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# How do Girls and Boys Feel Emotions? Gender Differences in Physical Education in Primary School

**Authors' contribution:**
A) conception and design of the study
B) acquisition of data
C) analysis and interpretation of data
D) manuscript preparation
E) obtaining funding

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## Abstract

The main objective of the study was to analyze the emotional intensity experienced by school-age boys and girls when participating in traditional sports games. A total of 152 students from two primary schools participated. The Kolmogorov-Smirnov test was applied to verify the distribution of the data, followed by Student's parametric t-test for independent samples and Levene's test for homogeneity of variance. Girls registered more intense positive emotions in games of lower decisional complexity (oppositional, cooperative, and individual games) and in non-competitive games compared to boys, who experienced positive emotions with greater intensity in cooperative-oppositional games and competitive games. Reducing sports stereotypes is necessary if the meaningful outcome of physical education is to promote shared emotional and relational well-being among all students. Therefore, traditional sports games can be an excellent tool for creating a positive impact on students' social and emotional learning, as interpersonal relationships are key to the development of the game.

**Keywords:** emotional well-being, social relationship, games teaching, elementary education, gender.

## Introduction

### Gendered emotional behaviour in physical education and sports

Several studies have confirmed the existence of gender differences in the emotional behaviour experienced during physical education and sports activities. In sports games with direct confrontation with opponents, as in an oppositional situation, boys recorded higher levels of negative and positive emotions than girls (Sáez de Ocáriz, Lavega, Lagardera et al., 2014). However, girls showed positive emotions with higher values in cooperative games, those motor situations that require mutual help in the entire team (Duran & Costes, 2018). Moreover, studies such as those conducted by Cárcamo et al. (2021) showed that boys like sports more than girls, and girls attach more importance to participation. These results corroborate the special sensitivity toward social relations and empathy that the literature attributes to the female gender (Chaplin & Aldao, 2013). In Chalabaev et al.'s (2013) study, both genders reported a preference for physical education classes with peers of the same gender to favour practice, learning, and behavioural opportunities. Boys felt that girls did not try hard enough, and girls commented that boys were less cooperative and caused situations of conflict. Moreover, Pic et al. (2020) found that boys are more attracted to receiver and liberator roles, roles with greater involvement in the game, compared to girls, who adopt avoider and

prisoner roles. These findings are consistent with Gutiérrez and García-López (2012), who found a stereotypical tendency to participate in invasion games. Boys preferred to manipulate the ball and achieve the goal of the game, while girls adopted player-spectator behaviours.

**Gendered emotional behaviour in competitive and non-competitive situations**

Competition (with or without the possibility of victory within the practical motor situation) is another variable to consider when referring to relevant differences between the two genders (Gea et al., 2017). This allows all motor practice to be classified into two types: (a) games with competition or competitive aims, where there is a final score that determines who is the winner or loser; or (b) games without competition or non-competitive games, where there is no final score to determine a specific result, and players are not classified as winners or losers (Parlebas, 2012). Boys' enthusiasm for competitive situations is greater than that of girls, who are perhaps conditioned by stereotypes about leisure and sports culture (Duran & Costes, 2018; Etxebeste, 2017). Rillo-Albert et al. (2021) found in a study with secondary students, and Sáez de Ocáriz, Lavega, Lagardera et al. (2014) with schoolchildren, that the use of competitive games in physical education classes increases the intensity of positive emotions, but also of negative emotions and conflicts. Moreover, Etxebarria et al. (2003) stated that with schoolchildren aggressive behaviour is more common in boys than in girls. Moreover, with age, this behaviour tends to increase in boys, especially among peers, and to decrease in girls. In this sense, Alcaraz-Muñoz et al. (2017) found that when faced with defeat in competitive games, girls prioritised their emotional well-being by paying attention to the collaborative relationships that had arisen in the game or to the fact that they had laughed and played with friends during the game.

**Gendered emotional behaviour in traditional sporting games**

Alonso and colleagues (2019) in a study of Traditional Sports and Games (TSG) also suggested paying attention to the behaviour experienced by each gender in specific emotions, such as love or affection, which tend to be experienced more intensely by girls. Concerning negative emotions, boys experienced anger and rejection more intensely, while girls experienced sadness and anxiety to a greater extent, but still with lower intensities compared to boys. In fact, girls and boys experience negative emotions differently (Deng et al., 2016).

