will be carried out will fully adopt the mental education program that was created previously (Marheni et al., 2023), as in table 3 below.

Table 3. Mental Education Intervention Program in Sport

Features	Description	To be Avoided	Type of Sport	Frequency of Sessions	Session Duration	Total Duration of the Intervention
Physical and Psychological Safety	The availability of facilities that support safety and health, and practices that increase safety in interactions with the group and reduce unsafe or confrontational interactions with the group.	Physical and health harm; creating fear; feelings of insecurity both sexual and physical abuse; and verbal abuse.	Football	Twice a week	75 minutes	6 weeks
Appropriate Structure	Limit setting; clear and consistent rules and expectations; sufficiently strong controls; continuity and predictability; clear limits; and age-appropriate monitoring.	Chaotic; disorganized; neglectful; rigid; overly controlled; and autocratic.	Volleyball	Three times a week	90 minutes	10 weeks
Supportive Relationships	Warmth; closeness; connectedness; good communication; caring; support; guidance; safe affection; and responsiveness.	Cold; distant; over-controlling; ambiguous support; untrustworthy; focused on winning; lacking attention; unresponsive; and rejecting.	Basket ball	Twice a week	60 minutes	8 weeks
Opportunities to Belong	Opportunities for meaningful inclusion, regardless of gender, ethnicity, sexual orientation, or disability; social inclusion, social engagement, and integration; opportunities for socio-cultural identity formation; and support for cultural and bicultural competence.	Exclusion; marginalization; and intergroup conflict.	Futsal	Once a week	80 minutes	12 weeks
Positive Social Norms	There are rules of conduct; expectations; commands; ways of doing things; values and morals; and obligations to serve.	Absence of norms; anomy; neglectful practices; antisocial and immoral norms; norms that encourage violence; reckless behavior; consumerism; poor health practices; and conformity.	Football	Three times a week	70 minutes	8 weeks
Support for Efficacy and Mattering	Youth-based; empowerment practices that support autonomy; make a real difference in one‘s community; and are taken seriously. Practices that include enabling, responsibility-giving, and meaningful challenge. Practices that focus on improvement rather than on current relative performance levels.	Unchallenging; over-controlling; disempowering, and disabling. Practices that undermine motivation and the desire to learn, such as excessive focus on current relative performance levels instead of improvement.	Athletics	Twice a week	60 minutes	6 weeks

Features	Description	To be Avoided	Type of Sport	Frequency of Sessions	Session Duration	Total Duration of the Intervention
Opportunities for Skill Building	Opportunities to learn physical, intellectual, psychological, emotional, and social skills; exposure to intentional learning experiences; opportunities to learn cultural literacy, media literacy, communication skills, and good habits of mind; preparation for adult employment; and opportunities to develop social and cultural capital.	Practices that promote bad physical habits and habits of mind; and practices that damage schools and learning activities.	Basketball	Twice a week	90 minutes	8 weeks
Integration of Family, School, and Community Efforts	Concordance; coordination; and synergy between family, school, and community.	Divisions; lack of communication; and conflict.	Sepak Takraw	Three times a week	75 minutes	6 weeks

Note: This intervention program was designed with sports in mind that can support the development of various physical, psychological, and social aspects of participants. For example, soccer and futsal were chosen to emphasize the importance of physical and psychological safety while fostering a sense of inclusion and teamwork. Varied session frequencies, such as two to three times a week, provide a balance between consistent learning and adequate rest periods. Session durations, typically 60 to 90 minutes, allow ample time for technique practice and reflection, while the total intervention duration of 6 to 12 weeks allows participants sufficient time to experience significant changes in their skills and social relationships. This approach is designed to optimize learning while addressing group dynamics and individual needs within each chosen sport.

Source: Marheni et al. (2023)

It's just that in table 3 related to the program, it is not specifically explained regarding age and how the implementation concept is. So, it needs to be made and explained in more depth regarding the differences in levels of students according to their characteristics and development. The implementation program for the application of personal resilience values to students at elementary, junior, and senior high school levels is carried out in a variety of ways depending on the characteristics of student development at each level of education.

