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Perceived motor competence in children from two different perspectives: children and family

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ABSTRACT

Perceived motor competence (PMC) is fundamental in early childhood because of its relationship with motor competence (MC) development. Therefore, the aims of the present research were: to analyse children's PMC from their own and their parents' perspectives, to test for gender differences, and to assess the possible association between children's PMC and their parents' perception. The sample consisted of 22 children in the third kindergarten year (*M*= 5.27, *SD*= 0.45) and their respective parents. The results showed higher scores for girls in the scales' patterns, except for object control. The girls also scored higher on all dimensions from parents, with significant differences in parents' perception of fine motor skills in their favour. No relevant data were found on the relationship between the children's PMC and parents´ perception. It can be concluded that girls' perception is higher than boys' and that girls are perceived as more competent by their parents. However, the lack of correspondence between children's and parents' perceptions makes it necessary to be cautious and consider that participants may not be accurate in their assessments due to their age.

KEYWORDS: self-perception; foundational motor skills; preschool; gender; parents' perception.

INTRODUCTION

In recent years, numerous studies have determined that motor competence (MC), understood as the ability to combine and execute movement skills, requires emotional regulation, perceptual skills and a high degree of knowledge and understanding of the task to be performed (Rudd et al., 2020), and perceived motor competence (PMC) are closely related in healthy children, adolescents and adults, as well as with Physical Activity (PA) and self-concept (De Meester et al., 2020; Jaakkola et al., 2019).

PMC, defined as a person's perceptions, awareness and beliefs about their actual movement abilities (Robinson et al., 2015), is identified by Stodden et al. (2008) as one of the determinants of motor development and MC, which encourage children to participate and persist until mastery of a skill is achieved, in turn fostering adherence to PA. Thus, PMC can be considered a mediating factor between MC and PA, being also an important predictor of PA levels (Babic et al., 2014).

By contrast, children with low PMC seem more likely to avoid PA settings because they do not feel competent (Stodden et al., 2008). In this sense, in the study conducted by Estevan et al. (2021c), which aimed to analyse the PMC and MC of children aged 4–9 years and their PA, it was concluded that children with high values of MC and PMC were more likely to participate in activities. Therefore, it is vital to know a person's competence and to be able to influence it from early childhood, making children aware of their limits, but above all of their possibilities, as this issue can affect their life and well-being (Barnett et al., 2009).

It seems clear that what others think of oneself, and how it is conveyed or demonstrated, could affect one's abilities in some way by stopping certain actions due to fear of failure or lack of confidence in performing them (Venetsanou & Kambas, 2010). In this sense, in children aged 5–8 years, feedback from parents or teachers is very important, as they consider them important sources of information to judge one's skills (Weiss & Amorose, 2005), and therefore, it could also affect their PMC.

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Considering that families are the first agent of children's socialisation and that parents play an important role in their children's motor development, they have been identified as a fundamental source of information regarding their children's MC (Estevan et al., 2018). Their perceptions and beliefs can be a key element in promoting the practice of physical-sport activities (Corbí et al., 2018).

Variations in parenting conditions and practices, such as whether parents provide opportunities for action, are known to be significant factors that appear to influence children's motor development during childhood (Venetsanou & Kambas, 2010). However, parents, as a consequence of subjective factors such as their character, their parenting style, or their feelings of inadequacy related to the practice of certain physical activities, may limit their children in learning experiences (Cavalcante Neto et al., 2018), avoiding exposing them to situations that they consider complex. Another reason why parents may deprive their children of positive experiences is because of a possible negative perception of their children's abilities. This lack of exposure, regardless of the cause, can make it difficult for parents to observe certain skills, making it more difficult to objectively assess their children's motor behaviour (VanDerworp & Ryan, 2016).

What is clear is that society also plays a relevant role in the study of MC. Ecosystem theory for understanding MC points to interesting correlations between child, family, and environment, suggesting that motor development is influenced by parental support and the child's immediate environment (Barnett et al., 2013). In this sense, gender differences can be attributed to stereotypical practices in the school and home environments that support PA and play patterns that facilitate the development of specific movement skills (Djordjević, 2021). For example, boys predominantly engage in motor activities involving object control during infancy, while girls prefer activities that predominantly involve fine motor skills and are more verbal than motor (Djordjević, 2021), which may influence children's and parents' PMC.

Therefore, it is essential to know children's PMC and their parents' perceptions to design appropriate learning environments so that they can successfully engage in different learning activities, both in and out of the school context, which is fundamental for their development (Brian et al., 2019). Thus, the main objectives of the present study were to analyse children's PMC from their own and their parents' perspectives, to test for gender differences, and to assess the possible association between children's PMC and their parents' perception.

