

**A self-determined exploration of adolescents' and parents' experiences derived
from a multidimensional school-based physical activity intervention**

Roberto Ferriz ^a

Alejandro Jiménez-Loaisa ^{b, c *}

David González-Cutre ^b

María Romero-Elías ^b

Vicente J. Beltrán-Carrillo ^b

^a *Department of Didactics of Musical, Plastic and Corporal Expression, University of Valencia, Avenida dels Tarongers, 4, 46022 Valencia, Spain*

^b *Department of Sport Sciences, Sports Research Centre, Miguel Hernández University of Elche, Avenida de la Universidad s/n, 03202 Elche (Alicante), Spain*

^c *Department of Didactics of Physical Education, Artistic and Music, Faculty of Education, University of Castilla-La Mancha, Avenida Carlos III s/n, 45071 Toledo, Spain*

* Correspondence regarding this article should be addressed to Alejandro Jiménez-Loaisa, Department of Didactics of Physical Education, Artistic and Music, Faculty of Education, University of Castilla-La Mancha. Tel: +34 648 62 20 88. E-mail: alejandro.jloaisa@uclm.es Twitter: @alejandro_jl

Published version at:

<https://journals.humankinetics.com/view/journals/jtpe/aop/article-10.1123-jtpe.2020-0130/article-10.1123-jtpe.2020-0130.xml>

ADOLESCENTS' AND PARENTS' EXPERIENCES

Please, cite as follows: Ferriz, R., Jiménez-Loaisa, A., González-Cutre, D., Romero-Elías, M., & Beltrán-Carrillo, V. J. (2021). A self-determined exploration of adolescents' and parents' experiences derived from a multidimensional school-based physical activity intervention. *Journal of Teaching in Physical Education*, 41(1), 68-77.

<https://doi.org/10.1123/jtpe.2020-0130>

ADOLESCENTS' AND PARENTS' EXPERIENCES

Abstract

Purpose: Adolescents' and parents' experiences within a multidimensional school-based physical activity intervention grounded on self-determination theory were explored. **Method:** Qualitative data from 29 adolescents (aged 15-17 years) and three parents on behalf of the total students' families were collected via participant observation (research diary), semistructured interviews, and focus groups. **Results:** Adolescents perceived that the application of motivational strategies, based on self-determination theory, satisfied their basic psychological needs for autonomy, competence and relatedness, favored self-determined motivation, and gave rise to adaptive consequences (improved physical activity knowledge, creation of affective bonds, and increased leisure-time physical activity). These results were supported by the information reported by the students' parents. **Discussion/Conclusions:** The findings support the implementation of self-determination theory-based multidimensional interventions to promote adolescents' physical activity participation. This study also presents several motivational strategies which could be useful for the design and implementation of future school-based physical activity interventions.

Keywords: active lifestyles, basic psychological needs, health policy, qualitative methods, self-determination

ADOLESCENTS' AND PARENTS' EXPERIENCES

A self-determined exploration of adolescents' and parents' experiences derived from a multidimensional school-based physical activity intervention

More than 80% of adolescents do not meet the current health-related physical activity recommendations established by the world's leading health promotion institutions (Guthold, Stevens, Riley, & Bull, 2020). Given this worrisome fact and considering physical inactivity as a risk factor for impaired physical and psychosocial health, conducting interventions aimed at promoting physical activity in adolescents becomes essential from a public health perspective. In this sense, scientific evidence suggests that intervention programs focused on promoting physical activity could contribute to improving physiological, psychosocial and mental health, among other positive outcomes (Brusseau, Fairclough, & Lubans, 2020).

The school represents an ideal context to promote healthy and active lifestyles in adolescents (Morton, Atkin, Corder, Suhrcke, & Sluijs, 2016; Salmon, Koorts, & Timperio, 2018). In this regard, several reviews and meta-analyses have recently emerged (Biddle, Petrolini, & Pearson, 2014; Burns, Fu, & Podlog, 2017; Morton et al., 2016; Russ, Webster, Beets, & Phillips, 2015) focused on analyzing the effectiveness of school-based physical activity interventions (SBPAIs), considering the school context as the cornerstone to promote physical activity in adolescents for many reasons. First, youth invests much of their time at school. Second, the educational context makes it possible to carry out socio-ecological and multidimensional interventions, encompassing physical-environmental factors (e.g., transforming spaces and sports facilities); social-environmental factors (e.g., managing the teacher's behavior or other social agents); and school-based policies (e.g., performing extracurricular physical activities (Hadgraft, Dunstan, & Owen, 2018; Morton et al., 2016; Owen, Curry,

ADOLESCENTS' AND PARENTS' EXPERIENCES

Kerner, Newson, & Fairclough, 2017). Third, messages to adopt healthy behaviors can be disseminated from the curriculum through subjects such as physical education. Fourth, the support that the educational system has in scientific methodologies and theories facilitates SBPAIs being carried out together with the usual school practices (Biddle, Mutrie, Gorely, & Blamey, 2012; Owen et al., 2017). In this sense, research has suggested the suitability of developing SBPAIs based on theoretical frameworks (Biddle et al., 2012).

In addition, researchers recommend involving social agents (e.g., families) in these SBPAIs, as they can influence their children's behavior towards physical activity (Dellert & Johnson, 2014; Marsh, Foley, Wilks, & Maddison, 2014). The systematic review and meta-analysis by Brown et al. (2016) indicated that 66% of the intervention studies to promote physical activity that involved parents had a positive impact on children's physical activity levels. Moreover, a recent study (Rhodes et al., 2019) carried out with a representative sample of Canadian parents with children aged 5-17 years, showed that parental support for physical activity participation explained 26% of the variance of this behavior. In this regard, the effectiveness of incorporating family involvement in interventions with children to promote physical activity seems clear (Ha, Ng, Zhang, & Chan, 2020; Rhodes et al., 2020).

Theoretical Framework: Self-determination Theory

Self-determination theory (Ryan & Deci, 2017) is an appropriate framework for the study of SBPAIs (Owen, Smith, Lubans, Ng, & Lonsdale, 2014). Specifically, self-determination theory allows explaining how psychological and social-environmental factors can support/decrease adolescents' motivation towards physical activity (Sebire, Edwards, et al., 2016). Starting with antecedents, self-determination theory identifies three types of communicative or need supportive styles that social agents can provide:

ADOLESCENTS' AND PARENTS' EXPERIENCES

(a) autonomy support (i.e., to allow choosing, to support adolescents' interests and opinions); (b) competence support or structure (i.e., giving positive feedback, orientations, and clear explanations); and (c) relatedness support or interpersonal involvement (i.e., being interested in knowing the adolescents and empathizing with them, treating them with affection and care; Aelterman et al., 2013; Ntoumanis, 2012; Reeve, 2016).

Following the self-determination theory sequence, autonomy, competence, and relatedness support would contribute to satisfying, respectively, the basic psychological needs for autonomy (i.e., a feeling of freedom to make decisions about one's own behavior); competence (i.e., feeling effective); and relatedness (i.e., feeling valued and accepted by others). The satisfaction or frustration of these needs is related to different forms of motivation, organized on a continuum of self-determination (Ryan & Deci, 2017). The most self-determined/autonomous types of motivation are made up of intrinsic motivation (i.e., participating in physical activity for the enjoyment, pleasure, and satisfaction generated by the participation); integrated regulation (i.e., considering physical activity as part of self-identity); and identified regulation (i.e., valuing one or several consequences of participating in physical activity, such as making friends or improving health). The less self-determined/controlled motivation types are represented by introjected regulation (i.e., performing physical activity to avoid feelings of guilt or anxiety) and external regulation (i.e., doing physical activity to receive a reward or avoid punishment). Finally, amotivation represents the absence of motivation.

