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Health and performance questionnaire in esports from the coaches' point of view: design and validation using the Delphi method

Cuestionario de salud y rendimiento en esports desde el punto de vista de los entrenadores: diseño y validación mediante el método Delphi

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Abstract. Esports are growing rapidly in terms of economic and social impact. This growth entails the evolution of clubs, leading to the professional development of their players and coaches. Despite the prominence of players, coaches play a crucial role in controlling health and performance variables in esports, giving them fundamental relevance. However, the perspective of coaches regarding these variables is currently unknown. Therefore, this research aimed to design and validate, using the Delphi method, a questionnaire focused on the viewpoint of coaches on health and performance aspects in esports. A group of eight experts, who met the validity criteria for the research, was consulted. Subsequently, a 17-item questionnaire was developed, divided into the categories of "Health" and "Video Game." The questionnaire was then validated through the Delphi method in two rounds of consultation. The Aiken's V coefficient was applied with a 95% confidence interval, with a lower V limit of 0.75 and a minimum of 0.7 for the overall lower limit. The results showed that all 17 items met the established criteria (V≥0.75, Lower limit > 0.7), confirming their validity. Based on the obtained data, this questionnaire represents a valid tool for understanding the perspective of coaches on two fundamental aspects of esports: health and performance keys. Additionally, this is the first questionnaire specifically focused on this target group.
Key Words: esports, coaches, performance, health, Delphi method.

Resumen. Los deportes electrónicos están creciendo rápidamente en términos de impacto económico y social. Este crecimiento conlleva la evolución de los clubes, que lleva al desarrollo profesional de sus jugadores y entrenadores. A pesar del protagonismo de los jugadores, los entrenadores desempeñan un papel crucial en el control de las variables de salud y rendimiento en los deportes electrónicos, lo que les confiere una gran relevancia. Sin embargo, la perspectiva de los entrenadores respecto a estas variables es actualmente desconocida. Por ello, esta investigación se propuso diseñar y validar, mediante el método Delphi, un cuestionario centrado en el punto de vista de los entrenadores sobre aspectos de salud y rendimiento en los deportes electrónicos. Se consultó a un grupo de 8 expertos, los cuales cumplieron con los criterios de validez de la investigación. Posteriormente, se elaboró un cuestionario de 17 preguntas, dividido en las categorías de "Salud" y "Videojuego". El cuestionario procedió a validarse mediante el método Delphi a través de dos rondas de consulta. Se aplicó el coeficiente V de Aiken con un intervalo de confianza del 95% y, con un límite inferior de V de 0.75 y un mínimo de 0.7 para el límite inferior global. Los resultados mostraron que los 17 ítems cumplían los criterios establecidos (V≥0.75, Límite inferior > 0.7), lo que confirma su validez. Sobre la base de los datos obtenidos, este cuestionario representa una herramienta válida para conocer la perspectiva de los entrenadores sobre dos aspectos fundamentales en los deportes electrónicos: la salud y las claves de rendimiento. Además, se trata del primer cuestionario específicamente enfocado a este colectivo.
Palabras clave: esports, entrenadores, rendimiento, salud, método Delphi.

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Introduction

The esports ecosystem shows significant growth from various perspectives, including economic (Reitman et al., 2020) and audience-related aspects (Nagorsky & Wiemeyer, 2020). Current data reveals figures exceeding 530 million viewers, with a projected progressive growth above 600 million by 2025 (Newzoo, 2022).

This prominence has led to the expansion of esports organizations and clubs in terms of numbers, infrastructure, and quality. Present-day clubs are valued at multi-billion amounts, fostering a continuous professionalization of their employees (Pluss et al., 2019). The employment opportunities arising from esports currently amount to nearly 300,000 in the United States alone, with a consistent annual growth rate of over 8% (Newzoo, 2022). All of this contributes to an increasingly demanding and competitive environment that shares a common goal: competitive success.

As mentioned earlier, the economic investment and professionalization drive clubs to strive for victory in every competition they participate in (Poulus et al., 2020). This eagerness for success leads to a heightened interest in studying performance keys, identifying crucial variables to apply during sessions, and examining external factors that impact players' health and performance (Bányai et al., 2018; Lee et al., 2021; Röhlcke et al., 2018; Rudolf et al., 2020; (Sanz-Matesanz et al., 2024) Consequently, numerous publications focus on performance keys in esports (Gong et al., 2019; Hulaj et al., 2020; Sörman et al., 2022), the most common injuries (Difrancisco-Donoghue et al., 2019), and players' daily routines (Lee et al., 2021; Madden & Harteveld, 2021; Rudolf et al., 2020). These particularities influence players' performance in the game and attract the interest of clubs aiming to optimize their daily activities for maximum competitive success.

This quest for competitive excellence leads to an increase in the professionalisation of the entire esports' ecosystem, particularly among players (Pluss et al., 2019). Esports professionals currently devote themselves fully to the video game and face competitive demands comparable to traditional sports stars (Reitman et al., 2020). In recent years, average salaries for players in the North American

League of Legends exceeded $400,000 annually, approaching the average salary of competitions like the American MLS and experiencing a 400% increase in just three years, with a continuing upward trend (Studholme & Joseph, 2020). This salary growth parallels the players' competitive demands, with average daily training ranging between 5 and 10 hours (Lee et al., 2021; Nagorsky & Wiemeyer, 2020; Rudolf et al., 2020).

In addition to the players' level of professionalisation, high-level clubs increasingly rely on a group of specialists from different areas focused on enhancing competitive performance (Giakoni-Ramírez et al., 2022). These areas include specialists in psychology, physical training, medicine, as well as specific game-related roles like analysts, assistants, and, of course, coaches (Jenny et al., 2017). The role of the coach has grown in terms of professionalisation, matching the players' level in both economic aspects and expectations. Similar to traditional sports, the coach is responsible for managing the team dynamics, having the final say in decision-making, and coordinating the actions of the rest of the staff (Rajič & Grubić, 2018).

Since coaches are responsible for making decisions regarding the players' daily dynamics, training hours, rest days, and more, there is a need to understand the importance they place on key aspects of esports, such as specific performance and player health, similar to what has been done in other competitive disciplines (Difrancisco-Donoghue et al., 2019; Oberg & Frank, 2011).