METHOD

Study design

A cross-sectional study was designed with a descriptive strategy to describe a situation as it occurs, without any manipulation of variables. Participants were selected by causal sampling due to their accessibility.

Participants

This study included a natural group composed of 22 students (12 girls and 10 boys) with a mean age of 5.27 years (*SD*= 0.45). The students belonged to the third year of the Second cycle of preschool education in a public school in Bolaños de Calatrava (Castilla–La Mancha, Spain). In addition, their families also participated, a total of 20 mothers and 2 fathers, who, according to the data provided by the school, belonged to a middle socio-economic class. This research was conducted in accordance with the Declaration of Helsinki. All of the participants described above concluded the study.

Instruments

Pictorial Scale of Perceived Motor Skill Competence for Children (PMSC) (Barnett et al., 2015), whose reliability was studied in the Spanish context by Estevan et al. (2019). This questionnaire consists of 13 items subdivided into two subscales of motor skills and is designed for use with children aged 4–9 years. The first subscale assesses 6 locomotor patterns (running, galloping, hopping, jumping, skipping, sliding and striding). The second subscale assesses 7 control object patterns (over-the-shoulder throwing, under-the-shoulder throwing, catching, kicking, batting, bouncing and hitting) and, finally, the gross motor performance resulting from adding the scores obtained in two previous scales. The scale was applied individually to each participant. Participants were shown pictures with two drawings of a boy or a girl performing an action, and they were asked to select the picture that most resembled the one they had drawn. Underneath the chosen picture, there were two circles, one large and one small. In this way, the child chooses the large circle if the picture is very similar, or the small circle if it is not so similar to him/her. This ranking system results in four possible levels of competence for each skill. The scores for each skill were summed across the object control (with a possible range of scores for each subscale of 6–28) and locomotor subscales (with a possible range of scores for each subscale of 6–24), and the 13 skills (range of scores 12–52). The higher the score, the higher the perceived competence.

Pictorial Scale of Perceived Movement Skill Competence in Stability for Children (PMSC_Stability) (Estevan et al., 2021b). This questionnaire consists of 7 items and is designed for children

aged 4 to 9 years. The scale assesses patterns where the stability of the individual is crucial (balance, jumping and moving over surfaces). The scale was applied individually to each participant. Participants were shown pictures with two drawings of a boy or a girl performing an action, and they were asked to select the picture that most resembled the one they had drawn. Underneath the chosen picture, there were two circles, one large and one small. In this way, the child chooses the large circle if the picture is very similar, or the small circle if it is not so similar to him/her. The scores for each skill are added together, with a range of scores from 7 to 28 points. The higher the score, the higher the perceived competence in stability skills.

Developmental Coordination Disorder Questionnaire, 2007 (DCDQ´07), Spanish version (Salamanca et al., 2012). The DCDQ'07 is a parental questionnaire consisting of 15 items that are grouped into three subscales: control during movement (6 items), fine motor/handwriting (4 items), and general coordination (5 items). In this instrument, parents assess their child's performance in selected motor activities in comparison with other children of the same age, using a five–point Likert–type scale (1= *not at all like other children*, 2= *a little like other children*, 3= *moderately like other children*, 4= *very like other children,* and 5= *extremely like other children*. The ranges covered by the instrument indicate that parents suspect that their children may have movement problems (scores between 15–46) or, on the contrary, that parents do not detect movement problems (47–75).

Procedure

Before starting the study, and after obtaining necessary permissions from the school management and teachers involved, the families were given an informed consent form so that they could authorise their children to participate in the research and, in turn, to participate themselves. This document informed about the objective of the research, as well as the procedure to be followed. The DCDQ'07 questionnaire (Salamanca et al., 2012) and the socio-demographic questionnaire, to be completed by a family member, were attached to each consent form.

Once the information had been collected, together with the consents, approximately one week after the documents had been handed over, the implementation of the pictorical scales began for each child participant. Both scales were applied individually and to all participants since all confirmations were received from the families.

In order to present the scales to the students, a table was set up in the regular classroom away from the rest of the classmates to ensure that they could not influence their answers. The drawings were presented by asking which boy or girl they resembled when they performed these actions. If the answer was accurate, it was noted down. By contrast, if there was any doubt about the drawing, a practical example was depicted, and the action was explained in more detail with examples with which they were familiar.