TSG such as dodgeball, tag, pitchers, marro, cops and robbers, and four corners are a frequently used resource for physical education teachers or even sports professionals. However, there are still few scientific contributions, especially at school age, that analyse in depth this widely applied resource. Recent research confirms the importance of TSG in educating the whole person (at a decisional, organic, emotional, and relational level), even generating significant experiences of subjective well-being. In fact, the Sixth International Conference of Ministers and Senior Officials Responsible for Physical Education and Sports (MINEPS VI), known as the Kazan Action Plan (UNESCO, 2017a), recognises the practice of physical activity, including traditional games, as a key aspect for improving psychological and social health (Teraoka & Kirk, 2021). Moreover, the fact that it is an excellent pedagogical resource whose playing conditions can be optimised to generate the proposed learning objective is an added value (Alcaraz-Muñoz et al., 2020).

Among these objectives is the challenge of promoting learning environments in an educational context that guarantees equal opportunities, emotional well-being, and well-being in interpersonal relationships between the genders (Wang & Chen, 2021). All of these are promoted by UNESCO in the Education for Sustainable Development Goals (UNESCO, 2017b) report as fundamental needs that should accompany the integral formation of the person and that, in addition, make it possible to promote quality education starting on childhood to lay the foundations for a more just, peaceful and egalitarian society.

Gender is a changing cultural concept that is constantly under construction, as it is created by social interaction (Lips, 2020). Physical education contributes to this construction of gender because of its relational load (Parlebas, 2001; Penney, 2002). This is especially true in those situations that require motor interaction, such as TSG, in which interpersonal relationships are key to the development of the game and part of the learning environment (Bailey et al., 2009; MacPhail et al., 2008).

In TSG, there are several situations that require motor interactions with different intensities (Parlebas, 2001), known as motor action domains: (a) psychomotor, where the player acts alone, without direct motor interaction with any other player, such as hopscotch; (b) cooperation, where players collaborate to achieve the same goal, such as the parachute game; (c) opposition, where players act as opponents facing each other for the goal of the game, such as a game of tag; and (d) cooperation-opposition, where collaboration between players and opposition between rivals are combined, such as dodgeball. The teacher's task is to decide which type of game to use. However, the present study aims to provide scientific evidence that shows the potential of TSG in planning physical education classes, to consider the fulfilment of basic needs such as equal opportunities, emotional and relational well-being between genders, and prioritising co-education from childhood.

Based on these theoretical arguments, the present research proposed two main objectives: (a) to analyse the emotional intensity (positive and negative) experienced by

school-age girls and boys when participating in TSG of different types (psychomotor, cooperation, opposition, and cooperation-opposition); and (b) to analyse the emotional intensity (positive and negative) experienced by school-age girls and boys when participating in competitive TSG or non-competitive TSG.

# Method

### Design and participants

A descriptive, cross-sectional study design with non-probabilistic sampling was used. A total of 152 primary school students with a medium-high socio-cultural level (72 boys and 80 girls; age range = 8-12 years, *M*age = 9.72, *SD* = 1.18) from two Spanish schools located in the Region of Murcia participated. 26.97% of the participants practiced sports in a regulated club at least three times a week, 41.45% performed physical activity or school sports once or twice a week, and 31.58% of the participants did not perform physical activity. The students were grouped into teams by their physical education teachers, following the criterion that the teams were made up of girls and boys, maintaining gender parity (Gutiérrez & García-López, 2012). As the data were collected during physical education classes, all students participated in the activities. Fathers, mothers, and/or legal guardians of the children—all minors—gave their consent for the children to participate in the study, which was also approved by the Research Ethics Committee of the University.

### Instrument

The Games and Emotions Scale for Children (GES-C) validated by Alcaraz-Muñoz et al. (2022) was used to identify emotional intensity. This scale has nine items, one per emotion, organised into two factors: positive emotions (joy, humour, affection, and happiness) and negative emotions (sadness, fear, anger, rejection, and shame) (Lazarus 1991). Each item is rated on a Likert scale ranging from 0 (*felt nothing*) to 4 (*felt a lot*). For each identified emotion (positive or negative), a mean value of the emotional intensity experienced is obtained.

