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Enhancing social skills: the impact of advanced physical education program development

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ABSTRACT

Background: The cultivation of social behaviour during childhood and adolescence holds paramount importance, serving as a cornerstone for the establishment of robust interpersonal connections in subsequent stages of life, whether transitioning from adolescence to adulthood. **Research Objective**: This research aims to assess how implementing enhanced physical education influences social interactions and behaviour among adolescents. **Methods:** The study employed a pretest-posttest control group design, involving experimental and control groups randomly selected from high school students in the City of Aceh. The study's population was drawn from class X students at a public high school in Aceh City, encompassing 4 classes with a total of 124 students. Cluster random sampling was employed as the sampling technique. The researcher randomly selected one class as the experimental group and another as the control group. The participants included two classes: 30 students from class 10B as the experimental group and 30 students from class 10D as the control group. Thus, the study involved a total of 60 participants. Social behaviour was evaluated using standardised questionnaires measuring various dimensions. The pre-test and post-test data analysis techniques were analysed using a homogeneity test, a normality test, and a Mann-Whitney test using SPSS version 22, with a significance threshold set at $p < 0.05$. **Finding/Result:** The results indicate significant improvements in social behaviour among adolescents who underwent the enhanced physical education, sports, and health program compared to the control group. **Conclusion:** The findings underscore the importance of integrating comprehensive physical education into high school curricula to foster positive social development among adolescents.

Keywords: Social; behaviors; physical activity; physical education

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INTRODUCTION

Humans are inherently social creatures who naturally form relationships with others in various areas of life (Sakman, 2019). From the moment of birth, human beings rely on social interactions to meet fundamental needs like affection, care, and assistance (Baker, 2015). These interactions play a pivotal role in forging robust interpersonal bonds,

establishing support systems crucial for navigating life's hurdles, and fostering sound emotional and psychological growth (Papa, 2019; Sakman, 2019). Consequently, mastering the art of effective interaction with others, commonly referred to as social behaviour, emerges as a vital skill in nurturing constructive interpersonal dynamics and fostering the resilience of communities (Wan et al., 2021).

In the context of fostering an environment conducive to growth and advancement for all members of society, it is crucial to acknowledge the pivotal role played by favourable social conduct (Papa, 2019). Beyond the establishment of an all-encompassing and enduring community, constructive social conduct also lays the groundwork for a stable and fruitful societal framework (Baker, 2015; Wan et al., 2021). Prior studies indicate that cooperation, mutual regard, and equitable resource sharing among individuals are fundamental pillars bolstering social cohesion and empowering communities (Demirci & Tzarova, 2021; Riyanto et al., 2024). Furthermore, the advocacy of virtues such as tolerance, inclusivity, and empathy render human social conduct a potent force propelling beneficial transformations within society (Baker, 2015). Thus, endeavours aimed at cultivating such behaviours aspire to cultivate a sustainable and equitable milieu for forthcoming generations.

The emergence of intricate and varied social conduct does not occur abruptly within individuals. Instead, social behaviour evolves and is acquired through interactions and life experiences from early childhood, as elucidated in numerous preceding studies (Susanti, 2023). The cultivation of social behaviour during childhood holds paramount importance, serving as a cornerstone for establishing robust interpersonal connections in subsequent stages of life, whether transitioning from adolescence to adulthood (Smith et al., 2017). During this pivotal phase, children actively engage in learning and refining skills essential for interaction and emotional expression, as well as understanding and embracing diversity among individuals (Moore et al., 2020; Wan et al., 2021). The social competencies acquired during childhood lay the groundwork for effective communication, collaboration, empathy, and conflict-resolution skills that will be employed throughout their lifetimes (Harvey et al., 2018).

Enhancing and fostering social behaviour among contemporary children encounters several hurdles. With the ongoing advancement of digitalisation, youngsters are increasingly inclined towards dependency on technological gadgets and social media platforms (Sari & Marlina, 2021). This trend results in a more passive approach to social interactions and a pronounced inclination to dedicate substantial periods engaging with electronic devices and gadgets (Anugrah et al., 2021; Hasan et al., 2020). Consequently, this may lead to emotional volatility, passive conduct, and suboptimal linguistic proficiency in children's social engagements (Herminastiti et al., 2019). Furthermore, another adverse consequence is the prevalence of sedentary habits observed among children (Damian et al., 2018; Rhodes et al., 2020; Valencia-Peris et al., 2021).

Several prior studies have indicated that physical education can enhance social behaviour during childhood, with some demonstrating positive effects on children's social development (Karmila & Muhtarom, 2021; Kurniawati, 2017; Muttaqien, 2022). Previous investigations have found that engaging in soft games and block-building activities can improve children's social behaviour (Karmila & Muhtarom, 2021; Muttaqien, 2022). Additionally, research has shown that implementing storytelling interventions with children can lead to improvements in their social behaviour (Herminastiti et al., 2019). Furthermore, several other studies have illustrated that interventions involving physical activities like handball and traditional games have

effectively enhanced children's social behaviour (Kurniawati, 2017; Setiawan & Rahmat, 2018; Susanti, 2023).