- Elementary School level, the application of personal resilience values will be carried out through a play approach and contextual learning. Teachers will instill values such as perseverance, discipline, and cooperation through fun games or physical activities. Elementary school students are in a stage of cognitive and emotional development that is still being formed. Students will learn better through direct experience and social interaction. Thus, the application of personal resilience values will be more easily accepted if presented in a simple and fun context.
- Junior High School level, the approach that will be taken is more reflective and dialogical. Teachers will encourage students to understand the challenges they face and provide support to develop resilience strategies such as emotional management and problem-solving skills. Junior high school students are in a transition phase from childhood to adolescence, where they begin to better understand the concepts of responsibility and autonomy. They are already able to think more critically and reflect on their personal experiences.
- Senior High School Level the application of personal resilience values will be more effective through in-depth discussions, real case simulations, or projects that require personal responsibility. Values such as emotional resilience, decision-making, and stress management can be applied more focused. Senior high school students are more emotionally and cognitively mature, so they can understand the complexity of life's problems and are better prepared to face big challenges. They already have stronger abstract and reflective thinking skills than junior and elementary school students.

Instrument

The instrument used in this study is the Students' Resilience Instrument (Huang & Lin, 2013). This instrument consists of 4 main indicators with a total of 17 question items. By using this instrument, this study attempts to explore how and which school groups are most effective in implementing the integration of mental education through physical education to improve adolescent personal resilience. This instrument will be given to all students (elementary, junior, senior high school) before and after being given mental education treatment. Until finally the results of this study will find out which group is most effective in implementing the desired program. The following is the Students' Resilience Instrument (Huang & Lin, 2013).

Table 4. Students' Resilience Instrument

Factor	Item	M	SD
Empathy and Interpersonal Interaction (five items)		4,07	0,75
1	I am aware of the care and support of those around me.		
2	I always appreciate others for doing things for me.		
3	I am grateful to people for supporting and helping me.		
4	People often give me good advice to help me succeed.		
5	I believe that if I make others happy, I will be happy too.		
Cognitive Maturity (five items)		3,80	0,74
1	I will persistently pursue my dreams to the end.		
2	To achieve my goals, I sometimes need to take risks.		
3	I study various abilities and skills that will help me achieve my aims.		
4	To achieve my goals, I must do my best.		
5	I know there are still many things waiting for me to finish in the future.		
Problem Solving (four items)		3,72	0,68
1	When problems occur, I use my full efforts to face them.		
2	While facing a challenge, I don't give up easily.		
3	I try to solve problems by all kinds of ways.		
4	I look for appropriate resources to apply to solve problems.		
Hope and Optimism (three items)		3,37	0,80
1	I like the challenges posed by difficulty.		
2	When I am frustrated, I believe someone will help me.		
3	When things are out of control, I can remain calm.		

Source: Y. C. Huang & Lin, 2013

Data analysis

In this study, the results obtained were then analyzed using the Paired Samples Test. The aim was to compare three groups, namely the pre-test and post-test results in the same group of students. Then the results were also used to see significant differences in student resilience before and after being given an intervention in the form of a mental education program through sports. In other words, this test evaluates the effectiveness of the intervention applied. Through the Paired Samples Test, researchers can conclude that the mental education program through sports has a significant impact on increasing student resilience at three levels of education. Although there are variations in the magnitude of the impact on elementary, junior, and senior high schools, the results of the analysis show that this program is effective overall. In addition to using the Paired Samples Test, researchers also used the N Gain Pesen test to determine the level of effectiveness, and/or differences between groups (elementary, junior, senior high school) in pre- and post-test data.