In terms of reliability, Cronbach's alpha value indicated that the internal consistency was good both for positive ($\alpha = 0.85$) and negative emotions ($\alpha = 0.79$). Confirmatory factor analysis adequately reproduced the scale structure and showed good fit indices [minimum $\chi^2/df = 1.35$; Tucker-Lewis index (TLI) = .98; comparative fit index (CFI) = .98; root mean squared error of approximation (RMSEA) = .048 (LO90 = .000 - HI90 = .086)].

### Procedure

Participating students underwent a 60-minute theoretical-practical pre-training session to recognise the nine emotions, learn about the scale and experience the procedure. The intervention consisted of four 60-minute sessions given by the subject teachers, who had previously familiarised themselves with the dynamics and content of the study. Each student participated in a total of eight games in four motor action domains (psychomotor, cooperation, opposition, and cooperation-opposition). At the end of each game, students completed a GES-C questionnaire in which they recorded the level of intensity, from 0 to 4, that they had experienced in each of the nine emotions considered in the scale. Immediately afterward, they briefly explained why they had felt the most intense emotion. In each session, two games (one competitive and one non-competitive) of a motor action domain were played. The sessions were sequenced according to the increasing cognitive and relational complexity determined by the motor action domains: (a) psychomotor games; (b) cooperative games; (c) oppositional games; and (d) cooperative-oppositional games. All games lasted eight minutes. This duration was similar to that established in similar studies (Alcaraz-Muñoz et al., 2017; Gutiérrez & García-López, 2012).

### Quantitative data analysis

Means and standard deviations were calculated for each variable. The Kolmogorov-Smirnov test showed a normal distribution of the data. Therefore, the parametric Student's *t*-test for independent samples and Levene's test for homogeneity of variance were applied. A *p*-value of .05 was used for all statistical tests. Effect size (ES) results of the interactions between variables were also calculated using partial eta squared ($\eta_{P2}$) and Cohen's *d* [0.2 (small), 0.5 (medium), and >0.8 (large) effect]. All analyses were conducted with Statistical Package for Social Sciences version 24.0 for Windows.

### Qualitative data analysis

The comments provided by the participants on the most intense emotion experienced when participating in each game were analysed. A manual was prepared, with a description of each of the macro-categories to be analysed associated with internal aspects (internal logic) of the game and external aspects (external logic), and the presence or absence of the categories in each testimony was identified (Lagardera et al., 2018).

Internal logic: (a) internal time: allusions to the end of the game marked by "competition" in games with victory, "winning" or "losing". In non-competitive games, allusions to the goal of the game, duration, or role changes; (b) internal space: allusions to the playing field or positions adopted (e.g., "It was difficult to run while jumping"); (c) internal relationship: terms associated with the motor interaction between players (e.g., "My teammates passed me the ball"), "(d) internal material: allusions to objects

(ball, scarf, rope) (e.g., "Hitting with the ball was difficult"); (e) rules: terms associated with the pact (e.g., "The rules are complicated") or the game in general (e.g., "The game is fun").

External logic: (a) external time: comments on temporal aspects external to the rules of the game (e.g., "It was too early"); (b) external space: terms related to the facility or the playing field (e.g., "It was dark in the sports hall"); (c) external relationship: allusions to permanent personal attributions (e.g. "I was playing with my friend"); (d) external material: comments on the type of material used to make the objects (e.g., "The ball was hard"); (e) persons (external): allusions to transitory states of persons (e.g., "We laughed a lot").

Six observers completed a minimum of 40 hours on how to code the data, following the guidelines of Lavega-Burgués et al. (2018). To assess the reliability of the data, 100 comments were analysed by each of the six observers. These data were compared and inter-observer reliability was measured using the Kappa index, which yielded values ranging from .78 to .84.

## Results

The results were derived from three main relations: (a) gender, emotion type, and motor action domains; (b) gender, emotion type, game type (competitive or non-competitive); and (c) gender, emotion type, and sports experience.

**Gender, type of emotion, and domains of motor action**

The relation of the variables gender (male and female) and type of emotion (positive and negative) showed significant differences ($p < .05$). Girls registered higher intensities of positive ($M = 3.90$, $SD = 0.80$, $p = .006$) and negative ($M = 1.22$, $SD = 0.30$, $p = .021$) emotions ($F = 5.339$, $p = .022$, $ES = 2.52$) than boys when participating in TSG (positive emotions: $M = 3.50$, $SD = 0.60$, and negative emotions: $M = 1.13$, $SD = 0.20$).

