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Percepciones parentales sobre la capacidad de los niños para nadar: un estudio con edades entre 6 y 10 años

Parental perceptions about children's ability to swim: a study with 6 to 10 year olds

Perceção parental sobre o saber nadar das crianças dos 6 aos 10 anos

Costa, Mário J.[1], Santos, Catarina C.[2,3], Soares, Susana[1], Garrido, Nuno D.[2,4], Saraiva, Helena[5], Costa, Aldo M.[4,5]

[1]*Centre of Research, Education, Innovation, and Intervention in Sport, CIFI2D and Porto Biomechanics Laboratory, LABIOMEP-UP, Faculty of Sport, University of Porto, Portugal;* [2]*University of Trás-os-Montes and Alto Douro, Vila Real, Portugal;* [3]*Higher Education School, Polytechnic of Coimbra, Coimbra, Portugal;* [4]*Research Center in Sport Sciences, Health Sciences and Human Development, CIDESD, Vila Real, Portugal;* [5]*University of Beira Interior, Covilhã, Portugal*

RESUMEN

Las percepciones parentales sobre la competencia acuática pueden ser un indicador potencial del nivel de conciencia y supervisión que los adultos ejercen sobre los niños en entornos acuáticos. Este estudio tuvo como objetivo comparar la percepción de los padres con las habilidades reales de competencia acuática en niños de 6 a 10 años. Se evaluó a 81 niños (8,52 ± 1,11 años) que participaban en clases de natación mediante una prueba estructurada de habilidades acuáticas, mientras sus padres respondían un cuestionario. La mayoría de los niños (61,7%) fueron capaces de mantenerse a flote sin apoyo de los pies. De ellos, el 97,9% logró mantener la cabeza fuera del agua y respirar durante 30 s, el 93,6% nadó 10 metros, y solo el 42,3% completó 25 metros utilizando una técnica de nado formal. No se encontraron diferencias significativas entre las percepciones parentales y el desempeño real. El tamaño del efecto más alto se observó en las habilidades básicas de flotación (V = 0.800). Estos resultados subrayan la importancia de las clases regulares de natación y del seguimiento continuo por parte de los adultos del progreso acuático de los niños.

Palabras clave: competencia acuática, percepción parental, supervisión, niños.

ABSTRACT

Parental perceptions of aquatic competence can serve as a potential indicator of how aware and involved adults are in supervising children in aquatic environments. This study aimed to compare parental perception with children's

Correspondencia: **Mário J. Costa.** Dirección Postal: Rua Dr. Plácido da Costa, nº 91, 4200-450, Porto. Tel: 220425200. Email: mjcosta@fade.up.pt

actual aquatic competence in a sample of 6- to 10-year-olds. Eighty-one children (8.52 ± 1.11 years old) enrolled in swimming lessons were evaluated on structured aquatic tasks, while their parents completed a questionnaire about their children's skills. Most children (61.7%) were able to stay afloat without foot support. Among those, 97.9% could maintain their head above water and breathe for 30 seconds, 93.6% swam 10 meters, and only 42.3% completed 25 meters using a formal swimming technique. No significant differences were found between parental perception and actual performance. The strongest effect size was observed in basic flotation ability (V = 0.800). These findings highlight the importance of regular participation in swimming lessons, accompanied by ongoing parental awareness of children's aquatic skill development.

Keywords: aquatic competence, parental perception, supervision, children.

RESUMO

As perceções parentais sobre a competência aquática podem constituir um indicador relevante do grau de atenção e supervisão que os adultos dedicam às crianças em ambientes aquáticos. Este estudo teve como objetivo comparar a perceção dos pais com as competências reais de deslocamento aquático de crianças entre os 6 e os 10 anos. Foram avaliadas 81 crianças (8,52 ± 1,11 anos) que frequentavam aulas de natação, através de uma bateria de tarefas estruturadas, enquanto os seus pais respondiam a um questionário sobre as suas perceções relativamente às habilidades dos filhos. A maioria das crianças (61,7%) conseguiu manter-se à superfície sem apoio dos pés. Destas, 97,9% mantiveram a cabeça fora de água e respiraram durante 30 segundos, 93,6% nadaram 10 metros e apenas 42,3% conseguiram nadar 25 metros utilizando uma técnica formal. Não foram encontradas diferenças entre a perceção dos pais e o desempenho real das crianças. O maior tamanho do efeito foi registado na habilidade de flutuação (V = 0.800). Estes resultados reforçam a importância da participação regular em aulas de natação e do acompanhamento contínuo dos pais relativamente ao desenvolvimento das competências aquáticas dos seus filhos.

