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The Effect of Dynamic Yard on Mental and Physical Health of Elementary School Students in Yazd

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The purpose of this study was to investigate the effect of dynamic schoolyards on students' mental and physical health. The research employed a quasi-experimental design. The statistical population consisted of fifth- and sixth-grade elementary school students in Yazd whose schools had implemented a dynamic schoolyard design. According to reports from the Planning and Construction Department of the Yazd Educational Administration, the dynamic schoolyard design had been implemented in four schools, with a total student population of 400. Based on the Morgan table, a sample of 136 fifth- and sixth-grade students was selected. Data were collected using a questionnaire designed to assess the effects of dynamic schoolyards on students' mental and physical health. The questionnaire consisted of 25 items across four components: physical health, anxiety and sleep disturbance, social functioning, and depressive symptoms. Participants completed the questionnaire using a five-point Likert scale. A paired-samples t-test was used to test the hypotheses. The results showed that the implementation of the dynamic schoolyard design had a significant effect on both physical health (P = 0.001) and mental health (P = 0.001) among female elementary school students in Yazd. Based on the findings, it can be concluded that the implementation of dynamic schoolyard designs is associated with improvements in students' physical and mental health. Therefore, greater attention should be given to implementing this design in schools by educational authorities.

Keywords: Dynamic yard design, Physical health, Mental health, Elementary schools

Introduction

Human beings are regarded as the noblest of creations, capable of reaching perfection through the physical and psychological development of body and mind. Physical, spiritual, and mental health are essential requirements for a wholesome life, and physical education can fulfill part of the mission of preserving human biological existence. Wherever there is life, there is movement, and movement is the result of the complex interaction and coordination of the body, mind, spirit, and psyche of the individual (Bainbridge, 2010). Vitality and happiness are psychological characteristics that can be achieved through physical and sports activities; therefore, physical activity has gained a major role in the education of children and adolescents. From a social perspective, physical education forms part of students' emotional and social experiences, which are manifested through movement and play (Chung & Phillips, 2002). Physical education not only satisfies the need for social interaction and communication but also contributes to the development of values related to a balanced and healthy life. Given the importance of sports activities and physical education, the Ministry of Education developed a program entitled "Dynamic Schoolyard" (Hayat-e Pouya), whose main features include increasing

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vitality, physical activity, and health. Therefore, achieving a healthy and physically fit condition for participation in social and group activities is considered part of social and cultural education, which can be expanded through the Dynamic Schoolyard program (Baumeister et al., 2008).

Today, sedentary lifestyles resulting from mechanized living have contributed to the development of musculoskeletal disorders, overweight, and reduced respiratory capacity among students (Dianne et al., 2007). Obesity, especially among children, is one of the most common and significant causes of diseases, including cardiovascular diseases, which not only threaten students' general health but also impose substantial healthcare costs on society. Therefore, attention to physical education and the promotion of healthy lifestyles as preventive measures can reduce treatment costs and prevent musculoskeletal abnormalities. Furthermore, research findings demonstrating a positive relationship between students' academic achievement and physical activity have highlighted the increased importance of the Dynamic Schoolyard program and its content (Frank et al., 2005). Through physical activity and maintaining bodily health, students can better fulfill their responsibilities toward their bodies and achieve greater success in worship, work, and service to society. Implementing an appropriate Dynamic Schoolyard program involving various physical and sports skills can provide physical benefits such as reduced heart rate, improved cardiovascular and respiratory fitness, optimized metabolism, increased joint range of motion, and enhanced muscular strength and endurance among students (Kelly et al., 2009).

The Dynamic Schoolyard program also has positive psychological effects, including reducing anxiety, psychological stress, depression, and aggression, while increasing self-confidence, self-esteem, positive self-concept, happiness, and vitality among students. Socially, it promotes social relationships, responsibility, leadership, teamwork, hope for the future, and optimism in life. According to the resolution of the Supreme Council of Education, the Dynamic Schoolyard program across educational levels provides a valuable opportunity for the balanced growth and development of students' physical, cognitive, and emotional dimensions through physical and movement activities while observing health standards and cultural and ethical principles (Kioslosky, 2002). The development of such programs must follow scientific principles to prevent possible injuries. Considering the importance of the Dynamic Schoolyard program in schools, its limited implementation across all schools in the country, and the scarcity of available information on this subject, the present study seeks to answer the following question: Does the implementation of the Dynamic Schoolyard program affect the psychological and physical health of students?