RESULTS

Based on the research results, pre- and post-test data were obtained in each group (elementary, junior, senior high school). This can be seen in the following table 5:

Table 5. Description of Research Result Data

Group			Statistic	Std. Error
NGain_ Percent	Elementary School	Mean	28.4792	1.43404
		Std. Deviation	9.83126	
		Minimum	4.92	
		Maximum	47.14	
		Range	42.22	
	Junior High School	Mean	68.6081	.41396
		Minimum	59.32	
		Maximum	76.56	
		Range	17.24	
	Senior High School	Mean	24.4412	1.11556
		Std. Deviation	10.16321	
		Minimum	1.64	
		Maximum	50.00	
		Range	48.36	

Source: own data

Based on the descriptive table 5 given regarding the percentage of N-Gain in three education groups, namely elementary, junior, and senior high school, the following results were obtained: Elementary has an average (mean) N-Gain of 28.48 with a standard deviation of 9.83, which shows a fairly large data distribution. The minimum value of 4.92 and the maximum of 47.14 give a value range of 42.22. Meanwhile, for junior high school, the average N-Gain is higher, namely 68.61 with a small standard deviation (0.41), indicating more uniform data with a smaller value range, namely 17.24 (minimum 59.32 and maximum 76.56). Meanwhile, in senior high school, the average N-Gain is only 24.44 with a standard deviation of 10.16, and a fairly wide value range of 48.36 (minimum 1 and maximum 50).

From the results, it can be seen that junior high schools showed the most effective results in terms of increasing resilience through the integration of mental education through sports, with the highest average N-Gain and smaller variations compared to the other two groups. In contrast, senior high schools showed the lowest effectiveness with the smallest average N-Gain and the widest range of values.

After knowing the effectiveness data for each group, it will then be seen using the Paired Samples Test in table 6 below.

Table 6. Paired Samples Test

	Paired Differences			t	df	Significance
	Mean	Std. Deviation	Std. Error Mean			
Elementary School Pre – Post Test	-19.191	6.958	1.015	-18.908	46	<.001
Junior High School Pre – Post Test	-46.070	4.015	.477	-96.677	70	<.001
Senior High School Pre – Post Test	-16.205	7.040	.773	-20.972	82	<.001

Source: own data

Based on the results of the Paired Samples Test displayed in the table, the following is a comprehensive explanation regarding the effectiveness of the Integration of Mental Education through Sports in increasing resilience in elementary, junior, and senior high school students.

The average difference between the pre-test and post-test results in elementary school students is -19.191. This means that there is a significant increase in student resilience after the implementation of mental education integration through sports. The standard deviation of 6.958 indicates that these data have moderate variation. The t value of -18.908 with df 46 and a significance level of less than 0.001 ($p < .001$) indicates that these results are very statistically significant. The df value shows that 47 students were involved in the test, and the relatively large t value proves that the increase did not occur by chance. Thus, mental education intervention through sports significantly affects the increase in resilience in elementary school students.

The mean difference between pre-test and post-test for junior high school students was -46.070. This is a very large change compared to other groups, indicating that the integration of mental education through sports has a greater impact on the resilience of junior high school students. The smaller standard deviation, which is 4.015, indicates that the data is more homogeneous than other groups. The very large t-value, which is -96.677, with a df of 70 and a significance level of $p < .001$, indicates a very significant result. The df value shows that 71 students were tested, and the extremely high t-value reflects very consistent improvements across almost all participants. In other words, the mental education program through sports is very effective in increasing resilience in junior high school students.

The mean difference between pre-test and post-test in senior high school students was -16.205. This indicates a smaller increase in resilience compared to the elementary and junior high school groups. The standard deviation of 7.040 indicates a slightly larger data distribution compared to elementary and junior high schools. The t-value of -20.972 with df 82 and a significance level of $p < .001$ also shows statistically significant results. The df value shows that 83 students participated, and the significant t-value confirms that the improvement was real, although the increase in the senior high school group was not as large as in the junior high school group.

