
Adolescents' perspectives on the barriers and facilitators of physical activity: a systematic review of qualitative studies

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Abstract

This article examined qualitative studies of adolescents' perspectives about the facilitators and barriers of physical activity, published from 2007 to 2014. A systematic review of 'Web of Science', 'EBSCO', 'Psychinfo' and 'ERIC' databases was performed according to Preferred Reporting Items for Systematic reviews and Meta-analyses guidelines. The following keywords were used: 'physical activity' and 'physical education', each one individually associated with 'correlate', 'determinant', 'facilitator', 'barrier', 'factor influen*', and with 'qualitative', 'focus group', 'interview', 'narrative'. Out of 3815 studies initially identified, due to inclusion and quality criteria, only 12 were fully reviewed. Studies' outcomes were analyzed through thematic analysis. The majority of these reported research with young adolescent girls. Few studies have considered the socioeconomic status influence. According to young people's perspectives, the main facilitators and hampering factors to their participation in physical activity were the following: attitude toward physical activity; motivation; perceptions of competence and body image; fun; influence of friends, family and physical education teachers and environmental

physical activity opportunities. Specific life transition periods were referred only as a barrier to physical activity. Strategies of pedagogical actions and for developing physical activity intervention programs were discussed, in order to effectively promote the adoption of active lifestyles among youth.

Introduction

Young people's participation in physical activity (PA) is associated with current and future health benefits, specifically in improved bone mineral density, aerobic fitness, muscular strength, cardiovascular risk factor reduction, mental health [1, 2] and quality of life [3, 4]. Therefore, young people aged 5 to 17 years should participate in at least 60 min of daily moderate-to-vigorous physical activity (MVPA) [1, 2, 5]. However, many children and adolescents are not active enough to benefit their health [6, 7]. For example, the proportion of young people aged 11 and 15 from 39 countries engaging in fewer than 60 min of daily MVPA is 77% (boys 72%, girls 81%) and 85% (boys 81%, girls 90%) [6], respectively. Regarding socioeconomic status (SES), it is defined as a term used as a synonym of social class representing groups in

society based on occupation, education and housing [8]; it has been found that low SES tends to be significantly associated with lower prevalence of MVPA per day [5, 9]. In sum, there are gender, age and socioeconomic differences in young people prevalence of MVPA, with the situation being considered more concerning among older adolescents, girls and those from lower SES [5, 6, 9, 10]. Thus, it is essential to identify and understand the factors related to PA participation in order to develop effective intervention programs to promote active and healthy lifestyles. Moreover, promoting PA participation among young people is of importance because PA habits adopted during childhood and adolescence can remain throughout their lives [11].

Adolescents' PA correlates have been often studied using quantitative methodologies and there are several existent systematic reviews [12–15] based on the behavioral epidemiology framework and socioecological models [16, 17]. Nonetheless, as the need to listen to young people becomes increasingly enshrined in public and political debate [18], an increase in qualitative studies which put the individual as the main focus of analysis has been verified, allowing a distinctive understanding of the perspectives and experiences related to PA [18]. By looking at the experiences of young people and how the barriers and facilitators of PA might be shaped by circumstances and contexts, qualitative research may offer additional understanding that could enhance theory development on why some are physically active and others not [19].

There is evidence from several systematic reviews of qualitative studies that some of the main barriers for young people to being physically active were the following: negative PA experiences at school and physical education (PE), personal factors (e.g. motivation, self-consciousness about appearance), family and friends' constraints and practical and material resources (e.g. time, money). Instead, some of the facilitators were the following: positive PE experiences, personal factors (e.g. fun, perceived competence), support of family and friends and access to PA programs [19–21].

However, systematic reviews of qualitative studies are scarce and outdated, and all of them are based on the youth from the United Kingdom [19–21]. Considering the changes in lifestyles that may have occurred in the last few years and the fact that there is no information from other countries, it is necessary to update and systematize knowledge through recent qualitative studies that emphasize adolescents' PA perspectives. Moreover, there is a need to know more about the perspectives of those from groups considered at high risk when it comes to adopting unhealthy lifestyles, such as girls, youth from a lower SES [5, 6, 9, 10] and of those who maintain or decrease PA levels throughout adolescence [18, 19].

Hence, this study aims to systematically examine and synthesize published qualitative studies on the facilitators of, and barriers to, PA based on urban adolescent's (13–18 years old) perspectives. The identification of the main facilitators and barriers may inform the development of effective programs to increase and maintain PA levels of adolescents.

Methods

A systematic review of the available qualitative literature on adolescents' views about the correlates of PA was conducted according to Preferred Reporting Items for Systematic reviews and Meta-analyses guidelines. Four independent reviewers conducted the analysis separately (J.M., H.S., A.M., F.C.C.) on 12 March 2014, using data between 2007 (date of the last systematic review [19] on this specific subject) and 2014, with the purpose of identifying the relevant articles in this area of expertise. The 'Web of Science', 'EBSCO', 'Psychinfo' and 'ERIC' databases were used in order to ensure, from an early stage, the scientific quality of the revised studies. The research was conducted based on 'any field' (e.g. title, abstract, text) and no restrictions were made regarding the language of publication. The terms used in the research were 'physical activity' and 'physical education', each one individually associated with 'correlate', 'determinant',

‘facilitator’, ‘barrier’, ‘factor influen*’, and with ‘qualitative’, ‘focus group’, ‘interview’, ‘narrative’.

