



# Designing a paradigm model for sport-based health development among students

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## Abstract

**Background and aims:** The consequences of health development with the exercise approach affect the 4 dimensions of physical, mental, economic, and social health. The aim of this study was to present a comprehensive model to determine the contributing factors, strategies, and outcomes of sport-based health development (SBHD).

**Methods:** This qualitative study was conducted through the grounded theory approach. Data were collected through interviews with 24 experts and authorities in health, sports, and health development who were selected through purposive and snowball sampling. Open, axial, and selective coding were used for data analysis. Trustworthiness was ensured through member checking and peer debriefing.

**Results:** Four hundred codes were drawn during open coding and were grouped into 127 subcategories during axial coding and nineteen main categories during selective coding. The nineteen categories were assigned to the five main dimensions of the paradigm model of grounded theory. The causal conditions of SBHD were personal, cultural, and social factors; its contextual conditions were attitudinal and attitudinal factors, media, planning, and legal factors; and its intervening conditions were environmental, infrastructural, interactional, and managerial factors. Its strategies were infrastructural development, attitudinal development, technical development, and support programs and its outcomes were improvement of physical health, financial development, social development, and improvement of mental health.

**Conclusion:** Health and sport managers and authorities need to provide an appropriate context to facilitate engagement in sports among all individuals.

**Keywords:** Sport, Physical activity, Health, Development

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## Introduction

Despite significant advances in health status in the last century, health is still a main subject of global policies. Sport is a main aspect of health and health improvement (1). So that the World Health Organization has emphasized engagement in sports as a key strategy to prevent non-contagious diseases (2). Sport is also a main component of healthy lifestyle as well as health and peace development (3). Sport is associated with many different positive outcomes. It significantly improves social relationships and mental health outcomes, reduces engagement in high-risk behaviors (4), and prevents social deviances, particularly among individuals with poor physical, psychological, and social health. Sport is not only associated with positive personal outcomes, but also can positively affect groups, foundations, and societies so that it is considered as an indicator of sociocultural development of societies (5). Therefore, governments and policy-makers have supported traditional sports as a method to fight a wide range of health-related problems (6). Health-oriented sport is so much important to public health and dynamicity that some sociologists consider it as a civil religion (7), and therefore sport is considered as a component of development (8). Sport-for-development

programs provide a flexible and holistic framework based on cultural diversity for doing sport, evaluating it, and encouraging planning for future development programs (9). However, sport-for-development needs objectivity, research, and evaluation through local development programs (10). Engagement in sport and its outcomes are affected by many different factors including personal interest in sport (11), management in sport organizations (12), availability of programs to encourage engagement in sport (13), top-down approach of governmental authorities to sport, conflict of interests (12), and social factors and data (5). Moreover, the effectiveness of sport in developing health largely depends on its strategic and exclusive use for health development (14). A study reported that the progressively increasing costs of engagement in sport activities and limited access to sport facilities have led to inequities in using sport facilities for health development and promotion in recent decades (13). Therefore, sport activities should be adapted to the immediate environmental conditions and non-traditional approaches (12). Moreover, sport-related values should target health development and sport organizations should accept the responsibility of health promotion instead of merely focusing on competition (15). Two

studies have highlighted the importance of combining the best sport development methods (13) and using positive organizational approaches (16) in order to promote health through sport. Another study recommended that the public outcomes of sport can be improved through enhancing sustainability, increasing interest in sport, gaining experience before action, using professional training, promoting academic partnership, fostering professional and entrepreneurial attitude, and using online resources (17). The results of these studies indicate that the traditional culture of sport that focuses on competition and winning is not necessarily the best method for sport management and improvement of positive health-related outcomes and highlight the necessity of developing sport management models that prioritize public health over other outcomes of sport. Sport management authorities also need to use approaches that increase the number of individuals who engage in sport activities (18). A main prerequisite to sport-based health development (SBHD) is to determine its contributing factors. Therefore, the present study was aimed at designing a comprehensive model to determine the contributing factors, strategies, and outcomes of SBHD.