DISCUSSION

Research has consistently shown the positive impact of sports participation on academic performance and personal development among students. Engaging in team-based physical activities not only promotes cognitive abilities, but also fosters crucial social-emotional competencies, such as confidence, character, and perseverance (Aquino & Reyes, 2022; Teferi, 2020). Notably, studies have suggested that the integration of mental education through sports can be particularly beneficial for the personal resilience of adolescent students across different grade levels.

One key finding from the research is that the transition period of junior high school appears to be a pivotal stage where the impact of sports-based mental education is most pronounced (Aquino & Reyes, 2022; Camiré, 2014; Chen, 2020; Wang & Li, 2022). Compared to elementary school students who may be more reluctant to structured guidance, and high school students who are approaching adulthood, junior high school seem to exhibit greater responsiveness to programs that holistically address their physical, cognitive, and psychosocial development (Aquino & Reyes, 2022; Teferi, 2020; Wang & Li, 2022). This could be attributed to the unique developmental challenges faced by early adolescents, where targeted interventions can still effectively shape their trajectories (Lappalainen et al., 2021; Leeb et al., 2020).

As noted in one study, student participation in sports had a positive impact on their academic achievement, with coaching from faculty members playing a key role in shaping their personalities and character (Aquino & Reyes, 2022). Similarly, research has demonstrated that physical exercise can significantly improve the mental health of university students, addressing common psychological issues and reducing misconceptions (Jeftic et al., 2023). Furthermore, the enjoyment, social connections, and sense of belonging fostered through team sports have been linked to enhanced cognitive development and academic performance among students (Wang & Li, 2022).

Overall, the integration of mental education through sports represents a promising approach to cultivating personal resilience in adolescent students (Teferi, 2020). By harnessing the inherent benefits of physical activity and team dynamics, schools can empower students to navigate the unique challenges of their developmental stages, ultimately preparing them for long-term success. (Aquino & Reyes, 2022; Chen, 2020).

Junior high school seem to exhibit greater responsiveness to programs that holistically address their physical, cognitive, and psychosocial development (Song et al., 2024). This could be attributed to the unique developmental challenges faced by early adolescents, where targeted interventions can still effectively shape their trajectories.

Programs that address the physical, cognitive, and psychosocial needs of students in a holistic manner can be particularly beneficial during the junior high school years, as this is a pivotal transition period where early adolescents are still responsive to targeted interventions (Borman et al., 2019; Evans et al., 2018). By cultivating personal resilience through sports-based mental education, schools can empower junior high school students to navigate the unique developmental challenges they face, such as physical, emotional, and social changes (O'Brien et al., 2021; Purcell et al., 2023). This can ultimately prepare them for long-term success by equipping them with the skills and coping mechanisms necessary to thrive throughout their high school and college experiences.

By cultivating personal resilience through sports-based mental education, schools can empower students to navigate the unique challenges of their developmental stages and prepare them for long-term success. Integrating mental education through sports can be particularly beneficial for the personal resilience of adolescent students across different grade levels, as it addresses their physical, cognitive, and psychosocial needs in a holistic manner (Gould & Nalepa, 2016; Hunt et al., 2020). To further enhance the effectiveness of these programs, it is crucial for schools to understand the specific physical, emotional, and social needs of students at each grade level, and tailor the curriculum accordingly. By adopting a comprehensive approach that caters to the multifaceted development of adolescents, schools can foster an environment that nurtures personal growth, resilience, and long-term success (Sargiotis, 2024; Utami et al., 2023).

While the integration of mental education through sports may have some benefits for cultivating personal resilience in adolescent students, there are also potential drawbacks and limitations to this approach (Camiré, 2014; Vichot, 2024).One concern is that the emphasis on sports-based programs could marginalize students who are not athletically inclined or interested in physical activities. This could inadvertently exclude a portion of the student population, potentially widening existing gaps in mental health support and personal development opportunities (Buchanan et al., 2016; Jeftic et al., 2023; Ostrowski et al., 2021). Additionally, the effectiveness of these programs may be disproportionately skewed towards the transition period of junior high school, as suggested by the research. This raises questions about the long-term sustainability and equitable access to such interventions across different grade levels.