The inclusion criteria for these articles were: (i) explored definitions and perspectives (attitudes, beliefs, perceptions of the experiences) of adolescents regarding PA or factors which influence participation; (ii) directly reported adolescents’ perspectives regarding PA (instead of having the investigator describing and characterizing the adolescents’ perspectives and experiences); (iii) data regarding the adolescents’ perspectives gathered using qualitative methods (e.g. open interviews, focal groups); (iv) empirical studies and (v) the population studied were aged between 13 and 18 years (when age limits were different, mean would have been used in that gap; or data were presented separately for this specific age group), healthy (e.g. not overweight, diabetic or other diseases) and from urban areas in developed countries.

Each article was independently examined by two reviewers (J.M., A.M.) to assess its quality. If there was disagreement among reviewers regarding the inclusion of certain articles, the final decision was left to the senior reviewer (F.C.C.) due to greater experience on these matters. The quality of the articles was assessed by a set of criteria developed by members of the Evidence for Policy and Practice Information [22] and other specialists [23]. The criteria used to assess quality in the studies were based on the following analysis: steps were taken to increase accuracy in sampling, data collection and data analysis; findings were grounded in/supported by the data; breadth and/or depth were achieved in the findings and the perspectives of adolescents were privileged (e.g. balance between open-ended/fixed response options; steps to assure confidentiality). Later, studies were evaluated regarding their reliability and usefulness, following the scale: low, medium and high. No studies failed to meet a minimum quality threshold (i.e. scoring low for both reliability and usefulness) and were therefore all included in the review ($n = 12$). Two studies were judged to be both highly reliable and useful [24, 25]. Of the 10 studies judged to have medium reliability, 5 studies were considered to have medium

usefulness [26–30] and 5 studies were scored as highly useful [31–35].

Thematic synthesis was used to analyze the results, a method described in detail in Thomas and Harden [36] and adopted previously in several systematic revisions focused on perspectives and experiences of adolescents toward health promotion [37, 38]. Initially, studies were read (J.M., A.M.) and the main characteristics were identified, as well as possible themes and results. Then the two independent reviewers discussed the results of each study. The results were then examined line by line, by one reviewer only (J.M.). Categories were inductively created to capture the meaning of the data, using the software MAXQDA 10. When all studies had been examined more than once, possible similarities and differences between those categories were considered, as well as the relationship between them. When possible, categories were grouped to create higher order themes.

Results

The data base search resulted in a total of 3815 references (Fig. 1). Following the input of data into the software EndNote X6 all duplicates were deleted ($n = 2343$). Two reviewers (J.M., H.S.) performed an analysis to assess the relevance of the title and abstract of the remaining 1472 articles, resulting in 1431 eliminated articles. Disagreements were resolved by discussion. The majority of those articles were eliminated based on inappropriate aims, methods and population characteristics. All non-English language articles identified ($n = 7$) had an English title and abstract, and were eliminated in this phase. The 41 remaining articles entered the in-depth review and 29 were eliminated due to the inclusion criteria: inappropriate content ($n = 4$) and lack of information on adolescents perspectives ($n = 6$), not a primary study (e.g. review/intervention; $n = 3$), not the required age ($n = 13$), adolescents from non-developed countries ($n = 1$) and non-urban areas ($n = 2$).

From the 12 studies included in the analysis, 5 studies focused on the perspectives of youth on PA

correlates (e.g. individual, social, environmental) [24, 25, 28, 32, 35]; 4 studies tried to understand the same factors, however emphasizing periods of transition across a life course [27, 29, 31, 33]; 1 study focused on the girls' perception on the reasons for PA non-practice [34] and 2 studies explored the environmental factors surrounding adolescents from ethnic minorities [26, 30]. Regarding PA, different definitions were used across studies for classifying adolescents as active and less active/inactive. It is important to stress that the terms 'active' and 'inactive' are in accordance with original author's definitions. Detailed methodological characteristics of the studies are presented in Table I.

PA barriers and facilitators

Table II presents the themes regarding the adolescents' perspectives on the barriers and facilitators of

PA, as well as the contribution of each study. Next, for each theme, the barriers and the facilitators for PA are presented.

PA attitude: meaning, preferences and benefits

Meaning and preferences. In most studies [25–27, 29, 31–35] competitive PA and a performance motivational climate were not appreciated by adolescents and were considered a barrier to PA. Adolescents have associated these with the following unfavorable factors: negative experiences in PE [25–27, 32]; the pressure of winning and failing in front of their peers, and peers' negative reactions [25–27, 29, 32, 34]; not feeling comfortable, absence of fun [25–27, 32, 35] and of learning opportunities [25, 26, 32]. Inactive girls demonstrated a negative attitude toward PA (e.g.