When social agents offer autonomy, competence, and relatedness support in physical activity contexts, such as physical education, satisfaction of the three basic psychological needs is nurtured, leading to more self-determined/autonomous forms of motivation related to positive cognitive (e.g., physical activity knowledge); affective

ADOLESCENTS' AND PARENTS' EXPERIENCES

(e.g., physical activity enjoyment); and behavioral (e.g., increased physical activity levels) consequences for adolescents (Ntoumanis, 2012; Owen et al., 2014; Sun, Li, & Shen, 2017; Vasconcellos et al., 2020). However, according to these studies, the controlling influence of social factors related to using manipulative language, chaotic organization, or not showing affection is related to basic psychological need frustration, less self-determined/controlled types of motivation, and amotivation, which subsequently predict maladaptive consequences, such as lack of interest in physical activity, low physical activity enjoyment, and sedentary behaviors.

Multidimensional SBPAIs based on Self-determination Theory

Some authors have applied self-determination theory tenets to their multidimensional SBPAI designs (González-Cutre, Sierra, Beltrán-Carrillo, Peláez-Pérez, & Cervelló, 2018; Holt, Smedegaard, Pawlowski, Skovgaard, & Christiansen, 2018; Jong et al., 2020; Sebire, Edwards, et al., 2016; Sebire, Kesten, et al., 2016; Sevil, García-González, Abós, Generelo, & Aibar, 2019; Sevil-Serrano, Aibar, Abós, Generelo, & García-González, 2020; Shannon et al., 2018). However, few studies have explored the effect of self-determination theory-based SBPAIs from a qualitative perspective, using self-determination theory as a theoretical framework guiding qualitative data analysis (Holt et al., 2018; Sebire, Edwards, et al., 2016, Sebire, Kesten, et al., 2016).

Holt et al. (2018) carried out a multidimensional SBPAI (“Move for Well-being in School”) that included an intervention in the physical education class, in-class activity breaks, and in break-time physical activity. The perspective of 36 students (aged between 9-13 years) was collected through semistructured focus-group interviews and participant observation. The authors concluded that the inclusive environment (i.e., relatedness support) created was key to students' well-being and positively influenced their perceptions of competence and autonomy. In addition, the authors emphasized

ADOLESCENTS' AND PARENTS' EXPERIENCES

that, although autonomy support increased autonomy perception and autonomous motivation for most students, some participants felt uncomfortable having to choose certain physical activities, especially when they had not received sufficient prior information or they had previously perceived peer pressure.

Sebire, Edwards, et al. (2016) designed the intervention “Action 3:30,” an after-school program aimed at developing basic physical skills through recreational activities. After 40 sessions in which 20 teaching assistants and more than 250 children aged 9-11 years belonging to 20 schools participated, the authors found that teaching assistants generally offered more competence support rather than autonomy or relatedness support. Moreover, boys reported greater satisfaction of the basic psychological needs than girls.

The second study performed by Sebire, Kesten, et al. (2016) analyzed the afterschool program “Bristol Girls' Dance Project,” based on 40 dance sessions in which 18 schools participated. The authors asked 10 dance teachers and 59 girls (aged between 11 and 12 years old) about their perception of applying and receiving, respectively, a need-supportive style to satisfy their basic psychological needs. Their results revealed that the teachers supported the need for competence (e.g., dance sequences were differentiated) and established positive links with the girls (e.g., teachers' enthusiastic attitude and concern for the girls' lives was perceived), while there was low autonomy support, limiting it to giving options to choose from (e.g., choice of dance styles or types of warm-up) and using a controlling style to manage disruptive behaviors.

These previous studies explored participants' perceptions of the implementation of self-determination theory motivational strategies, regardless of whether the SBPAI was effective (i.e., Holt et al., 2018; Sebire, Edwards, et al., 2016) or not (i.e., Sebire,

ADOLESCENTS' AND PARENTS' EXPERIENCES

Kesten, et al., 2016) in achieving objectives such as improving physical activity levels or psychosocial well-being.

Aim of Present Study

Our qualitative study explores adolescents' and parents' experiences within a multidimensional SBPAI based on self-determination theory that included an intervention in physical education, an extracurricular physical activity program, and meetings with parents. Concretely, the aim of the study was to understand how the intervention affected adolescents' basic psychological needs, and their motivation, and what cognitive, affective, and behavioral consequences they perceived (complete self-determination theory sequence). Our study also provides the parents' view as significant social agents that support adolescents' physical activity (Ha et al., 2020; Marsh et al., 2014). In addition, previous research has usually informed about the opinions of students enrolled in the first education stages (9-13 years), whereas our inquiry provides the perspective of adolescents who were completing the last stage of compulsory education (15-17 years).

Method

Participants

This study presents qualitative data of the experimental group that received an SBPAI (González-Cutre et al., 2018). Twenty-nine students (15 boys and 14 girls, $M_{\text{age}} = 15.00$ years, $SD = 0.59$ years), enrolled in the last 2 years of Spanish compulsory secondary education (10-11 years in British System), took part in this study. The students were White, of middle-income socioeconomic status, and belonged to the same urban public school, which was located in the city of Elche (Spain). Two mothers and one father of this group of adolescents also participated. These parents were also White and of middle-income socioeconomic status.

ADOLESCENTS' AND PARENTS' EXPERIENCES

The participants were recruited following a purposeful sampling. The participants were those students and parents who took part in the activities of the SBPAI and voluntarily decided to be informants in the process of qualitative data collection.

Intervention Procedure

This study was approved by the research ethics committee of the Miguel Hernández University of Elche, Spain; the corresponding education administration; and the school board. All participants, including the adolescents' parents, were informed about the goals and procedures of the study and provided written consent before participation.

The multidimensional SBPAI lasted 6 months and included three simultaneous actions. The first one consisted of a teaching unit (TU) of 15 one-hour sessions (two sessions per week) carried out in physical education classes. The contents were framed within the content block of fitness and health and were oriented towards knowledge of the implications of sedentary behavior, the promotion of healthy habits, and recommendations about physical activity (González-Cutre et al., 2018). These contents were developed by our research group and applied by the physical education teacher and applied by the teacher, who was a 44-year-old White male, with a degree in sport sciences and a master's degree in physical activity and health. This teacher had more than 15 years of teaching experience and was trained in motivational strategies based on self-determination theory (the different motivational strategies are available in Supplementary Material [available online]).

The second action consisted of a free and voluntary extracurricular physical activity program (EPAP) performed in the afternoons. The contents of this program were consistent with those addressed in the TU and started at the same time. This program lasted 6 months, with three 90-min weekly sessions, and consisted of 42 sessions (there were no sessions during school holidays). The mean number of sessions attended by the

ADOLESCENTS' AND PARENTS' EXPERIENCES

students was 16.07 ($SD = 10.38$). The program included sessions that complied with the physical activity recommendations for adolescents proposed by Sallis and Patrick (1994). Thus, activities addressing strength, aerobic resistance, flexibility, coordination and balance were carried out. A different teacher, who was a 25-year-old White female, with a degree in sport sciences and master's degree in physical activity and health, led this program. This teacher had more than 5 years of professional experience in the field of exercise and sport and was also trained in motivational strategies. Both the TU and EPAP teachers employed self-determination theory-based motivational strategies to promote physical activity participation through basic psychological need satisfaction and the increase of autonomous motivation (see Supplementary Material [available online]). To ensure that both the TU and EPAP teachers correctly applied the motivational strategies in which they had been trained, we video-recorded and analyzed three of their sessions (see González-Cutre et al., 2018 for more details about this process). In summary, the physical education teacher (TU) fulfilled 100% of the competence strategies, 100% of the autonomy strategies, and 100% of the relatedness strategies; that is, a 100% implementation of the strategies to promote satisfaction of the basic psychological needs. The EPAP teacher obtained a percentage of 80% for competence, 56.25% for autonomy, and 87.5% for relatedness, with a total of 75%.

