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Orientación motivacional e intención de ser físicamente activo en estudiantes de educación física: El papel de la autoeficacia motriz

Motivational orientation and intention to be physically active in physical education students: The role of motor self-efficacy

Orientação motivacional e intenção de ser fisicamente ativo em estudantes de educação física: O papel da auto-eficácia motora

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RESUMEN

La motivación orientada a la tarea se vincula con la tendencia de los estudiantes de Educación Física a asociarse con una mayor probabilidad de ser físicamente activos en el futuro y fuera de las clases de Educación Física, mientras que la motivación orientada al ego estaría vinculada a una menor probabilidad de desarrollar estilos de vida activos. Además, la literatura existente ha mostrado que la percepción de autoeficacia también sería una variable que determina la intención de ser activo. Así, el objetivo de esta investigación fue analizar las relaciones entre la orientación motivacional y la intención de ser activo, analizando el papel de la autoeficacia motriz en estas relaciones. Para ello, se desarrolló un modelo de ecuaciones estructurales en el que se evaluaron los efectos directos e indirectos entre las variables. Participaron en esta investigación 478 adolescentes con edades comprendidas entre los 13 y los 18 años ($M=14.57$; $DT=1.15$). Para la recogida de información se utilizaron el Cuestionario Orientación al Ego y a la Tarea en el Deporte (TEOSQ), la Escala de Autoeficacia Motriz (MSES) y la Escala de Intención de Ser Físicamente Activo (MIFA). Los datos mostraron una relación positiva y directa entre la orientación a la tarea con la autoeficacia motriz y la intención de ser activo. Asimismo, los datos mostraron una relación positiva y directa entre la orientación al ego con la autoeficacia motora, pero no con la intención de ser activo. Asimismo, se observaron efectos indirectos y positivos entre la orientación a la tarea y al ego con la intención de ser activo. Por lo tanto, los resultados de este estudio muestran que podría ser necesario tener en cuenta la autoeficacia para comprender mejor las relaciones entre las orientaciones motivacionales y la intención de ser activo.

Palabras clave: educación física, autoeficacia motriz, estilo de vida, motivación.

ABSTRACT

Task-oriented is linked to the tendency of Physical Education students to be associated with a higher likelihood of being physically active in the future and outside of Physical Education classes, while ego-oriented motivation is linked to a lower likelihood of developing active lifestyles. However, existing literature has shown that self-efficacy perception is also a variable that determines the intention to be active. Thus, this research aimed to analyze the relationships between motivational orientation and the intention to be active, examining the role of motor self-efficacy in these relationships. To this end, a structural equation model was developed in which direct and indirect effects between the variables were evaluated. A total of 478 adolescents aged between 13 and 18 years old ($M=14.57$; $SD=1.15$) participated in this research. The Task and Ego Orientation in Sport Questionnaire (TEOSQ), the Motor Self-Efficacy Scale (MSES), and the Intention of Being Physically Active Scale (MIFA) were used to collect information. The data showed a positive and direct relationship between task orientation with motor self-efficacy and intention to be active. Likewise, the data showed a positive and direct relationship between ego orientation and motor self-efficacy, but not to be active. Additionally, indirect and positive effects were observed between task and ego orientation to be active. Therefore, the results of this study suggest that it might be necessary to consider self-efficacy to better understand the relationships between motivational orientations and intention to be active.

Keywords: physical education, motor self-efficacy, lifestyle, motivation.

