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Traditional Games and Physical Literacy: A Strategy to Reduce Sedentary Lifestyles Among Adolescents

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ABSTRACT

Traditional games have gained renewed interest as a culturally relevant and engaging strategy to combat rising sedentary lifestyles among adolescents. This paper examines how integrating traditional games into physical education curricula can promote physical literacy—encompassing motivation, confidence, physical competence, knowledge, and understanding—to encourage lifelong participation in physical activity. Drawing on evidence from intervention studies and cross-cultural research, the paper highlights the multidimensional benefits of traditional games, including improved motor skills, enhanced social connectedness, and positive attitudes toward movement. Recommendations are provided for educators and policymakers seeking to leverage traditional play as an accessible and sustainable means to reduce sedentary behavior and support adolescent health.

KEYWORDS

Traditional games, physical literacy, adolescents, sedentary lifestyle, physical education, motor skills development, cultural heritage, health promotion, active living, youth engagement.

INTRODUCTION

The global landscape of adolescent health is increasingly challenged by the pervasive rise of sedentary lifestyles, characterized by prolonged periods of low energy expenditure activities such as screen time and passive sitting [1, 2]. This modern phenomenon poses significant public health concerns, contributing to an increased risk of various non-communicable diseases, obesity, poor mental well-being, and reduced physical fitness [1, 3]. Adolescence is a critical developmental period where habits are formed, making it crucial to implement effective interventions that promote active living and counteract sedentary patterns.

Physical literacy has emerged as a comprehensive concept that extends beyond mere physical competence to encompass the motivation, confidence, physical competence, knowledge, and understanding to value and take responsibility for engagement in physical activity for life [4, 10]. It represents an individual's journey to developing a sense of self and purpose through movement. Fostering physical literacy in adolescents is seen as a foundational approach to encourage lifelong participation in physical activity, thereby mitigating the detrimental effects of sedentary behavior [6, 8].

While various strategies have been explored to enhance physical activity and physical literacy among youth, there is a growing interest in leveraging culturally relevant and engaging activities. Traditional games, often deeply embedded in local cultures and requiring diverse motor skills, problem-solving, and social interaction, offer a promising avenue [11, 12, 13]. These games inherently promote active movement, foster creativity, and encourage social engagement, contrasting sharply with the isolating and passive nature of many sedentary pursuits [14, 15]. They serve not only as a means of physical activity but also as a vehicle for preserving cultural heritage and developing character [16, 17, 18]. Despite their potential, the specific effectiveness of traditional game-based physical literacy models in systematically reducing sedentary lifestyles among adolescents remains an area requiring empirical investigation.

This study aims to evaluate the effectiveness of a traditional game-based physical literacy model in reducing sedentary lifestyle among adolescents. By integrating elements of physical literacy through structured engagement with traditional games, this research seeks to provide evidence-based insights into a culturally resonant and potentially sustainable approach to promote active living in youth.

METHODS

Research Design

This study employed a quasi-experimental, pre-test-post-test control group design to evaluate the effectiveness of a traditional game-based physical literacy model. This design was chosen due to practical limitations in random assignment of participants, while still allowing for a comparison between an intervention group and a control group over a specific period. The primary aim was to assess the impact of the intervention on reducing sedentary lifestyle among adolescents.

Participants

The participants for this study were adolescents aged 12-15 years, recruited from two different schools in a selected region. A total of 80 adolescents were recruited, with 40 assigned to the intervention group and 40 to the control group. Exclusion criteria included any physical conditions preventing participation in moderate-to-vigorous physical activity or diagnosed chronic illnesses. Parental consent and adolescent assent were obtained prior to participation. Demographic information such as age, gender, and socio-economic status was collected from all participants.

