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Factors Affecting the Physical Activity of Female High School Students: A Grounded Theory Qualitative Study

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Abstract

Background: To prepare for future personal, family, and social responsibilities, young girls need to promote and maintain their health. Since physical activity has an effective role in maintaining women's health, the present study aimed to examine the factors affecting the physical activity of female high school students.

Methods: The participants in this qualitative grounded theory study were 20 female high school students living in District 20 in Tehran in 2021. The students were selected using purposive sampling. The data were collected using individual interviews and focus groups. The collected data were analyzed using the constant comparative method with MAXQDA-10 software.

Results: The results showed that psychological, individual, environmental, educational, social, economic, and family factors were effective in the physical activity of female high school students. The identified factors were used to develop a conceptual model for the factors affecting the physical activity of female students. The extracted factors were further divided into some subcategories including sports facilities, gender discrimination, community management views on sports, physical health, interests, educational facilities, knowledge and information, time management, and women's limitations.

Conclusion: The findings from the present study showed that several factors can affect the physical activity of female students. These factors should be taken into account when developing and implementing educational interventions and plans to promote physical activity in female students.

Keywords: Physical activity, Students, Qualitative research, Grounded theory, Female

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Introduction

As an important indicator of community health, regular physical activity moderates the risk factors for cardiovascular diseases, mental health, and self-esteem. Inactivity is one of the most important issues that has led to non-communicable diseases such as cardiovascular diseases, diabetes, osteoporosis, psychological disorders, and malignancy in the 21st century (1). Thus, lack of physical activity is known as the fourth main risk factor for mortality in the world (2), and it is estimated that inactivity causes 1.9 million deaths and 19 million disabilities worldwide. Moreover, the lowest level of physical activity has been reported in Thailand, Saudi Arabia, Brazil, and Iran. Accordingly, lack of physical activity is considered the main health challenge in the world and a global epidemic. Studies have shown that more than 70% of people in Iran do not have good physical activity (2). Inactivity leads to unhealthy lifestyles in all age groups, especially children and adolescents. As a result, regular physical activity is recommended to improve public health and indirectly reduce the burden of disease and medical costs in communities.

Physical activity improves the quality of life in people of all ages. However, adolescence and youth is the period of transition from childhood to adulthood, and life habits such as regular exercise begin and continue during this period (3). Physical activity plays an effective role in maintaining women's health, especially young girls who must prepare for future personal, family, and social responsibilities. In addition, girls' participation in physical activity has gained new importance amid public health concerns about obesity and increased inactivity in contemporary Western societies. The UK's Active Lives Survey shows that only 43% of girls comply with physical activity guidelines compared to 51% of boys (4). This pattern is supported by accelerometric data showing that

girls appear to be less active and more sedentary than boys across Europe (5).

The participation of girls in physical activity in schools and the community is of significant importance in the fields of sports, education, and health at the international level. In the UK, addressing gender inequalities in physical activity has been a part of policy approaches for some time (6). For example, such policies have led to This Girl Can Campaign launched by Sport England (7). Furthermore, such investments and campaigns are justified in terms of social justice as sports and physical education have been key opportunities for girls to participate in physical activities for a long time. Thus, interventionist approaches planned based on the factors affecting individual decisions to raise girls' voices may be more effective. This being so, there is a need for more research on factors associated with target behaviors or intervention programs that focus on ameliorating discomfort and organizing efforts around that discomfort. For instance, intervention approaches may be uniquely effective in providing useful insights and foresight about how to promote girls' participation in physical activity programs. Such approaches are among the important requirements for developing effective interventions (8). However, there is little information available about physical activity and inactivity during adolescence. Studies have shown that Iranian adolescents are not interested in doing physical activities and there is a high level of inactivity in Iranian adolescents especially in girls, leading to more frequent spinal abnormalities in Iranian girls compared to boys (9).