RESUMO

A orientação para a tarefa está ligada à tendência dos estudantes de Educação Física para serem fisicamente ativos no futuro bem como fora das aulas de Educação Física. Por outro lado, a orientação para o ego está mais relacionada com uma menor probabilidade de desenvolverem estilos de vida ativos. No entanto, a literatura existente tem demonstrado que a percepção de auto-eficácia seria também uma variável que determina a intenção de ser ativo. Assim, o objetivo do presente estudo foi analisar as relações entre a orientação motivacional e a intenção de ser ativo, analisando o papel da auto-eficácia motora nestas relações. Para isso, foi desenvolvido um modelo de equações estruturais no qual foram avaliados os efeitos diretos e indiretos. Participaram nesta investigação 478 adolescentes com idades compreendidas entre os 13 e os 18 anos ($M=14,57$; $DP=1,15$). Para a recolha de informação foram utilizados o Task and Ego Orientation in Sport Questionnaire (TEOSQ), a Motor Self-Efficacy Scale (MSES) e a Intention of Being Physically Active Scale (MIFA). Os dados revelaram uma relação positiva e direta entre a orientação para a tarefa, a auto-eficácia motora e a intenção de ser ativo. Além disso, os dados revelaram uma relação positiva e direta entre a orientação para o ego e a auto-eficácia motora, mas não com a intenção de ser ativo. Da mesma forma, foram observados efeitos indirectos positivos entre a orientação para a tarefa e a orientação para o ego com a intenção de ser ativo. Portanto, os resultados deste estudo sugerem que pode ser necessário considerar a autoeficácia para entender as relações entre as orientações motivacionais e a intenção de ser ativo.

Palavras chave: educação física, auto-eficácia motora, estilo de vida, motivação.

INTRODUCTION

Increasing active behaviour during adolescence is crucial to improve the current and future well-being of young people, as regular physical activity (PA) has multiple positive effects on physical and psychosocial health (van Sluijs et al., 2021). In order

to achieve this goal, Physical Education (PE) classes are presented as fundamental to promote active lifestyles. As a matter of fact, previous research has highlighted the relationships between having optimal experiences in PE and the likelihood of being active outside of school hours (Alexandr et al., 2016;

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Wintle, 2022). Indeed, as PE classes are mandatory, it is a context in which intervention with this objective can reach all adolescents.

This issue is crucial nowadays, due to the high rates of sedentary behaviour that have become prevalent among young people and adolescents in welfare societies. In fact, sedentary behaviour has become a public health problem (Guthold et al. 2018), as it is affecting the health of the younger population, increasing the rates of obesity, metabolic diseases, and mental health issues (Aljahdali et al., 2022; Rodriguez-Ayllon et al., 2019). In this regard, most adolescents worldwide do not meet the PA recommendations proposed by the World Health Organization (Chaput et al., 2020). With the increase in passive leisure options, mainly driven by information and communication technologies, active behaviours have taken a backseat (Musa et al., 2022). Therefore, schools should try to promote and encourage active lifestyles, specifically through the PE subject.

To analyse the likelihood of engaging in and maintaining PA behaviour, the motivation of adolescents is considered fundamental (Knittle et al., 2018). Drawing from Achievement Goal Theory (AGT) (Duda and Nicholls, 1992; Nicholls, 1984), and at a dispositional level, it would be considered that PE could be developed with a more task-oriented or ego-oriented motivation. Thus, students who orient their physical practice towards the task would be more focused on learning, improving their skills, and enjoying the activity they perform, while ego-oriented students would be more concerned with achieving a specific performance and outperforming their peers, as well as greater social recognition (Jaakkola et al., 2016; Marjanović et al., 2019). This dual perspective is essential to understand how students interpret the success of their behaviour in this context and even their own level of competence (Tomczak et al., 2020).

Various studies have indicated that students with a higher task orientation show greater enjoyment during PE classes. However, ego-oriented ones do not perceive these classes as enjoyable and may even become bored when participating in them (Gil-Arias et al., 2020; Yli-Piipari et al., 2013). This could be due to the need for recognition and to demonstrate competence that ego-oriented students have during

PE classes (Leisterer and Jekauc 2019). If this does not occur, their motivation to engage in these tasks would decrease. Therefore, for this type of student, displaying and perceiving themselves as competent is essential for a satisfactory physical practice experience during PE classes (Jaakkola et al., 2019; Standage and Treasure, 2002).