In the evolving landscape of digitalisation and technological dependency among youth, there is a pressing need to address the potential decline in active social behaviour and the rise in sedentary habits. Current research underscores the critical role of early interventions in fostering positive social conduct, which forms the bedrock for robust interpersonal relationships and community resilience. While prior studies have explored various approaches to enhance social behaviour in children (Karmila & Muhtarom, 2021; Muttaqien, 2022), there remains a significant gap in understanding the impact of physical education and sports-based interventions, especially among high school students. Addressing this gap is vital to equip the youth with the essential skills and competencies needed for effective social interaction and overall well-being. Thus, urgent action is required to bridge this knowledge void and implement evidence-based strategies that promote healthy social behaviours among high school students.

While numerous studies have underscored the intrinsic social nature of humans and the significance of fostering positive social behaviour from early childhood (Herminastiti et al., 2019; Mahardika, 2019; Muttaqien, 2022; Setiawan & Rahmat, 2018), there remains a noticeable gap in research focussing on the impact of physical education programs on high school students' social behaviour in the context of today's digital era. The current study seeks to bridge this gap by examining the role of physical education programs in fostering social behaviour among high school students, particularly in the face of increasing digital dependency and sedentary lifestyles. This research aims to explore whether physical education and sports-based interventions can effectively address the emerging challenges and cultivate essential social competencies among high school students, thus offering a fresh perspective on enhancing social behaviour in this age group.

Prior studies have demonstrated that physical education can enhance children's social behaviour through various approaches (Mahardika, 2019; Muttaqien, 2022; Setiawan & Rahmat, 2018). However, there is a lack of exploration into interventions utilising physical activity through physical education and sports. Moreover, previous research has predominantly concentrated on children in preschool, elementary, and junior high school (Mahardika, 2019; Muttaqien, 2022; Setiawan & Rahmat, 2018), with limited attention given to high school-level students. The insufficient practical application of these findings underscores the necessity of aligning academic research with practical implementations concerning high school students' social behaviour. Consequently, this study seeks to comprehensively examine and assess the impact of physical education programs in schools on the social behaviour of high school students.

METHOD

Research Design

This study adopts an experimental approach employing a pretest-posttest control group design (Creswell, 2013). Through this design, two groups, namely an experimental and a control group, were randomly chosen. Initially, all participants underwent questionnaire assessments to gauge their baseline social behavior. Subsequently, the experimental group received intervention in the form of a physical education and health program, while the control group proceeded with their regular activities without any intervention. After the intervention, both groups were re-evaluated using tests to assess their social behaviour post-treatment.

Participants

The study's population was drawn from class X students at a public high school in Aceh City, encompassing 4 classes with a total of 124 students. Cluster random sampling was employed as the sampling technique (Risyanto et al., 2024). The researcher randomly selected one class as the experimental group and another as the control group. The participants included two classes: 30 students from class X B as the experimental group and 30 students from class X D as the control group. Thus, the study involved a total of 60 participants.

Intervention

The research commenced with a pretest conducted in the initial week, during which all research participants were tasked with completing a questionnaire on social behaviour, encompassing dimensions such as discipline, cooperation, respect for others, ability to share, and ability to assist others. Additionally, anthropometric measurements were exclusively conducted on all research subjects during the pretest phase. Subsequently, over five consecutive weeks, occurring twice weekly on Saturdays and Sundays, the experimental group received intervention in the form of physical and health education for two hours each programme, while the control group continued their regular activities. Upon completion of the intervention period, in the sixth week, the entire group underwent a post-test to assess social behaviour after the intervention.

Table 1. 4-Weeks Physical Education Intervention Programme

Week		Physical Education Materials
1		Pretest
2	Saturday	Soccer Learning materials
	Sunday	Soccer Learning materials
3	Saturday	Futsal Learning materials
	Sunday	Futsal Learning materials
4	Saturday	Handball Learning materials
	Sunday	Handball Learning materials
5	Saturday	Volleyball Learning materials
	Sunday	Volleyball Learning materials
6		Posttest