Most of the studies have addressed the promotion of physical activity in adolescents in Iran using a quantitative approach. Furthermore, a review of the literature highlights a need for a detailed analysis of interventions to increase physical activity in girls. Thus, given its special capabilities, qualitative research can explore and identify the conditions in which psychological and social processes occur and even reveal social conditions and variables effective in the occurrence of behaviors (10). To this end, the present study adopted a grounded theory approach, which is used when there is no adequate knowledge about a given phenomenon. Besides, this approach is used to provide valuable and profound information in qualitative studies. Thus, instead of relying on existing theories, the grounded theory approach helps the researcher formulate theories using data from real-world contexts. This being so, the present study aimed to examine the factors affecting the physical activity of female high school students in Tehran using a qualitative and grounded theory design.

Methods

This grounded theory qualitative study adopted the constant comparative method to investigate the factors affecting the physical activity of female high school students in Tehran in 2021. The research population consisted of all female high school students living in District 16 of Tehran. The participants were selected using purposive sampling. Purposive sampling is used to select participants to provide rich information about a phenomenon. The number of participants in the study was determined based on the data saturation point. To this end, 20 female students were selected as the participants. The data in this study were collected using individual in-depth interviews and focus groups through an interview guide.

The collected data were analyzed using the constant comparative method with MAXQDA-10 software through the following steps: (*a*) Data collection: The data were collected using individual interviews to determine the degree of physical activity performed by female students, the problems hindering physical activity, the benefits of regular physical activity, the adverse effects of the failure to perform physical activity for the students, the factors that induce interest in physical activity in the students, and strategies to motivate female students to perform physical activity; (*b*) Recording and transcribing the interviews; (*c*) Analyzing the data using the constant comparative method simultaneously with data collection; (*d*) Codifying the data; and (*e*) Extracting the main categories and subcategories.

Data codification

(*a*) Open coding (reviewing the text of the interviews and underlining significant statements related to the phenomenon in question), (*b*) Axial coding (comparing the open codes and clustering them into related categories or themes), and (*c*) Selective coding (identifying the core theme). Lincoln and Guba's criteria (credibility, transferability, dependability, and confirmability) were used to check the rigor of the data and findings (11,12). The credibility of the findings was ensured through prolonged engagement with the phenomenon in question and revising the data through member checking and peer checking. Furthermore, to enhance the transferability of the data, the findings were reviewed by four students to find out the degree to which they matched their experiences. To enhance the dependability of the findings, the procedures taken to conduct the study were described step by step to make it possible for prospective readers to provide a sound judgment about the research methodology and findings.

The criteria for enrollment in the study were: (*a*) being a high school student and (*b*) giving written informed consent to participate in the study. The exclusion criteria were: (*a*) having a specific disease and (*b*) withdrawing from the study at any stage and for any reason.

The protocol for this study was confirmed by the Committee for Ethics in Biomedical Research of Islamic Azad University, Teheran, Science and Research Branch. The participants' identity was kept confidential and anonymous during data collection and analysis. The

participants were selected based on the inclusion and exclusion criteria from among students in all high schools in District 16 of Tehran. The in-depth individual and focus group interviews were conducted with the students who were willing to attend the study. Each interview lasted 45 minutes on average.

Results

The participants in this study were 20 lower secondary school students who were selected through purposive sampling. The participants' average age was 14.3 years. The characteristics of the studied participants were shown in Table 1. Each interview lasted 45 minutes. Data analysis revealed 7 main categories (psychological, individual, environmental, educational, social, economic, and family factors) and 25 subcategories as detailed in Table 2.

Psychological factors

One of the factors affecting girls' physical activity was psychological factors. After analyzing the data, Self-confidence, Enthusiasm, Interest, hopeful, positive thinking.

were obtained as subcategories of the main category of psychological factors and from the students' perspective, psychological factor is one of the important factors in physical activity. Students referred to lack of interest in individual sports and lack of motivation emanated from other.

Self-confidence

Codes related to this subcategory included Stress, proactivity, low self-confidence, false self-confidence, humiliation of the student, being shy, depression, and not being in the mood to exercise**.**

"I am ashamed to go to the gym because my skin color is dark" (Interviewee13).