The relation between gender, emotion type, and motor action domain also reflected significant differences ($F = 3.82$, $p < .05$, $ES = 0.071$). Table 1 shows that girls experienced higher positive emotional intensities than boys, with significant differences in oppositional ($p = .010$, $F = 1.95$), cooperative ($p = .015$, $F = 0. 982$), and psychomotor games ($p = .007$, $F = 0.73$), whereas in collaboration-opposition games ($p = .157$, $F = 6.72$), no significant gender differences were obtained in the intensity of positive emotions. As for negative emotions, significant gender differences ($p < .05$) were also obtained in the motor action domain. Girls registered significantly higher intensities in negative emotions than boys in opposition games ($p = .037$, $F = 11.45$) and collaboration-opposition games ($p = .003$, $F = 25.80$), whereas in psychomotor ($p = .534$, $F = 1.07$) and cooperative games ($p = .157$, $F = 5.02$), there were no significant differences.

Gender, type of emotion, and type of game (competitive and non-competitive)

Significant differences were also found in the relation of gender and the presence or absence of competition in these games ($p < .05$). In general, a higher emotional tendency was observed in the games, regardless of the motor action domain and gender, when there was competition (see Table 2). When competitive games were played, girls experienced significantly higher intensities of emotions, both positive ($p = .017$) and negative ($p = .018$, $ES = 0.946$), than boys. However, when the games did not involve competition, girls again registered positive emotions ($ES = 0.956$) of greater intensity than boys, with significant differences ($p = .004$), whereas in negative emotions, no significant gender differences ($p = .072$) were observed.

At the intra-subject level, there were also significant gender differences in the emotional experience when

**Table 1.** Mean emotional intensity by gender and domain of motor action

| Gender | Motor action domain | Type of emotion | | | |
|---|---|---|---|---|---|
| | | Positive | | Negative | |
| | | M | SD | M | SD |
| Male | Psychomotor | 3.33 | 1.16 | 1.25 | 0.43 |
| | Cooperation | 3.50 | 1.10 | 1.12 | 0.28 |
| | Opposition | 3.50 | 1.12 | 1.09 | 0.18 |
| | Cooperation-Opposition | 3.67 | 1.16 | 1.06 | 0.17 |
| Female | Psychomotor | 3.82 | 1.05 | 1.30 | 0.56 |
| | Cooperation | 3.92 | 0.97 | 1.20 | 0.41 |
| | Opposition | 3.93 | 0.93 | 1.18 | 0.36 |
| | Cooperation-Opposition | 3.91 | 0.95 | 1.20 | 0.37 |

**Table 2.** Mean emotional intensity according to gender and type of competitive or non-competitive game

| Gender | Type of game | Type of emotion | | | |
|---|---|---|---|---|---|
| | | Positive | | Negative | |
| | | M | SD | M | SD |
| Male | Non-competitive | 3.50 | 0.95 | 1.12 | 0.18 |
| | Competitive | 3.51 | 1.01 | 1.13 | 0.21 |
| Female | Non-competitive | 3.92 | 0.85 | 1.19 | 0.28 |
| | Competitive | 3.87 | 0.87 | 1.25 | 0.37 |

participating in competitive games and non-competitive games. When participating in non-competitive games, girls experienced greater positive emotional intensity ($p$ = .000) than when participating in competitive games. The opposite was true for boys, who reported greater positive emotional intensity when participating in competitive games ($p$ = .000), compared to participating in non-competitive games ($ES$ = 0.02).

**Gender, type of emotion, and sports experience**

In the relation of gender and physical sports experience, no significant differences were observed ($p$ > .05). Therefore, physical sports experience was not a determinant for the emotional experience of either gender. However, girls without physical sports experience felt their emotions more intensely ($M$ = 2.62, $SD$ = 0.47, $p$ = .264, $d$ = 0.24), compared to girls with physical sports experience ($M$ = 2.52, $SD$ = 0.34). Similarly for the males, boys without physical sports experience rated their emotional experience more highly ($M$ = 2.39, $SD$ = 0.48, $p$ = .468) than boys with physical sports experience ($M$ = 2.29, $SD$ = 0.46).

**Content analysis according to gender**

In terms of the participants' gender, Figure 1 shows the percentage frequency of occurrence of internal logic and external logic features in the comments of girls and boys. The content analysis indicated that boys justified the emotional experience mainly with comments referring to causes linked to the rules of the game (internal logic) (34.5%). On the other hand, girls explained their experience similarly associated with the category of people (23.7%) from the external logic, and rules (23.2%) and time (21.7%) from the internal logic.