In the third action, the parents of the students attended three informational meetings and participated in a trekking excursion. These activities were aimed at providing parents with the knowledge to supervise/encourage their children's physical activity, provide logistical support, and share physical activity experiences with their children. The meetings and the subsequent trekking excursion were distributed throughout the 6 months of the EPAP. The first meeting was intended to explain our project and the negative consequences of a sedentary lifestyle on health. The second meeting was

ADOLESCENTS' AND PARENTS' EXPERIENCES

focused on knowledge of healthy physical activity recommendations, and the third meeting on different strategies for the promotion of their children's physical activity and autonomous motivation. It should be noted that the meetings also served to resolve doubts and questions that parents might have about healthy and active lifestyles.

Data Collection

Second, three semi-structured interviews (SIs) were conducted with the adolescents who showed the highest attendance rate to the EPAP (one boy and two girls), to analyze in more depth the perspective of those adolescents who received a more complete intervention. The SIs were carried out to better understand their experiences and opinions about the TU and the EPAP. The questions were mainly aimed at determining adolescents' perceptions of teachers' support for autonomy, competence, and relatedness (e.g., Have you noticed any difference in the teacher's behavior when giving this teaching unit?); the types of motivation (e.g., Why did you attend the program?); and its consequences (e.g., Have you learned or got something by participating in the program?). The SIs were performed after the SBPAI and lasted between 30 and 40 min.

Third, two focus group interviews (FG) were also conducted after the SBPAI with the students who, apart from the three adolescents who were interviewed, showed the highest attendance rate to the EPAP (an FG with seven girls and an FG with three boys). The questions were in line with those asked in the SIs. An FG with three parents who attended our call after the SBPAI was also carried out (two mothers and one father). The parents who were part of the FG attended the "third action" (three meetings and a trekking excursion) and their children showed a high attendance rate to the multidimensional SBPAI. We asked the parents various questions about their perception of the SBPI and its effect on their children (e.g., What do your children think about the

EPAP? Do you think this SBPAI was useful?). The three FGs lasted between 60 and 75 min.

Data Analysis

The SIs and FGs were audio-recorded and transcribed in a word processor software. This information, together with the transcriptions of the observer's RD, were analyzed following a directed content analysis (Hsieh & Shannon, 2005). This type of analysis is used to identify categories that can contribute to refine, extend, or enrich a certain theory, in this case, self-determination theory. Concretely, all the transcriptions were read to obtain a global vision of the results. Second, following deductive reasoning, any text fragment which represented a key concept related to self-determination theory was coded. Third, informed by the self-determination theory sequence, the codes were organized as a system of categories and subcategories (see Table 1) which supported the structure of the "Results."

The data analysis was directed by the first author of this article. (R.F.). However, the remaining authors played the role of critical friends (Smith & McGannon, 2018), reviewing the analysis and promoting with their comments the rigor and trustworthiness of the data analysis. In order to anonymize data, pseudonyms were used to refer to the different participants in the next section.

Table 1 Categories and subcategories derived from the data analysis

-
1. Social factors and basic psychological need satisfaction
 - 1.1. Autonomy support and feelings of autonomy need satisfaction
 - Give students the chance to choose and make proposals
 - Attach importance to adolescents' interests and opinions
 - Parental autonomy support for physical activity
 - Provide knowledge and reliable sources of information about physical activity

ADOLESCENTS' AND PARENTS' EXPERIENCES

1.2. Competence support and perceptions of competence need satisfaction

- Activities adapted to the students' skill level
- Attach importance and focus attention to individual progress
- Provide positive and prescriptive feedback
- Competent teachers with good communication skills

1.3. Relatedness support and perception of relatedness need satisfaction

- Teachers with active and enthusiastic participation in the activities
- Teachers offering a close and trustworthy relationship

2. Autonomous motivation

3. Adaptive consequences

3.1. Improved physical activity knowledge

3.2. Creation of affective bonds

3.3. Increased leisure-time physical activity

Results and Discussion

The results are presented and discussed under three major headings consistent with the self-determination theory sequence: (a) social factors and basic psychological need satisfaction (autonomy, competence, and relatedness); (b) autonomous motivation; and (c) adaptive consequences. Within each of these three major headings, representative categories and subcategories are presented and discussed as well.

Social Factors and Basic Psychological Need Satisfaction

Autonomy support and feelings of autonomy need satisfaction

Give Students the chance to choose and make proposals: According to some participants, the fact that the TU was part of compulsory physical education gave them less option to choose or propose new things. On the contrary, some students perceived that the EPAP gave them more autonomy by not being associated with their compulsory education:

ADOLESCENTS' AND PARENTS' EXPERIENCES

If you don't like a task in physical education... you can't tell the teacher "I don't want to do it", because it's obligatory, isn't it? On the other hand, in the program [EPAP] I felt free to say things. I knew it was something I didn't have to pass, and they wouldn't tell me these are the contents we have to teach whether you like it or not. Right? (Ada, SI)

Despite the fact that the TU teacher implemented motivational strategies supporting autonomy, it is important to underline the compulsory character of physical education and the prescriptive elements of the educational curriculum (e.g., contents and evaluation criteria). These aspects probably made the students perceive less autonomy during the TU. Another possible explanation of this perception could be related to some students' previous negative experiences in physical education.

Some studies point out that teachers may feel more secure by applying strategies based on structure than by supporting autonomy (Aelterman et al., 2013; Sebire, Edwards, et al., 2016). Sometimes, the promotion of autonomy may be perceived by teachers as a loss of control or authority. Thus, it could be necessary to strengthen teachers' training with the objective of supporting students' autonomy as a key variable to promote adherence to physical activity (Behzadnia, Adachi, Deci, & Mohammadzadeh, 2018).

However, most adolescents indicated that teachers gave them the chance to choose and propose exercises and activities, both in the TU and the EPAP: "in physical education, the activities were group activities. The teacher gave us a list of exercises and each group chose what we wanted to do" (Paula, SI). In the same line, one teenager also indicated that he felt satisfied and acknowledged when the teacher let him propose an activity, and his classmates supported the proposal: [EPAP] "when we said we

ADOLESCENTS' AND PARENTS' EXPERIENCES

wanted to do some activity, we could choose. When you propose a game and all the classmates like it, it's a satisfaction" (Igor, SI).

Morton et al. (2016) suggest that giving autonomy support would be a potent environmental factor to promote students' physical activity. In addition, giving a choice has been identified as a fundamental strategy to support autonomy (Reeve, 2016). Qualitative inquiry has revealed that amotivated physical education students asked their teachers to make them feel more involved by giving them more options about their physical education classes to choose from (Ntoumanis, Pensgaard, Martin, & Pipe, 2004).

Attach importance to adolescents' interests and opinions: Some adolescents suggested that the TU, and especially the EPAP, satisfied their preferences. One participant said, "the whole program [EPAP] was based on our opinions, they gave us a lot of freedom, which is also good..." (Igor, SI). Another student said, "if there was anything that we didn't like [in the EPAP], we could say so and the teacher put herself in our place" (Ada, SI).

