apunts EDUCACIÓN FÍSICA Y DEPORTES

ISSUE 148

Published: April 1, 2022
https://doi.org/10.5672/apunts.2014-0983.es.(2022/2).148.04

OPEN ACCESS

Emotions According to Type of Motor Task, Sports and Gender Experience

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Cite this article:
Niubò-Solé, J., Lavega-Burgués, P., & Sáenz-López, P. (2022). Emotions According to Type of Motor Task, Sports and Gender Experience. *Apunts Educación Física y Deportes, 148*. 26-33. https://doi.org/10.5672/apunts.2014-0983.es.(2022/2).148.04

Edited by:
© Generalitat de Catalunya
Departament de la Presidència
Institut Nacional d'Educació Física de Catalunya (INEFC)

ISSN: 2014-0983

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Section:
Physical Education

Original language:
Spanish

Received:
July 15, 2021

Accepted:
November 25, 2021

Published:
April 1, 2022

Cover:
2022 UN International Year of Sustainable Mountain Development. Tirol (Austria) @Adobe Stock

Abstract

Physical activity generally, and motor play in particular, are an ideal framework for creating emotional experiences of great educational value. Based on the theoretical foundations of motor praxeology and Bisquerra and Lazarus' emotional education model, the aim of this study was to find out which emotions are triggered by different types of motor activities (motor action domains). An additional aim was to discern whether sporting experience and gender are determining factors in the expression of these emotions. To this end, a study involving 69 university students was designed. The students were given theoretical and practical training related to emotions and they were subsequently asked to carry out different physical activities and assess the emotions these triggered, using the *Games and Emotion Scale* (GES) questionnaire. The results showed that physical-sport activities generate more intense positive emotions than ambiguous or negative ones, and that socio-motor activities generally trigger more intense emotions than psychomotor activities. Individuals with sporting experience express positive and ambiguous emotions more intensely, and males express positive emotions more intensely than females.

Keywords: domains of motor action, emotional awareness, emotional education, motor behaviour, motor praxeology, physical activity.

Introduction

Human beings live, feel and are moved by what happens around them. The performance of physical activities is a unique moment in which bodies, immersed in the activity, perceive, receive, invent, reproduce, learn and, among many other things, experience emotion. There are various emotions or sensations that are experienced through physical practices (Lagardera, 1999) and in the educational field, these are beginning to be understood. Understanding what is being felt and experienced at each moment of existence requires a certain amount of work, as humans have to learn to identify and recognise these emotions (Bisquerra & Pérez, 2007 and Bisquerra, 2018).

The identification and recognition of the different emotions perceived in each domain of motor action can be very useful for educators, sports coaches and professionals in the world of physical activity who must develop emotional competences (Lagardera, 1999; Lavega et al., 2011). The development of these competences in the educational environment is now a social necessity (Bisquerra 2007, 2018; Mestre & Fernández, 2007; Sáenz-López, 2020). Physical activity and, consequently, Physical Education (PE) can contribute to learning to control and regulate emotions (Lagardera, 1999), as well as influencing an individual's healthy behaviours, since, in order to create commitment to sport practice, it is necessary to ensure that the practices carried out are satisfactory and perceived as fun and motivating (Moreno & Hellín, 2007).

Each family of motor practices, or domain of motor action, activates different motor sensations, associated with the experience of relationships, learning and unique processes, which will have different consequences for the individual experiencing them. Therefore, depending on the pedagogical objectives set, it will be very useful to understand which domain of motor action is the most suitable in order to activate positive emotions, reduce negative emotions or orient ambiguous emotions in a positive direction (Duran & Costes, 2018; Falcón et al., 2020; Gil et al., 2020; Lavega et al., 2013b; Lavega et al., 2011; Miralles et al., 2017). In this sense, the teacher, coach or PE instructor should have sufficient knowledge to be able to plan with judgment the set of motor sensations that should be experienced by students and be able to identify what they feel, what they experience and how they react emotionally.