Studies focusing on understanding the most important aspects of health (Gray et al., 2018; Mateo-Orcajada et al., 2022; Sousa et al., 2020; Trotter et al., 2021) and performance (Behnke et al., 2020; Freeman & Wohn, 2017; Mora-Cantallops & Sicilia, 2019) in esports players are relatively common, but they have primarily focused on players' perspectives (Sanz-Matesanz et al., 2023). While players are indeed the protagonists of the competition, both in traditional sports and esports, most aspects related to performance and health are not controlled by players themselves. Instead, there are specialists within the staff who are responsible for making those decisions (Rajič & Grubić, 2018). Although a player may consider training a particular variable of the game as the most important for their development, it is ultimately the coach who decides the content of the training sessions. These sessions often take players' perspectives into account but also have a broader scope to facilitate the overall growth of the team. Based on this, without diminishing the importance of players' viewpoints, there is a clear need to understand the opinions of coaches regarding areas of great interest in esports, as they are the key individuals responsible for implementing them (Difrancisco-Donoghue et al., 2019; Oberg & Frank, 2011).

Considering the evident interest of current research focused on health and performance knowledge in esports (Gray et al., 2018; Rudolf et al., 2020), It is imperative to gain insights into coaches' perspectives to compare the values obtained in two key dimensions for the development of the esports industry (Sanz-Matesanz et al., 2023). However, given the absence of validated tools for the collection of such knowledge, it is deemed necessary to create a questionnaire that provides prior assurance of quality and reliability for safe application in future research.

Therefore, the objective of this study is to design and validate, using the Delphi method, a questionnaire that provides information regarding coaches' perspectives on key aspects of performance and health for esports players and coaches. As they are the responsible for managing each of the key variables in the players' daily routine, their viewpoints will provide valuable insights for esports organizations to understand the most important elements coaches consider when training and the most relevant aspects related to health.

Material and Methods

Participants

In order to conduct the content validity analysis of the questionnaire, a group of experts was selected. A non-probabilistic and intentional sampling method was employed for this purpose. The selection of experts was carried out following Singh's (2007) approach using "expert sampling". According to this procedure, the selection of the expert group should ensure a demonstrable specific experience in the area of interest of the study, while also being relevant. Additionally, Escobar and Cuervo (2008) assert that certain characteristics must be met to be part of a panel of expert judges in a validation procedure, such as level of experience, reputation, availability, motivation, and impartiality. Based on these considerations, the established criteria (C) for the selection of the expert panel were as follows: (C1) being a member of a professional esports club; (C2) having specific knowledge of training and specific management in esports; (C3) having competed as a coach at the national or international level; (C4) performing or having performed sports management tasks in teams; (C5) possessing specific knowledge oriented towards research in sports science; (C6) having academic studies related to sports science. The details of each of the expert judges based on the established criteria can be found in Table 1.

Table 1.
Identification of the criteria fulfilled by the expert judges

	EJ1	EJ2	EJ3	EJ4	EJ5	EJ6	EJ7	EJ8
C1	X	X	X			X	X	X
C2	X	X	X			X	X	X
C3	X	X				X		X
C4			X			X	X	
C5				X	X			
C6				X	X		X	
Expertise (years)	7	5	9	17	20	20	12	11

Note: C=selection criteria; EJ=expert judge.
Legend: (C1) being a member of a professional esports club; (C2) having specific knowledge of training and specific management in esports; (C3) having competed as a coach at the national or international level; (C4) performing or having performed sports management tasks in teams; (C5) possessing specific knowledge oriented towards research in sports science; (C6) having academic studies related to sports science.

Examining Table 1 with the data of the eight experts, it can be observed that all of them had experience ranging from 5 to 20 years in areas related to applied research and specific training in esports. Among the profiles of the experts, different orientations can be observed, which collectively provide a comprehensive research perspective: three experts with specific training in sports science, two of them focused on applied research methodology with extensive research experience; three experts with experience in sports management in both professional and semi-professional teams; four experts with experience in competition as high-level coaches at the national and/or international level; six experts actively involved in professional esports teams. Following the guidelines of studies by Sourani & Sohail (2015) and Zubillaga-Olague & Cañadas (2021), the specific knowledge applied to the questionnaire topic was key to expert selection. Therefore, in this research, it was considered necessary for the experts to meet at least 2 of the 6 criteria to be included in the study, besides having over 5 years of demonstrable experience.

Procedure

After a specific literature review, the questionnaire was developed. In its initial version, the questionnaire, identified as "Health and performance in esports from the coach's perspective (HPE-CP)," was organized into 2 dimensions and 17 items as follows: the first dimension, called "Health," consisted of items 1 to 12, and the second dimension, called "Videogame," consisted of items 13 to 17.

The justification for including these two dimensions is based on a prior analysis of the scientific literature focused on esports (Sanz-Matesanz et al., 2023). After conducting this analysis, it was observed that within the research focused on the athletic and competitive area of esports, setting aside marketing and business, the main research focuses were on understanding the players' lifestyle and health, as well as the key factors that affect their performance. Based on this, the present article aimed to encompass both categories, thus creating the Health and Videogame dimensions, centered on the two previously highlighted focuses.

The definition of each dimension is reflected in Table 2.

Table 2.
Dimensions of the questionnaire HPE-CP v.1. Definition and ítem distribution

DIMENSION	DEFINITION	ITEMS
HEALTH	Defined as the health knowledge of esports coaches and players.	From 1 to 12
VIDEOGAME	Defined as the coach's perception of the most important performance and training variables applied to esports.	From 13 to 17

Next, in Table 3, the 17 items are detailed, including the complete wording of the first version of the HPE-CP questionnaire.