Intervention: Traditional Game-Based Physical Literacy Model

The intervention group participated in a structured program incorporating traditional games native to the region, such as those described in local cultural documentation [19, 20]. The model was designed based on the principles of physical literacy [4, 10], emphasizing the development of physical competence, motivation, confidence, knowledge, and understanding through play. The intervention lasted for 12 weeks, with three sessions per week, each lasting approximately 60 minutes.

Specific traditional games selected for the program included those known for promoting a wide range of motor skills (e.g., running, jumping, throwing, dodging) and requiring strategic thinking and social interaction [7, 13, 14]. Examples of games included various forms of Gobak Sodor, Engklek, and Bentengan, which are known for their dynamic movements and team-based nature [21]. Each session began with a warm-up, followed by structured traditional game play, and concluded with a cool-down. Trained physical education instructors, who received specific training in the physical literacy framework and traditional game facilitation, led the sessions. The control group continued with their regular school activities, which did not include any specific physical literacy or traditional game intervention.

Measurements

Two primary outcome variables were measured:

Sedentary Behavior: This was assessed using both objective and subjective measures.

Objective Measure: Accelerometers (e.g., ActiGraph GT3X+) were worn by participants for seven consecutive days during waking hours at both pre-test and post-test. Data from accelerometers provided insights into total sedentary time (minutes/day) and bouts of sedentary behavior.

Subjective Measure: The Adolescent Physical Activity Questionnaire (APAQ), a validated self-report questionnaire, was used to capture self-reported sedentary time and typical daily activities at pre-test and post-test.

Physical Literacy: This was assessed using a multi-dimensional approach, incorporating aspects of physical competence, motivation, and knowledge.

Physical Competence: Evaluated through a battery of standardized motor skill tests, including fundamental movement skills (e.g., running speed, agility, balance) relevant to the traditional games.

Motivation and Confidence: Assessed using a modified version of the Physical Literacy Questionnaire, which included items related to enjoyment of physical activity, perceived competence, and confidence in engaging in various physical tasks [6].

Knowledge and Understanding: Assessed through a short questionnaire on the rules and strategies of traditional games and general knowledge about the benefits of physical activity.

Data Collection Procedure

Data collection was conducted in two phases: pre-intervention (Week 1) and post-intervention (Week 12). During the pre-intervention phase, baseline measurements for sedentary behavior and physical literacy were collected from both the intervention and control groups. Following the 12-week intervention program, post-test measurements were collected using the same protocols and instruments.

Ethical Considerations

Ethical approval was obtained from the relevant institutional review board. Informed consent was secured from parents/guardians, and assent was obtained from all adolescent participants. Confidentiality and anonymity were maintained throughout the study. Participants were informed of their right to withdraw at any time without penalty.

Data Analysis

Statistical Package for the Social Sciences (SPSS) software was used for data analysis. Descriptive statistics (means, standard deviations, frequencies) were calculated for demographic characteristics and all outcome variables. To compare changes in sedentary behavior and physical literacy between the intervention and control groups, a mixed-model ANOVA (Analysis of Variance) with repeated measures was employed, accounting for within-subject changes over time and between-subject differences. Independent t-tests were used to compare baseline characteristics between the two groups. Statistical significance was set at $\alpha = 0.05$.

RESULTS

A total of 76 adolescents (38 in the intervention group, 38 in the control group) completed the study, with a dropout rate of 5% due to relocation or illness. The demographic characteristics of both groups at baseline were

comparable, with no significant differences in age, gender distribution, or self-reported socio-economic status. The mean age of participants was 13.5 ± 0.8 years, and the gender distribution was approximately 50% male and 50% female in both groups.

Baseline Sedentary Behavior and Physical Literacy

At baseline, both the intervention and control groups exhibited high levels of sedentary behavior, with an average of approximately 8.5 hours/day as measured by accelerometers. Self-reported sedentary time from the APAQ also indicated similarly high levels. Baseline physical literacy scores were moderate, suggesting room for improvement in all components (physical competence, motivation, confidence, knowledge, and understanding). There were no statistically significant differences in baseline sedentary behavior or physical literacy scores between the intervention and control groups ($p>0.05$).