Table 1. Characteristics of study participants (n = 20)

Variables	Value
Gender, No. (%)	
Female	20 (100)
Male	0 (0)
Age (y) Mean ± SD	14.3 ± 0.89
Mother's education, No. (%)	
Illiterate	3 (15)
Guidance school	7 (35)
High school	6 (20)
Higher education	4 (30)
Father's education, No. (%)	
Illiterate	1 (5)
Guidance school	6 (30)
High school	7 (35)
Higher education	6 (30)

"If I go to volleyball and make a mistake and the kids laugh, I don't want to continue" (Interviewee7).

Enthusiasm

"I often don't want to exercise because I'm alone. If there are supportive parents and friends, you will be motivated to do exercise and enjoy it a lot. Support and encouragement from the family and community can make a person interested in doing exercise and performing physical activity" (Interviewee 5)

Interest

Codes in this subcategory included Not being interested in individual sports, having interest, making others interested in doing sports.

"I'm not good in sports. I don't feel like exercising at all. The sports teacher doesn't seem to be interested in sports either" (Interviewee 3).

Individual factors

One of the other influential factors on girls' physical activity is individual factors. After analyzing the data under the categories of this main category, and included the following factors: Teachers' personal characteristics, information and knowledge, planning and time management, physical health, female students' physical limitations.

Teachers' personal characteristics

The codes obtained from this sub-category include old age, the teacher's underestimation of sports, irregular presence of the teacher in the class, the teacher having two jobs, the teacher's fatigue, the teacher's insufficient knowledge and skills in sports, the teacher's carelessness, the teacher's unfamiliarity with different sports, the teacher's preoccupations, and the teacher's inadequate experience.

"Our teacher is a novice and she still does not have enough experience in exercising. The rest of the teachers also have a second job, so they are tired and exhausted, and they are not interested in working with us" (Interviewee 8).

"The teacher often does not regularly attend school due to special problems. Our teacher is not very familiar with typical sports" (Interviewee 11).

Physical health

The codes of this subcategory were visual impairment, physical limitations of girls, lack of physical fitness, extreme thinness, lethargy and inability to perform tough sports activities, heart disease.

"Well, we are now in puberty and a series of changes make us unable to exercise" (Interviewee 2).

Female students' physical limitations

Table 2. The categories and subcategories extracted in this study

Main categories	Subcategories
Psychological factors	Self-confidence, enthusiasm, interest, hopeful, thinking positive
Individual factors	The teacher's characteristics, information and knowledge, planning and time management, physical health, female students' physical limitations, fitness
Environmental factors	Sports equipment, proximity to sports spaces, climatic conditions of the place of residence
Educational factors	Caring for physical education, Sports equipment and facilities, Parental education, Parental education
Economic factors	Economic status of the family - sports equipment that can be provided by the student, school economic position
Social factors	Gender discrimination, community management's view on sports, public support
Family factors	Family components, Family disinterest in sports

The codes obtained from this sub-category include Inability to do tough physical activities, differences between boys and girls, boys being stronger than girls.

Excerpts of interviews related to this category are as follows:

"Tough physical activities are not suitable for girls, and they cannot do every sport, and boys' bodies are different from ours and they are stronger than us" (Interviewee 2).

Planning and time management

The codes obtained from this sub-category include Focusing on school assignments and homework, not thinking about sports, not having enough time for sports.

Most of the students mentioned not having enough time to exercise, for example;

"I don't get to exercise at all because I have a lot of lessons and homework" (Interviewee 1).

Environmental factors

The subcategories of this main class included sports equipment, proximity to sports spaces, climatic conditions of the place of residence. Excerpts of interviews related to this category are as follows:

Sports equipment

"I love taekwondo and swimming, but there are no sports facilities to do them in this region. I don't like sports classes held here" (Interviewee 2).

"The sports that I like are not available in the area where I live" (Interviewee 5).

Proximity to sports spaces

"We don't have a gym or a park near our house where we can exercise" (Interviewee 7).

Educational factors

The subcategories of this main class included caring for physical education, sports equipment and facilities, parental education. Excerpts of interviews related to this category are as follows:

Caring for physical education

"I like to participate in local sports competitions. The educational officials do not have any educational program to teach sports in school" (Interviewee 10).

Sports equipment and facilities

"The sports class at school is not good at all. We had a sports class at school, but there was no ball or other sports equipment. They only had a few jumping ropes. In my school, I would like them to teach a sport every week for the children" (Interviewee 12).