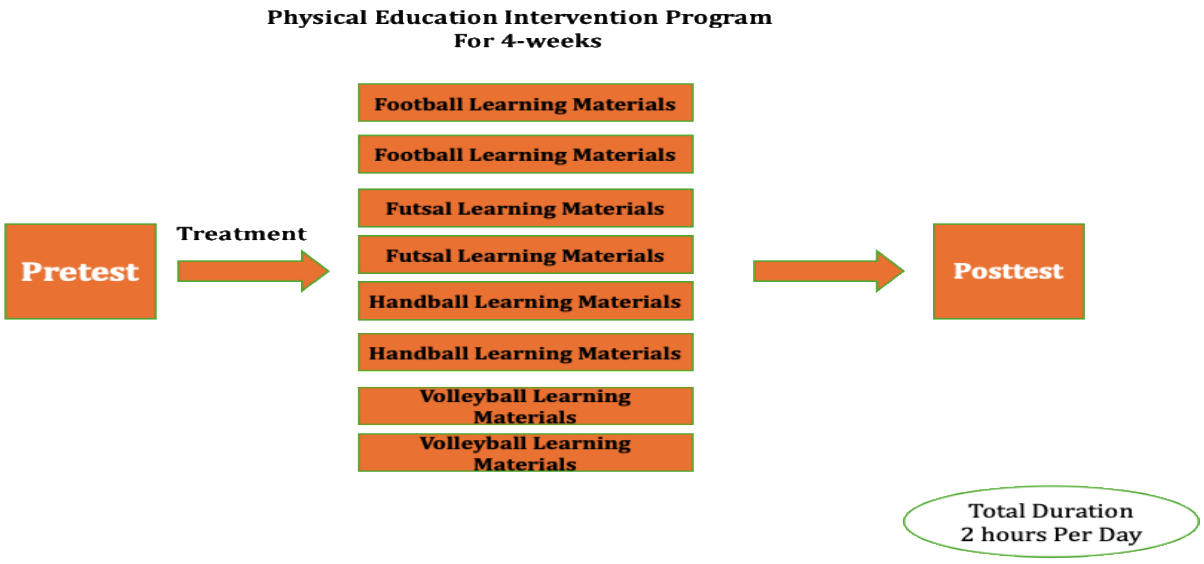

Figure 1. Schematic Diagram of Physical Education Intervention Programme

Instrument

The tool employed in this study is a questionnaire on social behaviour, developed based on previous theory (Creswell, 2013). This theory outlines five facets of social behaviour, specifically: discipline, cooperation, respect for others, the capacity to share, and aiding others.

Statistics

The collected data is presented using mean and standard deviation values. Assessments for homogeneity and normality were conducted using the Shapiro-Wilk test. Following confirmation of homogeneity and normality, significance analysis was performed using the one-way ANOVA test. Social behaviour parameters before and after the intervention were examined utilising paired T-tests. Statistical analysis was performed using the SPSS version 22 software, with a significance threshold set at $p < 0.05$.

RESULTS AND DISCUSSION

Table 2 provides a detailed overview of the anthropometric characteristics of the participants in the study, encompassing factors such as age, weight, height, and body mass index (BMI) across all groups, indicated through mean values and standard deviations (SD). The findings indicated no statistically significant variances in anthropometric parameters between the intervention and control groups.

Table 2. Anthropometric Characteristics of Intervention and Control Groups

Variables	Groups		*P-value*
	Intervention	Control	
Age	16.2 ± 0.8	16.9 ± 0.6	0.324
Height	165.2 ± 7.4	164.9± 6.1	0.387
Weight	63.2 ± 6.8	64.8 ± 7.1	0.287
BMI	23.1 ± 1.8	23.8 ± 2.1	0.368

Table 3 presents a comparative analysis of social behaviour data between the intervention and control groups. The table displays the mean pretest score for the intervention group as 157.21, with a standard deviation of 8.82, and the mean posttest score as 168.71, with a standard deviation of 9.12. Consequently, the gain score for the intervention group is identified as 11.50. Conversely, the mean pretest score for the control group was 159.82 with a standard deviation of 9.28, while the mean posttest score was 160.89 with a standard deviation of 8.83. This indicates a gain score of 1.71 for the control group.

Table 3. Pretest and Posttest of Social Behaviour between the Intervention and Control Groups

Groups	Social Behavior		*P-value*	*Significance*
	Pretest (X ± SD)	Posttest (X ± SD)		
Intervention	157.21 ± 8.82	168.71± 9.12	0.02	Highly Significant
Control	159.82 ± 9.28	160.89 ± 8.83	0.142	Not Significant

Table 4 illustrates the mean social attitudes, indicating that the intervention group exhibits a higher average compared to the control group. Utilising an independent t-test for analysis revealed a notable distinction with a p-value of 0.01, signifying a substantial variance in the enhancement of social attitudes.

Table 4. Mean Posttest of Social Behaviour between the Intervention and Control Groups

Groups	Posttest	Mean Differences	*P-value*	*Significance*
Intervention	168.71± 9.12	7.62	0.01	Highly Significant
Control	160.89 ± 8.83			

Our study revolves around examining the influence of physical education and sports materials on social behaviour. With an average age of 16 years among our research subjects, categorised as teenagers or late teens according to Ministry of Health data, we aim to explore the potential impact of physical education and sports curricula on social interactions and behaviours within this demographic (Anugrah et al., 2021). Through this investigation, we aim to gain a deeper understanding of how physical activity correlates with social behaviour among adolescents, shedding light on this relationship for further insights.