Palavras chave: competência aquática, perceção parental, supervisão, crianças.

INTRODUCTION

In 2023, the World Health Organization (WHO) classified drowning as a priority issue following the United Nations General Assembly Resolution (A/RES/75/273), which recognized the need for enhanced prevention strategies. Drowning is a complex and multi-faceted phenomenon that can be preventable through the development of adequate aquatic competence and a combination of motor skills, water adaptation and confidence that allows individuals to move safely and efficiently in aquatic environments (Langendorfer & Bruya, 1995).

It remains a leading cause of death among children (Garrido et al., 2016), with a substantial proportion of incidents resulting from insufficient aquatic skills development (Taylor et al., 2020). While knowing how to swim is a fundamental aspect of drowning prevention, it does not encompass all the necessary knowledge, skills and attitudes to ensure water safety (Stallman et al., 2017).

Among children, the ability to swim varies widely, and discrepancies between perceived and actual aquatic competence can lead to increased risk-taking behaviours (Costa et al., 2020). Children between the ages of 6 and 10 often overestimate their abilities in the water, which may expose them to hazardous situations. At the same time, parental perception plays a crucial role in water safety (Petrass et al., 2011), as it influences decisions regarding children's participation in aquatic activities, the need for supervision and enrolment in swimming lessons (Moran et al., 2012). Parents who overestimate their child's swimming abilities may allow greater autonomy in the water, while those who underestimate their child's skills may discourage independent aquatic experiences, limiting skill development (D'Hondt et al., 2021).

Parental perceptions and ability to swim

Aquatic competence refers to an individual's ability to perform fundamental swimming skills, such as floating, submerging, propelling through water and maintaining controlled movement over a defined distance (Langendorfer & Bruya, 1995). While these skills are crucial for water safety, they differ from the broader concept of drowning prevention, which also includes factors such as water hazard recognition, self-rescue strategies and the ability to respond in emergency situations (Garrido et al., 2016; Stallman et al., 2017).

Regularly, parental perception is influenced by a combination of beliefs, attitudes, expectations that came from instant organized sensory messages from past experiences (Freeman, 1991). Previous research has examined parental accuracy in relation to children's weight perception (Ramos Salas et al., 2021) and life-threatening illnesses (Gordo et al., 2018), yet little is known about parental perceptions of their children's swimming ability. Studies have documented parental misjudgements regarding drowning risk in toddlers (Moran & Stanley, 2006) and children with autism spectrum disorders (Casey et al., 2020), but there is less evidence on how accurately parents assess their children's swimming skills and autonomy in the water (Wallis et al., 2014).

This study aimed to compare parental perception of their children's aquatic competence with the children's actual abilities in an aquatic environment. It was hypothesized that there would be differences between what parents believe their children can do in the water and their actual performance when tested. Addressing this gap can provide valuable insights for designing more effective swimming programs that address both skill development and parental awareness, ultimately contributing to better water safety education.

MATERIAL AND METHODS

Research Design

This study employed an experimental cross-sectional research design (Ato, López & Benavente, 2013). This type of design is suitable for analysing relationships between variables at a single point in time without manipulating them. The study aimed to compare parental perceptions of their children's aquatic competence with the children's actual abilities in an aquatic environment. The research followed structured observational methods and applied a questionnaire alongside performance-based testing to assess these skills.