Table 3.
Items of the first version of the questionnaire HPE-CP

	ITEMS
1	Are you physically active? According to the WHO, an active person is a person who does at least 150 minutes of physical activity per week. (Yes or No)
2	Weekly physical activity time (2-2.5 h, 2.5-5 h, 5-7.5 h, or more than 7.5 h)
3	Sedentary time, daily in hours
4	Sleep time, daily in hours
5	Your current health status is (being 1 poor and 5 excellent)
6	How important do you think nutrition, exercise and rest are for a coaches' performance? (Being 1 Very negative and 5 Very positive)
7	How important do you think nutrition, exercise and rest are for a player's performance? (Being 1 Very negative and 5 Very positive)
8	What are the most common esports injuries in your expertise? (Eye fatigue, low back pain, neck pain, wrist pain, hand pain, psychological problems)
9	Do your players go to a health care professional if they have an injury? (Yes or No)
10	Do you have a physical trainer in your club? (Yes or No)
11	What do you think is the main reason why players do physical exercise? [1) To maintain or improve their overall physical health, 2) To maintain or improve their physical capacity, 3) To lose weight, gain muscles or tone their body (physical appearance), 4) For fun or enjoyment of exercising, 5) To be more successful in esports, 6) My players don't do any physical training]
12	How do you perceive that doing physical training has affected players performance level in esport? (Being 1 Very negative and 5 Very positive)
13	Your daily play time (in minutes)
14	Of the total time spent by players on video games, how much of it do you consider to be training and not just entertainment? (0-25%, 25-50%, 50-75%, 75-100%)
15	How often do you take a break during training sessions with your players? (1 hour, 2 hours, 3 hours, 4 hours, more than 4 hours)
16	How long the break is? (in minutes) (5-10, 11-15, 16-20, 21-25, more than 26 min)
17	Rate the importance of train these aspects (being 1 not applicable and 5 every day) (Individual training, team training, reaction time, speed, mechanics, skills, accuracy, strategy, tactics, physical training, communication, rival analysis, game analysis, psychological training)

To conduct the content validity study of the questionnaire designed by the research team, the Delphi method was applied through a repetitive process, consulting the experts in two rounds (Okoli & Pawlowski, 2004; Varela et al., 2012). In this phase, the consulted experts provided annotations and suggested changes, allowing the research team to analyse information from experienced judges and develop a second version of the questionnaire to be

validated. The second version was sent back to the same experts (Mediavilla & García, 2013). In both the first and second rounds, the experts participating in the process provided a quantitative and qualitative assessment of the items comprising each dimension of the questionnaire. Regarding the quantitative assessment, it was conducted using a Likert scale ranging from 1 to 4, where 1 represented "none" and 4 represented "a lot" for each item. On the other hand, the qualitative aspects to be evaluated for each of these items were identified with the following criteria (Almonacid-Fierro et al., 2018; Maravé et al., 2017):

a) Degree of understanding or univocality. For each question (item), it was determined whether: Is it understood? And is its wording clear?

b) Degree of relevance or adequacy. In this case, it was assessed whether the questions or items included in each dimension of the questionnaire had a logical relationship with the objective intended to be studied for that dimension.

c) Degree of importance. This aspect was related to the weight that the question or item holds in relation to the reference dimension.

d) Finally, there was a section for observations. Here, the expert could indicate changes and even rephrase questions as they deemed necessary.

The consultation process was conducted in January and February 2023. After receiving the responses from the expert judges, the questionnaires were reviewed and analysed, and appropriate modifications were made based on the results and observations, resulting in the second version of the questionnaire.

This second version of the questionnaire went through the same process outlined above, resulting in the final questionnaire, consisting of a total of 17 items, as presented in the results section. Figure 1 illustrates the process of designing and creating the final questionnaire.

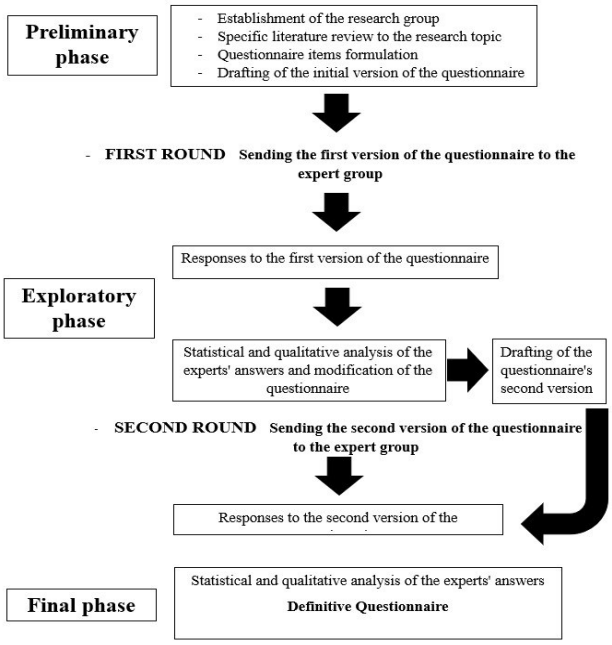

Figure 1. Flowchart of the questionnaire design process

Statistical analysis

To test the content validity of the instrument, a descriptive analysis of the responses obtained from each expert was conducted. The analysis was based on the application of Aiken's V coefficient ($V \geq 0.75$) (Formula 1) with a 95% confidence interval and a critical level for the lower limit of 0.70 (Aiken, 1980, 1985; Charter, 2003; Cicchetti, 1994; Penfield & Giacobbi, 2004). The confidence intervals were obtained using the Score Method (Formulas 2 and 3) (Penfield & Giacobbi, 2004; Wilson, 1927).

Results

Table 4 presents the mean scores obtained from the expert judges' responses to the HPE-CP questionnaire.

Table 4.
Mean values of the first version of the HPE-CP questionnaire with Aiken's V and the critical levels in univocity, relevance and importance at 95% confidence

	Aiken's V				95% Confidence Index							
Ítem	UI	P	I	G	Lwl_UI	Ul_UI	Lwl_P	Ul_P	Lwl_I	Ul_I	Lwl_G	Ul_G
1	1.00	0.92	0.96	0.96	0.82	1.00	0.71	0.98	0.76	0.99	0.76	0.99
2	0.96	0.92	0.92	0.93	0.76	0.99	0.71	0.98	0.71	0.98	0.72	0.99
3	1.00	0.96	0.96	0.97	0.82	1.00	0.76	0.99	0.76	0.99	0.78	1.00
4	1.00	0.92	0.92	0.94	0.82	1.00	0.71	0.98	0.71	0.98	0.74	0.99
5	0.96	0.96	0.88	0.93	0.76	0.99	0.76	0.99	0.66	0.96	0.72	0.99
6	1.00	0.96	0.96	0.97	0.82	1.00	0.76	0.99	0.76	0.99	0.78	1.00
7	1.00	0.96	0.96	0.97	0.82	1.00	0.76	0.99	0.76	0.99	0.78	1.00
8	0.96	1.00	1.00	0.99	0.76	0.99	0.82	1.00	0.82	1.00	0.80	1.00
9	0.96	0.96	0.92	0.94	0.76	0.99	0.76	0.99	0.71	0.98	0.74	0.99
10	1.00	1.00	0.96	0.99	0.82	1.00	0.82	1.00	0.76	0.99	0.80	1.00
11	1.00	0.88	0.88	0.92	0.82	1.00	0.66	0.96	0.66	0.96	0.71	0.98
12	1.00	1.00	1.00	1.00	0.82	1.00	0.82	1.00	0.82	1.00	0.82	1.00
13	0.96	0.92	0.92	0.93	0.76	0.99	0.71	0.98	0.71	0.98	0.72	0.99
14	0.96	0.96	0.92	0.94	0.76	0.99	0.76	0.99	0.71	0.98	0.74	0.99
15	0.92	0.92	0.96	0.93	0.71	0.98	0.71	0.98	0.76	0.99	0.72	0.99
16	0.92	0.92	0.92	0.92	0.71	0.98	0.71	0.98	0.71	0.98	0.71	0.98
17	0.96	0.96	0.96	0.96	0.76	0.99	0.76	0.99	0.76	0.99	0.76	0.99