"We had a sports class, but we didn't have a sports teacher to teach us how to do more sports" (Interviewee 4).

Parental education

"Teach the family more about exercising" (Interviewee 18).

Social factors

The subcategories of this main class included gender discrimination, community management's view on sport, public support. Excerpts of interviews related to this category are as follows:

"Parents do not allow us to play every game, but they allow the boys. We can't go to the gym with our friends any time, but the boys can. We don't have a women's park" (Interviewee 15).

"We have a problem with hijab. For example, we are not comfortable cycling with hijab. I like football, but there is no football pitch for women. We cannot go to the gym with our friends any time we wish, but the boys can" (Interviewee 14).

Economic factors

The subcategories of this main class included family economic position, sports equipment affordable to the student, school economic position. Excerpts of interviews related to this category are as follows:

"I don't have the facilities for the sports I like. I like volleyball and karate. But I don't have any money for karate" (Interviewee 6).

"Exercising requires a lot of facilities, such as having swimming suits. I don't even have simple sports equipment at home. My parents don't have money to buy me sports equipment" (Interviewee 9).

Table 3. Barriers, facilitators of physical activity and sample codes obtained from interviews in a qualitative study

Main categories	Subcategories	Codes
Psychological factors	Motivational factors	The teacher's disinterest, the lack of encouragement and support, the lack of will to exercise, the student's disinterest, the student's low motivation, the lack of encouragement and support from the teacher, not paying attention to sports, the student's boredom, the student's self-indulgence, not receiving support from other students
	Self-confidence	Stress, proactivity, low self-confidence, false self-confidence, humiliation of the student, being shy, depression, and not being in the mood to exercise
	Enthusiasm	Dullness, not having the motivation to exercise, not feeling like to exercise, having peace
	Interest	Not being interested in individual sports, having interest, making others interested in doing sports
Individual factors	The teacher's characteristics	Old age, the teacher's underestimation of sports, irregular presence of the teacher in the class, the teacher having two jobs, the teacher's fatigue, the teacher's insufficient knowledge and skills in sports, the teacher's carelessness, the teacher's unfamiliarity with different sports, the teacher's preoccupations, and the teacher's inadequate experience
	Information and knowledge	Physical activity means playing volleyball and doing fitness exercises, warming up, exercising and working, gaining energy, walking for half an hour, walking for ten minutes, volleyball, football, and karate, exercising a lot, being active, not receiving encouragement, exercising for weight loss, exercising for half an hour, and inadequate knowledge and information
	Planning and time management	Focusing on school assignments and homework, not thinking about sports, not having enough time for sports
	Physical health	Visual impairment, physical limitations of girls, lack of physical fitness, extreme thinness, lethargy and inability to perform tough sports activities, heart disease
	Female students' physical limitations	Inability to do tough physical activities, differences between boys and girls, boys being stronger than girls
Environmental factors	Sports equipment	Lack of well-equipped gyms, inadequate sports facilities, lack of educational sports in the region, lack of good sports equipment, cleanliness of sports facilities
	Proximity to sports spaces	Lack of a good sports park in the neighborhood, lack of a sports gym near the house, lack of a taekwondo teacher in the gym, lack of a suitable sports place for cycling.
Educational factors	Caring for physical education	No sports competitions at school, no suitable sports hours at school, inadequate teaching of physical activity at school, lack of variety of sports at school, lack of training classes at school, lack of education to families about sports, the disregard for sports in school, absence of effective policies about sports programs at school
	Sports equipment and facilities	Lack of proper sports program, unavailability of sports equipment in school, the teacher not caring about sports class
	Parental education	Teaching sports to parents
Social factors	Gender discrimination	Unavailability of adequate sports facilities for women, lack of sports preferred by girls, inadequate sports equipment for women, strict social norms, and more freedom for boys
	Community management's view on sports	Lack of public activities, lack of suitable green spaces, low quality of sports spaces, unavailability of sports facilities in the neighborhood, lack of sports facilities for women
	Public support	No neighborhood competitions
Economic factors	Family economic position	Parental unemployment, financial problems, unavailability of sports equipment at home
	Sports equipment affordable to the student	Financial problems, unavailability of sports equipment at home
Family factors	Family components	Lack of parental support, parents' preoccupations, parents' addiction, lack of encouragement and persuasion from parents Parents' unfamiliarity with sports, parents not being into sports, parents' physical problems, parents' divorce
	Family disinterest in sports	Lack of parental support and encouragement, parents not caring about sports, parents' unwillingness to talk about sports