Participants

A total of 81 children (46 boys and 36 girls, with 8.52 ± 1.11 years old) and their parents participated in this study (N = 162 in total). A convenience sample method, targeting children enrolled in public or private swimming lessons. Inclusion criteria also required children to be attending elementary school, aged between 6 and 10, not enrolled in alternative education courses, and without any intellectual or physical disabilities. Participants were excluded if their parents provided incomplete or invalid data during data collection.

The children's parents were informed about the benefits and experimental risks before signing a written informed consent form, ensuring voluntary participation. All procedures were conducted in accordance with the principles outlined in the Declaration of Helsinki and complied with the ethical standards in Sport and Exercise Science Research (Harriss et al., 2019). This study was part of a pedagogical internship within a master's program in Physical Education and was reviewed and approved by the Master's Degree Course Committee in Physical Education Teaching at the University of Beira Interior. Additionally, the study adhered to the provisions of Organic Law 3/2018, of December 5, on Personal Data Protection and Guarantee of Digital Rights, ensuring compliance with data protection regulations.

Instruments

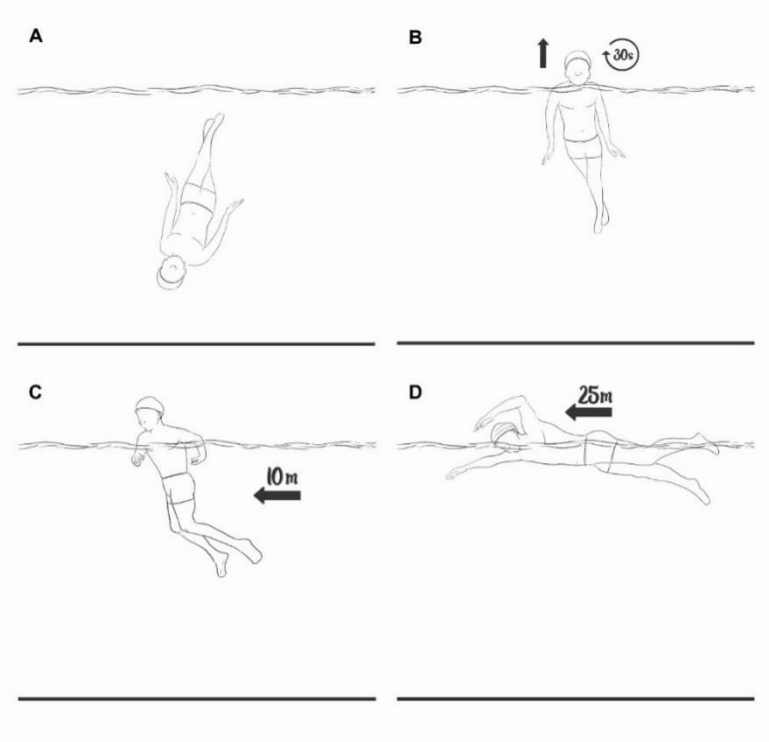
The parental perception of children's aquatic competence was assessed through a structured questionnaire developed by the authors. The preliminary version of the questionnaire was reviewed and adjusted for clarity and

usability by four experts in swimming didactics. Parents responded to four predefined questions related to their child's ability to perform aquatics skills when in water without feet support. Responses were provided in a binary format ("yes" or "no") and accompanied by illustrative images (Figure 1): (Q1) Does the child drowns?; (Q2) Can the child maintain their head above the water and breathe by 30 seconds; (Q3) Can the child swim a distance of 10 meters; (Q4) Can the child swim a distance of 25 meters using one of the four swimming techniques. Two additional questions to the parents addressed the context of the child's swimming lessons, inquiring whether they had participated or were currently participating in swimming lessons: (Q5) within the school; (Q6) outside the school (in public or private context).

The children's actual aquatic competence was evaluated in a controlled swimming pool environment (25m pool, 29°C water temperature, 60% humidity). Children's were instructed to wear only their regular swimsuits and caps (no googles allowed) and were tested in the same conditions described in the questionnaire. Each child's ability was marked as "able" or "not able" for each aquatic skill (Figure 1). Children who failed Q1 were not allowed to attempt further tests for safety reasons. The assessments were conducted and supervised by a swimming didactics expert with over 10 years of experience.