To be in synch with the students has been identified as a dimension of autonomy support (Lee & Reeve, 2012; Reeve, 2016). In the SBPAI, before starting a certain activity, teachers informed the teenagers about the didactic proposal, giving them the opportunity to exchange opinions and make modifications. Reeve (2016) indicates that when applying this "in synch" dimension of autonomy support, the instructor's role does not lie in doing things to motivate the participants, but in fostering a dialectical interaction so that the students get to motivate themselves in a self-determined way.

Parental autonomy support for physical activity: Students' responses reflected the importance of receiving support from their parents to do physical activity. For example, one adolescent said, "they support me to come here [EPAP] and have a good time..."

ADOLESCENTS' AND PARENTS' EXPERIENCES

they have always supported me to play sports” (Igor, SI). The parents also indicated that the fact that their children attended the EPAP made them get involved and attend the meetings designed for them: “I’ve attended mainly for my son, because, when there is a meeting, my son says, mom, there is a meeting, you have to go. If I don’t come, what am I showing my son? That I don’t get involved” (Mother 1, FG).

Research suggests that parents are important social agents who influence their children’s physical activity levels (Dellert & Johnson, 2014; Marsh et al., 2014). In this study, the support that some parents seemed to offer their children in relation to logistics (e.g., showing them places to do physical activity); supervision (e.g., encouraging and showing commitment to the activities of the SBPAI); and sharing physical activity experiences (e.g., trekking excursion) could be related to our intervention with these parents in the SBPAI. Training parents to implement motivational strategies to support their children’s autonomy has proved to be an effective way to increase adolescents’ physical activity (González-Cutre et al., 2014). Therefore, the figure of the parents, together with physical education teachers, seems fundamental to achieve adolescents’ motivation to do physical activity in their leisure time (González-Cutre et al., 2014).

Provide knowledge and reliable sources of information about physical activity:
During the intervention, the instructors emphasized providing evidence-based information and knowledge for their students to be autonomously active (e.g., information about the benefits of physical activity for health and well-being, information to do certain exercises correctly, information about physical activity and sports possibilities out of school, etc.). The students recognized the importance of this type of information:

We have a secure source of information, it’s not like when you put something on the internet that you aren’t 100% sure if it’s true or false. I

ADOLESCENTS' AND PARENTS' EXPERIENCES

know that he [physical education teacher] has done the activities because it's based on criteria and we know we can trust it. (Ada, SI)

Explaining the benefits of physical activity on health has been identified as a factor that positively influences adolescents' participation in physical activity in and out of school (Dagkas & Stathi, 2007). Moreover, other studies have stressed the importance of providing knowledge related to physical activity if the purpose is the promotion of an active lifestyle among the young population (González-Cutre et al., 2014).

Competence support and perceptions of competence need satisfaction

Activities adapted to the students' skill level: The teachers adapted the activities to address the adolescents' heterogeneous skill levels. In this sense, a boy related how his physical education teacher included new rules to increase girls' participation during activities: "...he supports everyone, but especially the girls. Sometimes they are a bit more isolated in class, and he sets rules for them to practice more. I like that" (Saúl, FG). The inclusion of motivational strategies to satisfy girls' perception of competence and increase their participation seems necessary, as SBPAIs usually have a reduced impact on girls' physical activity levels (Owen et al., 2017).

The EPAP teacher also proposed individualized adaptations during opposition games to adjust the tasks to the students' skills. One student said, "what can I do? I win right away [in a strength game]" (Ana). The teacher responded, "then, do it with your left hand and she [the other girl] can use both hands. There are many variants of the exercise" (RD).

Ntoumanis (2012) showed that competence need satisfaction is a stronger predictor of autonomous motivation, compared to the other two basic psychological needs, in physical activity contexts where it is necessary to acquire new learning. Moreover, being flexible and adapting activities to the participants' level has been a successful

ADOLESCENTS' AND PARENTS' EXPERIENCES

strategy used in other studies (Sebire, Edwards, et al., 2016; Sebire, Kesten, et al. 2016). This methodological orientation has usually been demanded by physical education students who requested to be grouped by levels of similar motor ability so that the differences within the subgroups were less prominent (Ntoumanis et al., 2004). In our study, as in the study of Ntoumanis et al. (2004), one of the participants suggested that during the EPAP, participants could have been divided into level groups for a longer time when carrying out activities in which different levels of motor skills were evident:

For example, in football... there was a very high level in some students and a much lower level in others... it would be easier to divide the class. Those with a lower level on the one hand, and those with a higher level on the other. And then teach to those who still have to learn. (Joe, FG)

Grouping by motor skill levels would be useful to address intragroup differences and avoid frustrating competence need, and it is also a resource for learning complex skills. However, this methodological resource should be applied with caution, promoting a task-involving climate and inclusive lessons to avoid the marginalization of the students with lower motor skills (Beltrán-Carrillo, Devís-Devís, Peiró-Velert, & Brown, 2012).

Attach importance and focus attention to individual progress: Adolescents recognized that teachers attended to interindividual differences by helping them, acknowledging their effort and progression without making comparisons between the students' improvements. One student stated, "the teacher [TU] values what each one does" (Paula, SI). Another said "the teacher [TU] asks us what we can offer. He's good with us. If he knows that we cannot do more, he doesn't demand more. And if he does demands more, it is to make us exceed ourselves" (Elsa, FG).

Previous research (Morton, Keith, & Beauchamp, 2010) has included individualization for skill development as a strategy for generating competence. Sebire,

ADOLESCENTS' AND PARENTS' EXPERIENCES

Kesten, et al. (2016) successfully included support for individual progress through motivational strategies (i.e., using a diary to track individual progress), similarly to those used in this study (i.e., sheets to check individual progress in some physical education activities). Teachers may find it difficult to individualize teaching if they have to work with large groups. In that case, teaching styles that encourage the individualization of learning could be a good resource (see Mosston & Ashworth, 1994).

Provide positive and prescriptive feedback: One girl positively valued that her teacher gave motivational feedback when they were not actively participating in the EPAP: “she encourages us when she sees that we aren’t doing anything, she says cheer up!” (Emma, FG). The EPAP instructor noted down in her RD some situations in which she encouraged adolescents to be persistent during their classes:

Teacher: Come on! Try to hit the ball with your forearms!

Pupil: I can’t do that...

Teacher: Yes, you can! Come on!

Pupil: I’m afraid of the ball... [after a while, the student manages to hit the ball].

Teacher: [The teacher looks at him and smiles] Have you seen how you can do it? That’s it!

During the TU, the students also identified their physical education teacher’s concern to offer them constructive or prescriptive feedback: “he helps us a lot. He is watching what we are doing and corrects us. He encourages us to play sports in a positive way” (Elsa, FG).

The use of positive feedback as a motivational strategy during adolescents’ physical activity participation is an adequate way to generate competence (Morton et al., 2016).

ADOLESCENTS' AND PARENTS' EXPERIENCES

Similar studies suggest that praising successful actions enhances students' feelings of competence (Hancox, Quedsted, Ntoumanis, & Thøgersen-Ntoumani, 2018). Hancox et al. (2018) propose that motivational feedback, which includes little meaningful information to improve skills, could be combined or replaced by more specific and constructive feedback (e.g., Great effort! Now try to lower the center of gravity to be more balanced. You are on the right track!).

