



“It’s a bit exasperating to be locked up” - an exploration of Mexican adolescents’ perceived barriers and facilitators for physical activity and healthy eating

“É um pouco irritante estar preso” - uma exploração das barreiras e facilitadores percebidos pelos adolescentes mexicanos para a prática de atividade física e alimentação saudável

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ABSTRACT

Mexican adolescents’ diet and physical activity levels fall short of recommendations for health. The aim of this study was to explore Mexican adolescents’ perceived barriers and facilitators of physical activity and healthy eating. Twelve single-sex focus groups were conducted in six secondary schools in Mexico City during three months from October 2016. Data were analysed via inductive thematic analysis. Three themes were identified, namely: understanding the health-behaviour link, the impact of a restricted life, and social support. Participants understood how physical activity contributes to multiple dimensions of health, and how diet contributes to physical health. They also identified socialising, having fun, and stress relief as facilitators of PA, and knowledge and the desire for healthy food as facilitators for healthy eating. Barriers included inadequate facilities, insufficient time within current school structures, and inadequate social support from teachers. Context-specific physical activity barriers of neighbourhood safety concerns, and limited family support were also reported. Participants had a basic knowledge of healthy eating but showed little motivation to improve their diet. In conclusion, the findings of this study suggest that improvement of opportunities for safe outdoor time, social support, and availability of healthy food would be useful to explore to promote the health behaviours of Mexican adolescents.

Keywords: Healthy diet, Physical activity, Adolescent, Focus groups.

RESUMO

A dieta e os níveis de atividade física dos adolescentes mexicanos estão aquém das recomendações para a saúde. O objetivo deste estudo foi explorar as barreiras percebidas por adolescentes mexicanos e facilitadores da atividade física e da alimentação saudável. Doze grupos focais unissexuais foram realizados em seis escolas secundárias na Cidade do México durante três meses a partir de outubro de 2016. Os dados foram analisados por meio da Análise Temática Indutiva. Foram identificados três temas: compreensão do nexo saúde-comportamento, impacto da restrição de vida e apoio social. Os participantes compreenderam como a atividade física contribui para múltiplas dimensões da saúde e como a dieta contribui para a saúde física. Identificaram a socialização, a diversão e o alívio do estresse como facilitadores da atividade física, e o conhecimento e o desejo por alimentos saudáveis como facilitadores para uma alimentação saudável. As barreiras incluíram instalações inadequadas, tempo insuficiente dentro das estruturas escolares atuais e apoio social inadequado dos professores. Barreiras de atividade física específicas do contexto de preocupações com a segurança da vizinhança e suporte familiar limitado também foram relatadas. Os participantes tinham um conhecimento básico sobre alimentação saudável, mas mostraram pouca motivação para melhorar sua dieta. Em conclusão, os resultados deste estudo sugerem que a melhoria das oportunidades de tempo seguro ao ar livre, apoio social e disponibilidade de alimentos saudáveis seria útil para explorar para promover os comportamentos de saúde de adolescentes mexicanos.

Palavras-chave: Alimentação saudável, Atividade física, Adolescente, Grupos focais.

Introduction

Poor diet and a decline in physical activity are associated with obesity and other comorbidities¹. In México 23.9% of adolescents live with overweight and 17.2%

with obesity², 46.3% do not meet the physical activity guidelines, and 53.6% consume high-sugar and energy food frequently³. In addition, school and neighbourhood environments in Mexico do not facilitate ade-

quate support for health behaviours⁴.

The correlates of diet⁵ and PA⁶ in adolescents at different levels of influence have been widely examined. Most studies investigating the correlates of diet and physical activity report data from adolescents living in upper-middle-income countries⁷. It might be incorrect to assume that similar determinants will be relevant for adolescents living in different contexts where access to affordable food, and opportunities for physical activity can differ considerably. Although some studies have explored physical activity and eating behaviours among Mexican students, these have been centred primarily on children⁸ or have used quantitative approaches⁹. For example, in a quantitative analysis of data from 4023 adolescents attending high schools in Mexico, only 31.7% of students reported meeting physical activity recommendations¹⁰. In this work, adequate facilities and a specialist physical education teacher were reported by students as facilitators of physical activity guideline attainment¹⁰.

