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The effect of contextual and interfering factors on the development of sports and physical activity in children

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Abstract

Background: Sports and physical activity are important for the healthy growth and development of children. However, various contextual and interfering factors can hinder the development of sports and physical activity in children.

Aim: The purpose to identify the contextual and interfering factors affecting the development of sports and physical activity in children.

Material and Methods: The present study adopts a combinatory approach, where the first stage is qualitative and exploratory, and the second stage is descriptive-survey. In the qualitative stage, 16 experts in the field of children's sports were interviewed using purposive sampling, and the collected data were analyzed using MAXQDA 2020 software. In the quantitative stage, SPSS software version 26 was used for exploratory factor analysis and t-tests, while PLS 3 software was used for confirmatory factor analysis.

Results: The results of this study suggest that there are five contextual factors-personal and family, infrastructure and equipment, supportive, economic and managerial as well as five interfering factors-human resources, organizational, media activities, control and evaluation, and legislation. Furthermore, the results of confirmatory factor analysis indicated that the research measurement model was validated.

Conclusions: In conclusion, it can be acknowledged that by considering the identified factors in the development of sports and physical activity in childhood, it is possible to address some of the challenges in the field of children's sports.

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1. Introduction

Exercise as an all-encompassing social phenomenon is the best mechanism for providing social and mental health. Therefore, investing in sports will reduce costs in the health sector and anti-corruption centers and will reduce the level of individual and social anomalies [1]. Researcher have shown that addressing the basic levels of sport is associated with a sense of participation and motivation for action, which leads to the development of sport and community health, and also increases people's presence in sports venues, their awareness of sports processes, and finally provides health promotion. However, families have a difficult and breathtaking responsibility to achieve their goals, and a large part of these concerns are focused on their children. Therefore, today, the mental and physical development of children can be considered as one of the most important issues in the world because that is children who can be effective in future generations along with proper education and culture in the mental and physical aspects. Hence, children's physical activity is one of the key priorities of any society to achieve their ideals of the society. In this regard, physical activity and strengthening the physical and mental strength of children can be important for the development of a society from the very beginning, and inactivity and static lifestyle of the young generation and children is a great danger for society [2].

According to a 2011 United Nations report, the globe needs global, national, and regional policies to promote physical activity and prevent disease. According to reports of physical inactivity in the age groups of children, adolescents, and young people, they are predicted to have a shorter life expectancy than their parents [3].

We must first see what the age of the child is and what the meaning of development in this term is.

The United States Department of Health and Human Services, October 2021, introduces a new classification of growing stages as follows: Childhood including infancy, 0-2 years old, play age, 2-6 years old, mid-childhood, 7-11 years old. Youth includes adolescence, 15-15 years old, mid-youth, 16-18 years old, late youth, 19-22 years old. Adulthood or puberty includes adolescence, 23-40 years old, middle age, 40-65 years old, and finally the aging stage, which includes those over 65 [4].

It should also be noted that development is a process that forms a new stage of a changing situation and leads to growth, progress, positive change, and positive social change [5].

Development is visible and useful, not necessarily rapid, but an aspect of quality change and the creation of conditions for that change to continue [4]. Sports development refers to policies, processes and actions that be combined to create sports opportunities, and experiences for all members of society. The concept of sports development is the first step in designing sports policy in any country.

Shariati et al. (2019) with the aim of developing a strategic plan for girls' student sports in Golestan province, identified the student sports of Golestan province in an offensive area and then presented a knowledge-based strategy for student sports [6].

Mirzaei Kalar, Hematinezhad and Ramezaninezhad (2020) in a study entitled Designing a Model for the Development of Student Sports in Iran state that the development of student sports is a dynamic process and to achieve it and achieve the consequences of development, all stakeholders, strategies, processes and ways of sports development must work together. Therefore, policy makers and planners should pay attention to stakeholders,

strategies, processes and ways of sports development when formulating policies and programs for the development of student sports [7].

Nguyen et al. (2021) in a study entitled Coaches' beliefs about shy children and adolescents in sports state that coaches often cite social skills as the main benefits of participating in team sports for shy team members [8].