As the results of the first version of the questionnaire show, all items exceeded the established criterion for $V \geq$

0.75 with a 95% confidence interval. Similarly, all items had a value > 0.7 for the general lower critical level.

Furthermore, when studying the qualitative observations from the experts, certain questions were identified that could be reformulated to improve the comprehension and appropriateness of the questionnaire. Specifically, it was identified that question 8, corresponding to the 'Health' dimension, included a note about the need to specify psychological pathologies more concretely, rather than grouping them in a single assessment, to obtain more specific results. Consequently, new pathologies such as 'anxiety', 'stress', and 'depression' were incorporated into the psychological branch. (Figure 2).

Question	Comment
What are the most common esports injuries in your expertise? (Eye fatigue, low back pain, neck pain, wrist pain, hand pain, psychological problems)	I would specify the psychological part a bit more to make it more balanced, maybe placing it in brackets (anxiety, stress, burnout...).

Figure 2. Expert comment on item 8

Likewise, referring to item 13, corresponding to the "Videogame" dimension, two notes were observed regarding the need to modify the structure of the question. First, there was a reference to the need to label coaches' playtime as work time, as players may quantify their daily activities as playtime, but coaches do not play themselves; their work involves directing training and gameplay. Secondly, it was proposed to change the unit of measurement for work time to hours instead of minutes, which would be more suitable for the target sample. These observations can be seen in Figure 3.

Question	Comment
Your daily play time (in minutes)	The question should be rephrased as "training time per day in the coach's role", as coaches do not play, but it is working time.
	Based on the target sample, it would probably be better to quantify the time in hours.

Figure 3. Comments by two experts on item 13

Continuing with the experts' observations, for item number 15, belonging to the "Videogame" dimension, two qualitative assessments of the question's content were observed. One expert pointed out the need to include the possibility of having no breaks during training, as it was a viable option not considered. Similarly, in the same comment, the expert judge noted the need to specify what constitutes a break more precisely in order to avoid confusion in the sample. On the other hand, another expert emphasized that, based on the target sample, the quantification of break frequency should be done in terms of matches rather than hours, preferably indicating whether breaks occur after each match, every two matches, etc. The received remarks can be seen in Figure 4.

Question	Comment
How often do you take a break during training sessions with your players? (1 hour, 2 hours, 3 hours, 4 hours, more than 4 hours)	In this question you use hours as a measure of counting, I think it is more appropriate to use "games". That is, how often do you take a break with your players?
	Possible answers should include the option of no breaks. Similarly, it should be defined what is considered a training break, whether it is a simple stoppage of play, or a short interruption of training. Breaks between games are very frequent and can lead to confusion.

Figure 4. Comments by two experts on item 15

After considering the expert judges' feedback and completing the restructuring of the first version of this questionnaire, Table 5 displays the changes made to the items based on the experts' notes.

Table 5.
Most significant changes in the wording of the items between the first and the second version of the questionnaire HPE-CP

First version	Second version
What are the most common esports injuries in your expertise? (Eye fatigue, low back pain, neck pain, wrist pain, hand pain, psychological problems)	What are the most common esports injuries in your expertise.? (Eye fatigue, low back pain, neck pain, wrist pain, hand pain, anxiety, stress, depression, others)
Your daily play time (in minutes)	Your daily work time (in hours)
How often do you take a break during training sessions with your players? (1 hour, 2 hours, 3 hours, 4 hours, more than 4 hours)	How often do you take a break during training sessions with your players? Considering break when the coach pauses the practice, not when a review is carried out. (After each game, every two games, every three games, I think it is not necessary to take breaks)

Following the observation of both the quantitative and qualitative evaluations from the experts, the described items were reformulated, resulting in the new structure of the questionnaire as described in Table 6.

Table 6.
Items of the second version of the questionnaire HPE-CP

	ITEM
1	Are you physically active? According to the WHO, an active person is a person who does at least 150 minutes of physical activity per week. (Yes or No)
2	Weekly physical activity time (2-2.5 h, 2.5-5 h, 5-7.5 h, or more than 7.5 h)
3	Sedentary time, daily in hours
4	Sleep time, daily in hours
5	Your current health status is (being 1 poor and 5 excellent)
6	How important do you think nutrition, exercise and rest are for a coaches' performance? (Being 1 Very negative and 5 Very positive)
7	How important do you think nutrition, exercise and rest are for a player's performance? (Being 1 Very negative and 5 Very positive)
8	What are the most common esports injuries in your expertise? (Eye fatigue, low back pain, neck pain, wrist pain, hand pain, anxiety, stress, depression, others)
9	Do your players go to a health care professional if they have an injury? (Yes or No)

10	Do you have a physical trainer at your club? (Yes or No)
11	What do you think is the main reason why players do physical exercise? [1) To maintain or improve their overall physical health; 2) To maintain or improve their physical capacity; 3) To lose weight, gain muscles or tone their body (physical appearance); 4) For fun or enjoyment of exercising; 5) To be more successful in esports; 6) My players don't do any physical training]
12	How do you perceive that doing physical training has affected players performance level in esport? (Being 1 Very negative and 5 Very positive)
13	Your daily work time (in hours)
14	Of the total time spent by players on video games, how much of it do you consider to be training and not just entertainment? (0-25%, 25-50%, 50-75%, 75-100%)
15	How often do you take a break during training sessions with your players? Considering break when the coach pauses the practice, not when a review is carried out. (After each game, every two games, every three games, I think it is not necessary to take breaks)
16	How long is the break? (in minutes) (5-10, 11-15, 16-20, 21-25, more than 26 min)
17	Rate the importance of training these aspects (being 1 not applicable and 5 every day) (Individual training, team training, reaction time, speed, mechanics, skills, accuracy, strategy, tactics, physical training, communication, rival analysis, game analysis, psychological training)

After creating the second version of the questionnaire, it was sent to the experts again, as detailed in Figure 1, for a new quantitative and qualitative assessment. After the second round of questionnaire submissions, none of the experts modified their evaluations regarding the univocality, pertinence, and relevance of the items, preserving the data from the previously displayed Table 4, which met the selected critical levels within a 95% confidence interval (≥0.7) and V≥0.75. Additionally, in this second round, none of the experts made any qualitative contributions to the formulated items.

