



## Identifying socio-cultural factors affecting physical activity in women residing in the slum areas of Sanandaj, Iran

Sharareh Bagheri<sup>1</sup>, Khadije Ezzati-Rastegar<sup>2</sup>, Ardashir Rahimzadeh<sup>1</sup>, Farzam Bidarpoor<sup>1</sup>, Ameneh Hosseini<sup>3</sup>, Soraya Amani<sup>1</sup>, Bayan Salahian<sup>1</sup>, Aysan Setayesh<sup>4</sup>

1 Vice-Chancellor for Health Affairs, Kurdistan University of Medical Sciences, Sanandaj, Iran

2 Health Center, Hamadan University of Medical Sciences, Hamadan, Iran

3 Health Center, Kurdistan University of Medical Sciences, Sanandaj, Iran

4 Student Research Committee, Kurdistan University of Medical Sciences, Sanandaj, Iran

### Original Article

#### Abstract

**BACKGROUND:** Physical activity contributes to the prevention of many chronic illnesses and significantly reduces all-cause mortality. Moreover, the proportion of people globally who are active enough is low, especially in slum areas.

**METHODS:** The PEN-3 model was utilized through focus group discussion (FGD) among 48 women who were over 18 years of age, resided in the slum areas of Sanandaj, Iran, in 2020, and were responsible for providing food for the family. After audiotaped conversations were transcribed, a content analysis was conducted. The study methods included the process of open coding and creating categories, grouping codes under higher-ordered headings, and formulating an overall description of the research issues via making abstract categories and subcategories. Every category was named using specific content-characteristic words and subcategories were then grouped into main categories.

**RESULTS:** Data analysis yielded 3 domains regarding women's perspectives toward physical activity. According to the PEN-3 model, the most important cultural impediments were perceptions (benefits of physical activity and lack of prioritization of health). Moreover, enablers (access to facilities, time, cost, and the role of the media), and nurturers (acceptance of group sports, lack of family support, and social stigma) were found to be important factors in having physical activity.

**CONCLUSION:** A better understanding of cultural perceptions can help decision-makers in identifying the cultural appropriateness of interventions.

**KEYWORDS:** PEN-3 Model; Culture; Slum; Physical Activity; Women

**Date of submission:** 07 Aug. 2021, **Date of acceptance:** 29 Jan. 2022

**Citation:** Bagheri S, Ezzati-Rastegar K, Rahimzadeh A, Bidarpoor F, Hosseini A, Amani S, et al. **Identifying socio-cultural factors affecting physical activity in women residing in the slum areas of Sanandaj, Iran.** Chron Dis J 2023; 11(3): 167-74.

### Introduction

Inactivity is the fourth leading cause of death throughout the world. Urban development and modern technologies have resulted in physical inactivity along with psychological and health problems.<sup>1</sup> Physical activity is

related to the reduced risk of cardiovascular disease (CVD), different cancers, diabetes, obesity, hypertension, and other chronic diseases.<sup>2</sup> These diseases are the leading cause of more than 5 million deaths worldwide each year.<sup>3</sup> The level of physical activity of the people has not increased significantly, despite the increase in public awareness in the world.<sup>4,5</sup> According to the World Health Organization (WHO), a minimum of 150

#### Corresponding Author:

Khadije Ezzati Rastegar; Health Center, Hamadan University of Medical Sciences, Hamadan, Iran

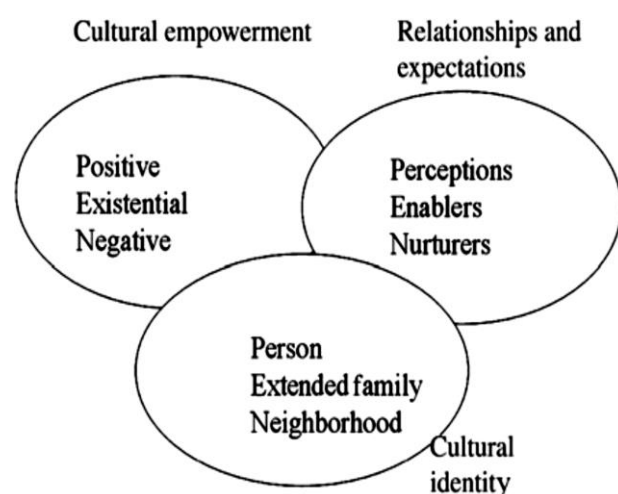
Email: kh.rastgar@yahoo.com

minutes of moderate-intensity aerobic exercise or 75 minutes of moderate-intensity physical activity during the week accounts as regular physical activity.<sup>6</sup> However, it has been reported that 23.3% of adults are not physically active enough in the world.<sup>7</sup> For example, nearly three-fourths of the people in low-income countries are physically inactive and many of them are women.<sup>8</sup>