Appelqvist-Schmidlechner et al. (2021) in a study entitled Childhood Exercise on Quality of Healthy Living in Young Men point out that more sports participation, more competitive sports; Doing team, endurance or intense sports; And even playing in the backyard as a child all have an increasing impact on the level of physical and mental health in adulthood [9].

Matta et al. (2021) concluded in their study that low sports participation is associated with more symptoms of isolation and depression in urban children who are in their school-age [10].

Sharma (2021) also states that those who enjoyed sports as children seem to show healthy personalities in adulthood. On the other hand, those who enjoyed sports as children were more extroverted and less angry than those who did not [11].

Due to the advancement of technology and the turn of children and the new generation to computer games and sedentary lifestyle of children, in addition to other factors such as living in an apartment, having one child, working parents and not having enough opportunities for parents to have fun, exercise, the new generation has become a sedentary generation, and this is a great alarm for society. Also, the lack of attention of the authorities to sports and places related to sports and children's physical activity has caused many families to not have sufficient access to appropriate sports facilities.

In addition, it should be noted that attention to the importance of sports and physical activity of Iranian children is much lower than developed countries' children, while investment in health and physical strength of future generations begins in this golden age, which at least results in reduced costs of treatment for the government and society. Therefore, the present study aims to answer the question that what are the most important environmental and organizational factors affecting the development of sports and physical activity of children in Iran?

2. Materials and Methods

The paradigm of the present research, based on the philosophical assumptions of the researcher, is the paradigm of pragmatism. The study approach is combinatory so that the first stage is qualitative and exploratory and the second stage is descriptive survey.

2.1. Participation

Sixteen Experts in the field of children's sports were interviewed using purposive sampling

2.2. Instrument

Regarding validity, it should be said that two forms of CVI and CVR were used to measure the validity of the content.

Content validity for standard questionnaires that are done in another statistical community should be repeated in detail, but for questionnaires derived from a qualitative work should definitely be done in two stages of exploration and approval [12].

- Content validity ratio index:

This index was designed by Lawshe (1975). In order to calculate this index, the opinions of experts in the field of test content are used [13]. Then, by explaining the objectives of the test to the experts and also providing them with operational definitions related to the content of the questions, they are asked to classify each

question based on the Likert three-part spectrum, i.e., "useful", "not useful", and “useful but not necessary".

Of course, it should be noted that other categories have been developed in this area later.

Then, based on the following formula, the content validity ratio is calculated [14]. Based on the number of experts who evaluated the questions, the minimum acceptable CVR value should be based on the table below. Questions for which the calculated CVR value is less than the desired value according to the number of experts evaluating the question, should be excluded from the test because they do not have acceptable content validity.

In this study, considering that 16 experts are present, the value of the content validity ratio index should be 0.49, which of course has been obtained for the present study.

- Content Validity Index (CVI):

The Waltz and Basel method is used to examine the content validity index in such a way that experts determine the "relevance", "clarity" and "simplicity" of each item based on a 4-part Likert scale. The minimum acceptable value for the CVI index is 0.79, however, if the CVI index is less than this value, that item must be removed [14]. Of course, it should be noted that this value in this study is more than 0.79.

Regarding the software, it should be said that the software used in these terms are SPSS version 26 and PLS3.

2.3. Procedure

Data collection of this study was done in two stages. In the first stage, through interviews, the opinions of all experts, who were in two scientific and executive groups in the field of sports development and children's physical activity, were collected. The scientific party includes professors of sports management, and the executive one included coaches of sports in the field of children. Sampling was done purposefully and after 16 interviews, theoretical saturation was achieved. To do so, the interview guide was first sent to the individuals, which included the title, objectives, and general questions of the interview so that the interviewees could become familiar with the desired topic of discussion.

The average duration of each interview was 40 minutes. Due to the corona pandemic conditions in the country, 4 telephone interviews and 7 video interviews were conducted virtually. And also, 5 face-to-face interviews were conducted at the request of the interviewee in accordance with all health protocols.

2.4. Statistic

Finally, the information obtained from the interview, was analyzed in 2020 MAXQDA software

The second stage was descriptive-survey in which sampling was done randomly and 97 questionnaires were collected.