Regarding height measurements, the participants exhibited an average height of 165 cm. This contrasts with the reported average height of Indonesian male adolescents, which stands at 157 cm (Kementerian Kesehatan RI, 2014). As for the body mass index (BMI), the average among the participants was 23.16, indicating a normal range according to the criteria set by the World Health Organisation (WHO) and the Ministry of Health (Anugrah et al., 2023; Zubaida et al., 2021).

The study we conducted revealed notable disparities in social behaviour between the posttest and pretest phases within the intervention group. Conversely, the control group did not exhibit a significant uptick in social behaviour during the post-test phase. Our findings indicate that the intervention involving physical education materials effectively enhances social behaviour among the adolescent subjects of our study. These outcomes align with prior research suggesting that physical education can enhance social behaviour, with some demonstrating positive effects on children's or adolescents' social development (Herminastiti et al., 2019; Karmila & Muhtarom, 2021; Muttaqien, 2022; Setiawan & Rahmat, 2018).

The intervention group exhibited heightened social behaviour due to the incorporation of physical education via sports activities, eliciting diverse emotional responses and enhancing zest for life among students. This integration of physical education through sports activities fosters experiences that trigger a range of emotional reactions and bolster students' motivation, evident in their behaviours, consistent with findings from several prior research studies (Firman et al., 2018; Harvey et al., 2018; Setiawan & Rahmat, 2018).

In addition to enhancing students' emotional capacities, physical education serves as a vehicle for enhancing their physical fitness (Bahri et al., 2021). A student's level of physical fitness profoundly affects different bodily aspects and organs, encompassing muscle strength, cardiovascular endurance, as well as muscle and joint flexibility (Demirci & Tzarova, 2021; Syed Ali, 2018). Moreover, students' motor skills impact multiple facets of their performance, including speed, agility, coordination, strength, balance, and focus (Gescheit et al., 2015; Vigorito & Giallauria, 2014). The cultivation of physical prowess not only aids in enhancing students' emotional health but also augments their social conduct (Kurniawati, 2017; Setiawan & Rahmat, 2018).

The intervention group experienced a rise in social behaviour attributable to the physical education curriculum we devised, which incorporated team sports components. Various prior studies have affirmed that participation in team sports can notably boost social behaviour (Kurniawati, 2017; Mahardika, 2019; Setiawan & Rahmat, 2018). This elevation stems from the interaction and communication patterns inherent in team

sports, fostering enhanced social conduct (Polglaze et al., 2018; Setiawan & Rahmat, 2018). Furthermore, team sports instill values like fair play, accountability, and respect for opponents, which are positively associated with the augmentation of social behaviour (Kumar et al., 2018; Martín-Moya & González-Fernández, 2022; Papa, 2019; Setiawan & Rahmat, 2018).

This research possesses several constraints that should be acknowledged when interpreting its outcomes and extending the findings. Initially, the restricted sample size might compromise the representativeness of the research outcomes for the entire high school student population in Aceh City. Despite endeavours to select a sample reflecting diverse social and demographic backgrounds, the obtained results may not entirely capture the diversity present among high school students in the locality. These limitations may consequently influence the precision of extending research findings to broader populations beyond the research context. Additionally, the restricted timeframe of the study may not encompass the full spectrum of time required to detect substantial alterations in high school children's social behaviour stemming from physical education development.

In certain instances, modifications in social behaviour necessitate a considerable duration to manifest and be discerned, and this study might solely offer a glimpse of the short-term consequences of physical education interventions. Moreover, time constraints may curtail researchers' capacity to conduct more comprehensive follow-ups or assess the enduring effects of physical education development on facets of high school children's social behaviour in Aceh city.

CONCLUSION

The outcomes of this study suggest that implementation of the physical education, sports, and health program (physical education) holds considerable promise in enhancing social behaviour among high school students in Aceh City. The findings revealed notable enhancements in social skills following the adoption of the physical education program. This underscores the significance of reinforcing the physical education curriculum within schools to foster favourable character development and behaviour among adolescents.

In future studies, it is advised to broaden the sample size and extend the research duration to acquire a deeper insight into the enduring effects of physical education and health programs on the social conduct of high school students. Additionally, engaging diverse stakeholders, including educators, parents, and the community, in physical education program implementation is crucial to fostering an environment conducive to comprehensive social growth among children. Thus, this endeavour aims to make a more significant impact in nurturing a youthful populace characterised by positive and enduring social behaviours.

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CONFLICT OF INTEREST

The authors declare that we have no competing interests with any group or individual.

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