Studies show that the rate of chronic diseases and the related risk factors is higher in low-income populations, especially in the slums.<sup>9</sup> The term “slum” usually refers to areas outside the city center plagued by problems such as poverty, unemployment, inadequate access to health services (for instance lack of safe drinking water and suitable sewage disposal), and poor housing conditions.<sup>10</sup> Women in slum areas are more exposed to inequality compared to other women because of poverty and lack of access to facilities, which exacerbates the negative factors affecting health, such as inactivity.<sup>11</sup> Therefore, improving physical activity in slum areas, especially among middle-aged groups, could lead to a reduction in the risk of chronic diseases associated with a sedentary lifestyle.<sup>12</sup> Furthermore, lifestyle and human behaviors are usually characterized by cultural differences,<sup>13</sup> and the motivation for regular physical activity as a health behavior is affected by the culture of the community.<sup>14</sup>

Culture, race, ethnicity, minority status, community, and social forces have important roles in social problems. Recommendations for physical activity will be most effective when designed and implemented according to the cultural and socioeconomic conditions, and characteristics of individuals, and it will be possible to modify the behavior of the individual according to a set of factors and not separately. Hence, to identify the factors affecting physical activity and the perceived barriers to physical activity, models or approaches are required that determine the

social and psychological conditions as the source of behaviors.<sup>15</sup> PEN-3 model considers culture as the basis for preventive or health-promoting behaviors. Collins Airhihenbuwa’s PEN-3 Model is a theoretical framework that places a positive spin on the social issue within a cultural setting in order to guide health education and interventions.<sup>16</sup> It has 3 domains, and each domain involves 3 factors (Figure 1).<sup>10</sup>



**Figure 1. Conceptual framework of PEN-3 model**

Health education based on personal identity (individuals effective in individual decision-making) includes commitment to being sensitive to health, family, and relatives, and more broadly, the effect of society and leaders on individual decisions. The area of relationships and expectations includes the knowledge, attitudes, beliefs, and values of the individual which affect health behavior. Moreover, enablers are the social resources that can be effective in increasing health behaviors or preventing them from occurring by creating barriers. The area of nurturers refers to the role of people effective in the health behavior of the target group and their support. Finally, cultural empowerment is the effect (positive, existential, or negative) existing cultural beliefs in society can have on behavior.<sup>17</sup> According to the abovementioned studies, knowledge about how culture and

suburban living influence beliefs and attitudes toward regular physical activity in women living in slum areas are low. Thus, this study was conducted to identify socio-cultural factors affecting regular physical activity in women residing in slum areas of Sanandaj, Iran, using the PEN-3 cultural model.

## Methods

**Participants:** The study sample included 48 women who resided in slum areas of Sanandaj and were responsible for providing food for the family. The other inclusion criteria were age of over 18 years, ability and skill to talk in group discussions, lack of any physical disabilities, and conscious consent to participate in the study. The participants were selected from 8 slum areas, with a population of about 100,000, and accounted for almost a quarter of the population of the city.

**Process:** After obtaining the approval of the ethics committee, focus group discussions (FGDs) were conducted to collect data in this qualitative study. Collecting information through FGDs<sup>18</sup> took three months. Participant recruitment and data collection lasted 5 months, between June and November 2020. Research participants were identified and referred by health care clinics and health system staff. Once eligibility was established, an appointment was made for FGD. The intended usage of an audiotape machine to record the interviews was explained to the study participants.

The draft questions were first provided to health education professionals and edited

according to the suggestions received. The guide questions (Table 1) were based on the domains of the PEN-3 model, i.e., health education, the domain of relationships and expectations, and the domain of cultural empowerment.

**Data collection and analysis:** Two members of the research team led the group discussions. One person, as the leader, led the discussion and at the beginning of the brief sessions explained the aim of the study, emphasizing the impartiality of the researchers and the scientific nature of the research and obtaining permission (written consent) for the interview.