3. Results

Table 1 presents the results of the investigation of data distribution based on skewness and kurtosis. The table provides information on the skewness and kurtosis values of the data, and whether they fall within the acceptable range for a normal distribution.

In general, if the amount of skewness and Kurtosis is in a range between +2 and -2, the data has a normal distribution (Table 1).

As shown in Table 2, the value of KMO was obtained 0.724, Which indicates the adequacy of the selected sample.

Table 1. Investigation of data distribution based on Skewness and Kurtosis

	Skewness		Kurtosis	
	Statistic	**Std. Error**	**Statistic**	**Std. Error**
Individual & family	-0.307	0.448	-0.176	0.872
Supportive	-0.078	0.448	-0.365	0.872
Economical	-0.158	0.448	-0.327	0.872
Managerial	0.315	0.448	-0.483	0.872
Infrastructure & Equipment	-0.976	0.448	1.173	0.872
Human resources	-0.543	0.448	-0.285	0.872
Organizational	0.288	0.448	-0.476	0.872
Media activities	0.096	0.448	-1.228	0.872
Control and Evaluation	-1.034	0.448	1.348	0.872
Legislation	-0.208	0.448	-0.906	0.872

Table 2. Bartlett sampling and spherical adequacy test

KMO and Bartlett's test		
Kaiser-Meyer- Olkin measure of sampling adequacy		0.724
Bartlett's test of sphericity	Approx. Chi-square	3103.158
	Df	780
	Sig.	0.000

Table 3. Contextual heuristic factor analysis

	Extraction	
Individual & Family	0.740	q1
	0.728	q2
	0.678	q3
	0.492	q4
	0.578	q5
	0.542	q6
Supportive	0.650	q7
	0.758	q8
	0.662	q9
	0.850	q10
	0.503	q11
	0.695	q12
Economical	0.807	q13
	0.864	q14
	0.702	q15
	0.787	q16
	0.771	q17
Managerial	0.683	q18
	0.513	q19
	0.584	q20
	0.715	q21
Infrastructure & Equipment	0.737	q42
	0.849	q43
	0.745	q44
	0.665	q45
	0.884	q46
	0.735	q47
	0.685	q48

Table 3 presents the results of the contextual heuristic factor analysis conducted in the study. This analysis aimed to identify any underlying factors that may influence the outcomes of the study. The table provides information on the factor loadings and eigenvalues of the identified factors, helping to inform the interpretation of the study's results.

Table 4 displays the results of the exploratory factor analysis of interfering factors. This analysis was conducted to identify any underlying factors that may negatively impact the outcomes of the study. The table provides insight into the factor loadings and eigenvalues of the identified factors, helping to inform the interpretation of the study's results.

Table 4. Exploratory factor analysis of interfering factors

	Extraction	
Human Resources	0.602	q22
	0.797	q23
	0.833	q24
Organizational	0.711	q25
	0.750	q26
	0.843	q27
	0.708	q28
	0.771	q29
Media activities	0.896	q30
	0.807	q31
	0.824	q32
	0.809	q33
	0.853	q34
	0.803	q35
Control and Evaluation	0.810	q36
	0.763	q37
	0.553	q38
Legislation	0.627	q39
	0.798	q40
	0.633	q41

Figure 1 displays an image of Graphium schubotzi, a species of butterfly found in East Africa. The image provides a visual representation of the butterfly's distinctive features, including its vivid colors and unique wing patterns. This species is of interest to researchers and butterfly enthusiasts due to its rarity and beauty. The figure may be useful for educational purposes or for those interested in studying or appreciating the diversity of butterfly species in the region.

The results of the data in Table 5 show that all 5 contextual factors are significant at the significance level of 0.95 and there is a significant difference between the sample mean and the population.

The results of the data in Table 6 show that all 5 interfering factors were significant at the level of 0.95 and there was a significant difference between the sample mean and the population.