The study of the type and intensity of emotions triggered by different sporting practices is a line of work that has provided scientific evidence and educational guidelines on how and which practices we should include within a programme, according to our intentionality (Alonso et al., 2019, Alonso et al., 2013; Duran & Costes, 2018; Lavega et al., 2013a; Lavega et al., 2013b; Lavega et al., 2011; Miralles et al., 2017). It has been demonstrated that gender and sporting history variables can influence the pleasure and enjoyment of practice, it is particularly highlighted that, in cooperative activities, women reach more intense values of enjoyment than men (Duran & Costes, 2018; Duran et al., 2014). They also express ambiguous emotions differently to men (Lavega, et al., 2011). Regarding competitive games, males reach more intense values of negative emotions and sporting experience is a factor that affects the emotions triggered in males, with negative emotions being more intense (Duran & Costes, 2018; Duran et al., 2014; Sáez, et al., 2014).

Another important aspect revealed by these studies is that socio-motor activities and cooperative games intensify triggered emotions, particularly positive ones (Falcón, et al., 2020; Gil-Madrona et al., 2020; Lavega et al., 2013b; Lavega et al., 2011; Miralles, et al., 2017; Muñoz-Arroyave, et al., 2020), compared to psychomotor activities, which trigger a lower intensity of positive emotions (Falcón, et al., 2020); thus revealing that the peer and adversary component, and the relationship with them, is a highly influential factor in the practice experience.

This data is of interest when planning and managing the activities envisaged for groups, because if positive experiences are desired, the right decisions have to be made.

Based on the approach from motor praxeology and the emotional education foundations of Bisquerra (2018) and Lazarus' (1991) model, this study set out the following objectives:

The main objective was to determine exactly which domains of motor action triggered the different types of emotions with more or less intensity and whether there were differences between socio-motor and psychomotor activities. An additional aim was to discover whether there were differences between participants with and without sporting experience and whether having a background in one domain or another, or having more or less years of sporting experience also had a bearing on the intensity of emotions in the different physical practices. Finally, it was investigated whether gender was a decisive factor when it came to experiencing emotions in the different motor practices.

Based on previous studies (Alonso et al., 2019; Duran et al., 2014; Falcón et al., 2020; Lavega et al. 2013b; Lavega et al. 2013a; Lavega et al. 2011; Miralles et al. 2017; Muñoz-Arroyave et al., 2020; Pic et al., 2019) the hypotheses put forward were: a priori, that the practice of different motor activities would trigger a greater intensity

of positive emotions than negative and ambiguous ones in the participants. That in each of the motor action domains, the different types of emotions would be experienced differently. Regarding sporting history, it was predicted that there would be differences between those participants who had sporting experience, who would tend to express greater intensity of emotions than those who did not have such a sporting history. Finally, regarding gender, it was predicted that both the intensity and type of emotions would be experienced similarly and that there might be differences in some specific motor action domains.

Methodology

Participants

The participants consisted of one group of university students studying Early Childhood Education and two groups of students studying Physical Education Teaching, a total of 69 students, with a mean age of 20.13 (*SD* = 3.9). 27 were female and 42 were male; 82.2% had sporting experience and 36.8% of this experience consisted of psychomotor sports or activities, whilst 63.2% consisted of socio-motor sports.

The groups were selected out of convenience, capitalising on the fact that practical physical activity sessions were held at the university. Participants were informed in advance of the research objectives and procedure and signed an informed consent form designed according to the ethical provisions of the Declaration of Helsinki (2013).

Instruments and procedure

In order to carry out the research, students were first trained and subsequently completed the GES questionnaire (Lavega, et al., 2013a) with common criteria.

Student training on emotions

A training session was organised by the researchers. The objective was for the students to learn to identify, recognise and express the emotions presented by the Bisquerra (2018) and Lazarus (1991) model and the different groups into which they are classified. In this session, the theoretical content, the definition of emotion, its dimensions and functions were explained. Subsequently, hypothetical situations were posed and the students had to contemplate what they would feel in each of them. Emotions and concepts were defined in order to ensure the same criteria of meaning for each. Finally, a practical section was carried out in which, through different body expression activities, the different emotions, their gestural and expressive characteristics and their expression with different intensities were worked with.