Discussion

The objective of this study is to design and validate the HPE-CP questionnaire using the Delphi method, aiming to collect relevant information regarding coaches' perspectives on key aspects of performance and health in esports. Based on the analysis conducted by the expert judges, the levels of univocality, pertinence, and importance were satisfactory in both the first and second evaluation rounds. In both cases, all 17 questionnaire items had an Aiken's V value above 0.75. Despite finding satisfactory results in the first round of evaluation, the qualitative corrections suggested by the experts were considered, leading to the modification of questions 8, 13, and 15. After these modifications and the second round of evaluation, the expert judges decided not to change their initial scores, confirming their validity within the critical limits and a 95% confidence interval.

The items were classified into two dimensions: those related to the health of esports coaches and players, and those related to performance and competitive training. The inclusion of both dimensions and their focus from the coach's perspective is essential due to the significance given by current research to understanding health and performance in this influential competitive field of esports (Difrancisco-Donoghue et al., 2019; Pluss et al., 2019; Sanz-Matesanz et al., 2023). Esports players and coaches dedicate long training sessions, which are controlled by the timing of competitions and the team's competitive state, always under the supervision and decisions of the coach (Lee et al., 2021). As coaches are responsible for both their own and players' health care and the content of training sessions aimed at competitive improvement, understanding their perspective in this domain is crucial (Kokko et al., 2015).

Furthermore, it is essential to include questions concerning the health of both coaches and players in esports, as these factors are integral to their performance and quality of life, according to Sanz-Matesanz et al. (2023). This method is consistent with research on similar populations, such as athletes and university students who are of similar ages to those involved in esports, as demonstrated in studies by González-Campos et al. (2017), Medina et al. (2024), and Tobar et al. (2023). Injuries are common in the esports environment and can significantly impact the team's overall performance (Madden & Harteveld, 2021). Similarly, issues related to excessive training hours and lack of rest are highly relevant in the industry, justifying their inclusion (Kari & Karhulahti, 2016; Lee et al., 2021; Rudolf et al., 2020; Smith et al., 2022).

This focus on monitoring the health and performance of players is not exclusive to esports but applies to any competitive discipline (Fruchart & Rulence-Pâques, 2022; Gouttebarge et al., 2015; Grunseit et al., 2012). Similarly, understanding the coach's perspective has been studied in traditional sports to observe its influence on young athletes, which aligns closely with the approach of this questionnaire (Kokko et al., 2015).

Based on these considerations, the present questionnaire incorporates the dimensions of health and performance with the aim of gaining in-depth knowledge of the two areas that have the greatest impact on esports competition from the perspective of coaches.

This justification is not solely based on the internal relevance of health and performance for esports players and coaches, but also on the scientific significance of understanding performance keys in any population. Certain studies focused on analyzing performance in workplace environments and the risk of pathologies have sparked such scientific interest that specific tools overseen by the WHO have been developed (Kessler et al., 2003; Rice et al., 2020). This highlights the significant value of knowledge focused on the performance and health of any group, making it crucial to create applicable and validated monitoring tools for different populations. Since existing tools are not well-suited to the esports environment, it is a major strength of this research to develop a new questionnaire that studies the two most relevant dimensions in other fields such as the

workplace, which should be transferred to the esports setting.

Additionally, the analysis of the questionnaire data focuses on both qualitative and quantitative evaluations of each question. By examining the collected information, we can make comparisons with players' perspectives (Lee et al., 2021; Rudolf et al., 2020), which aids in enhancing internal team dynamics and aligning on the most critical health and performance issues. Furthermore, a deeper analysis of the study sample provides insights into their views on players, which clubs can use to strengthen their competitive frameworks. These insights can also be compared with other surveys to draw significant conclusions that may influence coaches' perspectives.

With the knowledge specifically derived from the results of this questionnaire, esports teams will be able to improve the quality and effectiveness of their sessions by selecting the most important elements in training. Thus, they will ensure conditions in the players' and coaches' life habits that maximize their well-being, which will contribute to an improvement in their performance (Bányai et al., 2019; Sanz-Matesanz et al., 2023).

Regarding the questionnaire validation methodology, the Delphi method has been established as a reliable approach for analyzing and synthesizing expert judges' opinions (de Meyrick, 2003; Nasa et al., 2021). Within this methodology, an acceptable number of experts typically ranges between 7 and 10 participants (Reguant-Álvarez & Torrado-Fonseca, 2016; Sourani & Sohail, 2015). Based on these findings, having 8 experts is considered an acceptable number of opinions for questionnaire validation.

This selection of experts has been employed in other questionnaire validations (Shinners et al., 2021), revealing that the Delphi method is a highly reliable approach for validating specific questionnaires focused on health aspects across various groups, with 8 experts from different fields.

After considering an adequate number of experts, a qualitative analysis was conducted to complement the quantitative data presented earlier. In this case, the modifications to specific items aimed to improve question comprehension and item suitability for the target sample. Specifically, for question 8, the modifications focused on including specific psychological pathologies. The initial version of the questionnaire encompassed all psychological pathologies in a single category. After analyzing the suggestion from one of the experts and recognizing the relevance of psychological pathologies in the world of esports and gaming (Lee et al., 2021; Myrseth et al., 2017) and their significance in the competitive field in general (Gerber et al., 2018; Souter et al., 2018), the inclusion of certain pathologies such as stress, anxiety, and depression was considered to provide a more accurate description of the questionnaire data.