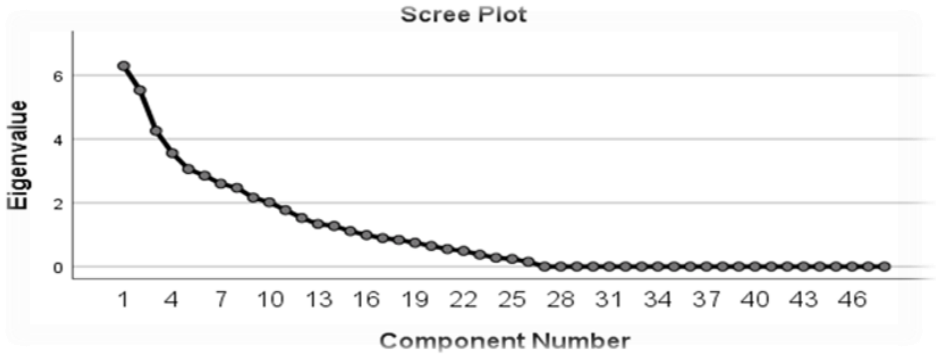

Figure 1. Graphium schubotzi

Table 5. Single sample t-test for contextual factors

One-Sample Test			
	Test Value = 3		
	T	**Df**	**Sig. (2-tailed)**
Individual & Family	62.635	26	0.001
Supportive	42.301	26	0.001
Economical	43.881	26	0.001
Managerial	50.748	26	0.001
Infrastructure & Equipment	60.658	26	0.001

Table 6. Single sample t-test for interfering factors

One-Sample Test			
	Test Value = 3		
	T	Df	Sig. (2-tailed)
Human Resources	50.503	26	0.001
Organizational	37.655	26	0.001
Media activities	43.528	26	0.001
Control and Evaluation	43.305	26	0.001
Legislation	36.233	26	0.001

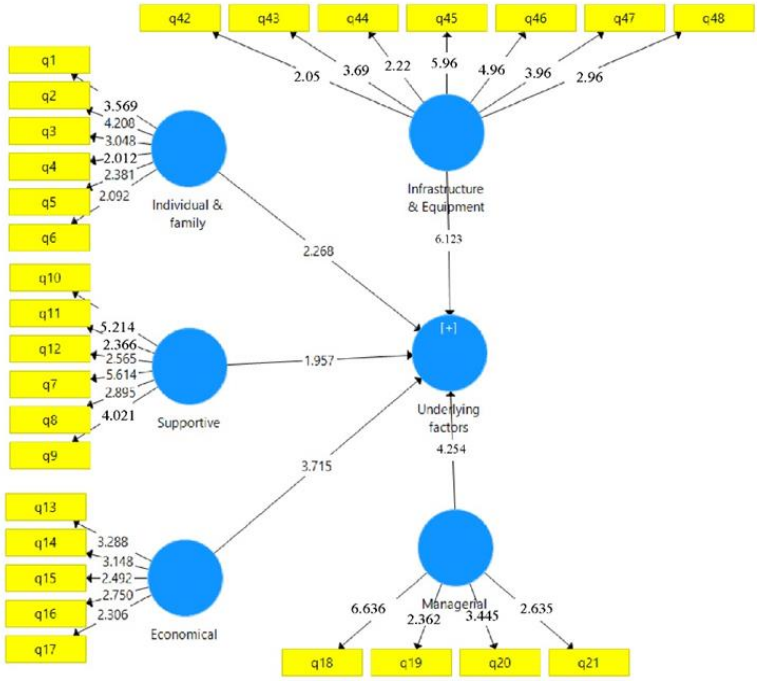

Figure 2. Confirmatory factor analysis of contextual conditions

Table 7 displays the path coefficients of contextual conditions, providing insight into the strength and direction of the relationships between variables in the study.

Table 8 presents the path coefficients of interfering factors, illustrating the strength and direction of the relationships between variables that may negatively impact the outcomes of the study.

Figure 3 shows the structural equation model and confirmatory factor analysis in t-value mode. This model actually tests all measurements using the t-statistic. According to this model, all path coefficients are significant at the confidence level of 0.95.