Material and Methods

Considering the nature of the present study, which aimed to investigate the effect of the Dynamic Schoolyard program on the psychological and physical health of female elementary school students in Yazd, the research method was quasi-experimental and survey-based. The statistical population consisted of fourth-, fifth-, and sixth-grade elementary school students in Yazd County whose schools had implemented the Dynamic Schoolyard program and who were enrolled during the first and second semesters of the 2016–2017 academic year. According to reports from the Yazd Department of

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Education, the Dynamic Schoolyard program was implemented in four schools, with a total of 400 students across the three grade levels; this number was considered the statistical population of the study. To determine the sample size, the Krejcie and Morgan table was used. Based on the Morgan table, the sample size consisted of 196 fourth-, fifth-, and sixth-grade elementary school students.

The data collection instrument included the following:

The questionnaire used in the present study was designed to assess the effect of the Dynamic Schoolyard program on students' psychological and physical health. It consisted of 25 items and four components: physical dimension, anxiety and sleep disorder dimension, social functioning, and depressive symptoms. The questionnaire was completed by the participants, who were asked to answer the items carefully using a four-point Likert scale (none, mild, moderate, severe).

Reliability, also referred to as validity, accuracy, and dependability of the measurement instrument, indicates that if the tool designed to measure a variable or characteristic is used under similar conditions at another time or place, it will yield similar results. In the present study, in order to assess the reliability of the questionnaires, they were administered to a group of 30 members of the statistical population, and reliability was calculated using Cronbach's alpha coefficient. The Cronbach's alpha values for each component of the questionnaire indicated a high level of reliability. Based on the Cronbach's alpha reliability coefficient, all items related to the main research variables, including the physical dimension (0.84), anxiety and sleep disorder dimension (0.85), social functioning (0.89), and depressive symptoms (0.86), demonstrated acceptable and desirable levels of reliability and internal consistency for use in the research questionnaire.

The data were analyzed using descriptive and inferential statistics. In the descriptive statistics section, findings were presented in the form of charts, frequency percentages, percentages, means, and similar indices. In the inferential statistics section, the Kolmogorov–Smirnov test was first used to examine the normality of the responses. Subsequently, a paired-samples t-test was employed to investigate the effect of the Dynamic Schoolyard program on the psychological and physical health of students.

Results

The sample in this study consisted of 196 female elementary school students in Yazd during the 2016–2017 academic year. The demographic characteristics of the participants and the statistical analysis results are presented in the descriptive findings section along with tables and charts.

Among the 196 participants, 3 students (1.5%) were 9 years old, 64 students (32.7%) were 10 years old, 77 students (39.3%) were 11 years old, 44 students (22.4%) were 12 years old, and 8 students (4.1%) were 13 years old.

As shown in Table 1, regarding the effect of the Dynamic Schoolyard program on the psychological and physical health of female elementary school students in Yazd, the mean score for physical health in the pre-test was 1.58, and in the post-test it increased to 1.82. The mean score for mental health in the pre-test was 1.87, while in the post-test it reached 2.74. Among the examined components, the highest mean

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score was related to post-test mental health (2.74), whereas the lowest mean score was related to pre-test physical health (1.58).

Table 1. Mean and Standard Deviation of Scores for the Effect of the Dynamic Schoolyard Program on Students' Physical and Mental Health

Variables	Mean	Standard Deviation
Physical Health (Pre-test)	1.58	0.48
Physical Health (Post-test)	1.82	0.38
Mental Health (Pre-test)	1.87	0.49
Mental Health (Post-test)	2.74	0.46

According to Table 2, the difference between the mean scores of female students' physical health in the pre-test and post-test was statistically significant at the 95% confidence level (Sig $\leq$ 0.001) with a calculated t-value of 5.252. Therefore, the implementation of the Dynamic Schoolyard program had a significant effect on the physical health of female elementary school students in Yazd.

Similarly, the difference between the mean scores of female students' mental health in the pre-test and post-test was statistically significant at the 95% confidence level (Sig $\leq$ 0.001) with a calculated t-value of 16.16. Therefore, the implementation of the Dynamic Schoolyard program had a significant effect on the mental health of female elementary school students in Yazd.