For item 13, the modification aimed to improve the precision of the question. While it was initially focused on gaming, coaches do not engage in gameplay but rather oversee the gameplay performed by the players on their team. Therefore, the question regarding the time spent playing would be logical if the questionnaire were focused on players, but it required modification when applied to coaches. Similarly, item 13 was modified to quantify coaches' work time in hours instead of minutes, based on the analysis of an expert judge's opinion and considering the average training time in esports (Kari & Karhulahti, 2017; Lee et al., 2021; Madden & Harteveld, 2021; Rudolf et al., 2020).

Finally, for item 15, the modification aimed to clarify what constitutes a break within the questionnaire's objectives. In the world of esports, training is conducted through simulated matches against virtual/online opponents (Sanz-Matesanz et al., 2023). Based on this and the dependence on internet connections and servers, the time between matches can be longer than desired, often used for analysis by coaches or studying gameplay methodologies (George & Sherrick, 2019). Therefore, since these breaks cannot be considered rest periods as players remain focused on game-related aspects, a clarification was added to this item that a break is defined as an interruption of training where players do not engage in game-related activities, neither in competition nor in analysis. Additionally, given that training is based on playing simulated matches against opponents (George & Sherrick, 2019; Sanz-Matesanz et al., 2023), following the analysis conducted by the experts, the frequency of breaks was quantified in terms of matches rather than hours. This approach was chosen because the duration of matches is not fixed, and breaks are always taken between them.

All the aforementioned modifications in the questionnaire were made to improve its quality and address the experts' feedback, despite the quantitative results of all items meeting the researchers' criteria in the first evaluation round. Therefore, to emphasize the importance of expert opinions, a second round of evaluation was conducted, in which the initial scores were not modified, and no qualitative contributions to the questionnaire were made. Thus, it was decided not to include additional Delphi rounds or exclude any of the proposed items.

Limitations and Future Research Directions

It should be noted that the application of this questionnaire was conducted solely in English, necessitating potential future adaptation and evaluation should there be a need to translate it into other languages. Although English is the most representative language globally within the esports environment, which justifies its use, adapting it to other predominantly Asian languages, such as Chinese or Korean, could be highly beneficial, given that these are two of the most significant regions globally in the esports context (Sanz-Matesanz et al., 2023).

Similarly, it is noted that the inclusion of questions in this questionnaire is based on an extensive bibliographic review aimed at consolidating the most relevant issues applicable to esports players, but from the perspective of coaches. These questions are influenced by the limited scientific development within esports and could be expanded

in the future with the inclusion of new elements deemed fundamental as the sector evolves. Finally, the potential of this questionnaire as a tool applied to the understanding of a sample that has been scarcely studied is highlighted. Based on this potential, the current study is part of a larger project aimed at the analysis and application of the questionnaire to a sample of esports coaches, which will yield the initial conclusions focused on the esports coaches' role.

Conclusions

The relevance of the questionnaire designed in this research and validated through the Delphi method is fundamental in the context of esports. Current research focused on understanding the importance of health and key performance elements in esports solely focuses on players, disregarding the opinions of coaches. However, coaches are responsible for organizing players' daily routines, including their training, meals, sleep hours, physical activity, therapy, and nutrition. Players rely on their recommendations and guidelines. Therefore, understanding the perspectives of esports coaches regarding the most important elements for specific training and key aspects of their lifestyle that they apply to their players provides valuable information for professional esports teams, which are increasing in professionalism year after year.

Similarly, by referring to the relevance that this questionnaire brings to the coach´s role, understanding their specific perspective can provide the esports sector with two key elements: on the one hand, identifying the most important aspects for coaches in order to provide the necessary means and infrastructure to implement them, thus improving their working conditions and those of the players. On the other hand, by analysing their viewpoint, clubs can bring in specialists to complement the most crucial tasks in performance and health within esports, contributing to the professionalisation of this sector and opening up job opportunities for analysts, psychologists, or physical trainers.

The HPE-CP questionnaire has met the necessary standards in the first round to consider each of its items valid, making it suitable for application among esports team coaches. Its applicability is based on a thorough analysis of the sector's characteristics and the most relevant issues that apply to players, which should be transferable and adaptable to the coaches' perspective. This approach enables research that combines both viewpoints, thereby enriching the science applied to the sector.

References

Aiken, L. (1980). Content Validity and Reliability of Single Items or Questionnaire. Educational and Psychological Measurement 40, 955- 959. https://doi.org/10.1177/0013164480040004

Aiken, L. (1985). Three Coeficients for Analyzing the Reliability and Validity of Ralings. Educational and Psychologjcal Measurement, 45, 131-142. https://doi.org/10.1177/0013164485451

Almonacid-Fierro, A. Feu, S., y Vizuete, M. (2018). Validación de un cuestionario para medir el conocimiento didáctico del contenido en el profesorado de Educación Física. Retos, 34, 132-137.

Bányai, F., Griffiths, M. D., Király, O., & Demetrovics, Z. (2018). The Psychology of Esports: A Systematic Literature Review. Journal of Gambling Studies,35, 351-365. https://doi.org/10.1007/s10899-018-9763-1

Behnke, M., Gross, J. J., & Kaczmarek, L. D. (2020). The role of emotions in esports performance. Emotion, October, 22(5), 1059- 1070. https://doi.org/10.1037/emo0000903

Charter, R. A. (2003). A breakdown of reliability coefficients by test type andreliability method, and the clinical implications of low reliability. Journal of General Psychology, 130(3), 290-304.

Cicchetti, D.V. (1994). Guideliness, criterio, and rules of thumb for evaluating normed and standardized assessment instruments in psychilogy. Physhological Assessment, 6(4), 284-290. https://doi.org/10.1037/1040-3590.6.4.284

de Meyrick, J. (2003). The Delphi method and health research. Health Education, 103(1), 7–16. https://doi.org/10.1108/09654280310459112

Difrancisco-Donoghue, J., Balentine, J., Schmidt, G., & Zwibel, H. (2019). Managing the health of the eSport athlete: An integrated health management model. BMJ Open Sport and Exercise Medicine, 5(1), e000467. https://doi.org/10.1136/bmjsem-2018-000467

Escobar, J., & Cuervo, Á. (2008). Content validity and expert judgement: an approach to their use [in Spanish]. Avances en Medición,6(1), 27-36.