The approximate time for data collection with each participant was 15 minutes, and a total time of two weeks was invested in data collection after drawing up a timetable so as not to disrupt the normal course of the classes.

Data analysis

Data analysis was carried out with the *Statistical Package for Social Science (version 24)*. Normality and homoscedasticity were obtained through the Shapiro-Wilk (n< 50 cases) and Levene statistics, respectively, and resulted in a sample that did not meet the criteria for normality. First, descriptive statistics were calculated for both groups, and then the Mann-Whitney U test was calculated to analyse the differences between genders in each tool used. The effect size was considered using the r statistic, using the formula $r= Z/\sqrt{N}$ (N= number of measurements), and interpreted according to the scale proposed by Coolican (2009) (small 0.10, medium 0.30 or large 0.50). On the other hand, Spearman's correlation coefficients were calculated between the scores obtained in the dimensions of the three instruments used, and comparative graphs were made with the scores obtained in each of them.

RESULTS

The objectives of the present study were to analyse the PMC of children from their perspective and from the family perspective, to check if there were differences between genders, and to assess the possible association between children's PMC and their parents' perception. In order to respond to these objectives, the results will be presented in relation to the instruments used.

Children's PMC

Table 1 shows the descriptive statistics of the measures in the PMC through the instruments for assessing the perception

Table 1. Means and standard deviation of the scores obtained on the Perceived Movement Skill Competence and the newly developed Stability.

Dimensión	Total	Boys	Girls
	M *(SD)*	M *(SD)*	M *(SD)*
Locomotion	20.45 (3.01)	20.30 (2.79)	20.58 (3.31)
Object control	22.18 (4.45)	22.30 (4.90)	22.08 (4.27)
Gross motor	42.54 (6.95)	42.60 (7.24)	42.67 (7.02)
Stability	20.77 (4.95)	19.40 (5.62)	21.92 (4.23)

M: Mean; *SD*: Standard deviation.

of motor skills and stability skills, both in the total sample and differentiating by gender.

No statistically significant differences were found, for $p< 0.05$ in relation to gender, in any of the dimensions of the PMSC. However, in the case of girls, there was a tendency to have a higher score in PMC in locomotion and gross motor, and generally, with lower standard deviation compared to boys. With respect to the object control dimension, boys tended to have a higher mean score than their female peers but with a higher standard deviation (Figure 1). These differences would probably have been significant if a larger sample size had been available, as it could increase the power of the statistical test used.

Similarly, no statistically significant differences were found for $p< 0.05$ in relation to gender on the PMSC_Stability. However, girls had a higher mean and lower standard deviation score than boys, suggesting that they perceive themselves as more competent in stability and balance activities than their peers (Figure 1).

Parents' perception

Table 2 shows the descriptive statistics of parents' perception, both in the total sample and differentiating according to the gender of their children.

Table 2. Means and standar deviation of Perceived Motor Competence by the parents DCDQ'07.

	Total	Boys	Girls	*p-value*
	M *(SD)*	M *(SD)*	M *(SD)*	
Control during movement	24.23 (3.54)	23.00 (3.24)	24.50 (3.89)	0.76
Fine motor / handwriting	17.05 (2.68)	15.70 (2.75)	18.17 (2.12)	0.02
General coordination	20.68 (2.49)	19.70 (2.62)	21.50 (2.15)	0.16
DCDQ'07 Total	62.68 (7.40)	60.90 (7.93)	64.17 (6.92)	0.42

M: Mean; *SD*: Standar deviation.

Statistically significant differences for $p< 0.05$ were found in fine motor/handwriting dimension of the DCDQ'07 ($Z= -2.37$, $p= 0.02$) and an effect size $r= 0.50$, indicating a large effect (Coolican, 2009), i.e., only in this dimension were significant differences found between boys and girls according to parents' perception. As for the control during movement dimension, boys scored lower than their female peers, which means that their parents perceive them as less competent in movement control. Similarly, in general coordination, boys scored lower than girls. Therefore, although there are no statistically significant differences, there is a certain tendency among fathers to overestimate the MC of their daughters (Figure 2).

Comparison between children's PMC and parents' perception

The following objective was to identify the possible association between children's PMC and their parents' perception. In order to answer this objective, Spearman correlations and comparative graphs of the instruments used were carried out. The following tables (Tables 3 and 4) show the correlations between dimensions of the three instruments used (two for children and one for parents), differentiating by gender.