This circumstance limits the potential for PE to generate optimal experiences and promote physical activity, primarily focusing on students who are motivated towards learning and improvement. In fact, previous studies have highlighted that task-oriented students express a greater intention to maintain active behaviours and engage in PA outside of school hours (Biddle et al., 1999; García-González et al., 2019). Thus, this issue suggests that it would be appropriate to promote motivational climates that develop motivational orientations towards the task in students (Jaakkola et al., 2016). However, it is not always possible since this motivational disposition develops based on multiple factors that the teacher cannot fully control.

Therefore, it is interesting to investigate whether other variables might be influencing the relationships between students' motivational orientation and their intention to initiate or maintain active behaviours outside of school (González-Cutre et al., 2023). Thus, the teacher would have more resources to work with students in promoting active lifestyles. If, in addition to motivational orientation, other psychological variables could explain the intention to continue engaging in PA among adolescents, more effective interventions could be implemented to achieve these objectives. In the set of these variables, perceived competence would be found, which has been described as a variable that explains the relationships between motivation and the future intention to engage in physical practice (Vasconcellos et al. 2020). Specifically, it has been highlighted that the relationships between ego-oriented motivation and the intention to practice outside the school context are determined by the student's perception of physical ability (Biddle et al., 1999).

In particular, self-efficacy refers to the personal perception of one's ability to successfully perform a task, which is an essential variable in Bandura's Social Cognitive Theory (1986, 1997). According to his postulates, individuals with a high belief in self-

efficacy are more likely to undertake a task and be more motivated to carry it out. On the other hand, those individuals with lower self-efficacy tend to be less engaged in a task and will abandon it when they encounter difficulties, without trying to overcome these obstacles (Bandura, 1986). Thus, motor self-efficacy refers to the perception of ability to perform adequately in PA tasks (Sheikh et al., 2022). Therefore, it is considered that if students in PE have a higher perception of self-efficacy, they will perform better in these classes, have more confidence in their abilities, enjoy it more, and be more motivated to engage in physical tasks (Fraile et al., 2019; Kok et al., 2020).

Previous studies have highlighted that motor self-efficacy is linked to greater student involvement in PE classes, positively impacting their learning and their experience during practice (Fraile et al., 2019). Thus, it would improve physical competencies and enjoyment of PA (Morales-Sánchez et al., 2021; Peers et al., 2020). This would possibly lead to an increased likelihood of enjoying PA in other contexts outside the school period. Therefore, motor self-efficacy is considered to play an important role in the intention to be physically active outside the school context, as it functions as a motivating factor for students, who are more willing to face challenges of this nature, perceiving themselves as competent to do so (Beauchamp et al., 2011; Di Maio et al., 2021; Martin and Kulinna, 2004).

Present Study

Previous studies have analysed the relationships between self-efficacy and the intention to be physically active, or they have focused on exploring the relationships between motivational orientation and self-efficacy, or the intention to be physically active (Beauchamp et al., 2011; Martin and Kulinna, 2004). However, most studies have analysed these relationships partially, without establishing integrated models that allow evaluating the influence of self-efficacy on the relationships between motivational orientation and the intention to be physically active.

However, perceived competencies essential for understanding the relationships between motivational aspects and the intention to be active, as it increases confidence and the ability to face the challenges that need to be undertaken (Hsu et al., 2023; Isa et al.,

2019). Therefore, this study tests an explanatory model in which motor self-efficacy plays a relevant role in the relationships between motivational orientation and the intention to be physically active. This could help better understand certain situations. For example, it has been suggested on numerous occasions that ego orientation increases the likelihood of boredom in PE or the intention to discontinue being physically active (Gil-Arias et al., 2020; Yli-Piipari et al., 2013). However, sometimes this is a reductionist point of view that could be influenced by other variables. This issue is the one we aim to elucidate here, that is, whether the perception of self-efficacy could be a neutralizing variable for the negative effects of ego orientation. Moreover, it could even enhance the positive relationships between task orientation and the intention to be physically active.