## Methods

### Design

This qualitative study was conducted using Strauss and Corbin's Grounded Theory approach.

### Participants and setting

The population of this study consisted of experts and authorities in health, sport, and health development selected through purposive and snowball sampling. They included the supervisors of the health and sport counseling centers of universities, health and sport researchers, and university instructors.

### Data collection

Data were collected through semi-structured interviews, and printed and electronic materials on health and sport. Although the data were saturated after 14 interview sessions, a total of 24 interviews were conducted in order to include a wide range of ideas in the study and enrich the data.

### Trustworthiness

Trustworthiness was established using member checking and peer debriefing. To assess intra-rater test-retest agreement, eight interviews were coded twice with a thirty-day interval and intra-rater test-retest agreement coefficient was calculated using the formula below. The intra-rater test-retest agreement coefficient was calculated at 0.85 (Table 1), which confirmed the acceptability of coding stability.

$$\text{Reliability} = \frac{2 \times \text{Number of agreements}}{\text{Total number of codes}} \times 100$$

### Data analysis

**Table 1.** Test-retest agreement

Participant	Number of codes	Number of agreements	Number of disagreements	Reliability (%)
1	70	32	10	91%
3	90	35	7	77%
4	83	33	9	79%
5	39	18	4	92%
7	68	30	11	88%
9	65	29	10	89%
11	71	31	8	87%
12	82	33	6	80%
Total	568	241	65	85%

Data were analyzed through the paradigm model and the three steps of open, axial, and selective coding (19). Finally, we achieved theoretical sufficiency and were ensured that all different aspects of the intended phenomenon were sufficiently explored, and presented the paradigm model of SBHD.

## Results

Excerpts from participants' interviews which were relevant to the study's aim were identified as meaning units and coded during the process of open coding. Table 2 shows an example of open coding. During the process of axial coding, three categories of causal conditions, four categories of contextual conditions, four categories of intervening conditions, four categories of strategies, and four categories of outcomes were drawn (Table 3). Figure 1 shows the final model of the study.

## Discussion

This study was aimed to present a comprehensive model to determine the contributing factors, strategies, and outcomes of SBHD using the grounded theory approach. Data analysis yielded five main categories, namely causal conditions, contextual conditions, intervening conditions, strategies, and outcomes.

### Causal conditions

Causal conditions refer to the conditions that lead to the occurrence of the intended phenomenon including personal, familial, sociocultural, legal, and governmental factors. Our findings showed that personal factors, cultural factors, and social factors were the causal conditions of SBHD. Previous studies also reported that personal factors such as gender, financial status, and geographical location could affect engagement in sport activities (20-23). Cultural factors can also affect lifestyle. A healthy culture in a country can be considered as the basis for health development in that country. Culture improves individuals' motivation to engage in certain activities and facilitates the process of development. In agreement with our findings, several studies have shown that familial and social factors are among the cultural factors affecting the management of youngsters' problems (24-26). One study

**Table 2.** Examples of the open coding of the interview with the third participant

Codes	Meaning units
Strategic and long-term investment in sports	Investment in sport should be strategic and long-term. Good actions have been taken in the country so far; nonetheless, education should be promoted because investment in sport is very effective and its effects will be realized in the future.
Paying attention to health and happiness in sports	Health is very important but sport should not be limited to health; rather happiness and healthy lifestyle should also be addressed in sport.
Avoidance of arbitrary actions; the need to have a well-designed program	We shouldn't arbitrarily act in the field of sports; rather, we should have a well-designed program based on higher-order documents and act based on it.
The misconception of health is the absence of illness	There is a false belief that everybody who is not ill is healthy and does not need to take any action for his/her health.
Inadequate availability of sport facilities	The per capita amount of sport facilities in our country is much less than the global standards and it is even less for women.
Promotion of sports at basic and public levels	A major problem in our country is to give greater importance of professional sports than public sports. Actually, it is public sport, not professional sport, which can be an instrument for health development.
Prioritization of treatment; Improvement and maintenance of fitness; Improvement of mental health	Sports can lead to different outcomes such as health maintenance and improvement, physical fitness, mental health improvement, etc. Thus, our health approach should be changed from treatment to prevention. Unfortunately, the dominant approach in our country is treatment.
Financial problems; Expensiveness of sport facilities	Financial problems and expensiveness of sport facilities have made people not prioritize sports and have reduced their interest in sports.