Table 7. Path coefficients of contextual conditions

	T	P values
Individual & Family > Contextual factors	2.081	0.019
Supportive > Contextual factors	1.968	0.025
Economical .> Contextual factors	3.938	0.000
Managerial > Contextual factors	4.254	0.001
Infrastructure & Equipment > Contextual factors	6.123	0.001

Table 8. Path coefficients of interfering factors

	T	P values
Human Resources > interfering factors	2.075	0.001
Organizational > interfering factors	4.112	0.000
Media activities .> interfering factors	3.557	0.001
Control and Evaluation .> interfering factors	5.573	0.001
Legislation > interfering factors	8.261	0.001

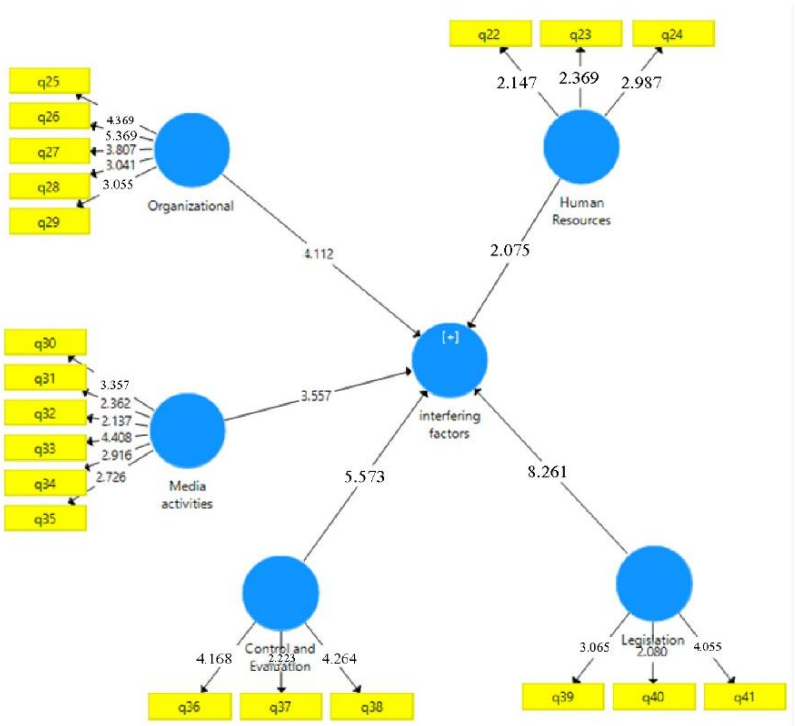

Figure 3. Factor analysis confirming interfering factors

4. Discussion

How children participate in sports and physical activities is a complex issue in which many factors are involved. What physical activity and sports children choose and how they do it need to be investigated. In this study, two contextual and interfering factors have been addressed.

In the concept of " contextual conditions affecting the development of sports and physical activity of children", the results of exploratory factor analysis indicate the existence of five categories: individual and family, infrastructure and equipment, support, economics, and management, which had alignment with the research of Daman et al and Edwardson and Gorley [15, 16].

Regarding the load factors (LF) of the questions:

Questions 1 to 5 of the questionnaire (the subset of individual and family components) include awareness of families (LF=0.740), the culture of family environment (LF= 0.727), child interest in participating in physical activities is 0.678, level of sportsmanship in the environment around the child (LF= 0.447), physical and skill abilities of children (LF=0.578), and existing sports literacy in the family with a factor load of 0.542.

Questions 7 to 12 of the questionnaire (the sub-component of the support context component) include the Media support for

the importance of physical activity in children (LF=0.650), support for the Ministry of Sports (LF=0.758), education and municipalities for children's sports (LF=0.662), parent support for the development and promotion of children's physical activity (LF=0.850), local donations (LF=0.503), support of sponsors for the promotion of sports and ultimately physical activity in children (LF=0.695).

Questions 13 to 17 of the questionnaire (the economic background subset) include Per capita physical activity and sports for children 3 to 7 years old (LF=0.807), pricing of sports services (LF=0.648), alignment of services with the inflation rate in the country (LF=0.702), the amount of attention of families to the cost of sports services (LF=0.787), and the cost of equipment and supplies Sports (LF=0.771).

Questions 18 to 21 (the subfield of management field) include the views of ministry and school principals on sports and child physical activity (LF=0.683), the level of sports literacy of principals (LF=0.513), the frequency of preschool and kindergarten teachers (LF=0.584), and the thinking and philosophy of children's sports planners (LF=0.715).