Data collection simulation

The data collection simulation followed, the GES questionnaire was used to measure intensity and identify the causes of the type of emotions triggered in different motor situations. The students were asked to give a number from 0 to 10 for each of the emotions and each of the practices carried out (depending on the domain to which they belong), according to the perceived intensity of that emotion. The answers were subsequently discussed to adjust ideas and clarify concepts.

Data collection

In this last phase, the students completed the GES questionnaire in the scheduled physical activity sessions, selecting the activities according to the motor action domain. This third phase was carried out as many times as necessary in order to obtain sufficient information on activities in each of the domains.

Data analysis

The internal consistency of the questionnaire was measured by Lavega et al. (2013a) through Cronbach's alpha and the following values were obtained: $n = 271$; $\alpha = .92$. The results were very similar for each type of positive ($\alpha = .93$), negative ($\alpha = .90$) and ambiguous ($\alpha = .95$) emotions.

The SPSS 17.0 programme was used to analyse the data. A descriptive study was initially carried out by recoding the variables according to Bisquerra's (2018) classification criteria for emotions. This resulted in three categories of dependent variables (positive, negative and ambiguous) for each of the domains analysed (collaboration, opposition, collaboration-opposition and psychomotor), in addition to three new variables of positive, negative and ambiguous emotions without distinction of domain, a recoding of the mean of each of the emotions separately and a recoding of the positive, negative and ambiguous emotions according to psychomotor and socio-motor activities. An inferential analysis based on Kendall's W, Mann Whitney and Kruskal Wallis non-parametric tests with $p < .05$ was performed to compare the variables.

Results

Focusing on the intensity of the emotion type, the results showed significant differences according to Kendall's W test ($\chi^2 = 116{,}623$, $gl = 2$, $p < .05$). Positive emotions were more intense than negative and ambiguous emotions.

In relation to the behaviour of each of the thirteen emotions separately, it was observed that the emotion experienced with the greatest intensity was joy, followed by humour, happiness and love, which has relatively low values in comparison with emotions of the same group. As regards negative emotions, the emotion experienced with the greatest intensity was anxiety and with the least intensity, rejection. As for ambiguous emotions, the most frequently experienced emotions were hope, surprise and finally compassion, as can be seen in Figure 1:

In relation to the domains of motor action, as shown in Figure 2, it should be highlighted that the highest mean for positive emotions was collaboration-opposition, followed by opposition, collaboration and finally psychomotor activities. The lowest ratio of negative emotions was found in collaborative activities, followed by psychomotor activities, collaborative-oppositional activities and finally oppositional activities. Ambiguous emotions were most intense in collaborative-oppositional activities, followed by oppositional, collaborative and finally psychomotor activities.

If the four domains analysed are compared according to the three types of emotions using Kendall's W test, it is observed that there were differences in all cases: in positive emotions, χ = 79,824 y gl = 3; in negative emotions, χ^2 = 9,529 y gl = 3; and, in ambiguous emotions, χ^2 = 33,861, gl = 3 with $p < .05$ in all cases.

If the criterion of relationship with the others are observed and the activities are divided into socio-motor and psychomotor, the data showed significant differences in the intensity of positive and ambiguous emotions (Kendall's W, χ = 37.69 gl = 1 for positive and χ = 6.78 gl = 1 with $p < .05$), but not negative emotions ($\chi = 2.86$ $g = 1$ $p = .091$).