The researchers ensured that information was kept confidential, and recorded all the discussions presented at each meeting. Note-taking was also used during the interviews. The group discussion sessions continued until data saturation was reached, the new codes were fully understood (illustrating saturation), and the researchers were convinced that there was no new topic or idea to be presented by the participants (saturation of the codes).<sup>19</sup> Each group discussion session lasted an average of 1 hour and a total of 8 group discussion sessions (6 to 8 people per session) were held at intervals of 2 months.

The contents of the FGDs were recorded, and then, rewritten word by word. The data from FGDs were coded using MAXQDA software (version 10; VERBI GmbH, Berlin, Germany). In the content analysis method, the researchers avoid using predefined classes, and instead, the classes are extracted from the data through induction.<sup>20</sup>

**Table 1. Guide questions in the group discussion sessions**

Group discussion sessions
Introduction (demographic characteristics and some behavioral habits such as a daily physical activity)
What do you think are the benefits of having physical activity?
What do you think are the reasons for your inactivity during the day?
What motivates you to do physical activity?
What makes it difficult to do physical activity on a regular basis?
What is the role of social services in having physical activity?
Where would you like health information to be available?
Who encourages you to do regular physical activity?
Who has an effective and positive role in your physical activity?

Hence, the researchers have to be completely immersed in the data to reach a new vision. One researcher asked the questions, and the other focused on the body language of the interviewee and wrote down all of their postures in addition to writing and recording the audio, and continued until data saturation was reached and no new data could be attained. To analyze the responses of the participants in the research, the Braun and Clarke content analysis method was used.<sup>21</sup>

The data were simultaneously recited by the researchers (2 experts who conducted the interviews) to reach a general understanding. The rewritten texts were analyzed immediately after each group discussion and interview, and original and unforeseen cases were followed up in the interview and subsequent discussions. In the analysis, the data were categorized into semantic units, categories, subcategories, and themes. The semantic units were defined using the participants' own words. The semantic units were summarized to reduce the text content while preserving the original structure, and then, the semantic units were classified.

Finally, the themes that linked the basic themes and meanings in the categories were identified and analyzed. The analysis was performed based on the PEN-3 model. To increase the validity of the data, the researchers used the bracketing method, that is, they abandoned their assumptions about women's experiences and concerns about physical activity from the beginning of the study. To validate the results, the coding

results were presented to the participants to confirm the accuracy of the coding. To ensure the reliability of the study and the accuracy of the study steps, the research process was provided to professors and experts in the field of qualitative research (ethics code: IR.MUK.REC.1399.056).

## Results

The mean age of the participants was  $36.70 \pm 10.49$  years. Moreover, 58% ( $n = 28$ ) of them had secondary level education, 21.5% ( $n = 10$ ) had a diploma, and 10.5% ( $n = 5$ ) were illiterate. A majority (92%) of the participants were homemakers and unemployed.

Moreover, 263 codes were obtained from the participation of 48 women in 8 FGDs disregarding overlap, where 27 categories remained by merging the codes for more accurate coding. General themes identified in the FGDs included an overall knowledge/attitude, access, and family/community support of physical activity (Table 2). After continuous analysis and comparison, the categories were finally summarized in the form of PEN-3 model domains (Table 3), followed by evidence of some of the participants' statements.

### Perception

Most women believed regular physical activity to be good for their health. For instance, a 35-year-old woman with 3 children said: "Everyone knows how good exercise is for our health and that it will put us in good spirits. It will be especially enjoyable if we do group exercises with the women next door."

**Table 2. Focus groups themes**

Themes	Category	Subcategory
Knowledge/Attitude	Benefits of physical activity	Knowledge is based more on personal and family experiences. Awareness of the priority of health Motivation for physical activity
	Lack of prioritization of health	
Access	Lack of time	Sports equipment or access to public facilities in the community in the form of media, clubs, and parks
	Cost	
Family/community support of physical activity	Role of the media	Support from family members and friends regarding the importance of physical activity
	Lack of family support stigma	

**Table 3. Identified areas in explaining women's views on physical activity**

Domains	Positive	Existential	Negative
Perception	Physical and psychological benefits of physical activity Enjoyable group sports	-	Lack of prioritization of health Lack of motivation and interest
Enablers	Having sports equipment in the park The role of media and cyberspace	-	Lack of convenient and accessible places lack of time Cost
Nurturers	Acceptance of peer group exercise such as walking with a neighbor	-	Stigma Lack of family support

Despite this positive belief and awareness of the benefits of physical activity, in the slums, the main problem was the lack of prioritization of health by residents. A 28-year-old woman with 2 children said on the third session: "We have no joy... We have so many problems that we cannot think about sports; with what joy and motivation..." Moreover, most women reported laziness and impatience as reasons for not being physically active. On the second session, A 36-year-old woman said: "I am not in the mood to exercise at all..., I am very lazy."