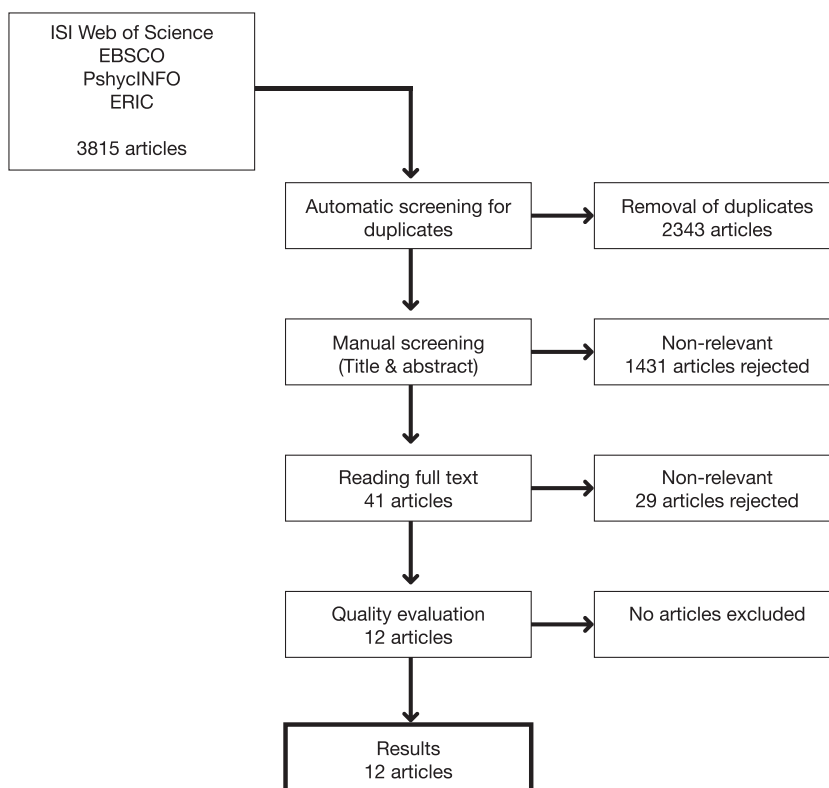


Fig. 1. Flow chart of methodology used for the article search.

Table I. Methodological characteristics of the included studies in the review (*n* = 12)

| Characteristics | Study reference number | <i>n</i> | % |
|--|--------------------------------|----------|-------|
| Local | | | |
| United Kingdom | 24, 26, 28, 29, 32, 33 | 6 | 58.3 |
| Canada | 25, 31, 33 | 3 | 25.0 |
| Australia | 27, 34 | 2 | 16.7 |
| United States of America | 30 | 1 | 8.3 |
| Total | | 12 | 100.0 |
| Gender | | | |
| Girls | 24, 25, 26, 27, 29, 32, 34, 35 | 8 | 66.7 |
| Boys and girls | 28, 30, 31, 33 | 4 | 33.3 |
| Total | | 12 | 100.0 |
| SES | | | |
| Reported at a general level (high versus low SES), used in the analysis | 28 | 1 | 8.3 |
| Reported at a general level (various SES), not used in the analysis | 24, 27, 29, 33, 35 | 5 | 41.7 |
| Reported at a general level (low SES), not used in the analysis | 32 | 1 | 8.3 |
| Not reported | 25, 26, 30, 31, 34 | 5 | 41.7 |
| Total | | 12 | 100.0 |
| Ethnicity | | | |
| Ethnic minority groups | 26, 30 | 2 | 16.7 |
| Various ethnic groups (e.g. white, black and minority ethnic groups) | 24 | 1 | 8.3 |
| Reported at a general level (e.g. mainly white), not used in the analysis | 32, 35 | 2 | 16.7 |
| Not reported | 25, 27, 28, 29, 31, 33, 34 | 7 | 58.3 |
| Total | | 12 | 100.0 |
| PA | | | |
| Adolescents who maintained and/or decreased their levels of PA with age | 29, 31 | 2 | 16.7 |
| Active versus inactive girls | 24, 25, 35 | 3 | 25.0 |
| Active but non-athlete girls | 32 | 1 | 8.3 |
| At least moderately active, but not used in the analysis | 27 | 1 | 8.3 |
| Diverse levels of PA, non-specified and not used in the analysis | 33 | 1 | 8.3 |
| Reported at a general level, the analysis was focused on the SES influence | 28 | 1 | 8.3 |
| Not reported | 26, 30, 34 | 3 | 25.0 |
| Total | | 12 | 100.0 |
| Physical activity evaluation | | | |
| Questionnaire | 24, 29, 31 | 3 | 25.0 |
| Self-reported by adolescents in interviews or other methods | 33, 32 | 2 | 16.7 |
| Teachers identified the students who fulfilled the PA criteria | 25 | 1 | 8.3 |
| Not reported/non-applicable | 26, 27, 28, 30, 33, 34 | 6 | 50.0 |
| Total | | 12 | 100.0 |
| Theoretical framework | | | |
| Social ecological model | 27, 33 | 2 | 16.7 |
| Theory of planned behavior | 31 | 1 | 8.3 |
| New social studies of childhood | 32 | 1 | 8.3 |
| Oxford model of sports participation | 24 | 1 | 8.3 |
| Feminist post-structuralist theory | 26 | 1 | 8.3 |
| A combination of psychological and ecological perspectives | 28 | 1 | 8.3 |
| Non-specified | 25, 29, 30, 34, 35 | 5 | 41.7 |
| Total | | 12 | 100.0 |
| Study design | | | |
| Cross-sectional | All | 12 | 100.0 |
| Total | | 12 | 100.0 |