**Table 3.** The results of axial coding

Model components	Categories	Subcategories
Causal conditions	Personal factors	Low perceived success in performance; physical problems; unhealthy lifestyle; time limitation
	Cultural factors	Inattention to the necessity of sports for health maintenance; prioritization of academic success in families; limited information about the consequences of non-engagement in sport activities; the culture of health in some social classes
	Social factors	Limited attractiveness of sports for the public; the growing trend of apartment dwelling; high costs of engagement in sport activities
Contextual conditions	Attitudinal factors	Lack of scientific thinking, insight, and management in health and sports; limited engagement of people in sport activities; prioritization of treatment; giving inadequate attention to sports
	Media	Growth of information and communication technologies; establishment of the health channel in the national broadcasting organization
	Planning	Weaknesses of policy making (including goal setting, planning, and budgeting); development of the inactive transportation system; inefficiency of physical education session hours in schools
	Legal factors	Approval of the global day of sport for peace, development, and health in the United Nations; public access to primary healthcare services; availability of high-order documents such as the Health Reform Plan; availability of disease prevention documents in the Ministry of Health
Intervening conditions	Environmental factors	Lack of encouragement and guidance programs; authorities' inattention to sport; inadequate sports finances of universities; financial problems in the society; air and environmental pollution
	Infrastructural factors	Limited public transportation facilities; limited number of standard sport facilities and infrastructures; lack of active transportation facilities
	Interactional factors	Poor collaboration with scientific centers; limited use of research findings; limited collaboration between the health system and the sport system
	Managerial factors	Poor financial support for sport-based health development; inefficiency of health-related systems; inefficiency of sport-related systems
Strategies	Infrastructural development	Knowledge development and employment of experts; establishment of a university sport system; identification of capable students
	Attitudinal development	Development of sport identity card for students; development of health- and sport-related awareness-raising programs; development of programs for sport volunteers to promote sports in universities
	Technical and structural development	Development of inexpensive sport infrastructures in health centers and neighborhoods; improvement of the productivity of sport facilities in universities; improvement of urban design based on health and sports
	Support programs	Allocation of 10% of the budget of the sports in the Health Reform Plan to physical exercise and health administration
Outcomes	Improvement of physical health	The effects of sport and physical activity on disease prevention and management; improvement of cardiopulmonary capacities; improvement of physical fitness
	Financial development	Development of professional sports; sports entrepreneurship; development of sport tourism; reduction of medical costs
	Social development	Training an athletic generation; enrichment of leisure time; formation of a positive public image of sports; development of social capital
	Improvement of mental health	Development of interest in learning and skill improvement; improvement of mental conditions and self-confidence; improvement of quality of life