In terms of the results, no correlations were observed between dimensions of the scales used in the children's perception (PMSC and PMSC_Stability) and the DCDQ'07. However, there is an association between the PMSC_Stability and the gross motor dimension of the PMSC, being a positive and significant correlation. This indicates that may exist a linear relationship between these variables, i.e., an increase in stability scores corresponds to an increase in gross motor skills scores, and vice versa.

Observing the results, no correlations were found between the dimensions of the scales used in the children's perception and the DCDQ'07. However, there were significant and positive associations between all the dimensions of PMSC and PMSC_Stability, which means that an increase in scores on

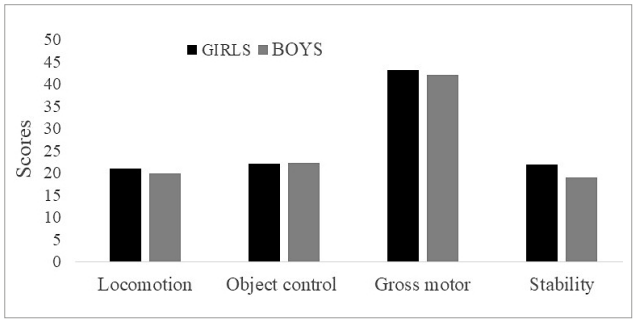

Figure 1. Graph the scores obtained on the Perceived Movement Skill Competence and the newly developed Stability.

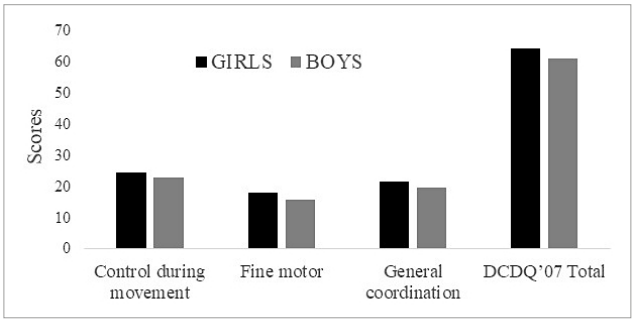

Figure 2. Graph the scores obtained on the Perceived Motor Competence by the parents DCDQ'07.

Table 3. Correlations and confidence intervals (95%) between instruments used for boys.

Correlation	R	95%CI Low	95%CI High
1-2	0.75*	0.20	0.93
1-3	0.89*	0.58	0.97
1-4	0.62	-0.04	0.89
1-5	0.35	-0.38	0.79
1-6	-0.21	-0.47	-0.75
1-7	-0.01	-0.64	0.62
1-8	-0.10	-0.68	0.56
2-3	0.96**	0.85	0.99
2-4	0.58	-0.104	0.88
2-5	0.35	-0.37	0.79
2-6	0.02	-0.62	0.64
2-7	0.15	-0.70	0.54
2-8	- 0.05	-0.66	0.59
3-4	0.63*	-0.04	0.89
3-5	0.37	-0.36	0.80
3-6	-0.06	-0.66	0.59
3-7	0.09	-0.57	0.68
3-8	-0.008	-0.67	0.58
4-5	0.24	-0.41	0.71
4-6	-0.25	-0.69	0.43
4-7	-0.05	-0.68	0.42
4-8	-0.05	-0.65	0.39
5-6	0.60	-0.036	0.85
5-7	0.80**	0.44	0.95
5-8	0.73**	0.27	0.92
6-7	0.83**	0.45	0.94
6-8	0.88**	0.52	0.95
7-8	0.89**	0.66	0.97

1: Locomotion; 2: Object control; 3: Gross motor; 4: Stability; 5: Control during movement; 6: Fine motor / handwriting; 7: General coordination; 8: DCDQ'07 Total; *p< 0.05; **p< 0.01; 95%CI: 95% confidence interval.

Table 4. Correlations confidence intervals (95%) between instruments used for girls.

Correlation	r	95%CI Low	95%CI High
1-2	0.70**	0.19	0.90
1-3	0.90**	0.66	0.97
1-4	0.75**	0.29	0.92
1-5	0.44	-0.19	0.80
1-6	0.07	-0.67	0.51
1-7	0.56	-00.4	0.85
1-8	0.45	-0.18	0.81
2-3	0.94**	0.78	0.98
2-4	0.82**	0.45	0.95
2-5	0.10	-0.50	0.64
2-6	-0.20	-0.69	0.43
2-7	0.10	0.5	0.64
2-8	0.02	-0.56	0.58
3-4	0.85**	0.52	0.95
3-5	0.27	-0.37	0.73
3-6	-0.08	-0.63	0.52
3-7	0.33	-0.31	0.75
3-8	0.22	-0.42	0.69
4-5	0.13	-0.48	0.68
4-6	0.02	-0.56	0.58
4-7	0.21	-0.42	0.69
4-8	0.14	-0.47	0.66
5-6	0.45	-0.18	0.80
5-7	0.74**	-0.27	0.92
5-8	0.93**	0.76	0.98
6-7	0.39	-0.25	0.78
6-8	0.68*	0.15	0.89
7-8	0.85**	0.53	0.95