(continued)

Table I. *Continued*

| Characteristics | Study reference number | <i>n</i> | % |
|--|------------------------|----------|-------|
| Data collection | | | |
| Focus groups | 27, 28, 32, 33, 34, 35 | 6 | 50.0 |
| Questionnaires and interviews | 24, 29 | 2 | 16.7 |
| Questionnaires and focus groups | 31 | 1 | 8.3 |
| Interviews and focus groups | 25 | 1 | 8.3 |
| Interviews and direct observations | 30 | 1 | 8.3 |
| Interviews, field notes and visual diaries | 26 | 1 | 8.3 |
| Total | | 12 | 100.0 |
| Data analysis (authors own words) | | | |
| Thematic analysis | 24, 31, 35 | 3 | 25.0 |
| Interpretative phenomenological analysis | 25, 29 | 2 | 16.7 |
| Coding and identifying common themes | 27, 28 | 2 | 16.7 |
| Thematic coding | 32 | 1 | 8.3 |
| Content analysis | 33 | 1 | 8.3 |
| Constant comparative method | 30 | 1 | 8.3 |
| A systematic and verifiable analysis of themes and ideas | 34 | 1 | 8.3 |
| A visually oriented discourse analysis | 26 | 1 | 8.3 |
| Total | | 12 | 100.0 |

Study reference number, first author and year of publication: 24. Coleman (2008), 25. Yungblut (2012), 26. Azzarito (2013), 27. Craike (2009), 28. Dagkas (2007), 29. Knowles (2011), 30. Ries (2008), 31. Bélanger (2011), 32. Brooks (2007), 33. Humbert (2008), 34. Slater (2010), and 35. Wittehead (2011).

dislike, low importance) [24, 35], while other adolescents thought of PA only in terms of competition/sport [31].

Adolescents who have kept high levels of PA throughout their life [31] and active girls [24, 25, 32, 35] presented a favorable attitude toward PA, associating it with multiple health benefits, physical appearance, social interactions, positive experiences and fun and recognizing its importance. Active adolescents preferred a PA context that is safe [25, 26, 29], reserved [26, 32] and social [24–27, 31–33, 35]; mastery oriented [25–27, 29, 31–33] and that emphasizes autonomy [25–27, 29, 32, 33]. They valued activities that were diverse [26, 33], non-competitive but challenging [25–27, 32, 33], associated with feelings of entertainment during practice [25, 26, 29, 32, 33, 35] and with health [26, 30–32], physical fitness and body image impact [26, 30–32].

Benefits. Inactive adolescents made limited references to PA benefits (e.g. mental health or weight control) [24, 33, 35]. On the other hand, active adolescents, with different characteristics, mentioned several benefits linked with the practice

of PA, namely, general health [27, 33] and mental health [24, 31, 32, 35]; prevention of risk behaviors [33] and physical fitness [25, 29]; satisfaction during practice [25, 29, 31, 35]; social interactions [31, 32, 35] and, for some girls, body image [24, 27, 33].

Motivation

Lack of motivation and enthusiasm were reasons pointed out by girls for withdrawing from PA [34] and not practicing PA [24, 35]. Adolescents, whose levels of PA practice have decreased with age, demonstrated a change from intrinsic to extrinsic motivation [27, 29]. On the other hand, an intrinsic and a mastery motivation was presented by physically active girls [24, 25, 35], active but non-athletes (i.e. adolescents for whom PA occupies leisure time but who were not training or seeking to attain ‘sporting excellence’ in traditional, professional competitive terms) [32], active from ethnic minorities [26] and those who succeeded in maintaining high levels of PA during adolescence [31].