#### Enablers

Enabler refers to having sports equipment or access to public facilities in the community. One of the participants explained, "I go to my father's house twice a week so that I can play in the park near their house with my child, but there is no park or sports equipment near our house" (26-years-old woman). A 32-year-old woman said: "I exercise by watching sports programs on TV, I even watch exercises on Instagram, I do them myself and their training is very interesting and enjoyable."

Most of the women considered lack of access to a gym as one of the major elements affecting their lack of physical activity. A 45-year-old woman expressed her dissatisfaction as: "I have been weaving carpets from early morning until late at night. I have to weave carpets because the only source of income for our family of five is the wage I earn from carpet weaving. Even if I had time that I do not, there is never any money left to pay for gym and children." Advertising of sports equipment in television commercial messages

was a negative enabler for women. A 28-year-old said: "I always watch TV commercials with regret, and when I look at my state that I live in a small room with my child, we have no money for a gym membership, we do not have sports equipment. Thus, we never think about sports because without sports equipment one cannot exercise at home. Overall, we are very different from those who use these devices at home." "Another 27-year-old woman considered not having enough time as a negative factor and stated: "I live with my husband's family. They always have guests and doing housework, cooking, and welcoming the guests are my duties, so I cannot leave the house and go do sports. To tell the truth, all our guests come from the village every day for a doctor, shopping, wedding, mourning, and so on, and I have to clean the house for the next guest."

#### Nurturers

Nurturers are considered to be people affecting the behavior of the individual such as family, friends, or community. "Walking and exercising with friends and neighbors are very enjoyable. I never like to walk alone, although my husband does not allow me to go walking alone," a participant said. Another stated: "You no longer worry about being judged by your neighbors as you are with them" (a 35-years-old woman).

Living with the husband's family, and the beliefs of the residents of the slum, and stigma are among the other barriers to women's physical activity because, in addition to the husband's opposition, other members of the

spouse's family also oppose the woman leaving the house for physical activity. A 25-year-old woman says: "Even if I can convince my husband to let me go to the gym or walk at least three times a week; I can never satisfy my mother-in-law and brother-in-law. She added: "They argue that I can be active by doing my home chores. Moreover, my husband and mother-in-law do not like a thin woman at all and say that a fat woman is beautiful." Confirming the above participant, another woman said: "Does anyone care about us? Does anyone ask us if we like to exercise or not? No one has ever told me to think a little about my health and at least 'exercise for half an hour a day'."

### Discussion

The present study was conducted with the aim to explore cultural perceptions and understand physical activity among women residing in slum areas using the PEN-3 model framework. As the findings highlight most of the study participants' perspectives, many of the emerging themes were considered as perceptions, with participants pointing to the benefits of exercise, or lack of interest and motivation and lack of prioritization of health. Khanom et al. have reported people's perceptions of their health. Perceptions of people are subjective and defined as severe illness, death, and mean longevity by the general public.<sup>1</sup> Moreover, Vaismoradi et al., reported a person's perception of physical condition and self-awareness.<sup>21</sup> For instance, more action is required in people who have accepted being overweight or obese for them to adopt weight management behaviors and health behaviors like exercise.<sup>22</sup> The findings of these studies were consistent with that of the present study.