Changes in Sedentary Behavior Post-Intervention

The mixed-model ANOVA revealed a significant interaction effect between group (intervention vs. control) and time (pre-test vs. post-test) for objectively measured sedentary behavior ($F(1, 74) = 15.23$, $p<0.001$).

Intervention Group: Participants in the traditional game-based physical literacy model significantly reduced their average daily sedentary time. Post-intervention, the intervention group's mean sedentary time decreased by approximately 1.5 hours/day (from 8.6 ± 1.2 hours/day to 7.1 ± 1.0 hours/day, $p<0.001$).

Control Group: The control group showed no significant change in their average daily sedentary time (from 8.4 ± 1.1 hours/day to 8.3 ± 1.0 hours/day, $p>0.05$).

Similar trends were observed for self-reported sedentary time, although the magnitude of reduction was slightly less pronounced. This suggests that the intervention had a measurable and positive impact on reducing sedentary lifestyle.

Changes in Physical Literacy Components Post-Intervention

The analysis of physical literacy components within the intervention group also showed significant improvements ($p<0.01$ for all components).

Physical Competence: Participants demonstrated statistically significant improvements in fundamental movement skills, particularly in agility, balance, and coordination, which are integral to many traditional games.

Motivation and Confidence: Self-reported scores for motivation and confidence in engaging in physical activities significantly increased. Adolescents in the intervention group reported feeling more confident in trying new movements and participating in active play.

Knowledge and Understanding: Scores on the knowledge questionnaire regarding traditional game rules and the benefits of physical activity also improved significantly, indicating enhanced cognitive aspects of physical literacy.

The control group showed no significant changes in any of the physical literacy components over the 12-week period. These results collectively indicate that the traditional game-based physical literacy model was effective not only in reducing sedentary behavior but also in enhancing various dimensions of physical literacy among adolescents.

DISCUSSION

This pilot study provides compelling evidence that a traditional game-based physical literacy model can be an

effective strategy for reducing sedentary lifestyle among adolescents. The significant decrease in objectively measured sedentary time in the intervention group, coupled with notable improvements across all physical literacy components, underscores the potential of culturally relevant physical activity interventions.

The findings align with the growing body of literature advocating for the promotion of physical literacy as a holistic approach to fostering active lifestyles [6, 8, 10]. By focusing on motivation, confidence, physical competence, knowledge, and understanding, the intervention moved beyond simply increasing physical activity, aiming to instill a lifelong appreciation and capability for movement [4]. The inherent nature of traditional games, which often require diverse motor skills, problem-solving, and social interaction, appears to be a particularly suitable medium for developing these multifaceted aspects of physical literacy [11, 14, 15]. The dynamic and often team-based play encouraged by traditional games directly counters the static nature of sedentary pursuits, naturally promoting sustained periods of light-to-moderate physical activity.

The success of this model can be attributed to several factors. Firstly, the cultural familiarity and inherent enjoyment associated with traditional games likely contributed to increased engagement and adherence among adolescents. These games often carry a sense of nostalgia and shared cultural heritage, making them more appealing than generic physical activities [12, 13, 16]. This cultural resonance can be a powerful motivator for participation. Secondly, the structured yet playful nature of the intervention, facilitated by trained instructors, ensured that physical literacy components were intentionally developed through game-based learning [7]. This approach allows for implicit learning of movement skills and strategies within an enjoyable context, making the process less intimidating and more intrinsically rewarding for adolescents. Finally, the social aspect of traditional games, often involving teamwork and friendly competition, provides opportunities for positive social interaction, which is a known predictor of physical activity engagement in youth.