1: Locomotion; 2: Object control; 3: Gross motor; 4: Stability; 5: Control during movement; 6: Fine motor / handwriting; 7: General coordination; 8: DCDQ'07 Total; *p< 0.05; **p< 0.01; 95%CI: 95% confidence interval.

any dimension of one of this scale has a significant probability of matching an increase on the other, and the same in the opposite direction.

The graphs of the scores obtained in the PMSC and PMSC_Stability and the DCDQ '07, differentiated by sex, are shown below (Figures 3 and 4).

Considering the results obtained in the PMSC, whose scores range between 13 and 52 points, participants were very close to the maximum score established in the instrument, with a mean of 42.60. As for the DCDQ'07, the ranges contemplated by the instrument were: the first range in which parents suspect that their children may have movement problems (15–46 points), the second range in which parents do not detect movement problems (47–75), range in which the children in the present study are found, with a mean of 60.90.

Analysing individual cases, it was observed that participant nº 7 obtained a score of 64 in the DCDQ'07, which indicates that their parents do not perceive him as having movement problems, however, the child on the PMSC and PMSC_Stability scored 28 and 9 points respectively, very close to the minimum of the respective scales. Furthermore, this child showed poor motor performance in the physical–sports

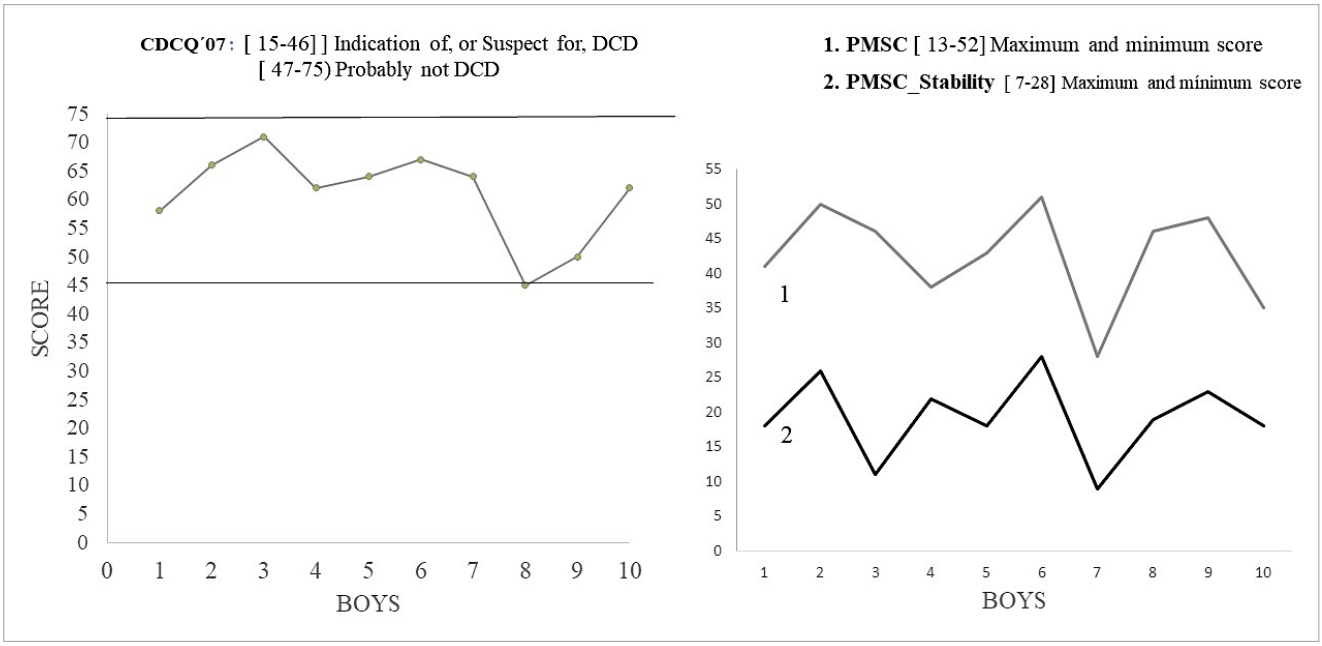

Figure 3. Graphs of the scores obtained in the PMSC, PMSC_Stability and the DCDQ'07. Boys.