Different factors affect physical activity, some of which are individual factors. Understanding of a healthy lifestyle can be noted as an individual factor.<sup>1</sup> There is a

relationship between physical activity and other health-related behaviors known to affect the quality of life (QOL). Khanom et al. reported that those who do not exercise feel less healthy, which is because of the beneficial effects of physical activity on monoamines in the brain that reduce anxiety and stress, or reduce pain by producing endorphins. Hence, one can say that physical activity increases the feeling of well-being.<sup>23</sup> In these situations, using social marketing to make people aware of the positive effects of behavior change and the significance of physical activity can be effective.<sup>1</sup>

In addition to individual factors, there are also external factors known as enablers in the PEN-3 model. The participants expressed their understanding of these factors, reflecting their perceptions of these factors and how they affect whether or not they engage in physical activity. These factors included opportunity, access, and cost of physical activity. The study by Ross and Francis showed that the participation of African immigrant women in physical activity was affected by meeting the needs of other family members.<sup>14</sup> Moreover, it is more acceptable to recommend physical activity if exercise is fun or playful. Outdoor sports opportunities and creativity and diversity increase the possibility of physical activity, and the lack of sports facilities, inadequate space, and the distance of sports venues are the hurdles to it.<sup>24</sup>

Schipperijn et al. have confirmed that access to parks or green spaces, the existence of sports facilities on public routes, and the existence of walking paths are the elements that increase interest in sports and physical activity.<sup>7</sup> The link between physical activity and access to sports facilities has been proven, and where there are gyms, swimming pools, etc., people will be more encouraged to engage in structured physical activity.

Furthermore, similar to our research findings, Macdonald found that those with access to sports facilities at home or work are

more likely to understand the benefits of exercise and engage in this health behavior compared to the people using public sports equipment.<sup>6</sup> These factors affect the individual's behavior as a determinant of social factors and health inequalities. Housing conditions, urban design and neighborhood safety are among the measures needed at the macro level, if we want to achieve the goal of increasing physical activity in an urban society.<sup>1</sup>

In recommending this health behavior and preparing health messages, it seems necessary to pay attention to these internal and external factors. In addition to environmental factors, the support of others as a strengthening factor can be effective on physical activity.<sup>1</sup> The WHO has referred to social support as emotional support, and a social determinant of health.<sup>2</sup> Social support refers to the resources provided through interactions with other people that could affect behavior. According to Laird *et al.*, these sources can be emotional (encouragement and admiration), a tool (providing equipment and financial support), or information support (counseling or instruction) provided by various people (providers) on a person's social network like friends, family, and teachers.<sup>25</sup> Similar to our study, Lindsay *et al.* showed that the more people are supported emotionally, the more likely they are to be physically active.<sup>2</sup> Low income and less privileged groups of society seem to have less support and recommendation for physical activities. Thus, effective interventions are necessary to understand the determinants of behavior accurately.<sup>6</sup>

We strongly believe that our findings are universal and are not unique to the target population in this study, although we are careful not to extrapolate our findings above and beyond their limits. Nevertheless, replication of this study in slum populations elsewhere can greatly enhance our understanding of cultural issues associated with physical activity.

## Conclusion

The findings of this report indicate that the PEN-3 model plays a critical role in the development and implementation of health interventions in studying physical activity. In addition, the research team confirms the importance of a systemic approach to understanding and identifying the health problem of women and emphasizes the necessity of multi-level interventions to empower and support women's needs.

## Conflict of Interests

Authors have no conflict of interests.

## Acknowledgments

This project was funded by Kurdistan University of Medical Sciences and the authors would like to thank those who participated in this research.

## Financials support and sponsorship

This study was supported by the Deputy of Research and Technology of Kurdistan University of Medical Sciences.

## References

1. Khanom A, Evans BA, Lynch R, Marchant E, Hill RA, Morgan K, *et al.* Parent recommendations to support physical activity for families with young children: Results of interviews in deprived and affluent communities in South Wales (United Kingdom). *Health Expect.* 2020; 23(2): 284-95.
2. Lindsay SG, Banting L, Eime R, O'Sullivan G, van Uffelen JGZ. The association between social support and physical activity in older adults: A systematic review. *Int J Behav Nutr Phys Act.* 2017; 14(1): 56.
3. Ekelund U, Steene-Johannessen J, Brown WJ, Fagerland MW, Owen N, Powell KE, *et al.* Does physical activity attenuate, or even eliminate, the detrimental association of sitting time with mortality? A harmonised meta-analysis of data from more than 1 million men and women. *Lancet.* 2016; 388(10051): 1302-10.
4. Das P, Horton R. Physical activity-time to take it seriously and regularly. *Lancet.* 2016; 388(10051): 1254-5.