Table II. Facilitators and barriers to physical activity and each study contribution

| Themes | | Study reference number | | | | | | | | | | | n | | |
|--|------------------------------|------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | | 26 | 31 | 32 | 24 | 27 | 28 | 33 | 29 | 30 | 34 | 35 | 25 | ○ | ● |
| PA attitude | Meaning | ○ | ● | ○ | | | | | | | | | | 2 | 1 |
| | Preferences | ● | ● | ● | ● | ● | | ● | ● | | ● | ● | ● | 9 | 10 |
| | Benefits | | ○ | ○ | ● | ○ | | ● | ○ | | | ● | ○ | 8 | 3 |
| Motivation | | | ○ | ○ | ● | | | ● | | | ● | ● | 7 | 6 | |
| Fun | | ● | ● | ● | ○ | ● | | ● | ● | | ● | ● | 8 | 9 | |
| Perception of competence | | | ● | ● | ● | | | ● | ● | | ● | ● | 7 | 8 | |
| Perception of body image and exposure concerns | | ● | ○ | ○ | ● | ● | | ● | | | ● | ● | 6 | 7 | |
| Perception of femininity and social norms | | ● | ○ | | | ● | | | | | ● | ● | 2 | 5 | |
| Time and competing leisure activities of PA | | | ● | | ● | ● | ● | ● | ● | | ● | ● | 5 | 8 | |
| Friends influence | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 10 | 12 | |
| Family influence | | | ● | ○ | ● | ● | ● | | ● | | ● | ● | 7 | 7 | |
| Significant others influence | PE teachers | ● | | | | ● | ● | | ● | | | ● | 4 | 5 | |
| | Coaches | | ● | | | | | ● | | | ● | | 2 | 3 | |
| | Others | | | | | | | ● | | ● | | | 2 | 2 | |
| Environmental opportunities | PA programs | ● | ● | ○ | | ● | ● | ○ | ○ | ● | ● | ● | 7 | 8 | |
| | Access | ● | ● | | | ● | ● | ● | ● | ● | ● | ● | 4 | 9 | |
| | Recreational infrastructures | ○ | | | | ● | ● | ● | | ● | | | 3 | 4 | |
| Life transition periods | | ● | | ● | ● | | ● | | | ● | | ● | 0 | 6 | |

○, facilitator; ●, barrier; ◐, facilitator and barrier.

Study reference number, first author and year of publication: 24. Coleman (2008), 25. Yungblut (2012), 26. Azzarito (2013), 27. Craike (2009), 28. Dagkas (2007), 29. Knowles (2011), 30. Ries (2008), 31. Bélanger (2011), 32. Brooks (2007), 33. Humbert (2008), 34. Slater (2010), and 35. Withead (2011).

Fun

Having fun was the most frequently mentioned factor in most studies [25–27, 29, 31–35]. According to the adolescents’ perspective, mainly girls, lack of fun is associated with non-diversified activities [27], competition [25–27, 32], negative perception or experience when practicing [25, 29, 34], absence of friends [25, 26], pressure from parents [25], weak perception of competence, no autonomy and non-challenging activities [25, 32, 33].

Having fun was considered the main reason to explain PA participation in adolescent girls [25, 35]. For active girls [24, 25, 35], active but non-athletes [32], active from ethnic minorities [26], as well as for adolescents from different ages [33], fun was related to specific physical activities (e.g. yoga) [26], challenging yet not competitive [25, 26, 32, 33]; autonomy and presence of friends [25, 26, 32, 33] or family members [26]; high perception of competence [25, 32] and intrinsic motivation [24].

Perception of competence

Low perception of competence appeared as a barrier to PA participation among adolescents from several age ranges [33], who have decreased the levels of PA through time [31], girls [25, 29, 34], inactive [24, 35] and active but non-athletes [32]. These adolescents had the tendency to assess their levels of competence by comparing themselves with their peers [29, 31, 33, 34], and revealed concern in showing incompetence in front of others and being exposed to embarrassing situations [24, 25, 31–33, 35].

In more than half of the studies analyzed, active adolescents, who have maintained high levels of PA with age [31], boys and girls [29], active but non-athlete girls [32] and other girls [24, 25, 29, 35], presented high levels of perception of competence, being this a strong reason to practice. Some adolescents have attributed low importance to the comparison of their peers’ skill level [25, 31, 33, 35], giving more importance to the intrinsic aspects of practicing.

Perception of body image and exposure concerns

An obstacle to PA practice mentioned by girls is feeling uncomfortable in front of others [24–27, 29, 34, 35], especially if the others are boys [27, 29, 34] or not a close friend [24–26, 35]. Feelings of discomfort related to physical appearance (e.g. sportswear, sweating, weight) were also mentioned as barriers to PA practice among older girls [27, 29] and girls with low levels of PA [24, 25, 35].

Adolescents who maintained high levels of PA with age [31], active girls [24, 25, 35], active but non-athlete girls [32] and active from younger ages [29], demonstrated no discomfort in front of others. A well-built appearance [31] and an adequate weight were considered by some adolescent boys and girls [33, 35] as a motivation to PA practice. Active girls have however [33] not focused exclusively on weight and identified other benefits of PA practice (e.g. health), unlike older adolescent girls who have abandoned PA practice [27].