More information is needed on adolescents' own perspectives. Using a qualitative approach that facilitates an in-depth description of individuals' experiences, the present study aims to explore Mexican adolescents' perceived barriers and facilitators for healthy eating and PA.

Method

A qualitative exploratory design and phenomenological method were selected to gain a better understanding of individuals' perspectives of what influences their behaviour¹¹.

Population

Eligible participants were adolescents aged between 11 and 15 years, attending schools in Mexico City from a list provided by the Mexico's Ministry of Education. From the list, schools located in areas of the City with different grades of poverty were selected. Following institutional ethical approval (EP 15/16 277), *in loco parentis* declaration was obtained from the schools' headteacher. The parents received a letter with the study details and were asked to provide passive consent. From the total sample with parental consent ($n = 320$), 87% of participants also gave their assent to take part in the focus groups ($n = 279$). Participants were a subsample of a group of adolescents involved in a wider study; respondents were stratified according to gender and physical activity level, described as high-activity (60 minutes/day > 5 days/week) and low-activity (60 minutes/day < 3 days/week) to allow

purposive sampling. Physical activity had been previously assessed through an online survey via a question obtained from the U.S. Youth Risk Behavior Surveillance System¹². Two focus groups per school were conducted (12 in total), one for girls and one for boys, including a mix of high and low-activity participants from a final list according to their availability.

Procedure

Semi-structured focus groups were conducted from October 2016 to January 2017 using a modified version of the Secret box technique¹³. Focus groups lasted from 29-52 minutes, involved 6-8 participants, and were recorded using a digital voice recorder and transcribed verbatim.

Analysis

Data were analysed using inductive thematic analysis¹⁴, data management were supported using NVivo (QSR International; Version 11 Pro). Verbatim transcriptions in Spanish preserved participants' expressions in the original language, while codes and themes were developed in English. Transcripts were first reviewed several times for familiarisation by the first author, before coding each meaning unit with a data-driven label. Codes were explored for interconnections, related codes grouped into primary clusters and discussed between the research members. Three critical friends were invited to the study to encourage reflection, exploration of alternative explanations, and interpretations of the data through critical questioning¹⁵.

Results

The total number of participants was 79 students, 39 boys and 40 girls, ranging in age from 11 to 15 years, living in the northern and central areas of the city. Schools were located in areas of Mexico City classified as having a high proportion of people in medium, high and extreme degrees of poverty. Also, the schools were in areas where approximately 58% of households have one victim of crime. The results are presented within three broad themes. Theme I is "Understanding the health-behaviour link" in terms of participants' understanding of a healthy diet and physical activity and how they link them with health. Theme II is "Impact of a restricted life", capturing the school and local neighbourhood factors that participants perceived to affect their diet and PA. Theme III, "Social factors", comprises the degree of perceived social support from friends and parents that

adolescents felt they received, and how this influenced their lifestyle. Each theme included subthemes which are presented with illustrative data extracts.

In general, participants agreed that being active is fun, it helps them to relieve stress, and it is a form of distraction and entertainment: *“because when you go out with the skateboard you exercise, you relax and have fun”*. Some mentioned a preference for screen-based activities (e.g. playing videogames or watching videos): *“you entertain yourself another way, like, I’m always on the phone or something”*. A few students found themselves physically lacking in the capacity to do some activities or perceived physical activity as an extra effort, something that is exhausting, causes pain and is difficult to do: *“it’s a lot of work for me, [...] I’m not good at running nor flexible in my body”*. In terms of diet, a few participants expressed that they just eat what they crave, whatever is available, whatever requires less effort to prepare, or expressed their preference for junk food.

Theme I. Understanding the health-behaviour link

Diet and PA. Although, no participant explicitly referred to the quantity or frequency of consumption of different types of food in describing what is a healthy diet, most participants referred to eating a variety of food, energy balance and eating what is suggested in eating guidelines. Despite participants admitting that eating junk food is not healthy, this was perceived by a few adolescents as ‘normal’ and somehow expected behaviour because they are young. Some students perceived the presence (or absence) of nutrients or food items within dishes as determining diet quality, regardless of the cooking method (e.g., frying).