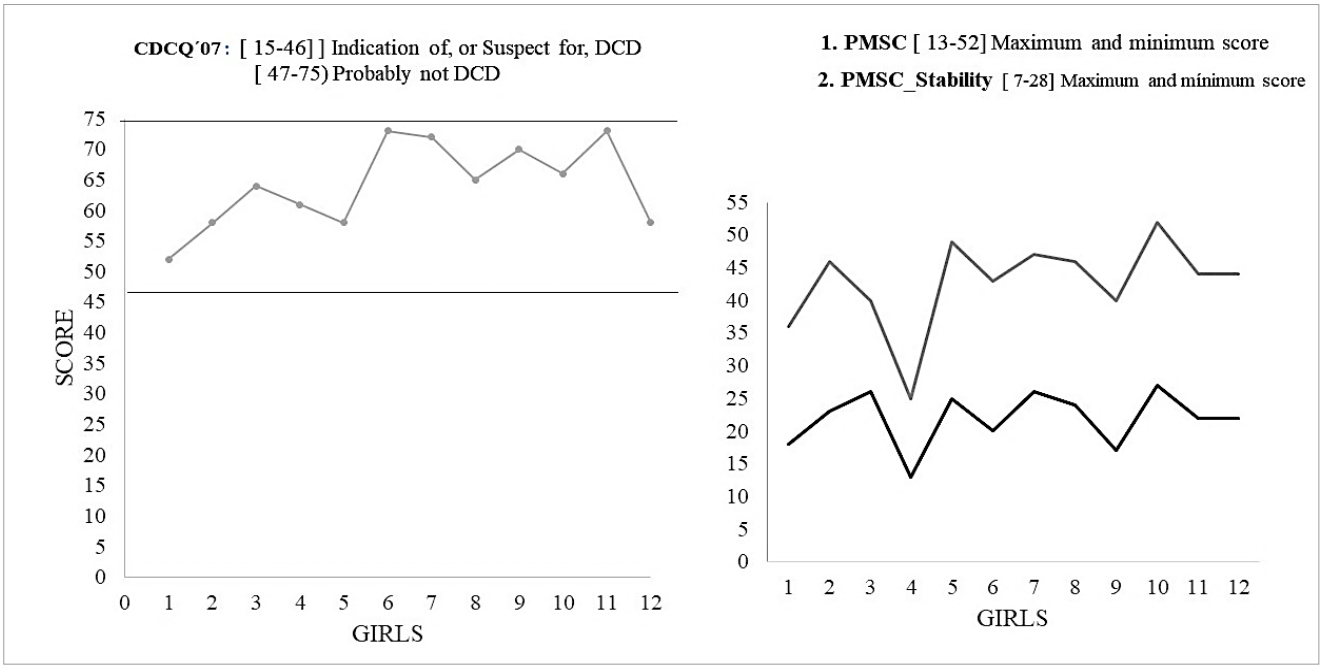

Figure 4. Graphs of the scores obtained in the PMSC, PMSC_Stability and the DCDQ'07. Girls.

activities; in fact, he did not perform running and jumping patterns in an age–appropriate manner.

Participant nº 8 scored 45 points in the DCDQ'07, which indicates that their parents perceive him as having movement problems, however, the child on the PMSC and PMSC_Stability scored 46 points and 19, respectively, figures close to the maximum score. It should be noted that the child was being evaluated for showing signs of Attention Deficit Hyperactivity Disorder (ADHD), and he showed disruptive behaviour in class.

On the other hand, participant nº 4 obtained a score of 61 on the DCDQ'07, which indicates that their parents do not perceive her as having movement problems, however, she showed a low PMC because she scored 25 points on

the PMSC and 13 on the PMSC_Stability. She was a very shy child who normally interacted with the same group of girls, showing problems relating to the rest of the students.

DISCUSSION

The main objectives of the present study were to analyse children's PMC from their perspective and from their parent's perspective, to check whether there were differences between genders, and to identify the possible association between children's PMC and their parents' perception. The data have shown that the participants, in general, perceive themselves as competent on the motor skills scale and on the stability scale. The data also show that parents perceive their children to have a good MC, except in some cases. These results are optimistic in part, as it has been shown that social support mediates between MC, PMC and PA (Estevan et al., 2021c), so in order to promote children's participation in PA, it is essential to know how they perceive themselves and how they are perceived by their parents. However, the fact that children are perceived as more or less competent than they actually are by their parents may condition their practice so that they are exposed to environments that are not adapted to their abilities.