Table 2. Results of Paired-Samples t-Test of Physical and Mental Health (Pre-test vs. Post-test)

Variable	Mean Difference	Standard Deviation	df	t	Sig
Physical Health	0.24	0.64	195	5.252	0.001
Mental Health	0.86	0.75	195	16.16	0.001

Discussion

One of the findings of the present study indicates that the implementation of the Dynamic Schoolyard program has a positive effect on the physical health of students. The period that individuals spend in school, particularly during elementary education, is highly significant. An important point is that the time spent between living and learning is distributed relatively equally; therefore, the quality of life becomes an important issue. This aspect, along with the quality of learning, is directly influenced by the quality of the school environment (Kelly et al., 2009). When discussing the school environment, it may be assumed that this refers only to the physical facilities and functional structure of the school. However, students' perceptions of their environment—whether supportive or hostile, interesting or boring—are an intrinsic component of understanding the school environment.

The school environment does not only include indoor spaces such as classrooms, libraries, and covered sports facilities. On average, students spend approximately 45 minutes per day in the schoolyard. Over the course of a school year, this accounts for nearly 15% of the total time students spend at school, meaning that by the end of the elementary school period a considerable portion of educational time is spent in the schoolyard (Kioslosky, 2002). Observations show that the schoolyard

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is a multifunctional environment that plays a fundamental role in the social and cultural structure of students' lives and in the acquisition of essential life skills. These potentials, if properly utilized, can contribute to meeting a wide range of students' needs and improving the overall school environment (Kraft, 2008).

Improving girls' physical health and posture, developing appropriate norms and habits, providing psychological release from emotional pressures during adolescence, responding positively to aesthetic needs and social acceptance, strengthening self-confidence and self-efficacy, increasing self-esteem, and practicing ethical and religious values through the promotion of modesty and vitality in girls' schools are among the most important outcomes and qualitative objectives of establishing schools with a focus on enhancing vitality (Mahon et al., 2010). Numerous statistics indicate an increase in postural problems, obesity, and physical inactivity among students. Urban lifestyles further intensify this issue, while there is a lack of school environments where girls can spend their educational, developmental, and physical education hours with greater freedom. Therefore, planning to improve the physical condition of schoolyards in Iran in a way that maintains students' vitality and enthusiasm is nearly as important as planning educational spaces that influence the teaching–learning process. The importance of this issue lies in the fact that proper schoolyard design can reduce fatigue caused by long instructional hours and increase students' energetic participation in subsequent classes. At the same time, it can indirectly improve learning and increase students' engagement with the school environment (Peter et al., 2003).

Another finding of the present study shows that the implementation of the Dynamic Schoolyard program has a positive effect on students' mental health. Children begin learning from the very start of their lives. Exploration, discovery, and curiosity are inherent characteristics that help them understand and master their environment. Therefore, educating children is inevitable, and attending elementary school represents the first step in formal education. School buildings in the contemporary era have been shaped by many factors. Functional frameworks and requirements have strongly influenced school design; although they have created memorable spaces, many lack identity, spirit, and cultural characteristics and often fail to provide lively and dynamic environments attractive to children (Gradari et al., 2016).

Consequently, many modern schools are characterized by cold and spiritless environments that do not provide appropriate opportunities for students' mental, emotional, and behavioral interactions (Carson et al., 2017). Today, schoolyards are often considered spaces separate from school buildings rather than natural extensions of classrooms. These environments frequently lack coherence and identity and do not fully meet students' educational, recreational, and relaxation needs. However, internationally, the open spaces of schools are recognized for their unique capacity to enhance the quality of education, and they are designed as complementary spaces alongside indoor environments (Wallhead & Buckworth, 2004). Therefore, schoolyards can be regarded as complementary elements in the learning process and students' leisure time.

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At present, many Iranian students perceive schoolyards as monotonous physical spaces lacking movement, vitality, joy, and dynamism, and in some cases even as oppressive environments (Wolk, 2008). In contrast, appropriate schoolyard design can function as an educational tool to enhance the quality of education. It can encourage students to participate in group activities, gain practical experiences, strengthen creativity and self-confidence, and create a natural environment that supports intellectual development. The absence of lively and engaging schoolyards is one of the ongoing issues in Iranian schools, despite its long-standing history.

Research indicates that the architectural design of school environments plays a dynamic and influential role in the quality of students' educational and developmental activities. Designing dynamic schoolyards with joyful physical characteristics can facilitate learning while promoting happiness and vitality among students. Human success and progress depend largely on productive and creative thinking. In the modern era of rapidly expanding information and communication, researchers have increasingly focused on understanding how such creative thinking develops and evolves. Psychological research demonstrates that childhood is the most critical period for nurturing and developing human talents because many acquired traits, behavioral patterns, and habits are formed during this stage, shaping the child's personality.