Boy 1: It’s like he said, you can eat everything but some things in fewer quantities because sometimes there are things that have carbohydrates.

Boy 2: Like when you eat gorditas [deep fried corn dish].

((General laughter))

Boy 1: Carbohydrates too, the body needs them, I mean a balanced diet.

Participants generally agreed that physical activity refers to any bodily movement. Although none of them volunteered specific details of the recommended amount, they mentioned that it is important to be active frequently, to end up tired, sweaty, or to burn calories. Most participants identified the following forms

of PA; playing sports, different forms of active play, attending the gym, walking the dog, dancing, active videogames, riding a bike, or skateboarding.

“When you play football you keep running, you keep moving, I mean you never stop, then you’re putting your body in action”

Multidimensional understanding of health. Participants generally agreed that a healthy lifestyle is good for health, and that this is the opposite of eating junk food and spending time in front of a TV. Participants associated being active with improving physical (e.g., body growth and muscular strength), psychological (e.g., stress relief), and social health (e.g., a way of socialising with family and friends), and for preventing obesity. In the case of diet, only physical health benefits were referred to, including the effects of eating certain vitamins, having energy during the day, or weight management.

“I think that being healthy is not only physically good, it is also for your whole body and mind”

Theme II: The impact of a restricted life

Outdoor time. All participants expressed feelings of frustration because of the number of perceived barriers in their school environment to being active or eating a healthy diet. Rules such as ‘do not run’ during breaks or physical education were barriers to being active. There was a consensus among adolescents from state schools about a lack of physical education teachers, which frequently led to cancellations or lessons being delivered by substitute teachers who commonly keep students at their desks in the classroom. Breaks and physical education lessons were perceived as short and insufficient, and this encouraged students to feel that they are locked up in the classroom for a long time.

[We need] a change in the timetable, because sometimes [...] physical education is left until the end of the day, and there may not even be a teacher! And when there are no teachers, the other teachers [substitute teachers] do not want to take you out [to the playground], so it’s like what they said, it’s a bit exasperating to be locked up all the time and you get very stressed.

Teaching style. Participants perceived barriers to being active during physical education to be due to lesson

structure and teaching style. Monotonous and ‘boring’ physical education lessons reduced participants’ enjoyment of physical activity especially, if the physical education course has the same structure throughout the academic year, constant repetitions of the same activity and a lack of interaction and competition. Students also criticised their physical education teachers’ authoritarian teaching styles for undermining their enjoyment of, and participation in, physical activity at school. Participants did not feel that they had the opportunity to input into the class, and some students reported feeling forced to perform activities to avoid failing the subject.

“Because in physical education you do what the teacher says, but then you want to do something, and you can’t do it, it must be what the teacher says”

Safety. Participants perceived their school as a safe place, in part because students are monitored by the teachers. All participants perceived their surroundings to have high levels of crime (e.g., they have fears of being kidnapped, assaulted or caught up in shootings), unsafe roads (e.g., too much traffic and fast drivers), and unsafe parks (e.g., fights, exposure to drugs and the fear of being kidnapped). The main impact of this fear is that some participants opt to stay at home and engage with activities other than PA. These fears were shared by family members, as students reported being restricted from going outside by parents or grandparents.

“[...] where I live it is more insecure and I feel scared to go out sometimes, that’s what I mean. I mean, all places can have their downsides but where I live it’s less safe”

Time. Lack of time was one of the most common reported barriers for physical activity and eating healthily, particularly the impact of academic-related demands both at school and outside school hours. The timetable was perceived as being very long, and full of classroom activities in which participants must sit down. A few of the students also gave the early start of school as a reason for skipping breakfast. Outside school, commuting and homework limit their opportunities to engage with other activities. Non-academic demands also reported were chores at home or helping parents to run errands. In terms of diet, some school policies were reported to have a negative influence on food intake, for example short break times that were not long enough to queue

to purchase food, eat, play, move, and socialise.