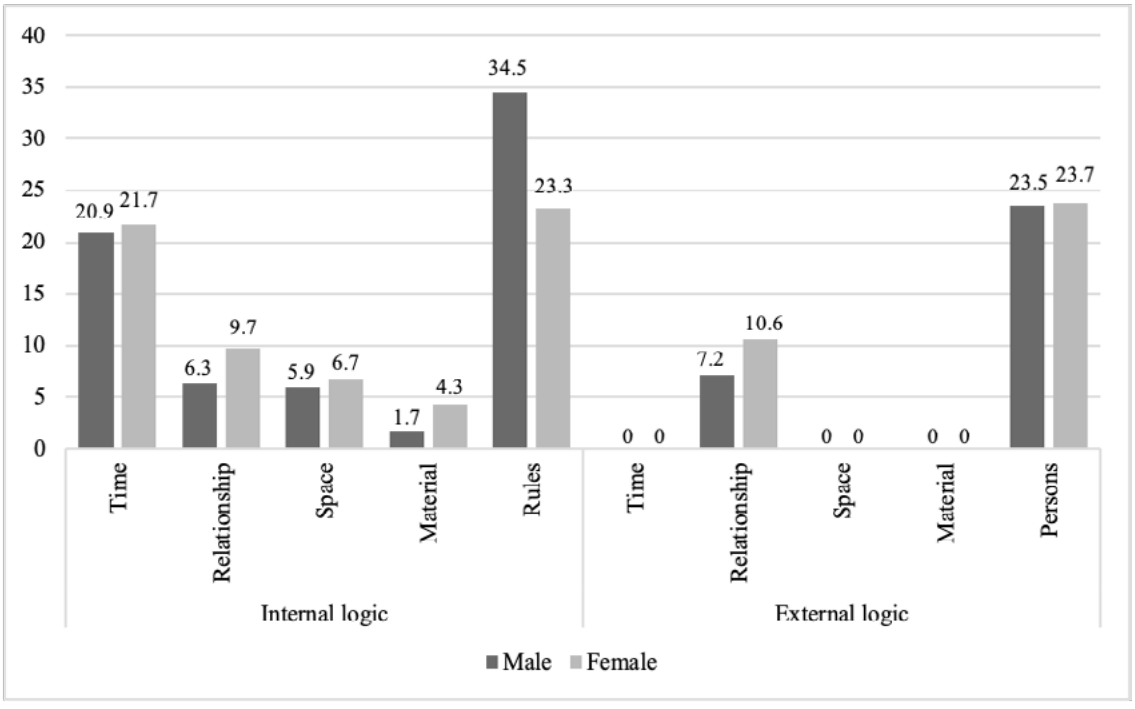



**Figure 1.** Content analysis of comments on emotional experience in games. Data is shown as percentage

## Discussion

The aims of the present study were: (a) to analyse the emotional intensity (positive and negative) experienced by school-age girls and boys when participating in TSG of different types (psychomotor, cooperation, opposition, and cooperation-opposition); and (b) to analyse the emotional intensity (positive and negative) experienced by school-age girls and boys when participating in competitive TSG or non-competitive TSG.

**Emotional behaviour according to gender**

Concerning the type of emotion experienced, girls recorded higher scores than boys in positive and negative emotions when participating in TSG. These results coincide with the study by Lavega et al. (2017) and reinforce the conception, already widespread in the scientific literature, that girls present greater emotional facilitation (Brody & Hall, 2008; Chaplin, 2013). Girls are more prone to emotional expression, especially positive emotions. This may be because the female gender has been socially and culturally educated to express their emotions, while the male gender has always had to minimise their emotions, especially those related to negative emotions such as sadness, guilt, vulnerability, and fear (Sánchez-Núñez et al., 2008). These results are close to the social, cultural, and biological assertions associating girls with emotional abilities. As the female gender possesses greater emotional knowledge, they express positive and negative emotions more fluently and more frequently, have more highly developed interpersonal competence, and are more empathetic towards others (Hall & Schmid, 2008).

In terms of emotional intensity, the results of the present study also coincide with the meta-analysis of Chaplin and Aldao (2013), who stated that this gender difference, where girls are more emotional than boys, emerges from a very early age. Furthermore, they add that these differences in positive emotional intensity tend to become more pronounced with age.