Furthermore, adolescence is a complex age, in which teenagers are continuously exposed to peer evaluation and may not always possess the appropriate tools to manage these situations (Fernández-Bustos et al., 2019). This is especially relevant in subjects such as PE, as body image and the sense of competence are variables that determine adolescents' behaviour at this age (Duncan et al., 2004). Therefore, having better motor self-efficacy would help them feel better and more confident in these types of subjects.

Therefore, the aim of this study was to explore the relationship between motivational orientation (ego vs. task) and the intention to be active, assessing the direct effects and indirect effects mediated by self-efficacy.

MATERIALS AND METHODS

Participants

Participated in this research 478 adolescents (236 boys, 242 girls) aged between 13 and 18 years ($M=14.57$; $SD=1.15$). The adolescents were PE students in grades 2 to 4 of secondary school in the province of Jaén, Spain. This subject is compulsory in these grades and is taught for one hour, two days a week. The exclusion criteria were: (a) irregular attendance to class; (b) presenting any difficulty in reading and understanding the questions formulated in the study; (c) having any injury that prevented them from

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participating in PE in the past few weeks; (d) recently enrolling in the school.

Instruments and equipment

a. Ego and Task Orientation Questionnaire (TEOSQ) (Duda and Nicholls 1992) in its Spanish version and used in the context of PE (Balaguer et al., 1996). It consists of 13 items and 2 factors that assess the tendency towards an ego (6 items) and task (7 items) orientation in the context of PE class. Responses were collected using a 5-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (5). The internal consistency analyses (Cronbach's alpha) offered values of .84 for the task orientation factor and .88 for ego orientation.

b. Motor Self-Efficacy Scale (MSES) (Hernández-Álvarez et al. 2011), which is an adaptation to the motor domain of the Baessler y Schwarzer (1996) General Self-Efficacy Scale (GSE). This instrument analyses the personal perception of competence to cope with motor tasks. It consists of 10 items and a single factor. The questionnaire was answered using a Likert-type scale from 1 (strongly disagree) to 4 (strongly agree). The internal consistency analysis (Cronbach's alpha) gave a value of .88.

c. Intention of Being Physically Active Scale (MIFA) (Moreno et al., 2007), which is the adapted version of Hein y cols. (2004). This scale assesses the intention to be physically active in the future and outside of the school environment. It consists of 10 items and a single factor. The questionnaire was answered using a Likert-type scale from 1 (strongly disagree) to 5 (strongly agree). The internal consistency analysis (Cronbach's alpha) gave a value of .81.

Procedure

The sample was obtained from four educational centres in the province of Jaén, Spain. All of these schools had a similar curriculum and comparable socio-economic characteristics. To involve these schools, a letter was sent to the school administration requesting their participation. Subsequently, the acceptance of the teaching staff was also obtained. Afterwards, parents/guardians of the students were informed that participation was completely voluntary, and that the data would be treated anonymously. Informed consent was obtained for their children to

participate. Subsequently, the students were explained the purpose of the study, stating that participation was voluntary and anonymous. Once the participants agreed to participate in the study, they were provided with further information. Throughout the research process, the principles established in the Helsinki Declaration were respected, and approval from the ethics committee of the University of Málaga was obtained for the conduct of the research.

The questionnaires were administered during the month of May, during the PE class. The time required to complete the questionnaires was approximately 40 minutes. A teacher and a researcher were present during their completion to address any questions that may have arisen. No difficulties were encountered, and everything proceeded smoothly.