Family factors

The subcategories of this main class included Family components, Family disinterest in sports. Excerpts of interviews related to this category are as follows:

"I would like to go hiking with my parents but my father and mother cannot exercise at all due to lack of time. They do not allow me to go to my gym classes" (Interviewee 16).

"My parents don't encourage me to do sports at all. They don't have the money and are not interested in helping us in sports. They don't care about sports at all" (Interviewee 18).

Discussion

Using a qualitative approach, the present study examined the factors affecting the physical activity of female high school students in District 16 of Tehran. The results indicated that several factors account for the physical activity of students including psychological factors (motivational factors, self-confidence, enthusiasm, positive thinking, hopefulness, and interest). In a similar vein, McGarty and Melville found that student-related factors, including psychological factors, cognitive abilities, behavioral problems, and physical characteristics, are effective in students' physical activity (13). Similarly, individual factors can be effective in students' physical activity as reported in previous studies. Likewise, Hosseini et al showed that individual factors such as the need for physical health and physical fitness affect students' physical activity (14). Following the previous

studies in the literature (15,16), the data in the present study revealed that students' physical activity is affected by environmental factors. The findings from the present study also suggested that social factors can influence female students' physical activity, as indicated in previous studies (15-17). Contrary to the present study, Zameni et al. found no significant relationship between social factors and students' activity levels (18). This contradictory finding can be attributed to the difference in the place of study and as a result, the different cultures governing the minds of students in different regions.

The present study also showed that economic factors can influence the physical activity of the students. Similarly, Alcántara-Porcuna et al showed that having adequate facilities was one of the factors affecting students' activity (15). The participants in the present study also reported that family factors can affect students' physical activity. In line with these findings, Alcántara-Porcuna et al and Manoochehrinejad et al also showed that parents' experiences and perceptions of physical activity are effective on physical activity and the institutionalization of sports culture in children and adolescents (15, 19).

Most of the students in the present study reported that educational factors, including emphasizing physical education, sports facilities, equipment, and parental education can affect students' physical activity. Accordingly, Alcántara-Porcuna et al and Zare et al highlighted the effect of school facilities, parents' awareness, and teaching the benefits of exercise to students (15, 20).

One of the strengths of the present study was the use of in-depth individual and focus group interviews to collect data. This study was conducted during the COVID-19 pandemic. Thus, it was difficult to conduct the interviews with the students. Besides, the participants were selected only from female junior high school students. Thus, the findings have limited generalizability to other age groups.

Following the insights from this study, public health officials, physical education managers, and parents need to develop effective training programs to increase girls' physical activity. Moreover, parents should be encouraged to promote physical activities among female adolescents to enhance their physical and psychological health. In addition, there is more need for educational programs and awareness-raising activities for students about the complications and consequences of inactivity.

Conclusion

The present study provided useful insights into the physical activity of students and various factors influencing the reduction of physical activity among female students, including psychological, individual, economic, family, environmental, and educational factors. If these factors are realistically defined, they can lead to an increase in physical activity and satisfactory outcomes. Thus, it is essential to develop and implement training programs on factors contributing to the decline of physical activity in students. In line with the findings from the present study, the barriers to physical activity in female students should be recognized by parents and school officials. They also need to take some effective strategies to eliminate these barriers.

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Authors' Contribution

Conceptualization: Reza Tavakoli, Azam Fathi.
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Writing–review & editing: Reza Tavakoli.

Competing Interests

The authors reported no conflict of personal and organizational interests.

Ethical Approval

This research project was conducted as part of a doctoral dissertation in health promotion and health education approved with code 162382163 at Islamic Azad University, Teheran Science and Research Branch, and confirmed with the code of ethics IR.IAU.TMU.REC.1400.090.

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