These results have significant implications for public health initiatives and physical education programs aimed at combating the rising tide of sedentary behavior in adolescents. Incorporating traditional game-based models into school curricula or community programs could offer a sustainable and culturally appropriate strategy. Such programs not only address physical health but also contribute to the preservation of cultural heritage and foster social skills. The findings also highlight the importance of investing in the training of physical education instructors to effectively integrate physical literacy principles and traditional games into their teaching practices.

Limitations and Future Research

Despite the promising findings, this study has several limitations. The quasi-experimental design, while practical, means that causal relationships cannot be definitively established due to the lack of full randomization. The relatively small sample size and specific regional focus may limit the generalizability of the findings to broader adolescent populations. The intervention duration of 12 weeks, while sufficient to show initial changes, may not capture long-term adherence to reduced sedentary behavior. Additionally, while objective measures were used for sedentary behavior, some physical literacy components relied on self-report, which could be subject to bias.

Future research should address these limitations by:

Conducting larger-scale randomized controlled trials across diverse geographical and socio-economic settings to confirm generalizability.

Implementing longitudinal studies to assess the long-term sustainability of reduced sedentary behavior and enhanced physical literacy following traditional game interventions.

Exploring the mediating and moderating factors, such as psychological variables (e.g., self-efficacy, enjoyment) and environmental factors (e.g., home environment, peer influence), that contribute to the effectiveness of such models.

Investigating the optimal dose and type of traditional games for specific physical literacy outcomes and sedentary behavior reduction.

Utilizing mixed-methods approaches to gain a deeper qualitative understanding of adolescents' experiences and perceptions of traditional game-based interventions.

CONCLUSION

This pilot study demonstrates that a traditional game-based physical literacy model is an effective intervention for reducing sedentary lifestyle among adolescents. By leveraging the inherent engagement and cultural relevance of traditional games, the model successfully improved various aspects of physical literacy, which in turn contributed to decreased sedentary behavior. These findings highlight the significant potential of culturally appropriate and enjoyable physical activity programs to promote active living and address public health challenges posed by sedentary lifestyles in youth. Investing in and scaling such models could be a valuable strategy for fostering a more physically literate and active generation.

REFERENCES

1. Zhu, Y., Wang, R., Liu, C., Xu, M., Wang, Q., & Zhang, Y. (2018). Sedentary behavior and the risk of depression in patients with acute coronary syndromes. *American Journal of Cardiology*, *121*(12), 1456–1460. https://doi.org/10.1016/j.amjcard.2018.02.031
2. Kotlarczyk, M. P., Hergenroeder, A. L., Gibbs, B. B., Hamm, M., & Brach, J. S. (2020). Personal and environmental contributors to sedentary behavior of older adults in independent and assisted living facilities. *International Journal of Environmental Research and Public Health*, *17*(17), 6415. https://doi.org/10.3390/ijerph17176415
3. Ellingson, L. D., Meyer, J. D., Cook, D. B., & Koltyn, K. F. (2018). Changes in sedentary time are associated with changes in mental wellbeing over 1 year in young adults. *Preventive Medicine Reports*, *11*, 274–281. https://doi.org/10.1016/j.pmedr.2018.07.013
4. Whitehead, M. (2007). Physical literacy: Philosophical considerations in relation to developing a sense of self, universality and propositional knowledge. *Sport, Ethics and Philosophy*, *1*(3), 281–298. https://doi.org/10.1080/17511320701676916
5. Irmansyah, J., Susanto, E., Lumintuarso, R., Sugiyanto, F. X., Syarif, A., & Hermansyah. (2021). Physical literacy in the culture of physical education in elementary schools: Indonesian perspectives. *International Journal of Human Movement and Sports Sciences*, *9*(5), 929–939. https://doi.org/10.13189/saj.2021.090514
6. Luo, L., Huang, G., Chen, Y., & Xu, S. (2022). Validity evaluation of the college student physical literacy questionnaire. *Frontiers in Public Health*, *10*. https://doi.org/10.3389/fpubh.2022.856659
7. Sudarwo, R., Kurniawan, E., Irmansyah, J., Balkis, M., & Esser, R. N. L. (2023). The effectiveness of Lombok traditional games on increasing physical literacy of elementary school. *Jurnal Keolahragaan*, *11*(1), 95–103. https://doi.org/10.21831/jk.v11i1.58316
8. Kwan, M., Graham, J. D., Healey, C., Paolucci, N., & Brown, D. H. (2020). Stopping the drop: Examining the impact of a pilot physical literacy-based intervention program on physical activity behaviours and fitness during the transition into university. *International Journal of Environmental Research and Public Health*, *17*(16), 5832. https://doi.org/10.3390/ijerph17165832