Freeman, G., & Wohn, D. Y. (2017). Social support in eSports: Building emotional and esteem support from instrumental support interactions in a highly competitive environment. CHI PLAY 2017 - Proceedings of the Annual Symposium on Computer-Human Interaction in Play, 435–447. https://doi.org/10.1145/3116595.3116635

Fruchart, E., & Rulence-Pâques, P. (2022). Predicting sports performance from well-being: A mapping of professional athletes', amateur athletes' and non-athletes' positions. European Review of Applied Psychology, 72(6), 100793. https://doi.org/10.1016/j.erap.2022.100793

George, J., & Sherrick, B. (2019). Competition Formats in Esports. In Understanding Esports: An Introduction to the Global Phenomenon (pp. 45–56).

Gerber, M., Best, S., Meerstetter, F., Walter, M., Ludyga, S., Brand, S., Bianchi, R., Madigan, D. J., Isoard-Gautheur, S., & Gustafsson, H. (2018). Effects of stress and mental toughness on burnout and depressive symptoms: A prospective study with young elite athletes. Journal of Science and Medicine in Sport, 21(12), 1200–1205. https://doi.org/10.1016/j.jsams.2018.05.018

Giakoni-Ramírez, F., Merellano-Navarro, E., & Duclos-Bastías, D. (2022). Professional Esports Players: Motivation and Physical Activity Levels. International Journal of Environmental Research and Public Health, 19(4), 2256-2269. https://doi.org/10.3390/ijerph19042256

Gong, D., Ma, W., Liu, T., Yan, Y., & Yao, D. (2019). Electronic-sports experience related to functional enhancement in central executive and default mode areas. Neural Plasticity, 1940123. https://doi.org/10.1155/2019/1940123

Gonzalez-Campos, G., Valdivia-Moral, P., Cachon-Zagalaz, J., Zurita-Ortega, F., & Romero, O. (2017). Influence of stress control in the sports performance: self-confidence, anxiety and concentration in athletes. RETOS-Neuvas Tendencias en Educacion Fisica, Deporte y Recreacion, 32, 3-6.

Gouttebarge, V., Aoki, H., & Kerkhoffs, G. (2015). Symptoms of common mental disorders and adverse health behaviours in male professional soccer players. Journal of Human Kinetics, 49(1), 277–286. https://doi.org/10.1515/hukin-2015-0130

Gray, P. B., Vuong, J., Zava, D. T., & McHale, T. S. (2018). Testing men's hormone responses to playing League of Legends: No changes in testosterone, cortisol, DHEA or androstenedione but decreases in aldosterone. Computers in Human Behavior, 83, 230–234. https://doi.org/10.1016/j.chb.2018.02.004

Grunseit, A. C., MacNiven, R., Orr, R., Grassmayr, M., Kelly, B., Davies, D., Colagiuri, S., & Bauman, A. E. (2012). Australian athletes' health behaviours and perceptions of role modelling and marketing of unhealthy products. Health Promotion Journal of Australia, 23(1), 63–69. https://doi.org/10.1071/he12063

Hulaj, R., Nyström, M. B. T., Sörman, D. E., Backlund, C., Röhlcke, S., & Jonsson, B. (2020). A Motivational Model Explaining Performance in Video Games. Frontiers in Psychology, 11, 1510. https://doi.org/10.3389/fpsyg.2020.01510

Jenny, S. E., Manning, R. D., Keiper, M. C., & Olrich, T. W. (2017). Virtual(ly) Athletes: Where eSports Fit Within the Definition of "Sport." Quest, 69(1), 1–18. https://doi.org/10.1080/00336297.2016.1144517

Kari, T., & Karhulahti, V.-M. (2017). Do E-Athletes Move? International Journal of Gaming and Computer-Mediated Simulations, 8(4), 53–66. https://doi.org/10.4018/ijgcms.2016100104

Kari, T., & Karhulahti, V. M. (2016). Do e-athletes move? A study on training and physical exercise in elite e-sports. International Journal of Gaming and Computer-Mediated Simulations, 8(4), 53–66. https://doi.org/10.4018/IJGCMS.2016100104

Kessler, R. C., Barber, C., Beck, A., Berglund, P., Cleary, P. D., McKenas, D., … & Wang, P. (2003). The world health organization health and work performance questionnaire (HPQ). Journal of occupational and environmental medicine, 45(2), 156-174.

Kokko, S., Selänne, H., Alanko, L., Heinonen, O. J., Korpelainen, R., Savonen, K., Vasankari, T., Kannas, L., Kujala, U. M., Aira, T., Villberg, J., & Parkkari, J. (2015). Health promotion activities of sports clubs and coaches, and health and health behaviours in youth participating in sports clubs: The Health Promoting Sports Club study. BMJ Open Sport and Exercise Medicine, 1(1), 1–11. https://doi.org/10.1136/bmjsem-2015-000034

Lee, S., Bonnar, D., Roane, B., Gradisar, M., Dunican, I. C., Lastella, M., Maisey, G., & Suh, S. (2021). Sleep characteristics and mood of professional esports athletes: A multi-national study. International Journal of Environmental Research and Public Health, 18(2), 1–14. https://doi.org/10.3390/ijerph18020664

Madden, D., & Harteveld, C. (2021). Constant pressure of having to perform: Exploring player health concerns in esports. Conference on Human Factors in Computing Systems - Proceedings, 324, 1-14. https://doi.org/10.1145/3411764.3445733

Maravé, M., Gil, J., Chiva, O., & Moliner, L. (2017). Validation of an instrument for the analysis of socio-emotional skills in Physical Education [in Spanish]. Retos, 30, 8-13. http://hdl.handle.net/10550/53757

Mateo-Orcajada, A., Abenza-Cano, L., & Vaquero-Cristóbal, R. (2022). Analyzing the changes in the psychological profile of professional League of Legends players during competition. Computers in Human Behavior, 126, 107030. https://doi.org/10.1016/j.chb.2021.107030

Mediavilla., L., & García, J. M. (2013). Design, creation and validation of an interview to obtain biographical data, of a sporting-military nature, of military personnel who participated in the Olympic Games [in Spanish]. Journal of Sport and Health Research, 5(2), 157-166.

Medina, A. W., Lepe, G. A. O., Roco, G. C., Ojeda, A. F., Burgos, C. N., Martínez, J. R., & Sepúlveda, R. Y. (2024). Ejercicio físico, hábitos alimentarios y estrés:¿ Qué ocurrió con los estudiantes universitarios durante la pandemia?. Retos: nuevas tendencias en educación física, deporte y recreación, 53, 100-108.