Children's motor skill perception (PMSC)

The data showed that participants perceived themselves to be competent on the motor skills scale, in general, which is very encouraging considering the fundamental role that PMC plays in motor development and adherence to PA (Stodden et al., 2008). However, it should be noted that the role of PMC becomes more evident as children grow older and their cognition develops (Capio & Eguia, 2020) so that these types of scales should also be applied in higher grades as children will show higher cognitive abilities and greater accuracy in the assessment of their own competence.

Regarding gender difference, the results indicated that girls show a certain tendency to perceive themselves as having a higher PMC than boys in locomotor patterns and in the gross motor dimension, with boys being considered more competent in object control patterns. These results are in line with Estevan et al. (2018); Noordstar et al. (2016); Salazar and Jiménez-Díaz (2020), who found significant differences in object control patterns between boys and girls, with boys scoring higher (Djordjević, 2021; Rodríguez-Negro et al., 2021). Likewise, they coincide with the study by Brian et al. (2019), where girls excelled in motor skills such as galloping and boys in object control. However, there are other studies in which boys obtained higher mean scores than girls for all motor skill patterns, which are equalised at the age of five years (Honrubia-Montesinos et al., 2021), or other in which gender differences were found in favour of girls at ages three and four, but not in the total test or balance at ages five and six (Kokštejn et al., 2017).

The fact that the boys in the present study, like those mentioned above, obtained higher scores in object control (Djordjević, 2021; Rodríguez-Negro et al., 2021) may be due to the fact that culturally children are related to sports that involve object control such as football, handball and basketball, and they themselves perceive the effort made in practice as mastery of the task (Stodden et al., 2008). On the other hand, differences in object control, in favour of boys, have been found to remain relatively stable over time (Noordstar et al., 2016). These data are particularly relevant because MC can predict participation in PA, with those who score higher on object control being more likely to become active adolescents (Barnett et al., 2009), and children with low object control skills will be more likely to engage in unhealthy lifestyles (Estevan et al., 2021c).

Regarding the results of the locomotor and gross motor in this study, those in which girls perceive themselves to be more competent than their peers are not congruent with the results obtained in other studies that reported the same data in both genders (Noordstar et al., 2016) or higher in boys than girls (Estevan et al., 2019). These differences in our study may be due to the context and the type of play that girls engage in at school, after–school activities and leisure areas.

Children's stability perception (PMSC_Stability)

The data from this research showed that children generally perceive themselves to be proficient in stability skills (balance, jumping and moving on surfaces). The fact that participants feel competent in this type of skill is really important, as balance is an essential requirement for adequate performance in many daily activities (De Oliveira et al., 2017). Moreover, thanks to its improvement, other more complex skills emerge, such as object control (Fort-Vanmeerhaeghe et al., 2017). Feeling competent, children will participate without fear in games involving these skills, providing opportunities to develop them.

In relation to the gender difference, although not significant in this study, girls perceived themselves as more competent than boys. Regarding the balance results, there are several research in which girls obtain better scores than their peers when the ability is assessed objectively (Djordjević, 2021). For example, in the study by Gronholt et al. (2014), girls

obtained higher scores in the two balance subtests assessed. Likewise, in the research by Rodríguez-Negro and Yanci (2019), girls showed better static balance than their peers, although no significant differences were observed in dynamic balance, which was observed in a later study (Rodríguez-Negro et al., 2021). Along the same lines, in the study by Amador-Ruiz et al. (2018), in which they assessed MC in participants aged 4–6 years, girls achieved better results in balance, showing significant differences in the 6-year-old group. In contrast, Luna and Luarte (2010), with 6-year-old children, observed gender differences in balance, in this case in favour of boys.

The fact that girls perceive themselves to be more competent in terms of stability skills could be due to the activities or sports they normally practice in their daily lives, such as rope jump, dance, rhythmic gymnastics or skating, unlike boys who usually practice sports that require the handling of an object, which may be the reason for their greater competence in manipulating objects compared to girls (Álvarez et al., 2017). In summary, the data have shown that participants perceive themselves as competent in motor and stability skills. Although differences were observed between boys' and girls' scores, these were not significant. These differences in the PMC may be due to sports preferences (Álvarez et al., 2017).