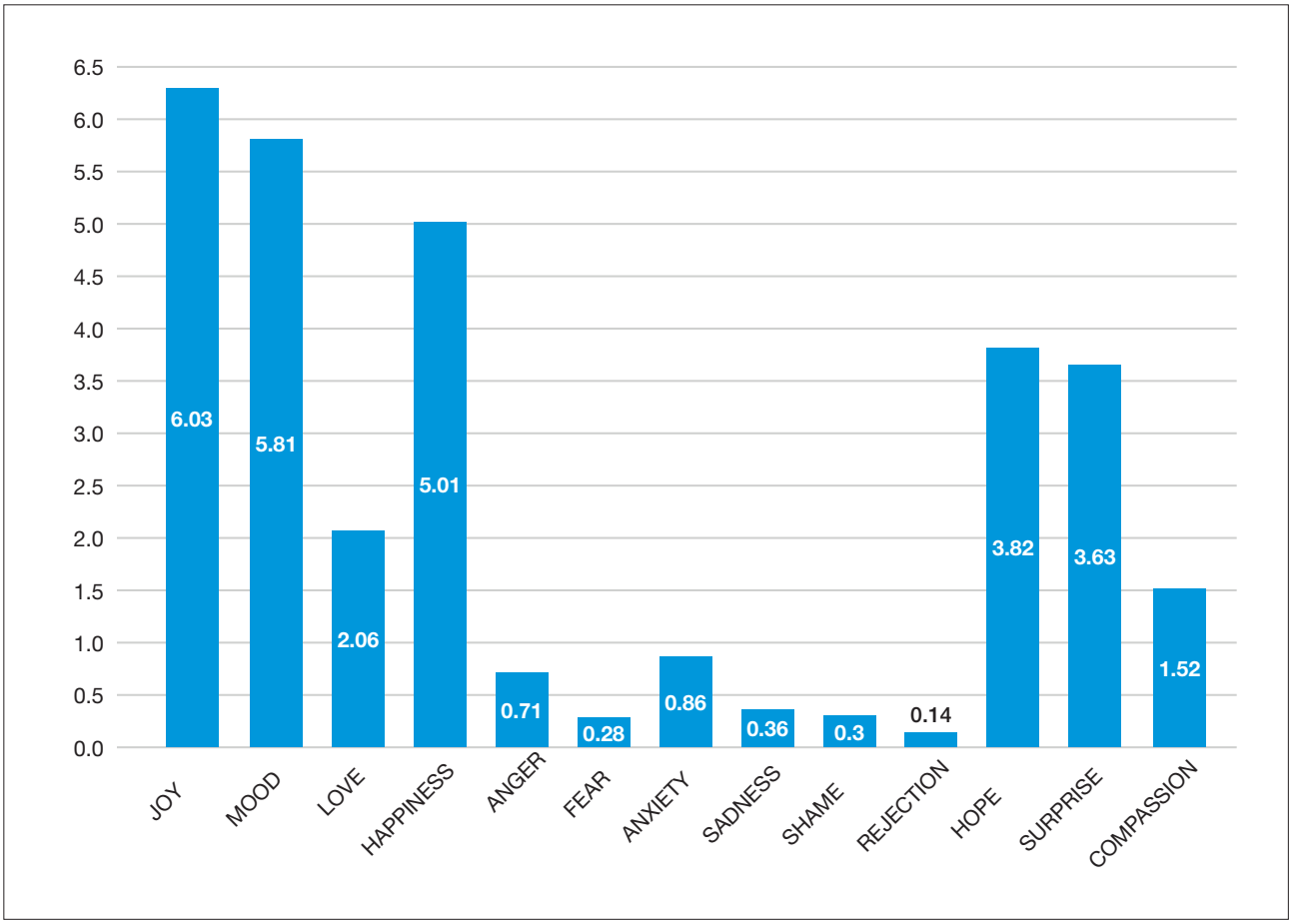

Figure 1
Averages of emotion intensity.