Moreover, the holistic approach of addressing students' physical, cognitive, and psychosocial needs through sports may not be the most efficient or appropriate strategy for all individuals. Some students may respond better to alternative modes of mental education, such as counseling, mindfulness practices, or academic support (Danielsen et al., 2023; Stillman & Farmer, 2021; J. Wang & Li, 2022). Forcing a one-size-fits-all solution could undermine the unique needs and preferences of each student, potentially hindering their personal growth and overall well-being.

While the integration of mental education through sports holds promise, it is essential to consider the potential drawbacks and limitations of this approach. Ensuring equitable access, tailoring interventions to individual needs, and exploring complementary strategies may be necessary to enhance the overall effectiveness and inclusivity of such programs in promoting the personal resilience of adolescent students (Jongen et al., 2020; Pinto et al., 2021). Therefore, even though the goal of integration is important, teachers must still prioritize the implementation of physical education and physical activity for their students. These physical components play a crucial role in supporting the overall development and well-being of adolescent students, including their mental health and personal resilience (Han et al., 2025; Ma et al., 2024). By ensuring that all students have access to quality physical education and opportunities for physical activity, schools can create a more holistic and inclusive environment that nurtures the multifaceted growth of their students. This balanced approach, combining mental education through sports with a strong emphasis on physical development, can empower adolescents to navigate the unique challenges they face and cultivate the resilience necessary for long-term success (Corlett & McConnachie, 2021; Culp, 2021; Sun et al., 2023).

The research suggests that the integration of mental education through sports can have a particularly positive impact on the personal resilience of junior high school students, as this developmental stage is a crucial transition period where targeted interventions can still effectively shape their trajectories. However, it is essential to recognize that the effectiveness of such programs may not be equally distributed across different grade levels, and that potential drawbacks and limitations must be carefully considered (Vichot, 2024; Xiaoman & Suksu, 2023).

To address these challenges, schools should adopt a comprehensive and inclusive approach that caters to the diverse needs and preferences of their students. By offering a range of physical, cognitive, and psychosocial support mechanisms, schools can create an environment that empowers adolescents to develop the resilience and skills necessary for long-term success, regardless of their individual strengths or interests (Chen, 2020; Padial-Ruz et al., 2020). The existing literature highlights the significant benefits that physical education and sports-based interventions can have on adolescents' emotional well-being, social skills, and academic performance. Additionally, research suggests that resilient individuals often possess a strong sense of self-regulation, which can be reinforced through physical activity and exercise (Dapp & Roebers, 2019; Hernández-Torrano et al., 2020; Padial-Ruz et al., 2020).

Sports and physical education can serve as a bridge to help students cultivate important life skills and personal resilience, ultimately leading to better mental health outcomes and overall well-being. Pearce's work on the role of play and social interaction in virtual communities provides valuable insights into how structured physical activities and sports can create meaningful social connections and a sense of belonging for adolescents (Chen, 2020; Padial-Ruz et al., 2020; Wang & Li, 2022).

As adolescents navigate the complex social and emotional landscape of their formative years, the integration of mental education through sports can help them develop empathy, prosocial behaviors, and a stronger sense of self-regulation (Vichot, 2024). These findings underscore the critical importance of ensuring that all students have access to high-quality physical education and opportunities for physical activity, regardless of their individual interests or abilities.

CONCLUSION

The implementation of mental education to improve adolescent personal resilience went well at all levels. This is evidenced by the increase in pre-test and post-test scores. It's just that when researchers conducted research with a concept like this, the results showed that the junior high school student group was better than the elementary and high school student groups. This does not rule out the possibility of further research to try to understand more deeply the implementation of mental education for adolescent personal resilience in elementary or high school students with different methods and can produce appropriate learning methods at each level. This research has not touched comprehensively and specifically at each level (especially referring to motor growth and development, as well as student psychological maturity.

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