Data Analysis

Means, standard deviations and bivariate correlations were analysed for all variables. For testing the hypothesized model, a two-step maximum likelihood approach following the recommendations proposed by Kline (2016) was performed in IBM SPSS Amos v.27. Firstly, confirmatory factor analysis (CFA) was performed to analyse the psychometric properties of the proposed model. Composite reliability via Raykov (1997) formula was performed to assess the internal consistency, considering .70 as the cut-off value (Hair et al. 2018), while average variance extracted (AVE) was estimated to analyse convergent validity (Hair et al. 2018). Discriminant validity was established when the correlation coefficients were lower than the AVE for each construct exceeding the squared correlations between that construct and any other (Fornell and Larcker 1981). Secondly, structural equation modelling (SEM) was performed to test the proposed relationships among different constructs. Standardised direct and indirect effects on the variable outcome were analysed, considering coefficients significant if the 95% Confidence Intervals (CI) did not include zero (Williams and MacKinnon 2008). The Boot-strap resampling (2000 samples) considering a bias corrected 95%CI was used to assess the significance of the direct and indirect effects. For CFA and SEM, the following absolute and incremental indices were used for analysis, specifically: Comparative Fit Index (CFI), Tucker Lewis Index (TLI), Standard Root Mean

Residual (SRMR), and Root Mean Square Error of Approximation (RMSEA) with its Confidence Interval (CI: 90%). For these indices, scores of CFI and TLI ≥ 0.90 , SRMR and RMSEA ≤ 0.8 were considered as acceptable, following several recommendations (e.g., Byrne 2016; Hair et al. 2018; Marsh et al., 2004).

RESULTS

Preliminary Analysis

Full Information robust Maximum Likelihood (FIML) was used to handle the small amount of missing data at the item level (missing at random = 2%) as proposed by Enders (2010). Then, we moved forward to analysing the descriptive statistics and bivariate correlations. In addition, the values of

Skewness and Kurtosis (between -2 to +2 and -7 to +7, respectively) revealed no deviations from univariate normality (Hair et al. 2018). However, the normalised estimate of Mardia's coefficient of multivariate kurtosis was greater than 5.0 in all samples under analysis. Consequently, Bollen-Stine bootstrap on 2000 samples was employed for subsequent analysis (Nevitt and Hancock 2001).

Table 1 shows the descriptive statistics, composite reliability coefficients, average variance extracted, and latent correlations. Skewness and kurtosis were contained within cutoffs, showing normal distribution. Also, composite reliability coefficients had a good internal consistency (> 0.70). Related to latent correlations, all variables displayed statistically significant correlations.

Table 1

Descriptive statistics, composite reliability coefficients, average variance extracted, and latent correlations.

Variables	M	SD	S	K	CR	AVE	1	2	3
1. Ego orientation	2.75	1.03	.32	-.49	.89	.56	-		
2. Task orientation	4.17	.69	-1.22	1.66	.85	.44	.18**	-	
3. Motor Self-efficacy	3.15	.53	-.52	.47	.88	.44	.36**	.47**	-
4. Intention to be active	3.93	.86	-.79	.09	.83	.50	.16*	.32**	.44**

The analysis of measurement model includes the factors task-orientation, ego-orientation, motor self-efficacy, and intention to be active variables displayed an acceptable fit to the data: $\chi^2 (344) = 888.18$; B-S $p < .001$; CFI= .91; TLI= .90; SRMR= .060; RMSEA= .058 90%CI [.053, .062]. The CR coefficients of each factor showed scores above the cutoff (> 0.70) revealing adequate internal consistency. Convergent validity was achieved for all factors, since it was above the cut-off value (0.50), except task orientation and motor self-efficacy, where the obtained values were close to the cut-off. In addition, considering the squared correlations and AVE scores, all factors demonstrated adequate discriminant validity since the squared correlations of each latent variable were lower than AVE scores in each latent variable. Therefore, the results provided preliminary support to conduct a regression model

and analyse the direct and indirect effects across variables under analysis. Looking at the results, the structural model displayed an acceptable fit to the data in all samples under analysis: general sample (n=478): $\chi^2 (345) = 899.59$; B-S $p < .001$; CFI= .90; TLI= .90; SRMR= .068; RMSEA= .058 90%CI [.053, .063].

Direct and indirect effects

Since the structural model revealed an acceptable fit to the data in all the samples under analysis and also the multigroup analysis showed that the model was invariant, direct and indirect paths of general sample were performed.

