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Original Article (Pages: 15116-15125)

Physical Literacy of 16-18-Years Adolescents: A Qualitative Study

Mansoure Alipour-Anbarani[1], Mohtasham Ghaffari[1], Ali Montazeri[2], Amir Kavousi [3], *Ali Ramezankhani[1]

[1] Department of Public Health, School of Public Health and Safety, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

[2] Health Metric Research Center, Iranian Institute of Health Sciences Research, ACECR, Tehran, Iran.

[3] Workplace Health Promotion Research Center and Department of Epidemiology, School of Public Health and Safety, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

Background: Physical literacy is required for achieving a healthy and active lifestyle among adolescents. Additionally, an improvement in physical literacy affects the prevention of the diseases caused by the lack of physical activity such as obesity and diabetes positively. So far, no comprehensive program has been developed and operated for enhancing adolescents' physical literacy although policymakers and stakeholders currently advocate physical literacy programs and interventions. The present study aimed to identify the dimensions and concept of the physical literacy of 16-18-year-old adolescents.

Methods: The participants were selected purposefully with the maximum diversity among specialists in the health education and health promotion, and physical education specialists, as well as 16-18-year-old male and female adolescents until reaching information saturation. Further, semi-structured interviews were performed face-to-face with 26 participants. Data were analyzed based on the content analysis of Graneheim and Lundman.

Results: The results suggested four themes of self-care and information acquisition, comprehension, and assessment skills for adolescents' physical literacy and the participants mostly emphasized self-care skill.

Conclusions: Based on the themes emerged in the qualitative study, the physical literacy of adolescents can be defined as a set of the skills for information acquisition, comprehension, assessment, and self-care to make the right decisions to maintain and improve physical activities. The study findings can be applied as a basis for educational interventions to strengthen adolescents' physical literacy.

Key Words: Adolescent, Literacy dimensions, Physical literacy, Qualitative study.

* Please cite this article as: Alipour-Anbarani M, Ghaffari M, Montazeri A, Kavousi A, Ramezankhani A. Physical Literacy of 16-18-Years Adolescents: A Qualitative Study. Int J Pediatr 2022; 10 (1):15116-15125. DOI: **10.22038/IJP.2021.60209.4671**

**** Corresponding Author:***

Ali Ramezankhani, Department of Public Health, School of Public Health and Safety, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: ramezankhaniali1@gmail.com

Received date: Sep.7,2021; Accepted date:Dec.13,2021

1- INTRODUCTION

The concept of physical literacy was first introduced by Whitehead in 1993 as motivation, self-confidence, and physical competence, along with knowledge and understanding to engage in physical activities for life (1). In fact, physical literacy is considered as a basis for learning skills or familiarizing with social, cognitive, and behavioral instruments, as well as a method for enjoying the benefits of performing physical activity during longevity (2). Indeed, physical literacy aims to maintain health through physical activity (3).

The adolescents aged 10-19 years comprise around one-fifth of the world's population (approximately 2.1 milliard individuals) (4). Although adolescents are generally healthy, they less participate in physical activities if they have lower physical literacy, which increase the risk of ill health among this population (5, 6). The physically literate adolescents possess self-confidence to execute, coordinate, and control exercises. They are more likely to be engaged in physical activities constantly due to their awareness on the value of the activities in health improvement (7, 8).

At present, the concept of adolescents' physical literacy has not been defined comprehensively. In addition, most existing studies on physical literacy were conducted among 8-12-years-old children (9-11), although few studies explore the topic among older adults (12-14). However, none of the studies explore the meaning and attributes of physical literacy explicitly. Thus, we thought to conduct an investigation to see what physical literacy means to experts and adolescents. It was hoped that the present investigation could contribute to the development of a global instrument in order to measure physical literacy among adolescents worldwide. The present study aimed to identify the dimensions and concept of the physical literacy of 16-18-year-old adolescents.

2- MATERIALS AND METHODS

2-1. Study Design

This qualitative study with a content analysis approach was conducted to explore physical literacy as perceived by adolescents, health education, health promotion, and physical education experts. qualitative content analysis is considered one of the best ways for creating new instruments and identifying all of the original structures and themes of an instrument (15).

2-2. Participants

Purposeful sampling with maximum variation was employed in this study. The adolescents were selected from four high schools in Tehran, Iran. However, the specialists were sampled with respect to occupation, work experience, and educational level, which included sports teachers, and specialists in health education and health promotion, and physical education. The sampling procedure continued until reaching information saturation. The intended students and specialists were, respectively, interviewed in their schools and workplaces after pre-arranging.