Competent teachers with good communication skills: Some adolescents declared that, from their perspective, their teachers were competent professionals with good knowledge and communication skills. Igor stated, "he [physical education teacher] teaches classes well because he knows how to teach them" (SI). Another student said, "he's a good teacher, kind, teaches well... he explains things well. I understand him, and he seems better than other physical education teachers that I had before" (Paula, SI).

It seems sensible to think that qualified teachers with high knowledge, who can explain well, could foster students' learning and competence perception. This aspect could be reinforced with the inclusion of contents about motivational strategies in physical education teachers' training programs. In this line, Sebire, Kesten, et al. (2016) also highlighted the importance of appropriate instructors with enough experience to achieve successful SBPAIs.

Relatedness support and perception of relatedness need satisfaction

Teachers with active and enthusiastic participation in the activities: Two adolescents explained that the teacher actively participated in some activities during the EPAP, something that was a stimulus for their motivation. One stated, "what I like most about the teacher is that she participates in the activities we do. It's motivating" (Joe, FG).

ADOLESCENTS' AND PARENTS' EXPERIENCES

The other stated, “she is hyperactive, she doesn’t stop moving and always tells us come on, move. We see her running and we get involved” (Saúl, FG).

This finding suggests the importance of teachers’ participation in the physical activities they propose occasionally to promote students’ motivation during the sessions. This participation with the students, as a good example to follow, could reinforce students’ relatedness and enhance their motivation to physical activity. In this line, Morton et al. (2016) suggested that the teacher’s positive behavior towards physical activity (e.g., making use of active transport to go to school) can influence students’ active behaviors.

Teachers offering a close and trustworthy relationship. The adolescents expressed having a relationship of friendship and trust with the physical education teacher. Ada commented, “he’s a good teacher. When I have needed something, he has helped me, and when he sees you don’t feel good for any reason, he asks you about it” (SI). In terms of the EPAP teacher, Clara said, “she teaches personally, gives you advice, helps you, and tells you all the time that it doesn’t matter if you can’t do something. She helps you a lot” (FG).

The teachers were also worried about their students’ lives and problems beyond the classes. One student stated,

In these months that we have been with you, you have become a very good friend [EPAP teacher]. You have helped me a lot. You have encouraged me when you saw that I was wrong. When I didn’t go to class, you took the trouble to know why I couldn’t go... When I entered the program, I didn’t think that I would feel so comfortable with my classmates, and even less with the teacher, but thanks to you, I have met unique people, including you.
(Emma, RD)

ADOLESCENTS' AND PARENTS' EXPERIENCES

In line with this finding, Holt et al. (2018) revealed how the application of strategies to satisfy the need for relatedness in school was fundamental to influence students' well-being, autonomy, and competence.

The parents also perceived the positive social bonds that were created between the teachers and their children. A mother stated, "they are very happy with the [physical education] teacher. It seems that he motivates them" (Mother 1, FG). A father explained, "in fact, if they hadn't been comfortable with the [EPAP] teacher... my son wouldn't have come" (FG).

Previous studies have revealed that offering personalized treatment, asking and responding with a warm attitude toward the feelings and concerns of the students before, during, and after physical activity classes seems one of the key motivational strategies to meet the need for relatedness and motivate participants to continue their classes (Hancox et al., 2018; Sebire, Kesten, et al., 2016). In addition, these studies also pointed out the importance of teachers' showing their interest in the adolescents' lives outside the intervention. In this sense, it should be highlighted that motivational variables are interdependent with each other in the different domains of life, at the situational, contextual, and global level (Vallerand, 1997).

Autonomous Motivation

In many cases, adolescents reported having experienced identified and integrated regulation. One student explained,

I come because maybe I have to take an exam next week... and I say today I'm stressed... I come here and I clear my head and interact with my friends. Now I think that exercise always has to be present... it's a fundamental pillar in my life... when I exercise, I feel better and more fulfilled. (Clara, FG)

ADOLESCENTS' AND PARENTS' EXPERIENCES

Another student stated, "I came to exercise and improve my endurance, it wasn't to improve my grades or anything like that". (Nala, FG)

The participants also reported having developed the most autonomous form of motivation in physical education, intrinsic motivation. One student said, "you get to his classes [physical education] and you say I do it for fun, not because I have to get a 10" (Sia, FG). Another student stated, "I have fun in physical education classes, and I don't have to be thinking I must do this, because I'm having a good time" (Emma, FG).

Another adolescent related how her motivation changed after her participation in the SBPAI, changing from amotivation and external regulation, to the identification of the positive effects that physical activity had on her health:

Before this project I didn't attach any importance to physical education. I only did it here because it was my obligation... but since you came and I saw the project, I made some effort and began to do physical activity, to improve my health and my physical fitness. (Paula, SI)

The parents' opinion was in line with the students' comments. Their children's participation could be due to non-self-determined reasons at the beginning, but they finally experienced self-determined motivation:

Maybe, he attended the EPAP to achieve an extra qualification in physical education at the beginning, but finally, he attended because he liked it. (Mother 1, FG)

If she has come [to the EPAP] it's because she has always liked sports, because she tells me that she has a lot of fun here... Whenever she has come, it has been for pleasure, without any obligation. (Mother 2, FG)

My son signed up for the program on his own initiative, came home and said: "In the high school, they are going to do this [EPAP] and I have signed

ADOLESCENTS' AND PARENTS' EXPERIENCES

up". I thought it was very good because he had recently left the gym...

(Father 1, FG)

Adaptive Consequences

Improved physical activity knowledge. Some adolescents declared that their participation in the SBPAI was useful for them to be aware of the health risks of physical inactivity:

You have shown us with the sheets and videos how not doing physical activity can affect us. Of course, I say, I'm going to make an effort so that it can't happen to me and I'm going to motivate my classmates too. We have also learned how technologies are affecting our lives, such as the use of elevators instead of stairs. We exercise less and less. (Joe, FG)

Yes, also the consequences of using video consoles and similar things.

(Saúl, FG)

Other students indicated that they had acquired new knowledge that taught them how to do physical activity, going from theory to practice:

...it [SBPAI] has helped us to increase our knowledge about physical activity and knowing what to do (Saúl, FG); I see that I can do more and more sports, now I'm aware of how far I can go doing sports (Pablo, FG); I have learned to do stretches and I have perfected it. (Igor, SI)

The acquisition of new learning is one of the self-determination theory consequences for which less qualitative evidence has been found (Sun, 2016). Sun et al. (2017) review suggests that more self-determined forms of motivation would predict better conceptual learning.

ADOLESCENTS' AND PARENTS' EXPERIENCES

Creation of affective bonds. Adolescents reported that their participation in the EPAP helped them to improve their relationships with their peers and create new friendships:

The friends that I have made... for example, with him [points to Pablo] ... I didn't know him before and now we're friends. We meet many times and talk a lot. (Saúl, FG)

I'm very shy and I wanted to make more friends because I have difficulties interacting with people, and I think I'm getting it thanks to the program [EPAP]... and... I don't know... I'm having fun playing sports and getting excited again. (Emma, FG)

One mother even indicated that the SBPAI influenced her daughter's concern for other adolescents' health and her daughter's intention to do physical activity with them in her leisure time:

My daughter said, mom I have to go running with some friends this summer because a friend told me that his friend was very unfit. I have told him, don't worry, I promise to run with you this summer, and with all the mates who want to join us. (Mother 2, FG)

Moreover, Mother 2 suggested that her daughter's commitment to physical activity could positively affect her own predisposition to do physical activity with her daughter. According to other qualitative studies (Kubik, Lytle, & Fulkerson, 2005), support from family and friends is essential for the promotion of physical activity in schoolchildren.