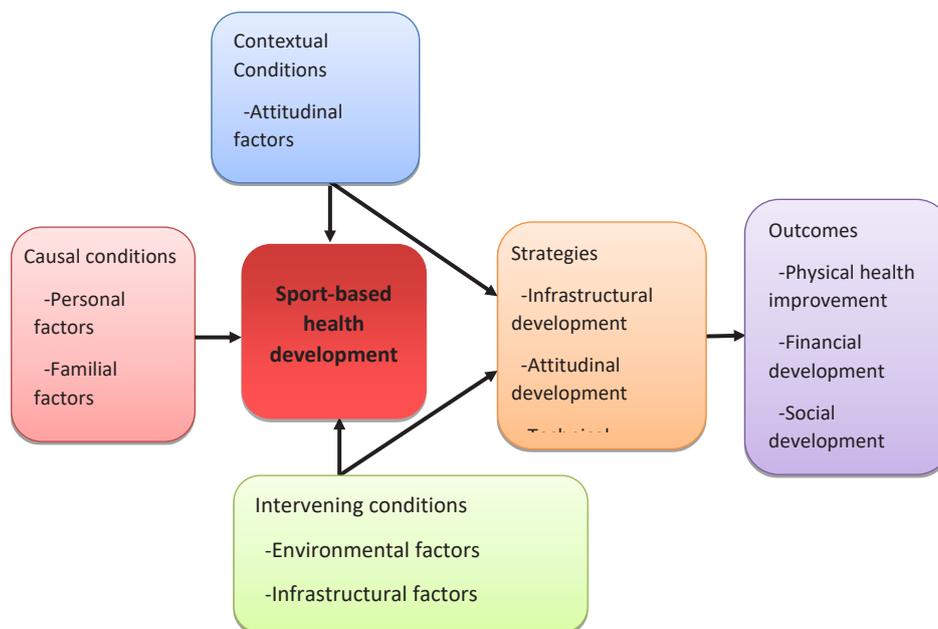


Figure 1. The paradigm model for sport-based health development among students.

in Australia revealed that cultural factors could lead to social inequities, and thereby affect youngsters' health (27). Systemic factors were also among the cultural factors affecting SBHD in the present study. Several studies have also reported the same findings (24,25,27-29). Systemic problems in the management system in most megacities in Iran that are due to factors such as increasing urbanization, difficult life conditions, and authorities' inattention have negatively affected individuals' engagement in sports. The coronavirus disease 2019 outbreak has also negatively affected sport activities (29). Therefore, interdisciplinary collaboration is needed for SBHD.

### Contextual factors

Contextual conditions refer to specific conditions in which the intended phenomenon occurs. The contextual conditions of SBHD in the present study were attitudinal factors, media, planning, and legal factors. Positive public attitude towards sports is an essential prerequisite to SBHD. Some studies have also shown similar findings (26,30,31). Therefore, education and awareness raising through purposeful educational programs are considered as main strategies to foster positive attitudes towards sports and health. Similarly, two previous studies reported improvement of knowledge and cognition about health standards as a potentially useful strategy for health development (32,33). Media can also significantly affect all aspects of personal and social life. Therefore, educational programs in media can correct negative health-related stereotypes, improve individuals' motivation for sport, and familiarize them with the benefits of sports. A study in Iran showed that the programs of the sport channel in the national broadcasting organization of Iran had significant direct correlation with the health and sport culture of youngsters (34).

Planning was drawn as another contextual factor of

SBHD in the present study. In line with this finding, two studies in Iran highlighted the importance of planning to the development of physical exercise in communities (35). Planning refers to the responsibilities of high-ranking managers to correct inappropriate patterns of health development and remove its barriers. We also found legal factors as another aspect of contextual conditions of SBHD that is in agreement with the findings of two studies (36). There are some restrictive rules and regulations that limit individuals' engagement in sport activities and healthy behaviors, and therefore adversely affect SBHD. A study showed that sport legislation and policies in Sweden were the outcomes of a long-term relationship among local and national governments and non-profit voluntary organizations that led to strong support of organized sports (37). The government of Malaysia also launched three major national programs for all age groups in order to turn sports into a culture in daily life (38). Therefore, sport and health development in developed countries depend on the investment and collaboration of governments and individuals.

### Intervening conditions

Intervening conditions are structural conditions that limit or enhance the effects of other factors. Intervening conditions in the present study were environmental, infrastructural, interactional, and managerial factors. Previous studies have also reported the effects of environmental factors on sport activities (26-39). Environment includes all external factors that are related to health and sport. Given the multiplicity of current social and financial problems in Iran, sport is considered as a luxurious entertainment, and hence SBHD needs more systematic approaches. Infrastructural factors refer to equipment, facilities, support services, and attitudes that affect health-related programs and include a wide range

of factors from economic to instrumental infrastructures as well as governmental policies. Improvement of infrastructures can improve public health. In line with our findings, several studies have revealed certain resources, including financial and structural equipment and facilities, as the most important effective factors on public health and sports (25,39,40).

Interactional factors were also among the intervening conditions of SBHD. Two studies have achieved similar findings (17,39). Interactional factors in SBHD refer to interaction and synergism among different departments for health development. Interdisciplinary interactions and use of the capacities of different departments can promote sport activities and public use of sport facilities.