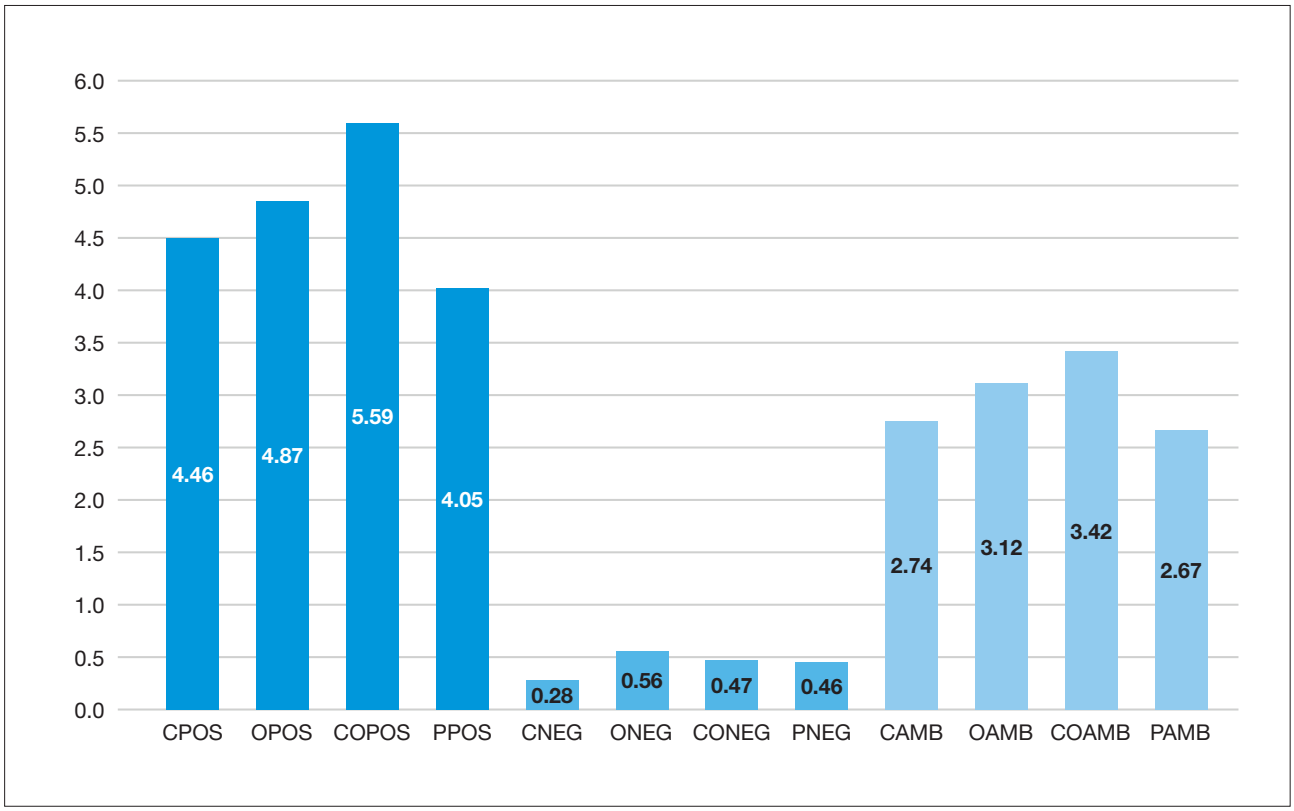

Figure 2
Averages of emotion intensity per domain of action.
C = Collaborative; POS = Positive; O = Oppositional; NEG = Negative; P = Psychomotor; AMB = Ambiguous; CO = Collaborative-oppositional

In relation to the sporting history variable and in accordance with the hypotheses put forward, it was observed that, in general, there are differences between the participants who did and did not have sporting experience when perceiving the intensity of emotions, for positive and ambiguous emotions (Table 1): those who did have sporting experience presented higher intensities than those who did not.

Table 1
Mann-Whitney test for sporting history.

	POSITIVE	NEGATIVE	AMBIGUOUS
Mann-Whitney U test	161.5	269.5	178.5
Asymptotic sig. (bilateral)	.004	.250	.010

$n_1 = 57$ $n_2 = 12$, $^*p < .05$

If the relationship of the participants with sporting experience is analysed, no differences were found according to the domain of the sporting practice performed (psychomotor or socio-motor) using the same Mann Whitney test, nor between whether the practice performed was for leisure, competition or performance according to the Kruskal Wallis ANOVA test. In this last section, no differences were found in the categories established according to years and hours spent on the activity.