The inclusion criteria for adolescents were studying during the research period and giving informed consent to participate. However, those for specialists were having experience on the subject, work or research experience, and time for interview.

Overall, 5 female and 6 male adolescents aged 16-18 years participated in the study, among whom 4, 4, and 3 were in the 10th, 11th, and 12th grades, respectively. **Table 1** summarizes the demographic characteristics of physical education, health education and health promotion specialists.

2-3. Data collection

The data were collected during May-August 2020. The first author (female, 40 years old, PhD student in health education and health promotion) performed semi-structured face-to-face interviews. After explaining the reasons for conducting the study to the interviewees, the interviews started with general questions (**Table 2**) and continued with more specific ones, considering the individuals' responses.

Table-1: Demographic characteristics of the interviewed specialists

Number	Age	Sex	Educational level	Work experience (year)
1	65	Male	PhD in health education and health promotion	30
2	50	Male	PhD in health education and health promotion	20
3	33	Male	PhD in health education and health promotion	12
4	57	Female	PhD in health education and health promotion	27
5	46	Female	PhD in health education and health promotion	23
6	47	Male	Bachelor of physical education	22
7	50	Female	Bachelor of physical education	25
8	43	Male	PhD in sports management	25
9	40	Male	PhD in sports management	20
10	36	Male	PhD in motor behavior	15
11	41	Male	PhD in motor behavior	15
12	35	Male	PhD in physical education management and planning	15
13	55	Male	PhD in physical education management and planning	33
14	33	Male	PhD in physical education management and planning	12
15	32	Female	PhD in physical education management and planning	15

Table-2: Semi-structured interview guide

Interview questions	1- What do you think the concept of physical literacy can mean? 2- Could you explain the elements or domains of physical literacy? 3- From your viewpoint what factors and determinants improve or decrease the physical literacy of an adolescent?

Each interview lasted 15-80 mins (mean: 33 mins) and was recorded with the participants' permission. At the end of each interview, information was immediately entered into MAXQDA 10 software. Along with the data analysis performed concurrently, the other data was also gathered. After information saturation, data collection continued up to two interviews and more. Following this, the transcripts were returned to subjects for correction or presentation of any comment. Then the final versions were approved by the subjects.

2-4. Data analysis

The qualitative data were analyzed through using the conventional content analysis described by Graneheim and Lundman (16). The data were gathered and analyzed simultaneously. In this method, codes and categories were directly extracted from the raw data. Immediately after each interview, the entire text was transcribed verbatim. Additionally, each interview was read several times to identify meaning units; and the original codes were named based on the similarity between the meaning units. Similar codes were placed in one group and compared constantly to obtain sub-categories. Then, similar sub-

categories were integrated and categories were formed. Finally, the original categories were compared and integrated (if needed) to determine themes.

2-5. Validity and trustworthiness

In order to increase validity, the samples were selected with the maximum diversity in terms of age, sex, and educational level to gain a wide range of the participants' viewpoints and experiences. Regarding trustworthiness enhancement, the research team was performed and confirmed the initial coding of the interview text, as well as the sub-categories, categories, and meaning units. Finally, the data collected in the interview and field notes were integrated and the data were assessed by external observers for trustworthiness.

2-6. Ethics

Ethical approval (IR.SBMU.PHNS.REC.1398.125) was obtained from the Research Center of the School of Public Health and Safety, Shahid Beheshti University of Medical Sciences. All participants gave written informed consents for participating in the study and were assured of the confidentiality of the information recorded in the interviews, as well as removing audio files after analysis.

3- RESULTS

Overall four themes emerged from the analysis. **Table 3** represents the themes and their relevant categories. These are briefly explained as follows:

3-1. Theme 1: Information acquisition skill

In the information acquisition skill, the adolescent searches for information about the body and physical activity. The theme consists of two categories: Taking Information from others and Taking Information from mass media.

According to the interview findings, most of the adolescents obtained their physical activity information from physical education specialists such as sports club coach, school physical education teacher, and friends, while few ones gained their sports information from family members like father, mother, and brother. Regarding the information acquisition from family, an adolescent expressed:

'I *consulate with several individuals when I want to get sports information, one of whom is my mother holding PhD in physical education*' (adolescent, female, 16 years old).

The participants believed that adolescents mainly use the media such as Internet, telegram channels related to sports, and sports pages on Instagram for obtaining physical activity information although few individuals got their required information from sports television programs. For example, an adolescent said:

'I *try to find physical activity information on specialized Instagram pages such as fitness.ir. One of my friends whom I met at the club told me that this page is very good, follow it* ' (adolescent, male, 17 years old).