“We leave [school] at almost 4 o’clock in the afternoon and, well, it takes me about half an hour to get to my house, and I cannot go outside there because then I do homework, as it is almost night-time, and I so do not do much exercise”

Equipment and access. Lack of opportunity for physical activity and healthy eating facilitated by the physical environment was a consistent barrier reported by most participants. Adolescents reported a lack of sports facilities and adequate equipment at school, to an extent that discouraged them from being active. All participants agreed that their schools felt small, crowded, and had limited space and provision for PA. Participation in sports clubs outside the school was rarely mentioned. At the local neighbourhood level, physical activity opportunities included parks, and using the streets or other open areas to ride bikes or play sports. At home, participants reported being much more restricted as the area is usually too small for activities. Regarding diet, most participants highlighted a lack of variety in the food available to them, and that they perceived being exposed to mainly unhealthy options at school.

“Sometimes you want to play something but there are no balls, or they are all deflated, or they are all already broken, and you can’t play”

Theme III: Social factors

Socialising. Participants reported that taking part in physical activity with friends gave them feelings of connection, and an opportunity for fun. The competitive aspect of physical activity was perceived by some participants as encouraging. Participants did not engage regularly in playing sports or being active with their families, but when they did, they mostly walked, ran, rode a bike, used outdoor exercise. Sharing such activities with parents was to be considered by participants as high-quality time that fostered feelings of family connection.

“Then you go for a walk and it is good for socializing and besides your exercise like that you enjoy more the time to be with your family”

Family. Living in an inactive family who have a limited interest in physical activity was also a barrier to

being active. One student mentioned that her family never have time for these sorts of activities, while another student indicated that her family does not care whether she does physical activity or not. In all focus groups, apart from one student who mentioned an uncle who goes to the gym, none of the participants mentioned whether anybody within their family engaged in any kind of physical activity regularly, and it seems that within this participant group there was no physical activity culture at home. In contrast, some students referred to indoor and screen-based activities as a way of spending time together with their family.

“It [PA] is not something that we do as a rule, because your parents [don’t] encourage you, ‘let’s go and exercise’, they would rather stay in and watch TV or whatever. If it were a habit, then I think it would motivate me to do it but it is not”

Discussion

The purpose of this study was to explore the perceived barriers and facilitators of healthy eating and physical activity in a group of secondary school adolescents in northern and central areas of Mexico City. Three themes were identified: understanding the health-behaviour link, the impact of a restricted life, and social factors. Participants demonstrated knowledge of the relationships between physical activity and its physical, psychological, and social health benefits as well as physical benefits associated with healthy eating. Most participants showed interest in having more healthy food options at school and seemed to enjoy PA, particularly for socialising, having fun, and relieving stress. Performing any type of physical activity in company and for pure enjoyment were the main physical activity facilitators identified. However, these motivators seem to be insufficient for sustained participation because of perceived environmental and social barriers. Regarding diet, both perceived exposure to unhealthy food in adolescents’ environment and personal preferences seem to play a key role. In terms of PA, students perceived themselves to be ‘locked up’, both in their classroom and at home. Lack of time and lack of social support were identified as barriers to PA.

The expression ‘It’s a bit exasperating to be locked up’ captures a meaningful finding of the present study within the specific context of northern and central areas of Mexico City. This finding may help to explain the presence of more inactive adolescents in urban (41.1%) than in rural areas of Mexico (33%)¹⁶. Serious

parental and personal safety concerns, the perception of a lack of safe areas to play, added to low parental interest in physical activity add to the participants feel locked up at home. This finding resonates with national data which indicate that over 61.9% of Mexican parents prevent their children from going outside due to neighbourhood safety concerns¹⁷. Given that previous studies support the association between adolescents’ PA, low crime incidence¹⁸ and lower safety concerns¹⁹, the provision of safe play areas in Mexico City may well contribute to reducing fears and thereby increasing physical activity levels.