Overall, significant direct effects were found in general sample (figure 1): (a) task orientation was positively associated with intention to be active and

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motor self-efficacy; (b) ego orientation was not associated with intention to be active; (c) ego orientation was positively associated with motor self-efficacy; (d) motor self-efficacy was positively associated with intention to be active.

indirect effect on intention to be active across self-efficacy; (b) ego orientation had a positive and indirect effect on intention to be active across self-efficacy.

Regarding indirect effects, several results emerged (table 2): (a) task orientation had a positive and

Figure 1

Significant direct effects in general sample.

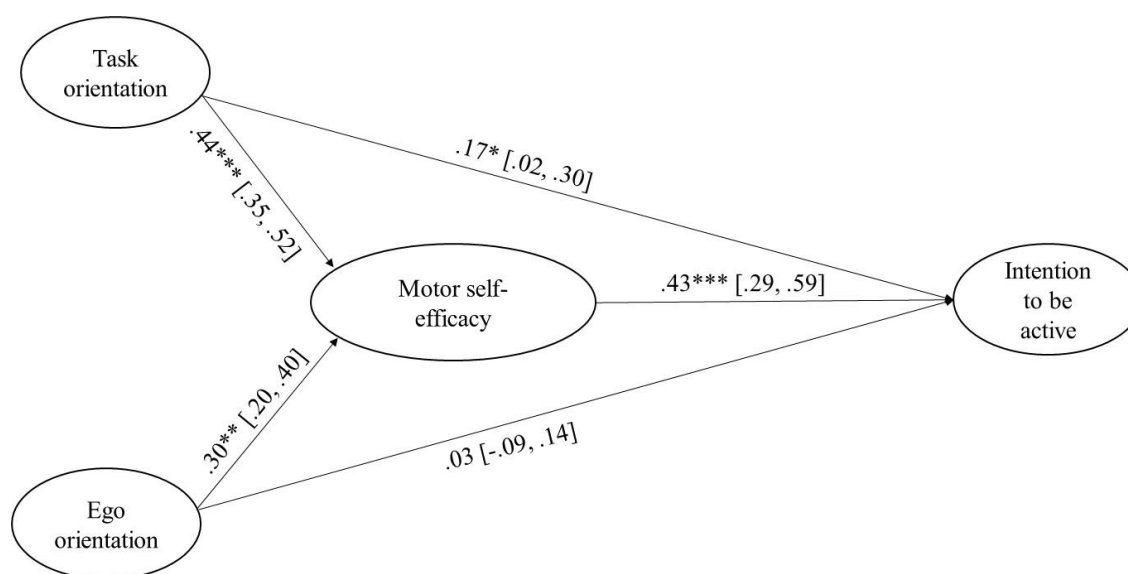


Table 2

Indirect effect coefficients

	p	β	SE	95%CI	
				LB	BU
Task orientation \rightarrow Motor self-efficacy \rightarrow Intention to be active	.001	.19	.04	.12	.27
Ego orientation \rightarrow Motor self-efficacy \rightarrow Intention to be active	.001	.13	.03	.08	.21

As can be observed, in the total effect of the association between task oriented and intention to be active ($\beta = .36$), there was a similar weighting between the direct ($\beta = .17$) and indirect effect ($\beta = .19$). However, in the total effect of the association between ego oriented and intention to be active ($\beta = .16$), the majority corresponded to the indirect effect ($\beta = .13$), while the indirect effect played a smaller role ($\beta = .03$).

DISCUSIÓN

The purpose of this research was to analyse the relationships between motivational orientation (task and ego orientation) and intention to be active, considering the role of self-efficacy in these relationships. The results have shown a statistically significant and positive association between the

variables studied. Moreover, the data have highlighted how self-efficacy has an important role in the relationships between motivational orientation and intention to be active. Specifically, self-efficacy is crucial because ego orientation does not show a significant direct association with the intention to be active, whereas a significant and indirect relationship appears through self-efficacy.