Questions 42 to 48 of the questionnaire (the subset of infrastructure components and sports equipment) include Existence of physical activity and sports bases for children (LF=0.737), the quantity and quality of sports spaces tailored to the needs of children (LF=0.849), the attractiveness of play equipment and physical activity of children (LF=0.745), justice regarding the distribution of equipment and sports facilities for children across the country (LF=0.665), Safety and security of play equipment and physical activity of children (LF=0.884), existence of sports spaces in parks for children (LF=0.735), and the environmental health of children's sports spaces (LF=0.685).

Also, the results of one-sample t-test for contextual factors show that all 5 contextual factors are significant at a significance level of 0.95 and there is a significant difference between the mean of the sample and the population.

The five main categories of manpower, organization, media activities, control and evaluation, and legislation were included in the concept of "interfering conditions affecting the development of sports and physical activity of children".

The obtained samples such as access rate, existing laws, media advertising and development of sports facilities are in line with the researchers such as Moradi, Honari and Ahmadi (2011) [12] and Ghasemi, Mozafari and Amirtash (2008) [17].

Questions 22 to 24 (the subset of human resource) include the use of physical education graduates (LF=0.602), the presence of a motivated professional coach in children's sports (LF=0.797) and the number of trained professional trainers (LF=0.833).

Questions 25 to 29 (the subset of organizational factors component) include Relationship of education directors with stakeholders of children's sports (LF=0.711), non-governmental organizations and charities (LF=0.750), increase of cooperation of the Ministry of Education with families regarding children's sports (LF=0.843), the level of cooperation of the Ministry of Education with relevant local organizations (such as municipalities and sports clubs) (LF=0.708), the need for laws related to the institutionalization of sports and physical activity (LF=0.771).

Questions 30 to 35 (the subsets of media activities component) include Use of boards and billboards in connection with children's physical activity (LF=0.896), making children's films about sports and children's physical activity (LF=0.870),

using media coverage to promote children's physical activity and sports (LF=0.824), cooperation of IRIB regarding Broadcasting sports programs for children (LF=0.809), cooperation of the Ministry regarding broadcasting sports programs for children (LF=0.853) Using advertising and branding (LF=0.803).

Questions 36 to 38 (the control and evaluation component subset) include the existing evaluation system (LF=0.810), the use of children's skeletal assessment and evaluation software (LF=0.763), the amount of the system for providing feedback to families 0.553.

Questions 39 to 41 (the subset of the legislative component) included existence of official laws (LF=0.627), existence of official laws in municipalities for holding programs focusing on children's physical activity (LF=0.798), existence of laws in support of welfare and physical health of children in the Ministry of Sports (LF=0.633).

Also, the results of one-sample t-test for interfering factors show that all 5 interfering factors are at a significant level of 0.95 and there is a significant difference between the mean of the sample and the population.

Finally, the results of confirmatory factor analysis in Pls3 software showed that the shape of the structural equation model and the measurement model of contextual and interfering factors in t-value were confirmed.

This model actually tests all measurements using the t-statistic. According to this model, all path coefficients are significant at the confidence level of 0.95.

5. Conclusion

In conclusion, the findings of this study suggest that addressing the identified factors in the development of sports and physical activity in childhood may help overcome some of the challenges in the field of children's sports. By taking into account factors such as parental support, access to facilities, and the quality of coaching, strategies can be developed to promote children's engagement in sports and physical activity. This can have numerous benefits, including promoting physical health, developing social skills, and improving overall well-being. Therefore, it is important for policymakers, educators, and parents to prioritize the development of a supportive and inclusive environment for children's sports and physical activity.

Conflict of interest

The authors declared no conflicts of interest.

Authors' contributions

All authors contributed to the original idea, study design.

Ethical considerations

The authors have completely considered ethical issues, including informed consent, plagiarism, data fabrication, misconduct, and/or falsification, double publication and/or redundancy, submission, etc. The participants were informed about the purpose of the research and its implementation stages; they were also assured about the confidentiality of their information. Moreover, they were allowed to leave the study whenever they want, and if desired, the results of the research would be available to them.

Data availability

The dataset generated and analyzed during the current study is available from the corresponding author on reasonable request.

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