Perception of femininity and social norms

For some girls, the concept of femininity was not compatible with the practice of PA and sport [25, 27, 34, 35]. Specifically, a girl practicing PA was perceived as ‘uncool’ or not feminine, and there was a possibility of being negatively judged by others (e.g. ‘tomboys’) [25–27, 34, 35]. These rigid beliefs were associated with social norms, like the belief that ‘feminine’ girls should worry about their physical appearance and clothes [35] and that some specific sports are only for boys [26, 34]. Adolescent girls who did not challenge these stereotypes had the tendency to be less active [25, 26, 35].

In contrast, active girls were characterized by challenging the notion that being feminine is incompatible with the practice of PA [26, 31, 35]. According to girls, in order for PA to be inclusive, feelings of belonging, friendship and support should be emphasized [26]. Others stated that the media can have an important role in the change of social norms, which can lead to more girls practicing PA [31, 35].

Time and competing leisure activities of PA

Adolescents with low levels of PA [28, 33], those who presented a decrease in the participation with age [31], inactive girls [24, 35] and other adolescents [27, 34] identified lack of time as an obstacle to PA and attributed higher importance and preference to other leisure activities such as studying [29, 31, 33, 34], working part-time [27, 28, 31, 33, 34], spending time with friends [24, 27, 28, 34, 35], going shopping [27, 29, 34, 35], screen activities [27, 29] and going out at night [35].

For active adolescents, time and other leisure activities did not represent barriers to PA, having highlighted their time management skills [31] and ability to deal with pressure in combining several activities [35]. In their discourses, active adolescents emphasized the importance of PA and positive PA experiences at an early stage [35], as well as PA opportunities during school time [27, 29, 33].

Influence of friends

All studies mentioned the influence friends have on adolescents’ behavior regarding PA and other leisure activities. Some of the identified key negative influences are as follows: their friends’ preference and participation in leisure activities not being linked with PA [24, 25, 27–29, 32–34]; friends with low levels of PA [24, 25, 27, 29]; not participating in PA with friends [26, 29, 33–35]; negative PA experiences with friends [30, 34]; lack of support [26–29] and too much pressure to be physically active [31].

Conversely, adolescents indicated the following factors as a positive PA influence: presence and practice of PA with friends [24–33, 35], because the experience tended to be perceived as more entertaining [25, 26, 28, 30–33, 35], secure [26, 35] and comfortable [25, 26, 32, 35]; friends’ support [25–27, 31, 33, 35]; undertaking PA that their peers value [24, 32] and strengthening social relationships [24–27, 30, 32, 33].

Influence of family

Family has a strong influence on adolescents’ PA patterns. Inactive adolescents who have abandoned

or decreased the practice of PA with age, mainly girls, and adolescents from low SES referred the following factors as a negative PA influence: physically inactive family members [24, 34, 35]; lack of encouragement [28, 29, 31, 35], financial support [28, 34] and transportation [31, 34]; too much pressure to improve academic performance, mostly in high school [27, 34] or to be physically active [24, 31].

On the other hand, active girls [24, 35], active but non-athlete [32], active from ethnic minorities [26] and adolescents from a high SES [28] indicated to have the following support: encouragement and transportation [24, 28, 35], someone watching them while practicing [28, 35], financial support [24, 28] and subscriptions in sport clubs as a child [35]. Several adolescents referred to practicing PA with their family members [24, 26, 32, 35], considering them role models [24, 35]. Additionally, adolescents who have kept high levels of PA with age [31] indicated that they had a stable support from family members.

Significant influence from others: PE teachers, coaches and others

Adolescents who indicated that their PA had decreased with age [29, 31], those [33] from a lower SES [28], girls from ethnic minorities [26, 30] and other adolescents [27, 34, 35] indicated the following factors as negative influences: adults who promoted sessions focused on competition and not inclusion [26, 31, 33], not fun oriented [31, 33, 35], high levels of intensity [34, 35]; lack of encouragement [26, 28, 29]; not having a close relationship with anyone [30]; curriculum focused on sports perceived as “masculine” [27] and lack of autonomy [26, 29] and unfair teachers [33, 34].

Contrarily, for girls and active adolescents from high SES, PE teachers had a positive influence on their PA practice by encouraging [26, 27, 29]; supporting their engagement in school PA [27, 28] and in the community [28]; helping their improvement in the activities [26] and explaining the benefits of PA [28]. Others indicated encouragement, feedback and the coaches’ overall knowledge as key [33], and

the presence of adults close to the PA locations due to security reasons [30, 33].

Environmental opportunities: PA programs, access and recreational infrastructures

PA programs. Adolescents indicated the lack of offers of PA programs in school [27], in the community [26, 30, 31] or in both contexts [28, 33, 34] as an obstacle to PA practice. They considered that the PA offers were reduced and undiversified [26–28, 31, 34], focused on competition and exclusively [31, 33], favorable to boys [34] and to those with age 14 or less [30, 31], and not in accordance with their preferences [25, 26, 33].

The opportunity to practice numerous PAs in school context (PE, school sports, break time, field trips) was mentioned by girls [27, 29], adolescents from ethnic minorities [30] and from a high SES [28] as a PA facilitator. PA programs should be diverse, in accordance with their preferences [30] and allow opportunities for autonomy [25, 26, 29, 32, 33].