3-2. Theme 2: Information comprehension skill

Information comprehension skill deals with the adolescent’s deeply thinking about physical activity contents, and his/her giving meaning to and explaining it by considering his/her perception. The theme constitutes of two categories: Ability to Comprehend information and Ability to comprehend barriers.

The participants talked about understanding the contents related to the guidelines on physical activity and those presented in physical education classrooms. For instance, a physical activity teacher pointed out:

'I *do not tell the body organs and their function specialized to adolescents in the physical education classroom, since they*

are not familiar with the specialized terms of the body and physical activity at this age. I explain as much as the information which is comprehensible to them ' (physical education teacher, male, 47 years old).

Among the participants commented on the quality and importance of understanding physical activity contents in media, some expressed that the television programs on sports did not suit their needs in spite of displaying in a simple and comprehensible manner. A male adolescent declared:

'The *television programs related to physical activity are simple and comprehensible to me, although they do not help me and I do not need to learn them* ' (adolescent, male, 18 years old).

According to some samples, gaining physical activity contents is not enough alone. The contents should be understood and operated. For example, a female adolescent mentioned:

'After acquiring the contents, I should be able to perceive and operate them. Then, the obtained content is useful for me ' (adolescent, female, 17 years old).

3-3. Theme 3: Information assessment skill

The information assessment skill deals with the adolescent's ability to have a thorough understanding of the physical activity subject and its precise analysis. The theme includes two categories: Ability to assess Information and Ability to assess sources.

In the field of recognizing the valid resources of physical activity information, some participants pointed out that they selected the contents written by the authors specialized in the physical education field due to the validity of information. One specialist said:

'*It is important for adolescents to select physical activity information from the resources expressed by physical education specialists due to the specialty of its author in this regard* ' (health education and health promotion specialist, male, 33 years old).

The participants talked about the criterion for examining physical activity information and methods for evaluating the accuracy of the information, among whom some believed in the necessity of having prior knowledge about the subject for determining the validity of the information. A female adolescent declared:

' *If I possess prior knowledge on it, I can say that it is incorrect and ignore it at all, while I cannot tell that the information is wrong when I have no previous information in the field* ' (adolescent, female, 17 years old).

A participant commented on how to deal with the new physical activity contents:

'There *should be other contents on the subject, for example in different resources, so that I can compare their information. Thus, I accept the content if all resources confirm it* ' (adolescent, male, 18 years old).

3-4. Theme 4: Self-care skill

Self-care is considered as one of the daily life skills performed by individuals to provide, maintain, and promote their health. It includes the activities which human recognizes and conducts individually for him/herself to preserve his/her life and health (17). This skill consists of two categories: Self-health monitoring and Physical activity performance.

The participants spoke about the capability to process and utilize physical activity information, some of whom calculated their body mass index to care proper weight and some others used sport equipment to maintain their health. Regarding the nutrition appropriate for their physical activity, they referred to the

use of a diet specific for their favorite club sport. For instance, a female adolescent said:

'I *now have a diet, upon which I had to eat only fruits yesterday and should just consume vegetables today. Of course, this diet is only for a week and I take another diet from the sports page on Instagram if I achieve an outcome in this week* '. (Adolescent, female, 16 years old).

The participants explained about the execution of physical activity in their daily life, as well as its positive outcomes. Adolescents are often engaged in an activity or do their favorite club sports. For instance, an adolescent pointed out:

'I go to sports club to do karate two days a week, and try to walk home from the club so that I can improve my health ' (adolescent, male, 17 years old).

According to the participants, they gained more health, self-confidence, and energy for daily affairs by performing physical activities. The benefits of physical activities cause their constant execution during adolescent's life. A male adolescent commented on acquiring health by conducting physical activities:

'I *usually try to walk to school and to home to have a healthy body. Additionally, I pass not so far distances on foot for buying things so that I can have a healthy body* ' (adolescent, male, 17 years old).

Table-3: Themes and categories regarding the physical literacy of the adolescents aged 16-18 years

Categories	Themes
Taking information from others	Information acquisition skill
Taking information from mass media	
Ability to comprehend information	Information comprehension skill
Ability to comprehend barriers	
Ability to assess Information	Information assessment skill
Ability to assess sources	
Self-health monitoring	Self-care skill
Physical activity performance	

4- DISCUSSION

The present study aimed to identify the physical literacy among the 16-18-year-old adolescents. Based on the results of analyzing the interviews, the adolescents' physical literacy included four themes of self-care and information acquisition, comprehension, and assessment skills. However, the other studies in the world proposed motivation, self-confidence, physical competence, along with knowledge and understanding on the physical activity as the themes of physical literacy (9, 11, 18). The results are consistent with those of the present study only in regard to understanding information, which may be attributed to the differences in the target age groups or the cultures related to various communities.