**Emotional behaviour according to gender and type of game played**

Another significant finding in this study is that the girls experienced positive emotions with more differences between motor action domains than the boys. Girls experienced greater intensity in positive emotions for oppositional, cooperative, and psychomotor games than boys. These results coincide with those provided by Duran and Costes (2018), who found that girls experience more intense positive emotions than boys, especially in cooperative games. This indicates a special sensitivity of the female gender towards cooperative practices. However, concerning oppositional games, these data do not coincide with those obtained by Gea et al. (2017) in their study with university students, which indicated that boys rated both positive and negative emotions higher than girls. In the case of negative emotions in the present study, girls again experienced them more intensely than boys in opposition and collaboration-opposition games. According to the content analysis, this may be due to the importance that girls give to cooperation in the games, because the interaction that takes place in opposition games is not the most comfortable and preferred motor situation for girls. On the other hand, in the case of collaboration-opposition games, the same controversy occurs, because in most of the situations of the present study, the cooperative relationship was rejected by boys. However, in the study by Sáez de Ocáriz, Lavega, Lagardera et al. (2014) with kindergarten and primary school students, boys showed the most intense negative emotions when participating in oppositional games. The same result was reported by Lavega et al. (2017), who observed that boys expressed more negative emotions than girls in cooperation and psychomotor games.

Regarding the psychomotor domain, unlike other studies where positive emotions are valued more intensely by boys than by girls (Romero-Martín et al., 2017), the girls of the present study experienced positive emotions more intensely when participating in individual games than the boys. When observing this type of emotional behaviour, one could speculate whether the types of psychomotor games that were chosen could be conditioning the emotional experience, as they were jumping games, which, culturally, are associated with the female gender. In this sense, as Etxebeste (2017) and Parlebas (2001) pointed out when referring to the term ethnomotor skills, the link between the nature of the game and the culture or social environment in which it takes place could condition the emotional experience of the players according to their gender.

Thus, the results do not coincide with other studies (Alonso et al. 2019; Founaud & González-Audicana, 2020; Miralles et al., 2017) in which no differences were observed between girls and boys in the emotional experience when participating in sports games. Contrary to the belief in the literature that attributes greater emotional tendency to the female gender, these studies revealed the emotional similarity of the two genders. Both boys and girls registered similar tendencies in the two types of emotions (positive and negative) and the four domains of motor action. This emotional similarity of the genders, mostly in secondary school, high school and university students, could be due to the continuous learning they have acquired of increasingly egalitarian gender values and attitudes. This would explain the unequal gender behaviour of the participants in the present study, as they are still at an early stage of education and therefore lack such coeducational learning. Solbes-Canales and colleagues (2020), in a study with children aged 4 to 9 years, found that children as young as 4 years old already apply gender roles as a result of learning from the social field. These influences come

mainly from the immediate environment, such as the family and the media. In this sense, as children learn to socialise with a set of norms and values, they internalise a schema that they use to judge others, choose friends and playmates, and build expectations of them. Therefore, teachers in physical education classes should promote environments that foster gender-equitable psychological and social development from the youngest ages.

**Emotional behaviour by gender and by presence or absence of competition in game situations**

Regarding the presence or absence of competition in the present study, a tendency of higher positive emotions in girls can be seen when the games are without competition or non-competitive games, whereas for boys, this tendency is higher in games with competition or competitive games. As indicated by Duran and Costes (2018), these responses of boys' enthusiasm for competitive motor situations may be justified by the acquired recreational and sports culture (Etxebeste, 2017). In the present study, girls experienced significantly higher positive and negative emotions than boys, both in games with and without competition. These results are in line with Gea et al. (2017), who stated that during the practice of competitive games, girls experienced their emotions with greater intensity than boys, regardless of the final result obtained. These data also coincide with those provided by Lavega et al. (2017), as girls registered the highest values of both positive and negative emotional intensity compared to boys in cooperative games with and without competition. However, they do not agree with the study by Duran and Costes (2018), in which in competitive games, boys tended to experience higher intensities than girls. These activities, competitive games, are those that can increase the intensity of negative emotions and conflicts, especially in boys (Lavega-Burgués, 2018; Rillo-Albert et al., 2021). Moreover, on these occasions, boys tended to be the protagonists of a greater number of conflicts than girls, especially in oppositional games (Etxebarria et al., 2003). As a physical education teacher, this fact should be taken into account when deciding to use oppositional games with schoolchildren.