Access. The difficulty to have access to PA programs was indicated by some adolescents as a reason not to practice PA due to costs [28, 30, 31, 33, 34]; time and PA schedules [30, 31, 35]; the distance from home and lack of transportation [27, 28, 30, 33, 34] and low security [26, 30, 33].

On the other hand, some adolescents from a high SES [28] and girls [27] showed a tendency to participate in PA programs and to use school and neighborhood facilities, while others mentioned the low cost associated with PA participation [30, 33].

Recreational infrastructures. The lack of infrastructures [27, 28, 30, 33] and their inadequate conditions and design [30, 33] were indicated by adolescents with several characteristics—boys and girls [33], from ethnic minorities [30], from a low SES [28] and only girls [27]—as obstacles to PA.

Adolescents from ethnic minority groups [26, 30] and others from different ages [33] have pointed out the existence of facilities and equipment in school and at home [26], as well as in the neighborhood [30], as favorable to their PA practice. For them, facilities needed to have quality [33], proper

maintenance and an appropriated design for adolescents [30, 33] and safety [26, 30, 33].

Life transition periods

Half of the studies mentioned transition periods, which seem to have an influence on PA practice. The transition from primary school to high school is one of those periods [31], and adolescents with low levels of PA indicated several factors such as increase in work load [24], lack of motivation and energy [24, 27], less opportunities to be physically active [33], the PA available is of competitive nature [27, 34], availability [33], giving higher importance to other social activities [25, 27, 33], the role of friends [25, 33], higher concern with image and group acceptance [34]. Additionally, the transition from high school to the labor market is another critical period that contributes to their levels of participation [24].

Discussion

The objective of this systematic review was to summarize the adolescents' perspectives in relation to the facilitator factors and PA barriers. Twelve qualitative studies were identified. The findings from this review support that, according to the adolescents' perspectives, mainly girls, the key PA facilitators and barriers are the following: PA attitude; motivation; perceptions of competence and body image; fun; influence of friends, family and PE teachers and environmental PA opportunities. Specific life transition periods were referred only as a barrier to PA.

Based on identified individual factors, this review highlighted the need to cultivate in youth a motivational profile favorable to the practice of PA. Specifically, PA professionals must promote perceptions of competence, intrinsic motivation and favorable attitudes toward PA. In order to do this, PA professionals may adopt pedagogic strategies according to the self-determination theory [41, 42], which allow the fulfillment of basic psychological youth needs, namely competence (e.g. challenging activities), autonomy (e.g. choice) and interpersonal

relations (e.g. cooperation activities). Moreover, adolescents appreciated participating in activities that were diverse, non-competitive, fun, interesting and able to be performed with friends. Sharing values, sense of security and including the adolescents' ideas in the activities seem to help the creation of a positive environment, which is linked with regular PA participation [41]. In summary, adolescents valued the practice of PA in a mastery motivational climate, which is associated with cognitive, affective and behavioral benefits [42]. These results are in line with those of earlier reviews [19–21].

Despite recognizing that knowledge *per se* is probably not enough to change behaviors, taking into account active adolescents' characteristics [31, 32, 45], PA professionals should not overlook the promotion of PA and health knowledge, PA diverse benefits (e.g. health, functional ability, social relationships) and how youth might organize their own PA. Also, it is fundamental to expand the notion of PA (e.g. only competition) and to change the stereotyped perceptions that some adolescents revealed about the concept of being feminine and practicing PA (e.g. PA is not for girls). Girls with an active lifestyle revealed distinct characteristics from inactive ones, by challenging PA and gender stereotypes and by having a better perception of body image. In the quantitative literature, the perception of body image is not a consensual correlate of adolescents' PA [12, 44]. However, this review supports others' findings by emphasizing that the perception of body image is an important factor associated with girls' PA [19–21, 44].

Fun emerged as an important independent factor in explaining PA practice, as in other qualitative reviews [19–21], and was associated with perception of competence, autonomy, challenging and diverse activities and the presence of friends and/or family.

At the social level, the influence of friends and family emerged as a critical factor influencing youth PA, as in previous quantitative [45, 46] and qualitative reviews [19–21]. Friends seem to exert a particular influence on youth behavior especially from adolescent years onwards. Therefore, friends' support, PA levels, co-participation in PA, attitudes

toward PA and other leisure activities should be considered in PA promotion programs. Concerning family, this review provides evidence that continuous support for PA participation was associated with active children and adolescents. Hence, family should be informed about the numerous benefits of PA and of its importance in the creation of PA habits of youth at all stages, such as by setting an example (role modeling), by performing PA tasks with others, emotional support (encouragement, attitudes) and logistic support (transportation and registration).

Additionally, several studies identify the pressure to have a good scholastic achievement as an obstacle to the practice of PA [27, 31, 33]. Thus, the family and schools should be informed that PA practice has no negative effects on academic performance; conversely, there is evidence that it is linked to better academic performance [47].