Increased leisure-time physical activity. Participants in the study, both parents and students, thought that the EPAP was useful for the students to increase their leisure-time physical activity during the SBPAI:

ADOLESCENTS' AND PARENTS' EXPERIENCES

My son didn't perform physical activity. It's true that the program [EPAP] was useful for him to see what things he really liked, and also to disconnect. Let's see if he continues [doing physical activity after the EPAP]. (Mother 1, FG)

Since I started the program [EPAP], I do much more exercise than before. This is the first year than I'm doing exercise in the afternoons and I feel physically better. (Clara, FG)

Some adolescents even thought that they were more active after the SBPAI. One participant said, "now I like physical education and I do more physical activity (Paula, SI). Another student stated, "we do more physical activity... we have achieved the objective because we are doing sports. You told us to do a lot of sports when we were out of high school..." (Saúl, FG).

The quantitative study that evaluated the effect of our intervention showed that, after the SBPAI, the intervention students group increased their motivation toward physical activity and their physical activity levels (González-Cutre et al., 2018). This result is congruent with the findings of our qualitative study. However, González-Cutre et al. (2018) remarked that the motivational effects after the SBPAI were maintained over time, but the effects on physical activity levels disappeared at 6 months. The long-term maintenance of schoolchildren's physical activity seems to be a very ambitious aim that requires SBPAIs to be a stable part of the school curriculum and structure.

Limitations

This study has limitations that have to be acknowledged. First, we collected testimonies from very few parents. However, authors such as Van Lippevelde et al. (2012) have warned about the difficulty of involving families during physical activity interventions. According to Beltrán-Carrillo, Ferriz, Brown, and González-Cutre (2017),

ADOLESCENTS' AND PARENTS' EXPERIENCES

instead of giving students full responsibility to inform their parents, new technologies and internet social networks could enhance the direct contact with the parents and their involvement in SBPAIs. More socially interactive activities with parents and their children could also increase their commitment to this kind of intervention (e.g., trekking excursions, parties including games and sports).

Second, this study analyzed in depth the perspective of those students who showed a higher commitment to the voluntary EPAP. Although the teachers' RD included data about all the participants, the viewpoint of students with lower attendance rates was not analyzed with the same depth. The impact of the intervention on these students was probably not so intense and positive. In fact, the results of our study seem to reflect the positive effects of the intervention. Future studies should explore the factors that limit the success of SBPAIs. Why students are not involved in free and voluntary extracurricular programs, why parents are not involved in meetings, what aspects of the SBPAIs could be improved, and why families and students showed little motivation towards physical activity would all be interesting questions to examine.

Conclusions

This qualitative study explored adolescents' and parents' experiences within a multidimensional SBPAI based on self-determination theory. The main contributions of this research are the following: (a) the findings support the implementation of self-determination theory based interventions, combining physical education classes with extracurricular physical activity programs, to promote adolescents' physical activity participation; (b) this study also presents several self-determination theory-based motivational strategies that could be useful for the design and implementation of future SBPAIs; (c) this qualitative study includes data concerning the complete sequence of self-determination theory, which complement the information obtained from

ADOLESCENTS' AND PARENTS' EXPERIENCES

quantitative studies on this topic; and (d) this is the first study that includes parents' experiences in a multidimensional SBPAI, aspect that may represent a future line of research (see research design of Ha, Ng, Lonsdale, Lubans, & Ng, 2019).

Acknowledgments

The authors would like to thank all the adolescents and parents involved in the study. We would also like to thank the teachers for their efforts and professionalism during all the dimensions of the project and for their caring attitude toward the adolescents during the intervention. This research project was supported by the Miguel Hernández University of Elche-Bancaja (Spain) under grant 22/09/2011 (reference number: 11859); and the Conselleria d'Educació (Generalitat Valenciana) under grant GV/2013/101. The second author of this study was supported by the Valencian Council of Education, Research, Culture and Sports with reference ACIF/2017/155. The fourth author was supported by the Spanish Ministry of Education through an FPU grant with reference FPU17/06354. The author(s) declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

References

- Aelterman, N., Vansteenkiste, M., Van Keer, H., De Meyer, J., Van den Berghe, L., & Haerens, L. (2013). Development and evaluation of a training on need-supportive teaching in physical education: Qualitative and quantitative findings. *Teaching and Teacher Education, 29*, 64–75. <https://doi:10.1016/j.tate.2012.09.001>

ADOLESCENTS' AND PARENTS' EXPERIENCES

Behzadnia, B., Adachi, P. J. C., Deci, E. L., & Mohammadzadeh, H. (2018).

Associations between students' perceptions of physical education teachers' interpersonal styles and students' wellness, knowledge, performance, and intentions to persist at physical activity: A self-determination theory approach. *Psychology of Sport and Exercise*, *39*, 10–19. <https://doi:10.1016/j.psychsport.2018.07.003>

Beltrán-Carrillo, V. J., Devís-Devís, J., Peiró-Velert, C., & Brown, D. H. K. (2012).

When physical activity participation promotes inactivity: Negative experiences of Spanish adolescents in physical education and sport. *Youth and Society*, *44*, 3–27. <https://doi:10.1177/0044118X10388262>

Beltrán-Carrillo, V. J., Ferriz, R., Brown, D. H. K., & González-Cutre, D. (2017).

Qualitative evaluation of a school intervention for the promotion of physical activity: Learning from the perspective of the target population. *European Journal of Human Movement*, *38*, 68–92.

Biddle, S. J. H., Mutrie, N., Gorely, T., & Blamey, A. (2012). Interventions for physical

activity and sedentary behavior. In G. L. Roberts & D. C. Treasure (Eds.), *Advances in motivation in sport and exercise* (3rd ed., pp. 357–386). Champaign, IL: Human Kinetics.

Biddle, S. J. H., Petrolini, I., & Pearson, N. (2014). Interventions designed to reduce

sedentary behaviours in young people: A review of reviews. *British Journal of Sports Medicine*, *48*(3), 182–186. <https://doi:10.1136/bjsports-2013-093078>

Brown, H. E., Atkin, A. J., Panter, J., Wong, G., Chinapaw, M. J., & Van Sluijs, E. M.

F. (2016). Family-based interventions to increase physical activity in children: A systematic review, meta-analysis and realist synthesis. *Obesity Reviews*, *17*(4), 345–360. <https://doi:10.1111/obr.12362>

ADOLESCENTS' AND PARENTS' EXPERIENCES

- Brusseau, T. A., Fairclough, S. J., & Lubans, D. R. (Eds.). (2020). *The Routledge handbook of youth physical activity*. New York, NY: Routledge.
- Burns, R. D., Fu, Y., & Podlog, L. W. (2017). School-based physical activity interventions and physical activity enjoyment: A meta-analysis. *Preventive Medicine, 103*, 84–90. <https://doi:10.1016/j.ypmed.2017.08.011>
- Dagkas, S., & Stathi, A. (2007). Exploring social and environmental factors affecting adolescents' participation in physical activity. *European Physical Education Review, 13*(3), 369–384. <https://doi:10.1177/1356336X07081800>
- Dellert, J. C., & Johnson, P. (2014). Interventions with children and parents to improve physical activity and body mass index: A meta-analysis. *American Journal of Health Promotion, 28*(4), 259–267. <https://doi:10.4278/ajhp.120628-LIT-313>
- González-Cutre, D., Ferriz, R., Beltrán-Carrillo, V. J., Andrés-Fabra, J. A., Montero-Carretero, C., Cervelló, E., & Moreno-Murcia, J. A. (2014). Promotion of autonomy for participation in physical activity: A study based on the trans-contextual model of motivation. *Educational Psychology, 34*(3), 367–384. <https://doi:10.1080/01443410.2013.817325>
- González-Cutre, D., Sierra, A. C., Beltrán-Carrillo, V. J., Peláez-Pérez, M., & Cervelló, E. (2018). A school-based motivational intervention to promote physical activity from a self-determination theory perspective. *The Journal of Educational Research, 111*(3), 320–330. <https://doi:10.1080/00220671.2016.1255871>
- Guthold, R., Stevens, G. A., Riley, L. M., & Bull, F. C. (2020). Global trends in insufficient physical activity among adolescents: A pooled analysis of 298 population-based surveys with 1.6 million participants. *The Lancet Child & Adolescent Health, 4*(1), 23–35. [https://doi:10.1016/S2352-4642\(19\)30323-2](https://doi:10.1016/S2352-4642(19)30323-2)