In relation to gender, differences were found in the intensity of positive emotions: perceived intensities for males were higher than for females.

It was observed that in some of the categories and groups of emotions, namely positive collaboration (CPOS), positive opposition (OPOS), negative opposition (ONEG), positive collaboration-opposition (COPOS) and positive psychomotor (PPOS), there were significant differences in the intensity of the emotions (Table 2). In all cases, it was males who presented the highest values.

Table 2
Averages of emotion intensity per domain of action.

	CPOS	OPOS	ONEG	COPOS	PPOS
Mann-Whitney U test	244	225	398	331	287
Asymptotic sig. (bilateral)	< .001	< .001	035	.004	.001

$n_1 = 42$ $n_2 = 27$, $^*p < .05$

Discussion

The main aim of the research was to determine exactly which domains of motor action trigger the different types of emotions more and less intensely and whether there were differences between socio-motor and psychomotor activities. It was also investigated whether there were differences between participants with and without sporting experience and whether the characteristics of this background were related to the intensity of emotions in the different physical practices. It was further investigated whether gender was a decisive factor in the perception of emotions.

Physical activities and sports generate more intense positive emotions than negative and ambiguous ones. This assertion is confirmed by studies already carried out on emotions (Duran & Costes, 2018; Duran et al., 2014; Lavega et al, 2013a, Lavega et al., 2011; Miralles et al., 2017; Muñoz-Arroyave et al., 2020; Pic et al., 2019). Physical exercise increases levels of serotonin and dopamine, neurotransmitters that affect emotional stability (Bisquerra, 2018), as well as improving well-being and confidence and increasing psychological welfare (Sáenz-López, 2020). Studies on reasons for practising sport show that desire for enjoyment and pleasure are some of the aspects that are most valued (Moreno & Hellín, 2007); therefore, it seems logical that these activities are a positive experience for those who practise them. From a pedagogical point of view, enhancing positive experiences in the field of physical activities during periods of growth will condition physical practice in adulthood (Moreno & Hellín, 2007) and, for that reason, it therefore seems to be of vital importance.

If the way in which the emotions triggered in the different motor action domains behaved are analysed, it is observed that the results coincided with the studies in some cases and differed in others:

In this study, the activities with the highest intensity of positive emotions were collaborative-oppositional activities, whereas in other studies, collaborative games or activities presented the highest intensity of positive emotions (Falcón et al., 2020; Gil et al., 2020; Lavega et al., 2013b; Lavega et al., 2011; Miralles et al., 2017). The results coincided in confirming that psychomotor activities generated positive emotions with least intensity (Duran & Costes, 2018; Duran et al., 2014; and Lavega et al., 2011; Miralles et al., 2017). According to Bisquerra (2018), interaction with people and the environment generates emotions and people are the essential elements; perhaps it could be this socialising effect that makes humans feel emotions more intensely.

This and similar studies found that psychomotor activities present low medians for positive emotions (Duran & Costes, 2018; Duran et al., 2014; Lavega et al., 2013a; Lavega et al., 2011; Miralles et al. 2017) and the second lowest (in this study) for negative emotions, although the latter difference is not representative. The two former are, suggesting that socio-motor activities tend to produce emotions more intensely than psychomotor activities.

Some studies confirm that meeting basic psychological needs – autonomy, competence and relationship with others – leads to higher levels of task involvement, effort and even performance, thus creating states of intrinsic motivation (Moreno & Hellín, 2007). Once again, when it comes to physical exercise, the relationship with others proves to be of real importance. From a pedagogical point of view, it is of great interest and extremely important to take this social interaction into account as a beneficial element, to understand how to adapt it to objectives and to redirect it so that it contributes to growth and learning.

Focusing on negative emotions, and coinciding with some research (Duran et al., 2014; Lavega et al., 2013a; Lavega et al., 2011), the activity that generates negative emotions with the least intensity is collaboration. It seems important to consider this point, as the second or first domain (Falcón et al., 2020) that provokes negative emotions with least intensity is the psychomotor domain. Both domains lack opposition; leading to the conclusion that perhaps the oppositional element generates negative emotions.