5. Prince SA, Reed JL, McFetridge C, Tremblay MS, Reid RD. Correlates of sedentary behaviour in adults: A systematic review. *Obes Rev.* 2017; 18(8): 915-35.
6. Macdonald L. Associations between spatial access to physical activity facilities and frequency of physical activity; how do home and workplace neighbourhoods in West Central Scotland compare? *Int J Health Geogr.* 2019; 18(1): 2.
7. Schipperijn J, Cerin E, Adams MA, Reis R, Smith G, Cain K, et al. Access to parks and physical activity: An eight country comparison. *Urban For Urban Green.* 2017; 27: 253-63.
8. Naik B, Selvaraj K, Daya P, Kar S. Are the urban slum population physically inactive? A descriptive study from urban Puducherry. *J Clin Prev Cardiol.* 2020; 9(1): 13-8.
9. Ganju A, Goulart AC, Ray A, Majumdar A, Jeffers BW, Llamasa G, et al. Systemic solutions for addressing non-communicable diseases in low- and middle-income countries. *J Multidiscip Healthc.* 2020; 13: 693-707.
10. Moeini B, Rezapur-Shahkolai F, Jahanfar S, Naghdi A, Karami M, Ezzati-Rastegar K. Utilizing the PEN-3 model to identify socio-cultural factors affecting intimate partner violence against pregnant women in Suburban Hamadan. *Health Care Women Int.* 2019; 40(11): 1212-28.
11. Taylor W. Disparities in physical activity among low-income and racial/ethnic minority communities: What can we do? *NAM Perspectives.* 2015; 5.
12. Groot HE, Muthuri SK. Comparison of domains of self-reported physical activity between Kenyan adult urban-slum dwellers and national estimates. *Glob Health Action.* 2017; 10(1): 1342350.
13. Acosta Enriquez ME, Uribe Salas FJ, Baek J, Sierra Archbold JP, Carrillo G. Association between life-style behaviors and health outcomes in Adventist and non-Adventist adolescents in Mexico: A pilot study. *BMC Public Health.* 2019; 19(1): 1705.
14. Ibe-Lamberts KD. Exploring cultural perspectives of physical activity among transnational african immigrants [PhD Thesis]. Champaign, IL: University of Illinois at Urbana-Champaign; 2016.
15. Stevens M, Rees T, Coffee P, Steffens NK, Haslam SA, Polman R. A social identity approach to understanding and promoting physical activity. *Sports Med.* 2017; 47(10): 1911-8.
16. Chemuru N, Srinivas S. Application of the PEN-3 cultural model in assessing factors affecting adolescent pregnancies in rural Eastern Cape, South Africa. *Int J Reprod Fertil Sex Health.* 2015; S1(001): 01-8.
17. Hiratsuka VY, Trinidad SB, Avey JP, Robinson RF. Application of the PEN-3 model to tobacco initiation, use, and cessation among American Indian and Alaska Native Adults. *Health Promot Pract.* 2016; 17(4): 471-81.
18. Nyumba T, Wilson K, Derrick C, Mukherjee N. The use of focus group discussion methodology: Insights from two decades of application in conservation. *Methods in Ecology and Evolution.* 2018; 9: 20-32.
19. Hennink MM, Kaiser BN, Weber MB. What influences saturation? Estimating sample sizes in focus group research. *Qual Health Res.* 2019; 29(10): 1483-96.
20. Devi Prasad B. Qualitative content analysis: Why is it still a path less taken? *FQS.* 2019; 20(3): 36.
21. Vaismoradi M, Turunen H, Bondas T. Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nurs Health Sci.* 2013; 15(3): 398-405.
22. Nguyen LPT, Nguyen BX, Ngo TT, Nguyen YHN, Phan HT. Correlations between excessive body mass index, body perception, physical activity, and respiratory functions among youths in an urban setting of Vietnam. *Biomed Res Int.* 2020; 2020: 9627605.
23. Silva AOD, Diniz PRB, Santos MEP, Ritti-Dias RM, Farah BQ, Tassitano RM, et al. Health self-perception and its association with physical activity and nutritional status in adolescents. *J Pediatr (Rio J).* 2019; 95(4): 458-65.
24. Ross SE, Francis LA. Physical activity perceptions, context, barriers, and facilitators from a Hispanic child's perspective. *Int J Qual Stud Health Well - being.* 2016; 11: 31949.
25. Laird Y, Fawkner S, Kelly P, McNamee L, Niven A. The role of social support on physical activity behaviour in adolescent girls: A systematic review and meta-analysis. *Int J Behav Nutr Phys Act.* 2016; 13: 79.