In addition, most of the adolescents were unfamiliar with the specialized sites for physical activity and explored general search engines such as Google for obtaining information. Those familiar with sports sites searched for information more purposefully. Some researchers reported that 16% of adolescents directly visit a specialized site for a subject, 60% use general search engines, and 23% obtain the

intended information accidentally during browsing web pages (19), which are in line with the results of the present study. Given that physical activity information are easier accessible through the Internet compared to the referral to sports clubs, adolescents searched the Internet to gain the information before visiting specialists. This is also consistent with the results of Ghanbari et al. (20) which indicated that adolescents mostly browse the Internet for information.

Further, the Internet was the first choice to acquire physical activity information although the adolescents referred to physical education specialists such as sports club coach and school physical education teacher for getting the specialized sports information about their desired physical activity. The results are in agreement with those of Massey et al. (21) which demonstrated their referral to health specialists for obtaining health information.

Considering the fact that the information derived from different resources should be usable, the participants mentioned the importance of the comprehensibility of the information. As Manganello (22), in line with our findings, asserts the use of simple and comprehensible words and avoidance of specialized ones helps adolescents utilize the obtained information. He represents that adolescents cannot apply information for selecting behavior if they fail to understand it. Tavousi et al. (23), likewise, emphasized the comprehension of achieved contents by individuals.

According to the participants, the physically literate adolescents possess a skill for assessing physical activity information, which involves the skills required for receiving useful and correct information from valid information resources, along with having the information acquisition and comprehension skills. Some participants believed in the need to possess a prior knowledge helping individuals select accurate information about the intended subject, as a prerequisite for having such a skill. The validity of information resource was another index addressed by the samples. The results are in agreement with those of Ghanbari et al. (20) regarding the adolescents' health literacy. In the present study, the adolescents referred to the invalidity of some of the information released in the Internet or virtual pages due to the probability of their being written by non-specialists. Massey et al. found that adolescents consider the Internet as a helpful resource for health information acquisition in spite of providing possibly contradictory viewpoints or recommendations, which is consistent with the results of the present study.

Regarding self-care skill, the participants emphasized Self-health monitoring and Physical activity performance. They attached importance to the use of physical activity information in daily life in order to consider the use of physical activity information and performance as a characteristic of physical literacy in adolescents. The information includes calculating body mass index and following diets. Rothman et al. (24) pointed out that hypertension patients utilize the specific diet information recommended by health care providers in order to improve health, which is in agreement with the results of the present study.

According to the participants, the performance of physically literate adolescents includes executing daily physical activities even under restrictive conditions and conducting their favorite activities. For example, they executed the physical activity suitable for being performed at home to care their health during school exam time, air pollution, or inappropriate weather conditions. The results of the study are consistent with those of Tremblay et al. (9) and Satija et al. (25) about the activity performance of

adolescents as walking in the past 7 days and under restrictive conditions, respectively. Based on the results of the present study, physically literate adolescents can easily remove the barriers in their way, and inhibit or minimize restrictions for being able to participate in physical activities and enhance their health. Additionally, the participants talked about the positive outcomes of physical activity in adolescence such as health acquisition, improving self-confidence, getting enjoyment, and developing good feelings. Satija et al. (25), and Abdelghaffar and Siham (26) referred to the positive outcomes of the physical activity leading to the continuity of the physical activity in individual's life, which are in alignment with the results of the present study.

It is suggested to conduct future studies on the barriers and facilitators of physical literacy, as well as evaluating the effects of interventions on the physical literacy among adolescents.

5- CONCLUSION

Based on the themes emerged in this qualitative study, physical literacy of adolescents can be defined as a set of self-care skills along with skills for information acquisition, comprehension, and assessment; and the ability to make right decisions for maintaining and improving physical activities. The themes can be applied as a basis for educational interventions to strengthen adolescents' physical literacy. Enhancement in physical literacy leads to the continuity of executing physical activities in adolescents' life helping preserve their health.

6- ACKNOWLEDGEMENT

The authors thank the adolescents, and physical education and health specialists participated in the present study.

7- CONFLICT OF INTEREST

None.

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