It is important to note that in this study, joy, humour and happiness were the emotions that obtained the highest means out of the thirteen and that, in the same questionnaire, GES (Lavega et al., 2013a) offered the words fun, enthusiasm, pleasure, well-being, enjoyment and satisfaction as synonyms.

The simple act of perceiving positive emotions already influences a person's health, because the more positive emotions one feels, the better. Lagardera (1999) states that emotions condition us in our daily tasks, and generating positive emotions for students through physical activity has a positive impact on their well-being and increases their quality of life.

Students with sporting experience express positive and ambiguous emotions more intensely. In previous studies, higher intensity emotion values were found when comparing those who had practised socio-motor sports with those who had practised psychomotor sports or who did not practise sports (Lavega et al., 2011). In the present study, no difference is found between the latter distinction. Regarding the values for negative emotions, it is evident that they are all very low, with the highest average not exceeding 1. In this case, the sporting experience variable was insignificant, but, differs from some studies where, precisely, those who had sporting experience presented a higher perception of negative emotions than those who did not (Duran et al., 2014).

Taking into account the type of practice carried out in terms of competition, leisure or performance and the years and hours of sporting experience, no differences were found, in contrast to other studies (Duran et al., 2014 and Lavega et al., 2013b) where the sporting experience led to a greater intensity of negative emotions.

In relation to the gender variable, some studies showed differences in ambiguous emotions (Lavega et al., 2011), as in the present study. In the results obtained, besides finding differences according to gender and according to the different domains of activities, it was found in all cases that positive emotion were more intense in males. Although the differences are not significant, they are also present for the ambiguous emotion groups in all cases. Females only outperform males in the intensity of perceived negative emotions and in collaborative and psychomotor activities.

Some data indicated varying results: for example, collaborative and psychomotor practices, precisely those in which there is no opposition, were preferred by women (Pavón & Moreno, 2008). Differences were also found in a study that stated that women preferred cooperative activities to individual activities or competitive situations, which were preferred by men (Ruiz et al., 2004). Psychomotor activities, together with oppositional activities, were the activities in which women perceived negative emotions most intensely. It is worth noting that some university studies such as the present one detected higher intensities of positive emotions in women relative to men in collaborative activities (Duran & Costes, 2018).

Some data, such as that which suggests women prefer social activities compared to men, that they prioritise sport for leisure time and that they generally rate themselves as not very competent in sport compared to men (Castillo, et al. 2004 and Pavón & Moreno, 2008) is relevant. Also of interest are some studies conducted in primary schools, where boys attributed the experience of positive emotions to elements of internal logic in a generalised way (e.g., winning or losing); in contrast, girls made comments related to aspects of both internal and external logic, thus attributing positive emotions to cooperating with peers or laughing with them (Alcaraz-Muñoz, et al., 2017).

The present results reinforce the data confirming that there are differences between males and females in terms of the enjoyment of physical-sports practice, with a higher level in males (Castillo et al., 2004), except in some studies and specific areas (Duran & Costes, 2018).

It also appears relevant, although it was not taken into account in this study, whether activities are carried out competitively, since, in this line, research affirms that activities carried out non-competitively increase perceived positive emotions (Duran & Costes, 2018; Lavega et al., 2011; Muñoz-Arroyave et al., 2020).

The sample for the present study prevented the generalisability of the results. This cross-sectional representation in a given context helps to further compare the results with similar studies.

Conclusions

The different domains analysed trigger emotions in different ways and, in all of them, the most intensely perceived emotions are positive. Socio-motor activities are generally more emotionally intense than psychomotor activities.

Participants with sporting experience perceive positive and ambiguous emotions more intensely than those without sporting experience, regardless of the type, scope and years or hours of sporting experience. Finally, in relation to gender, males express positive emotions more intensely than females.

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Conflict of interests: the authors have not declared any conflict of interest.