A relevant aspect of the data from the present study is that no gender differences in negative emotional intensity were found when participating in non-competitive games. Moreover, in girls, non-competitive games increased the intensity of positive emotions compared to competitive games. Therefore, in future research, it would be interesting to delve deeper into this type of games to consider them as an optimal tool for promoting coeducation through equitable learning experiences and reducing gender inequalities present from childhood (Cárcamo et al., 2021).

**Emotional behaviour explained by girls and boys**

Following the results obtained in the content analysis, the gender differences in terms of the internal and external aspects of the game are notable. The boys associated their emotional experience mostly with the rules and time of the internal logic of the game, in contrast to the girls, who justified their emotional experience mostly through the "persons" aspect of the external logic and the "rules" of the internal logic. In other words, boys justified their emotional experience through the nature of the game itself and mostly by the scoring system of competitive games. On the other hand, the girls justified their emotions in terms of the transitory aspects that occurred during the game, such as laughter or complicity with friends. Although concerning the rules of the game, alluding to the nature and playful aspect of the game. These data coincide with those of Alcaraz-Muñoz et al. (2017) and Sáez de Ocáriz, Lavega, Mateu et al. (2014), where boys mostly alluded to elements of internal logic, such as winning or losing in competitive games or simply enjoying the rules of the game. Girls shared these arguments, along with other external aspects, such as having had fun or laughed as transitory moments caused by playing the game.

Allusions to the motor interaction of the game was another aspect where gender differences were observed, with girls referring to it more than boys. The girls considered it more important for their emotional experience to cooperate in a group and not to feel rejected by the boys. This coincides with other research (Sáez de Ocáriz, Lavega, Mateu et al., 2014) where there were gender differences, with boys' narratives being more linked to the internal time of the game, and girls' narratives more linked to the motor interaction with playmates. Moreover, according to Cárcamo et al. (2021), the female gender has always been more culturally associated with participation in cooperative social relationships, making them feel greater socio-emotional well-being in generous and empathetic exchanges with others.

## Conclusion

The first conclusion drawn is that girls register positive and negative emotions more highly than boys when participating in TSG. Of the motor action domains, girls experience positive emotions with higher values in psychomotor games than boys, and negative emotions in oppositional games. The second conclusion drawn is that, in competitive games, girls experience positive and negative emotions more intensely than boys. In non-competitive games, girls report more intense positive emotions than boys. Among schoolchildren of the same gender, girls experience the highest positive emotional intensity in non-competitive games, whereas boys' positive emotions are rated higher in competitive games.

After carrying out this study, it is clear that there is a need to promote positive physical education that fosters equal opportunities and coeducation, favouring environ-

ments free of sports stereotypes. Girls are more intensely excited both positively and negatively than boys and, at such early ages, it is worrisome that boys at school are more inclined toward competitive activities than toward the recreational dimension of games. Moreover, even when playing competitive games or non-competitive games, girls feel more intense positive emotions in non-competitive games, whereas boys' positive emotional intensity is higher in competitive games. This study shows the need for physical education teachers to teach schoolchildren, especially boys, about the pleasures of non-competitive games and cooperation with girls.

In future research, it would be interesting to delve deeper into non-competitive games in order to value them as an optimal tool for promoting coeducation and going beyond gender inequalities from an early age. Furthermore, in physical education classes, it would be necessary to work on the basis of respect for the motor behaviour of each of the participants, offering a wide variety of motor experiences that contribute to the socio-emotional well-being and personal growth of the students. The high emotional values of boys in competitive games may be caused by the stereotypes created around sports and leisure culture that is preferably consumed or practised by the male gender (Duran & Costes, 2018; Etxebeste, 2017). Therefore, if the aim of physical education is to promote emotional and relational well-being shared by all students (girls and boys), it is essential to reduce the sporting stereotypes that may already exist and that condition the emotional behaviour of boys and girls in the learning process.

**Ethics approval and informed consent**

The studies involving human participants were submitted to the University Ethics Committee of the Murcia University (UM), which reviewed and approved the research in accordance with the principles set out in the Declaration of Helsinki (Code: 1684/2017). Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

**Competing interests**

The authors declare that they have no competing interests from any commercial association or financial interest.

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