First, the structural equation model has highlighted positive and statistically significant associations between all the variables in the model, except ego orientation and intention to be physically active. These direct effects suggest the predictive ability of motivational orientation on motor self-efficacy, as well as the predictive ability of motor self-efficacy and task orientation on the intention to be physically active. This is consistent with previous studies that have emphasized the importance of self-efficacy as a key variable in the intention to be physically active at these ages (Di Maio et al., 2021; Fraile et al., 2019; Kok et al., 2020), as well as those studies that have highlighted the greater capacity of task orientation than ego orientation to determine active behaviours outside of school hours (Jaakkola et al., 2016; Marjanović et al., 2019).

This suggests that students who orient their participation towards continuous improvement and skill development are more likely to continue practicing in the future (Biddle et al., 1999; García-González et al., 2019) than those who focus their physical practice in PE on the outcome of their participation, comparing their performance to that of others, and demonstrating physical competence over other peers (García-González et al., 2019). In addition, orienting participation towards the task would limit the pressure on these students to outperform others, reducing the feeling of being continuously evaluated (Jaakkola et al., 2016). As previously noted by other authors, this would help students enjoy PA more in the school context and facilitate the intention to engage in physical practice in other non-regulated contexts (Morales-Sánchez et al., 2021; Peers et al., 2020).

Second, and probably the most relevant finding of this research, is that the structural equation model has revealed statistically significant and positive indirect effects between motivational orientation (both task and ego) and the intention to be physically active

through motor self-efficacy. In the case of task orientation, the value of the direct effect on the intention to be active has had a similar weight to the indirect effects. However, specifically in the case of ego orientation, the total effect on the intention to be active has been determined by the indirect effect through motor self-efficacy. Overall, the importance of motor self-efficacy is evident, which is consistent with previous studies that highlighted the role of self-efficacy in adherence and maintenance processes of PA practice at these ages (Jaakkola et al., 2019; Standage and Treasure, 2002; Vasconcellos et al., 2020).

But specifically, in the case of the relationship between ego orientation and the intention to be physically active, this issue is crucial. In fact, no direct predictive ability has been observed between these variables, as indicated by other authors. However, indirect effects suggest that students who have a perception of high self-efficacy will have a greater predisposition to be active in the future, even if their motivational orientation is ego focused. This phenomenon may occur because students who are more confident in their abilities and their capacity to deal with motor challenges will approach PE classes with more confidence, enjoy them more, and perform them more effectively (Beauchamp et al., 2011; Cid et al., 2019; Cox et al., 2008; Fraile-García et al., 2019). Even when faced with difficult challenges and exposed to external evaluation and comparison with peers, they will be better prepared to take on those tasks because they possess greater abilities to overcome them (Fraile et al., 2019; Kok et al., 2020). Therefore, the data suggest that the level of motor self-efficacy would help students improve their adaptation to these types of tasks, regardless of the type of motivational orientation they have (Jaakkola et al., 2019; Standage and Treasure, 2002).

This study has some limitations. First, motor self-efficacy can fluctuate throughout adolescence. Therefore, performing longitudinal analyses to analyse the evolution of these relationships could be interesting. Secondly, it would be necessary to use other variables such as self-esteem or self-concept, since these are very relevant self-perceptions in adolescence, to determine whether they could also be influencing the motivational processes of students. Thirdly, it would be interesting to conduct a quasi-

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experimental investigation to consolidate the findings of this research, which presents an explanatory model but has less causal value than intervention studies.

CONCLUSIONS

However, results the obtained are interesting and contribute to this field of knowledge. Above all, the most interesting findings focus on the role of motor self-efficacy as a variable that determines the relationships between motivational orientation and the intention to be physically active. Thus, given the importance of promoting active lifestyles in adolescence, this type of research allows for a better understanding of these processes and the development of intervention programs tailored to the needs of adolescents. In addition, this study highlights the role of PE teachers in the adherence and maintenance processes of active habits in adolescence, which is a fundamental issue today.

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