ADOLESCENTS' AND PARENTS' EXPERIENCES

- Ha, A. S., Ng, J. C., Lonsdale, C., Lubans, D. R., & Ng, F. F. (2019). Promoting physical activity in children through family-based intervention: Protocol of the “Active 1+ FUN” randomized controlled trial. *BMC Public Health*, *19*(1), 1–12. <https://doi.org/10.1186/s12889-019-6537-3>
- Ha, A. S., Ng, J. Y. Y., Zhang, J. H., & Chan, W. (2020). Physical activity interventions for young people and their parents. In T. A. Brusseau, S. J. Fairclough, & D. R. Lubans (Eds.), *The Routledge handbook of youth physical activity* (pp. 732–747). New York, NY: Routledge. <https://doi:10.4324/9781003026426>
- Hadgraft, N. T., Dunstan, D. W., & Owen, N. (2018). Models for understanding sedentary behaviour. In M. F. Leitzmann, C. Jochem., & D. Schmid (Eds.), *Sedentary behaviour epidemiology* (pp. 381–403). Cham, Switzerland: Springer.
- Hancox, J. E., Quedsted, E., Ntoumanis, N., & Thøgersen-Ntoumani, C. (2018). Putting self-determination theory into practice: Application of adaptive motivational principles in the exercise domain. *Qualitative Research in Sport, Exercise and Health*, *10*(1), 75–91. <https://doi:10.1080/2159676X.2017.1354059>
- Holt, A. D., Smedegaard, S., Pawlowski, C. S., Skovgaard, T., & Christiansen, L. B. (2018). Pupils’ experiences of autonomy, competence and relatedness in ‘Move for Well-being in Schools’: A physical activity intervention. *European Physical Education Review*, *25*(3), 640–658. <https://doi.org/10.1177/1356336X18758353>
- Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, *15*(9), 1277–1288. <https://doi:10.1177/1049732305276687>
- Jong, S. T., Croxson, C. H., Guell, C., Lawlor, E. R., Foubister, C., Brown, H. E., ... Corder, K. (2020). Adolescents’ perspectives on a school-based physical activity

ADOLESCENTS' AND PARENTS' EXPERIENCES

- intervention: A mixed method study. *Journal of Sport and Health Science*, 9(1), 28–40. <https://doi:10.1016/j.jshs.2019.06.007>
- Kubik, M. Y., Lytle, L., & Fulkerson, J. A. (2005). Fruits, vegetables, and football: Findings from focus groups with alternative high school students regarding eating and physical activity. *Journal of Adolescent Health*, 36(6), 494–500. <https://doi:10.1016/j.jadohealth.2004.05.010>
- Lee, W., & Reeve, J. (2012). Teacher's estimates of their students' motivation and engagement: Being in synch with students. *Educational Psychology*, 32(6), 727–747. <https://doi:10.1080/01443410.2012.732385>
- Marsh, S., Foley, L. S., Wilks, D. C., & Maddison, R. (2014). Family-based interventions for reducing sedentary time in youth: A systematic review of randomized controlled trials. *Obesity Reviews*, 15(2), 117–133. <https://doi:10.1111/obr.12105>
- Morton, K. L., Atkin, A. J., Corder, K., Suhrcke, M., & Sluijs, E. M. F. (2016). The school environment and adolescent physical activity and sedentary behaviour: A mixed-studies systematic review. *Obesity Reviews*, 17(2), 142–158. <https://doi:10.1111/obr.12352>
- Morton, K. L., Keith, S. E., & Beauchamp, M. R. (2010). Transformational teaching and physical activity: A new paradigm for adolescent health promotion? *Journal of Health Psychology*, 15(2), 248–257. <https://doi:10.1177/1359105309347586>
- Mosston, M., & Ashworth, S. (1994). *Teaching physical education* (4th ed.). New York, NY: Macmillan.
- Ntoumanis N. (2012). A self-determination theory perspective on motivation in sport and physical education: Current trends and possible future research directions. In

ADOLESCENTS' AND PARENTS' EXPERIENCES

G. C. Roberts & D. C. Treasure (Eds.), *Advances in motivation in sport and exercise*. (3rd ed., pp. 91–128). Champaign, IL: Human Kinetics.

Ntoumanis, N., Pensgaard, A. M., Martin, C., & Pipe, K. (2004). An idiographic analysis of amotivation in compulsory school physical education. *Journal of Sport and Exercise Psychology*, *26*, 197–214. <https://doi:10.1123/jsep.26.2.197>

Owen, K. B., Smith, J., Lubans, D. R., Ng, J. Y., & Lonsdale, C. (2014). Self-determined motivation and physical activity in children and adolescents: A systematic review and meta-analysis. *Preventive Medicine*, *67*, 270–279. <https://doi:10.1016/j.ypmed.2014.07.033>

Owen, M. B., Curry, W. B., Kerner, C., Newson, L., & Fairclough, S. J. (2017). The effectiveness of school-based physical activity interventions for adolescent girls: A systematic review and meta-analysis. *Preventive Medicine*, *105*, 237–249. <https://doi:10.1016/j.ypmed.2017.09.018>

Reeve, J. (2016). Autonomy-supportive teaching: What it is, how to do it. In L. Woon, J. Wang, & R. M. Ryan (Eds.), *Building autonomous learners: Perspectives from research and practice using self-determination theory* (pp. 129–152). New York: Springer. https://doi:10.1007/978-981-287-630-0_7

Rhodes, R. E., Guerrero, M. D., Vanderloo, L. M., Barbeau, K., Birken, C. S., Chaput, ... Tremblay, M. S. (2020). Development of a consensus statement on the role of the family in the physical activity, sedentary, and sleep behaviours of children and youth. *International Journal of Behavioral Nutrition and Physical Activity*, *17*(1), 1–31. <https://doi:10.1186/s12966-020-00973-0>

Rhodes, R. E., Stearns, J., Berry, T., Faulkner, G., Latimer-Cheung, A. E., O'Reilly, N., Tremblay, M. S., Vanderloo, L., & Spence, J. C. (2019). Predicting parental support and parental perceptions of child and youth movement behaviors.

ADOLESCENTS' AND PARENTS' EXPERIENCES

Psychology of Sport and Exercise, 41, 80–90.

<https://doi.10.1016/j.psychsport.2018.11.016>

Russ, L. B., Webster, C. A., Beets, M. W., & Phillips, D. S. (2015). Systematic review and meta-analysis of multi-component interventions through schools to increase physical activity. *Journal of Physical Activity and Health*, 12(10), 1436–1446.

<https://doi:10.1123/jpah.2014-0244>

Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. New York, NY: Guilford Press.