At the school context level, the Institute of Medicine [48] recommended that schools should provide access to at least 60 min/day of vigorous or moderate-intensity PA, more than half of which should be accomplished during regular school hours. According to young people, more interesting, diverse and inclusive PA school opportunities should be provided at more compatible schedules (e.g. before or after classes). Furthermore, this review supports that PE professionals can also have a significant role in establishing the links with the surrounding school community to integrate and create more practice opportunities for children and adolescents [28].

In recent years, environmental influences on youth PA habits have received progressive attention from researchers, but still need to be further explored [13, 49]. Of the previous systematic reviews on qualitative works [19–21], only Rees *et al.* [21] identified environmental factors as correlates of PA. The present review adds that at the community level, and based on young people's views, it is important to provide a wider offer of PA programs, directed particularly toward older teens (14 years old and more), girls and those who belong to a lower SES. Furthermore, increasing easy access to diverse PA programs, as well as having

well preserved facilities in a secure environment, is considered crucial for more young people to begin and maintain an active lifestyle.

This review updates the existing literature [19–21] and extends it by being the first to systematically assess UK and non-UK adolescents' perspectives about PA facilitators and barriers. Many common PA facilitators and barriers were found between UK [19–21, 24, 26, 28, 29, 32, 35] and non-UK adolescents [25, 27, 30, 31, 33, 34], such as PA attitude, motivation, perceptions of competence and femininity, friends and family influence. Therefore, this review contributes to validate the importance of those variables founded in UK studies, because they were also founded in studies conducted in another geographical and cultural contexts (United States, Canada, Australia). Potential areas for future systematic reviews include studies with non-urban adolescents and with those living in developing countries.

The analysis of individuals with different characteristics (e.g. gender, age, PA patterns) is another strength of this review. Specifically, insights can be provided about why adolescents decrease or maintain their PA levels with age, complementing previous studies [19, 20]. In accordance with Kirk [50], this review confirms the importance of early, diverse and positive PA experiences for the adoption and maintenance of healthy lifestyles. Additionally, three key characteristics of individuals who had maintained PA levels during adolescence were identified: heightening motivational profile (e.g. PA preferences and benefits, fun, perceptions of competence and body image and intrinsic motivation), social support (mainly from friends—co-participation—and also family) and environmental opportunities (e.g. access). Adolescents whose PA participation decreased with time mentioned some factors that have already been identified in literature, such as lack of time, increase in workload and preference for other leisure activities [21, 44], as well as other factors less explored related to environmental PA opportunities (e.g. PA programs, recreational infrastructures and safety). They have also reported several personal factors (e.g. PA attitude, negative feelings when active, extrinsic motivation) and a

poor social support. Those identified variables might inform the design of intervention programs in order to maintain PA levels of adolescents across age. Still, it could be beneficial to conduct further research to understand how and why PA levels vary in specific periods identified as critical for young people (e.g. 12 to 14 years and from 18 years up) [29, 34] and to conduct longitudinal studies, as opposed to all studies identified for this review.

Most studies included in the review were focused on adolescent girls, which reinforce the knowledge of a subgroup at risk of adopting inactive lifestyles [6, 10]. This could, however, have limited our capacity to differentiate gender results. In fact, participants' gender was not used to stratify the analysis and no major differences were found between boys and girls [28, 30, 31, 33]. Still, it is possible to conclude that the main key PA motivators and barriers for boys were their friends' influence and environmental opportunities. Also individual (e.g. fun, perception of competence and body image for maintainers) and social (e.g. time and leisure activities, family) factors were found.

Almost half of the studies did not report the SES of the participants and only one has studied the correlates of PA in adolescents from a high and low SES [28]. It was found that PA participation of adolescents from lower SES was limited compared with their higher SES counterparts due to social (financial support, encouragement from family, friends) and environmental factors (PA access, opportunity, location). Because the influence of the SES on PA among youth is not clear [9], it seems suitable that more qualitative studies engage in a more detailed characterization of the demographic characteristics of the participants and use the SES variable as central in the results analysis.

The majority of the studies included for this review do not provide a clear picture of PA levels of adolescents, an important aspect that should be improved in future qualitative studies. Additionally, mixed-method studies might be useful to better understand why some adolescents are physically active and others are not by exploring the variable

interactions across levels and how they evolve with time.

In conclusion, the current review has shown that according to young people's perspectives, the key factors that facilitate and hamper their PA participation are related to individual (e.g. attitude, perception, motivation), social (e.g. friends, family and PA professionals) and environmental (e.g. PA opportunities, PA access) levels. To effectively promote the adoption and maintenance of active lifestyles, PA professionals should consider intervening on multiple levels, the adolescents' perspectives and the specific needs of subgroups (e.g. girls' perceptions of body image and femininity, friends' influence, PA programs available and safety). Several strategies of pedagogical actions and for developing PA intervention programs were presented and discussed in this study.

Conflict of interest statement

None declared.

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