In recent years, numerous studies have examined factors influencing children's creativity, including educational approaches, emotional–cognitive aspects, and educational issues. However, less attention has been given to the role of school environments in fostering creativity. Studies show that the physical environment can significantly influence individuals' behaviors, including both normative and non-normative behaviors, and can also promote creativity. According to John Lang's theory, changes in the built environment directly lead to changes in human behavior (Gradari et al., 2016). Therefore, all environments in which children spend time contribute to shaping their personality and behavior. Among these environments, educational spaces are particularly important.

Considering the influence of schoolyard quality on creativity, morale, and psychological well-being, one reason for the limited effectiveness of some educational and developmental institutions may be their inadequate architectural design. Similar to many educational environments for children in Iran, these spaces often lack child-centered design. Instead of providing diverse environments such as natural schoolyards, dynamic classrooms, and workshops tailored to students' needs, they frequently offer standardized and monotonous spaces. As a result, guiding children toward creative thinking in such environments becomes challenging. The development of curiosity, thinking processes, creativity, and psychological growth in students becomes possible only when suitable environments are provided (Peter et al., 2003).

In many educational spaces, insufficient attention is given to the psychological and emotional needs of students. Environmental psychologists believe that educational environments should be designed in ways that make learning both easy and enjoyable. Rapid population growth in many countries has increased the demand for educational spaces, sometimes resulting in facilities with low educational quality that are not compatible with the psychological characteristics of children and adolescents.

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Appropriate and well-designed educational environments can influence both students' learning and their emotional states. Colors and visual elements in educational spaces can evoke excitement or calmness and increase students' interest in the learning environment, ultimately enhancing learning outcomes. Creating such positive feelings toward educational environments is particularly important because it can contribute to students' academic progress.

The Dynamic Schoolyard program, through activity-based design, colorful environments, and the creation of cheerful and engaging spaces, can positively influence both the physical and psychological dimensions of students' well-being and help achieve educational goals in schools.

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References

Bainbridge, C. (2010). *Intrinsic motivation*. Gifted Kids, About.com.

Baumeister, R. F., Campbell, J. D., Krueger, J. I., & Vohs, K. D. (2008). Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? *Psychological Science in the Public Interest, 4*(1), 1–44. https://doi.org/10.1111/1529-1006.01437

Carson, V., Abdul Rahman, A., & Wiebe, S. A. (2017). Associations of subjectively and objectively measured sedentary behavior and physical activity with cognitive development in the early years. *Mental Health and Physical Activity, 13*, 1–8.

Chung, M., & Phillips, D. A. (2002). The relationship between attitude toward physical education and leisure-time exercise in high school students. *The Physical Educator, 59*, 126–139.

Dianne, S., Ward, R. P. S., & Russell, R. P. (2007). *Physical activity interventions in children and adolescents*. Human Kinetics.

Frank, L. D., Schmid, T. L., Sallis, J. F., Chapman, J., & Saelens, B. E. (2005). Linking objectively measured physical activity with objectively measured urban form: Findings from SMARTRAQ. *American Journal of Preventive Medicine, 28*(2), 117–125.

Gradari, S., Pallé, A., McGreevy, K. R., Fontán-Lozano, Á., & Trejo, J. L. (2016). Can exercise make you smarter, happier, and have more neurons? A hormetic perspective. *Frontiers in Neuroscience*, 10, 93.

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[DOI: 10.52547/ieepj.3.2.223]

Kelly, C., Molcho, M., & Gabhainn, S. N. (2009). *Health behaviour in school-aged children (HBSC): Ireland 2006*. Health Promotion Research Centre, National University of Ireland Galway.

Kioslosky, J. L. (2002). *Happiness: How our environment affects our well-being and performance*.

Kraft, M. (2008). *Delegation von Preiskompetenz an den Verkaufsaußendienst: Eine empirische Analyse ausgewählter Determinanten und Gestaltungsmöglichkeiten*. Wiesbaden.

Mahon, N. E., Yarcheski, A., & Yarcheski, T. J. (2010). Happiness as related to gender and health in early adolescents. *Journal of Happiness Studies, 14*(2), 175–190.

Peter, R., et al. (2003). Naturalistic assessment of the relationship between personality, daily life, leisure-time exercise and mood. *Psychology of Sport and Exercise, 6*(1), 67–81.

Wallhead, T. L., & Buckworth, J. (2004). The role of physical education in the promotion of youth physical activity. *Quest, 56*, 285–301.

Wolk, S. (2008). Joy in school. *Educational Leadership, 66*(1), 8–15.

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