<https://doi.org/10.1521/978.14625/28806>

Sallis, J. F., & Patrick, K. (1994). Physical activity guidelines for adolescents: Consensus statement. *Pediatric Exercise Science*, 6(4), 302–314.

<https://doi.org/10.1123/pes.6.4.302>

Salmon, J., Koorts, H., & Timperio, A. (2018). Specific interventions targeting sedentary behaviour in children and adolescents. In M. F. Leitzmann, C. Jochem, & D. Schmid (Eds.), *Sedentary behaviour epidemiology* (pp. 431–443). Cham, Switzerland: Springer. <https://doi:10.1007/978-3-319-61552-3>

Sebire, S. J., Banfield, K., Jago, R., Edwards, M. J., Campbell, R., Kipping, R., ...

Hollingworth, W. (2019). A process evaluation of the PLAN-A intervention (Peer-Led physical Activity iNtervention for Adolescent girls). *BMC Public Health*, 19(1), 1203. <https://doi:10.1186/s12889-019-7545-z>

Sebire, S. J., Edwards, M. J., Fox, K. R., Davies, B., Banfield, K., Wood, L., & Jago, R.

(2016). Delivery and receipt of a self-determination-theory-based extracurricular physical activity intervention: Exploring theoretical fidelity in action 3:30. *Journal of Sport and Exercise Psychology*, 38(4), 381–395.

<https://doi:10.1123/jsep.2015-0217>

ADOLESCENTS' AND PARENTS' EXPERIENCES

- Sebire, S. J., Kesten, J. M., Edwards, M. J., May, T., Banfield, K., Tomkinson, K., ... Jago, R. (2016). Using self-determination theory to promote adolescent girls' physical activity: Exploring the theoretical fidelity of the Bristol Girls Dance Project. *Psychology of Sport and Exercise*, 24, 100–110. <https://doi:10.1016/j.psychsport.2016.01.009>
- Sevil, J., García-González, L., Abós, A., Generelo, E., & Aibar, A. (2019). Can high schools be an effective setting to promote healthy lifestyles? Effects of a multiple behavior change intervention in adolescents. *Journal of Adolescent Health*, 64(4), 478–486. <https://doi:10.1016/j.jadohealth.2018.09.027>
- Sevil-Serrano, J., Aibar, A., Abós, A., Generelo, E., & García-González, L. (2020). Improving motivation for physical activity and physical education through a school-based intervention. *The Journal of Experimental Education*. Advance online publication. <https://doi:10.1080/00220973.2020.1764466>
- Shannon, S., Brennan D., Hanna, D., Younger, Z., Hassan, J., & Breslin, G. (2018). The effect of a school-based intervention on physical activity and well-being: A non-randomised controlled trial with children of low socio-economic status. *Sports Medicine – Open*, 4, 16. <https://doi:10.1186/s40798-018-0129-0>
- Smith, B., & McGannon, K. R. (2018). Developing rigor in qualitative research: Problems and opportunities within sport and exercise psychology. *International Review of Sport and Exercise Psychology*, 11, 101–121. <https://doi:10.1080/1750984X.2017.1317357>
- Sun, H. (2016). Motivation as a learning strategy. In C.D. Ennis (Ed.), *Handbook of physical education pedagogies* (pp. 631–646). New York, NY: Routledge.

ADOLESCENTS' AND PARENTS' EXPERIENCES

- Sun, H., Li, W., & Shen, B. (2017). Learning in physical education: A self-determination theory perspective. *Journal of Teaching in Physical Education*, 36(3), 277–291. <https://doi:10.1123/jtpe.2017-0067>
- Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 29, pp. 271–360). San Diego, CA: Academic Press.
- Van Lippevelde, W., Verloigne, M., De Bourdeaudhuij, I., Brug, J., Bjelland, M., Lien, N., & Maes, L. (2012). Does parental involvement make a difference in school-based nutrition and physical activity interventions? A systematic review of randomized controlled trials. *International Journal of Public Health*, 57(4), 673–678. <https://doi:10.1007/s00038-012-0335-3>
- Vasconcellos, D., Parker, P. D., Hilland, T., Cinelli, R., Owen, K. B., Kapsal, N., ... Lonsdale, C. (2020). Self-determination theory applied to physical education: A systematic review and meta-analysis. *Journal of Educational Psychology*, 112(7), 1444–1469. <https://doi:10.1037/edu0000420>

SUPPLEMENTARY MATERIAL

Table 1

Self-Determination Theory-Based Motivational Strategies Applied During the Multidimensional School-Based Physical Activity Intervention

Construct	Motivational strategy	Practical example
Autonomy support	1. To explain the objective of each proposal, so that the teacher's decisions are not perceived as imposed or arbitrary	To explain the objective of each session To explain the objective of each activity
	2. To remember the importance of PA	To explain that participating in the session will improve their cognitive performance, fitness, and wellbeing
	3. To transmit knowledge so that students can be autonomously active	To explain the different types of stretching (e.g., static and dynamic) To explain the relationship between warm-up exercises, main part of the session and cold-down exercises To reflect with the participants on the usefulness of the TU/EPAP learnings for their daily life
	4. To reflect on the experience	At the end of the session, to generate a debate with the students (e.g., what

ADOLESCENTS' AND PARENTS' EXPERIENCES

		have you learned today? what do you think of the session?) and resolve possible doubts
	5. To involve participants cognitively	To ask questions about the taught contents (e.g., if you had to do a popular 8 km race, what exercises would you use to train? have we seen any during the session you can use?)
	6. To inform about PA options	To inform about the EPAP as a free activity to the students To inform about PA options in the neighbourhood and the city (e.g., gyms or popular races)
	7. To give choice	To give options to choose activities, materials, rules of games, and music (e.g., do you prefer to work strength games with bands or in couples?)
Competence support	8. To differentiate activities in varied skill levels	To adapt the most complex activities according to the students' skill level and their previous experience
	9. Enough task duration	Activity changes when all participants master the task There is no minimum or maximum time to develop an activity
	10. To establish difficulty progressions	The TU and EPAP were designed with a progression of difficulty regarding

ADOLESCENTS' AND PARENTS' EXPERIENCES

		skills and activities
		A progressive learning process was carried out, from least to greatest difficulty
	11. To provide prescriptive feedback	To offer corrections explaining why an activity or exercise should be done in a certain way (e.g., you should bend your knees to lower your center of gravity , so that you have more balance in front of your opponent)
	12. To provide affective feedback	Recognize the value of effort and progress (e.g., come on Julia! You did it well, keep it up!)
Relatedness	13. To favour the participation of teachers	The teacher participates in cooperative games during the warm-up
support	together with the students	
	14. To organize active and social activities	To organize a day of games on the beach
	outside the school	To participate in popular races (the teacher can participate)
		To organize a trekking excursion attended by teachers, parents and students
	15. To play group or cooperative games	To play games involving the cooperation of the whole team (e.g., kinball)
		To play transport games that require the participation of the whole group to achieve a common goal

ADOLESCENTS' AND PARENTS' EXPERIENCES

- | | |
|---|---|
| 16. To create a positive and emotional climate | Respectful and smiling treatment

The teacher's personal problems should not affect the correct development of the session |
| 17. To show interest about the participants' life | The teacher asks students about their school life (e.g., how was the exam yesterday?) and their general life (e.g., what about the weekend?)

The teacher asks and cares about students' health habits outside the school (e.g., have you done some PA on the weekend?) |
| 18. To learn the names of all participants | To call each of the students by their name |

Note. PA = Physical activity; TU = Teaching unit; EPAP = Extracurricular physical activity program.