At school, participants felt safe but the perception of restrictive policies, a predominantly desk-based school day, the lack of adequate sports facilities and equipment, insufficient provision of physical education, and the physical education teaching style also increased their feelings of being locked up in the classroom. This finding may support a longitudinal study conducted in Mexican schools reporting a significant decline in moderate-vigorous physical activity in children from kindergarten to elementary school²⁰. Unlike in other countries where children are encouraged to use breaks between lessons for play²¹, studies conducted in Mexican schools reported a statutory prohibition of the use of recess for anything other than resting²². In the present study, participants perceived a lack of adequate facilities for physical activity at school, which is consistent with other studies in Mexico when observation of the school conditions report playgrounds with irregular surfaces, holes, obstruction, and restriction to use of sports equipment during breaks²². Since access to adequate outdoor facilities²³ and outdoor time positively predicts time spent in PA²⁴ and negatively predicts sedentary time²⁴, it is likely that adolescents’ perception of overall limited access to outdoor time and facilities in some regions of Mexico City affects their physical activity participation.

Some participants perceived their physical education teacher’s style to be relatively authoritarian and restrictive of the students’ input in the class, which undermined their enjoyment and enthusiasm. These descriptions resonate with the concept of controlling social environments as set out in Self-Determination Theory (SDT)²⁵. Control from physical education teachers has been linked to disaffection and lower physical activity in the physical education context. Such findings support other qualitative studies showing that lower controlled motivation and higher auton-

omous motivation in pressure-free supportive environments were important for physical activity engagement in adolescents with overweight²⁶.

The fun component of physical activity and social support from family and friends were key factors identified in line with previous qualitative studies²⁷. The facilitative role of social support from family and friends also aligns with research on the role of friends²⁸ and family²⁹. However, some participants reported active discouragement from parents to take part in physical activity and active encouragement towards sedentary behaviours as a way of spending time together. This differs from past research that supports the idea that parents generally support and encourage their children to be active and suggests that adolescents in the present sample experienced stronger discouragement than has been previously reported²⁹.

The main barriers to healthy eating were suggested to be the availability of unhealthy food options in the students' environment and the lack of time during the school break to eat lunch, which supports the findings of previous studies in Mexican state schools³⁰. Most participants demonstrated a good basic knowledge about healthy eating, in that they were able to distinguish the most obvious healthy and unhealthy food options. However, they showed a general preference for junk food, and a lack of interest in change. In this respect, our findings are consistent with past work showing that knowledge is not enough to motivate healthy eating³¹.

The results of this study must be interpreted with caution as all participants lived in urban areas, and perceptions of rural adolescents or those outside the educational system might differ. Four of the schools ran on a doubled-up school day, which meant different children attended in the morning than afternoon sessions. Given the study design the findings cannot be generalised to all Mexican adolescents. The focus group guide directed the discussion; social influences on diet were not explicitly raised, therefore there may be more information that participants had to contribute on this topic if directly addressed.

In conclusion, urban Mexican adolescents in this study shared a perception of poor access to outdoor time and facilities as a barrier for physical activity both at school and in their home neighbourhood. Although schools may be a valuable opportunity for promoting physical activity because they are perceived as safe, at present adolescents' report receiving inadequate social support, facilities, and space in the timetable to benefit from this. Adolescents'

knowledge of healthy eating did not seem to translate into their food choices, partly through lack of desire for change, and partly due to the availability of unhealthy food in the school environment. Enhancing overall outdoor time, addressing perceived safety concerns, physical education provision and structure, school policies, availability of high-energy food at school, school timetable, physical facilities, and equipment at school and at local neighbourhood may all be venues worth exploring to enhance urban Mexican adolescents' lifestyles.

Conflict of interest

The authors declare no conflict of interest.

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Author's contributions

Argumedo G: Conceptualization; Methodology; Software; Validation; Formal analysis; Investigation; Data curation; Visualization; Funding acquisition; Writing – original draft; Writing – review & editing; Approval of the final version. Standage M: Conceptualization; Methodology; Resources; Supervision; Writing – review & editing; Approval of the final version. Curran T: Conceptualization; Resources; Supervision; Writing – review & editing; Approval of the final version. Gillison F: Conceptualization; Methodology; Formal analysis; Resources; Data curation; Supervision; Project administration; Visualization; Funding acquisition; Writing – original draft; Writing – review & editing; Approval of the final version.

Declaration regarding the use of artificial intelligence tools in the article writing process

The manuscript did not use artificial intelligence tools for its preparation.

Availability of research data and other materials

The data of this study is available on demand from the corresponding author.

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