Figure 1

Illustration of the aquatic competence skills that are part of the parental questionnaire.



Procedures

Prior to questionnaire administration, parents received a short briefing clarifying the nature of each question and the meaning of relevant terms. Additionally, they were asked whether any item was difficult to interpret, and no issues were reported. The questionnaire was administered individually in a quiet environment and required approximately five minutes to complete. Parental responses were recorded, and children's performance in the

swimming pool was tested randomly under supervised conditions. The study ensured that all procedures aligned with ethical research standards, prioritizing the participants' safety and confidentiality.

Statistical analysis

Exploratory data analysis was used to identify potential outliers. Descriptive statistics were reported as mean and standard deviation (SD) for continuous variables, while categorical data were presented as frequency counts and percentages. To assess the agreement between parental perception and children's actual aquatic competence, McNemar's test was employed for dichotomous variables, allowing for a comparison of paired categorical data. The Cramér's V (V) test was used as an effect size measure, with classifications based on Cohen (1988): very weak ($0.1 < V$), weak ($0.1 \geq V < 0.3$), moderate ($0.3 \geq V < 0.5$), and strong ($V \geq 0.5$). All statistical analyses were conducted using SPSS software, version 27 (IBM, SPSS Inc., Chicago, IL, United States), with the significance level set at $p<0.05$.

RESULTS

Among the 81 children assessed, 61.7% were able to stay afloat when in the water without foot support. Of these, 97.9% (N = 46; 56.8% in total) could maintain their head above water and breathe for 30 seconds, 93.6% (N = 44; 54.3% in total) could swim a 10 m distance, and 42.3% (N = 20; 24.7% in total) were capable of swimming 25 m using one of the four formal swimming techniques.

To examine the agreement between parental perception and children's actual aquatic competence, McNemar's test was conducted for each of the four key questions (Q1–Q4) to determine whether discrepancies existed between perceived and actual abilities. Cramér's V was also calculated to assess effect size. The findings (Table 1) show that the accuracy of parental perception varied depending on the swimming skill assessed. For basic swimming autonomy (Q1), although there was no difference between parental perception and actual performance, the very strong effect size (V = 0.800) suggests a notable mismatch. In contrast, perception was more aligned with reality for head-above-water endurance (Q2) and 10 m swimming (Q3), though parents tended to underestimate their children's abilities. For the more complex 25 m swimming task (Q4), perceptions matched performance more closely, with no difference and a moderate effect size, indicating that parental accuracy may improve with more demanding tasks.

All children participated in school-based swimming lessons, while external lesson participation was limited (13.6%), highlighting the key role of schools in developing aquatic competence.

Table 1

Comparison between parental perception and children's actual aquatic competence.

Questions		Groups		Concordant results		McNemar's Test (p)	Cramér's V
		Actual competence	*Parent's perception*	*(yes/yes)*	*(no/no)*		
Q1 (N=81)							
	yes	38.3%	43.2 %	35.8%	17.1%	0.289	0.800 (p<0.001)
	no	61.7%	56.8 %				
Q2 (N=47)							
	yes	56.8 %	54.3.8%	97.7%	0%	0.625	0.038 (p=0.792)
	no	1.2%	3.7%				
Q3 (N=47)							
	yes	54.3%	48.1%	94.9%	12.5%	0.180	0.113 (p=0.437)
	no	3.7%	9.9%				
Q4 (N=47)							
	yes	24.7%	24.7%	60.0%	70.4%	1.000	0.304 (p=0.037)
	no	33.3%	33.3%				

DISCUSSION

This study aimed to compare parents' perceptions of their children's aquatic competence, specifically their ability to move autonomously in water. Unlike broader constructs of drowning prevention, which encompass environmental awareness, emergency response, and risk behaviour, aquatic competence in this study referred to progressively complex locomotion-based skills in the water, including floating, swimming short and medium distances, and executing formal swimming techniques.