Age is another important variable in children's assessment of their own MC, which can affect PA practice. Perception changes over time, i.e., children modify the idea they have about their abilities, generally considering themselves more competent and being more accurate in their assessments as they get older (Estevan et al., 2021a). In this sense, Bardid et al. (2016) found that 8-year-old children with low PMC (in this case, athletic competence) were less motivated for sport than children with high perception, even if they had high MC, so up to eight years of age they do not seem to be able to report self-judgements accurately (Estevan et al., 2018).

Parents' developmental coordination perceptions (DCDQ'07)

The data show that parents perceive their children to have good MC, which is encouraging, as both parents and PE teachers are considered to be able to report on children's MC to a much better degree than they can themselves (Estevan et al., 2018). However, as discussed in the introduction, parents may tend to overestimate their children, contrary to the parents participating in the Cordovil et al. (2010) study, or not to expose them to learning experiences that they feel they would not be able to complete successfully, so that opportunities for observation of the skills assessed in the DCDQ'07 may be greatly reduced. It would therefore be interesting to contrast the data obtained with the perception of the reference teacher, as it seems that they report better on the MC of children (Estevan et al., 2018).

In terms of possible gender differences, girls obtained better mean scores on all dimensions compared to boys, which means that their families perceive them as more competent. These results are consistent with other studies in which significant differences were found in favour of girls on the DCDQ'07 total score (Rivard et al., 2014).

When analysing the results by dimensions, these differences were not significant except for the fine motor/handwriting dimension, as in the study by Montes-Montes et al. (2020), where significantly higher scores were found for girls in fine motor dimension. According to these authors, such results could be due to cultural factors and usual daily activities (Montes-Montes et al., 2020).

Comparison of scores and associations between the instruments used

As this paper has tried to explain, children and other social agents, such as parents and educators, can provide valuable information about children's MC (Estevan et al., 2018). After analysing the results of this study and comparing children's PMC with their parents' perception, no significant associations were observed between the dimensions of the instruments used. This may be due to the fact that, although the dimensions of both instruments are very similar, they are not perfectly aligned or because parents do not have an acute perception of their child's motor competence (Cordovil et al., 2010). It may also be due to the fact that some of the assessments are not accurate, as no objective MC assessment instrument has been used.

Likewise, positive and significant correlations have been obtained between the PMSC and PMSC_Stability scale, indicating the relationship between balance and motor skills. This relationship is of utmost importance since balance is the basis of any motor activity, the primary basis of all general dynamic coordination (Luna & Luarte, 2010).

In the detailed analysis of cases, it was observed that one of the participants (8) was diagnosed with possible ADHD and obtained a low score in the DCDQ'07, which indicated that his parents perceived him as having movement problems. This fact may be due to the fact that when there is a previous health–related diagnosis by the specialist, there is a more objective perception of movement by the parents (Cavalcante Neto et al., 2018). However, the child perceived himself as competent, and this could be used to involve him/her in more individualised stimulation in order to promote appropriate motor development.

On the other hand, two other participants (7 and 4) obtained high scores on the DCDQ'07, i.e., their parents did not perceive them as having movement problems. Still, the children perceived themselves as having low MC, with a score close to the minimum. In this case, this may be due to the parents' overestimation of motor skills, be it due to the lack of objective observation of these skills or by low exposure to physical and sporting activities, as suggested by Cordovil et al. (2010), referring to the greater precision of mothers' assessment of their children's competence due to greater involvement at an earlier age.

Finally, regarding the limitations of this study, one of the problems encountered was the instrument of PMC used since, despite being validated in the Spanish context, one of the skills is not very specific (batting), and the answers should be taken with caution. On the other hand, the main problem of this research that should be pointed out was the non–use an objective instrument to measure MC. Therefore, for future research, it would be advisable to use two aligned scales to assess both MC and PMC, as well as to incorporate teachers' assessment of participants' MC.

CONCLUSION

The results of this research indicate that there are no significant gender differences between PMC, except in object control, where boys stand out, and stability skills, where higher scores are observed in girls. In relation to parents' perception, girls obtain higher scores in all dimensions, showing significant differences in fine motor skills compared to their peers. Likewise, there are no relationships between children's PMC and their parents' perception. It is, therefore, essential for parents to involve their children in motor activities, playing with them or even observing them playing.

It can be concluded that differences could be due to the PA and sports practised by the children, which are culturally more accepted for a certain gender, thus developing the prevailing motor capacities. Therefore, it is essential to treat all children equally so that they have the same possibilities to practice and are not directed to a specific type of sport based on their gender, and to encourage parents to be more involved with their children in play and sportive activities, as well as to encourage PA among young people as a resource for spending more time with the family.

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