Our findings also revealed managerial factors as another aspect of intervening conditions of SBHD that is in agreement with the findings of some other studies (35,39,41-43). Managerial factors are among the most important factors affecting SBHD. As with other national systems, health and sport systems need effective management and adequate budget. Given the significant role of sport in health promotion, specific strategies are needed to promote public sport as a fixed component of daily life rather than a temporary activity.

### Strategies

Strategies refer to purposeful behaviors, realities, and interactions that occur due to the contextual and intervening conditions. Our findings revealed that the strategies for SBHD were infrastructural development, attitudinal development, technical development, and support programs. Infrastructural development provides the necessary context for SBHD. Establishing centers such as the Youth Health Research Center and developing certain programs such as the National Program for Youth Health promote research activities on health and facilitate SBHD. A prerequisite for such initiatives is to investigate the status quo of public health and create a comprehensive database using detailed data about current and optimum public health level. Two other studies have also shown similar results (39,44). Moreover, modeling successful health development initiatives in other countries can facilitate SBHD (25,26). However, appropriate facilities and management of sport development without great personal motivation for sports cannot significantly improve engagement in sport activities. Therefore, sport incentives and motivators are needed to improve engagement in sports. Our participants also recommended strategies such as using sport identity cards for individuals or educational programs to improve public knowledge about sport- and health-related issues. Sport and health authorities need to develop and use motivational and educational strategies to improve motivation for doing sports, particularly among adolescents and youngsters (45,46).

Financial support was another main strategy for SBHD. An example of such support was to increase the per capita amount of sport and health facilities. Governmental

### What does this paper contribute to the wider global clinical community?

- SBHD among students is affected by causal conditions such as personal, cultural, and social factors, contextual conditions such as attitudinal and legal factors, media, planning, and intervening conditions such as environmental, infrastructural, interactional, and managerial factors.
- Strategies for SBHD are infrastructural development, attitudinal development, technical development, and support programs.
- The outcomes of SBHD are improvement of physical health, financial development, social development, and improvement of mental health.

support can reduce the costs of sports for individuals, reduce their concerns over engagement in sport, and improve their engagement in sport activities. A study reported legal support to develop policies and researches on youth health as a determining factor for youngsters' engagement in sport (47).

Our findings also showed that as with public sports, sports in universities need technical and structural development. Several previous studies also reported the same finding (39,43,48). The Fourth National Development Plan of Iran also obliges the Ministry of Science, Research, and Technology to develop sport facilities, increase the hours of the physical education course, establish sport clubs and gyms, and train a sufficient number of staff for sport development in universities.

### Outcomes

Outcomes are the results of strategies in the causal, contextual, and intervening conditions. Our findings revealed that the outcomes of SBHD are improvement of physical health, financial development, social development, and improvement of mental health. SBHD can improve physical and mental health and quality of life. This is consistent with the findings of two previous studies (27,32). Moreover, we observed that SBHD could improve social health that is consistent with some previous studies (4,49,50). Sports can reduce social deviances and problems. Moreover, our findings showed that SBHD might be associated with some financial outcomes. Financial development is among the most essential components of macroeconomics and is one of the main goals of governments and politicians. In line with our findings, a study reported that sport could facilitate financial development (51).

### Conclusion

The authorities of youth health development need to distinguish young adults' problems in sports from young adults' own perspectives (causal conditions) and use appropriate programs (strategies) based on the immediate context and environmental conditions (contextual and intervening conditions) in order to improve their physical

and mental health and facilitate financial development and social development. More thought-out interventions are needed to improve students' engagement in sports to improve their health. The authorities of youth health, particularly the Ministry of Health and the Ministry of Sport and Youth, also need to give more attention to SBHD in their policies.

#### Conflict of Interests

The authors declare no conflict of interests.

#### Ethical Approval

The Ethics Committee of Shahrekord University of Medical Sciences, Shahrekord, Iran, approved the study protocol (IR.SKUMS.REC.1400.193).

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