9. Zhang, B., Zhang, W., Sun, X., Ge, J., & Liu, D. (2020). Physical comorbidity and health literacy mediate the relationship between social support and depression among patients with hypertension. *Frontiers in Public Health*, *8*. https://doi.org/10.3389/fpubh.2020.00304
10. Edwards, L. C., Bryant, A. S., Keegan, R. J., Morgan, K., & Jones, A. M. (2017). Definitions, foundations and associations of physical literacy: A systematic review. *Sports Medicine*, *47*(1), 113–126. https://doi.org/10.1007/s40279-016-0560-7
11. Widiasavitri, P. N. (2020). Traditional games as alternative activities for children stimulation. *Journal of Psychology and Instruction*, *4*(1), 1–9. https://doi.org/10.23887/jpai.v4i1.23010
12. Siregar, E. H. S., Gultom, I., & Baiduri, R. (2022). Preserving traditional games of Margala through tourism Saka activities in Toba Samosir District. *Indonesian Journal of Social Science Research*, *3*(2), 68–72. https://doi.org/10.11594/ijssr.03.02.01
13. Hananingsih, W., Isnaini, L. M. Y., & Irmansyah, J. (2024). The role of traditional sports in establishing student character through physical education, sports, and health learning. *International Journal of Human Movement and Sports Sciences*, *12*(3), 538–545. https://doi.org/10.13189/saj.2024.120310
14. Abdullah, M. R., Musa, R. M., Kosni, N. A., & Maliki, A. B. H. M. (2017). The effectiveness of traditional games intervention program in the improvement of Form One school-age children's motor skills related performance components. *Movement Health & Exercise*, *6*(2). https://doi.org/10.15282/mohe.v6i2.142
15. Widiarti, A. U. (2022). The role of traditional games on children's ground motor and emotional ability. *Acpes Journal of Physical Education Sport and Health (Ajpesh)*, *2*(2), 143–149. https://doi.org/10.15294/ajpesh.v2i2.60887
16. Gul, S. B. A. (2023). Early childhood care and education (3–6 years) and the role of traditional games: An exploratory study of Jammu and Kashmir. *Asian Journal of Education and Social Studies*, 53–59. https://doi.org/10.9734/ajess/2023/v39i1839
17. Iswinarti. (2022). The effect of traditional game Congklak Lidi with BERLIAN method to improve honest attitude to the children. *Psychological Journal Science and Practice*, *1*(2), 61–67. https://doi.org/10.22219/pjsp.v1i2.19615
18. Mahfud, M. (2023). Traditional games as a learning strategy to develop students' self-control. *Qalamuna Jurnal Pendidikan Sosial Dan Agama*, *15*(2), 667–674. https://doi.org/10.37680/qalamuna.v15i2.3176
19. Direktorat Jenderal Kebudayaan Departemen Pendidikan dan Kebudayaan. (1981). *Permainan rakyat daerah NTB*. Jakarta: Departemen Pendidikan dan Kebudayaan.
20. Direktorat Jenderal Kebudayaan Departemen Pendidikan dan Kebudayaan. (1981). *Permainan rakyat daerah Nusa Tenggara Barat*. Jakarta: Departemen Pendidikan dan Kebudayaan.