Although previous research, such as D'Hondt et al. (2021), has examined parental perception of children's swimming skills, our findings add new insight by structuring aquatic competence hierarchically and analysing the alignment between parental assessments and actual ability within each skill level. The main result was that there were no statistically significant differences between parental perceptions and children's performance, suggesting an overall alignment, though discrepancies were more evident in basic skills.

Despite the fact that all children were currently participating in school-based swimming lessons, a substantial number were unable to complete the most elementary task (Q1: remaining afloat without foot support). This finding is particularly relevant, as it reveals a gap between participation and actual skill acquisition. Previous studies have shown that the frequency and duration of swimming instruction are key factors in developing aquatic skills (Olaisen et al., 2018; Moura et al., 2022). In our sample, children were enrolled in regular programs, but we did not evaluate the instructional content or weekly exposure, which may have limited their progress. In line with Brenner et al. (2009), who reported that swimming lessons reduce drowning risk, it is important to stress that such benefit depends not just on attendance, but on quality instruction and skill progression.

Children who were able to remain afloat were often successful in maintaining head-above-water propulsion and swimming short distances (10 meters), but fewer could swim 25 meters using formal techniques. This is consistent with the developmental nature of aquatic competence acquisition. According to Schmidt & Lee (2005), children in the cognitive stage of motor learning may struggle to perform complex, coordinated movements like those required for technical strokes. Bartolomeu et al. (2018) and Rocha et al. (2018) similarly highlight that young children's lessons often prioritise basic motor patterns such as floating, breath control, and kicking, with technical skills introduced only at later stages.

Interestingly, our findings suggest that parental accuracy increased with task complexity. For the 25-meter technical swim (Q4), parental assessments matched children's actual performance almost perfectly. This may be explained by the fact that formal technique is easier to identify and assess, both by instructors and parents. In contrast, more ambiguous or foundational skills, such as floating or treading water, may be harder for parents to observe or evaluate, leading to over- or underestimations.

Our initial hypothesis that significant discrepancies would exist between parental perception and children's actual competence was not supported. This contrasts with some prior literature that shows consistent parental misjudgements (Moran & Stanley, 2006; Casey et al., 2020), but aligns more closely with Wallis et al. (2014), who suggested that parental perception may become more accurate as children develop and when parents have ongoing access to reports or observation opportunities. While we did not measure whether parents attended swimming lessons, this could have influenced the relatively high agreement found in this study. We have now acknowledged this as a limitation.

Another possible factor contributing to the perception accuracy may have been the structure of the questionnaire itself. The binary format and supporting images may have provided clarity and made the task easier for parents to interpret. However, since we did not compare our tool to other instruments, we cannot conclude that it is more effective than alternative methods, and no such claim is made.

Limitations of this study include the absence of a control group of children not engaged in swimming lessons, lack of data regarding parental presence during aquatic activities, and the restriction of the sample to a specific region in Portugal. Future studies should consider broader sampling, longitudinal follow-up, and detailed analysis of

instructional exposure and parental engagement to fully understand the dynamics between perceived and demonstrated aquatic competence.

CONCLUSIONS

This study found no differences between parental perceptions and the actual aquatic competence of children aged 6 to 10 who were regularly engaged in school-based swimming lessons. These findings suggest that, within this context, parents are generally able to accurately assess their children's ability to move autonomously in the water, including tasks such as floating, swimming short distances, and using formal techniques. Although aquatic competence alone does not encompass all elements of drowning prevention, it remains a critical component of water safety. Future research should continue to explore how various factors, including instruction quality, parental involvement and exposure to aquatic environments influence both skill development and parental awareness.

PRACTICAL APPLICATIONS

Drowning continues to be a leading cause of accidental death among children, often associated with overestimation of aquatic skills or insufficient adult supervision. In this study, parents of children enrolled in regular swimming lessons demonstrated a generally accurate perception of their children's aquatic competence. This result reinforces the importance of structured swimming programs, not only for skill development, but also as a source of valuable feedback for families. The questionnaire used in this study may serve as a simple and scalable tool for assessing parental awareness and guiding educational efforts in water safety. Ensuring that parents receive regular updates on their children's aquatic progress may support more informed supervision and help reduce the risk of drowning.

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