Mora-Cantallops, M., & Sicilia, M. Á. (2019). Team efficiency and network structure: The case of professional League of Legends. Social Networks, 58, 105–115. https://doi.org/10.1016/j.socnet.2019.03.004

Myrseth, H., Olsen, O. K., Strand, L. Å., & Borud, E. K. (2017). Gaming behavior among conscripts: The role of lower psychosocial well-being factors in explaining gaming addiction. Military Psychology, 29(2), 128-142. https://doi.org/10.1037/mil0000148

Nagorsky, E., & Wiemeyer, J. (2020). The structure of performance and training in esports. PLoS ONE, 15(8), e0250316. https://doi.org/10.1371/journal.pone.0237584

Nasa, P., Jain, R., & Juneja, D. (2021). Delphi

methodology in healthcare research: How to decide its appropriateness. World Journal of Methodology, 11(4), 116–129. https://doi.org/10.5662/wjm.v11.i4.116

Newzoo. (2022). Global Esports & Live Streaming Market Report.

Oberg, E., & Frank, E. (2011). Physicians' health practices strongly influence patient health practices. Journal of the Royal College of Physicians of Edinburgh, 4(39), 290–291. https://doi.org/doi:10.4997/JRCPE.2009.422

Okoli, C., & Pawlowski, D. (2004). The Delphi method as a research tool: an example, design considerations and applications. Information y Management, 42(1),15-29. https://doi.org/10.1016/j.im.2003.11.002

Penfield, R.D., & Giacobbi, P.R. (2004) Applying a Score Confidence Interval to Aiken's Item Content-Relevance Index. Measurement in Physical Education and Exercise Science, 8(4), 213-225. https://doi.org/10.1207/s15327841mpee0804_3

Pluss, M. A., Bennett, K. J. M., Novak, A. R., Panchuk, D., Coutts, A. J., & Fransen, J. (2019). Esports: The chess of the 21st century. Frontiers in Psychology, 10, 156. https://doi.org/10.3389/fpsyg.2019.00156

Poulus, D. R., Coulter, T. J., Trotter, M. G., & Polman, R. (2020). Stress and Coping in Esports and the Influence of Mental Toughness. Frontiers in Psychology, 11, 628. https://doi.org/10.3389/fpsyg.2020.00628

Rajič, F., & Grubić, M. (2018). The Impact of Changing the Coach on Injuries in Professional Sport—Example from Practice. Journal of Health Science, 6(3), 159–162. https://doi.org/10.17265/2328-7136/2018.03.004

Reguant-Álvarez, M., & Torrado-Fonseca, M. (2016). El método Delphi. REIRE. Revista d'Innovació i Recerca En Educació, 9(1), 87–102. https://doi.org/10.1344/reire2016.9.1916

Reitman, J. G., Anderson-Coto, M. J., Wu, M., Lee, J. S., & Steinkuehler, C. (2020). Esports Research: A Literature Review. Games and Culture, 15(1), 32–50. https://doi.org/10.1177/1555412019840892

Rice, S. M., Parker, A. G., Mawren, D., Clifton, P., Harcourt, P., Lloyd, M., … & Purcell, R. (2020). Preliminary psychometric validation of a brief screening tool for athlete mental health among male elite athletes: the athlete psychological strain questionnaire. International journal of sport and exercise psychology, 18(6), 850-865.

Röhlcke, S., Bäcklund, C., Sörman, D. E., & Jonsson, B. (2018). Time on task matters most in video game expertise. PLoS ONE, 13(10), 1–13. https://doi.org/10.1371/journal.pone.0206555

Rudolf, K., Bickmann, P., Froböse, I., Tholl, C., Wechsler, K., & Grieben, C. (2020). Demographics and health behavior of video game and esports players in germany: The esports study 2019. International Journal of Environmental Research and Public Health, 17(6). https://doi.org/10.3390/ijerph17061870

Sanz-Matesanz, M., Gea-García, G. M., & Martínez-Aranda, L. M. (2023). Physical and psychological factors related to player's health and performance in esports: A scoping review. Computers in Human Behavior, 143, 107698. https://doi.org/10.1016/j.chb.2023.107698

Sanz-Matesanz, M., Martínez-Aranda, L. M., & Gea-García, G. M. (2024). Effects of a Physical Training Program on Cognitive and Physical Performance and Health-Related Variables in Professional esports Players: A Pilot Study. Applied Sciences, 14(7), 2845.

Shinners, L., Aggar, C., Grace, S., & Smith, S. (2021). Exploring healthcare professionals' perceptions of artificial intelligence: Validating a questionnaire using the e-Delphi method. Digital Health, 7, 20552076211003433.

Singh, K. (2007). Quantitative Social Research Methods. London: Sage Publications

Smith, M., Sharpe, B., Arumuham, A., & Birch, P. (2022). Examining the Predictors of Mental Ill Health in Esport Competitors. Healthcare, 10(4), 1–13. https://doi.org/10.3390/healthcare10040626

Sörman, D. E., Dahl, K. E., Lindmark, D., Hansson, P., Vega-Mendoza, M., & Körning-Ljungberg, J. (2022). Relationships between Dota 2 expertise and decision-making ability. PLoS ONE, 17(3), e0264350. https://doi.org/10.1371/journal.pone.0264350

Sourani, A., & Sohail, M. (2015). The Delphi Method: Review and Use in Construction Management Research. International Journal of Construction Education and Research, 11(1), 54–76. https://doi.org/10.1080/15578771.2014.917132

Sousa, A., Ahmad, S. L., Hassan, T., Yuen, K., Douris, P., Zwibel, H., & DiFrancisco-Donoghue, J. (2020). Physiological and Cognitive Functions Following a Discrete Session of Competitive Esports Gaming. Frontiers in Psychology, 11, 1030. https://doi.org/10.3389/fpsyg.2020.01030

Souter, G., Lewis, R., & Serrant, L. (2018). Men, Mental Health and Elite Sport: a Narrative Review. Sports Medicine - Open, 4(1), 1–8. https://doi.org/10.1186/s40798-018-0175-7

Studholme, B. & Joseph, S. (January 6, 2023) The esports salary market is headed toward a correction. Digiday. https://digiday.com/marketing/the-esports-salary-market-is-headed-toward-a-correction/#:~:text=Hal%20Biagas%2C%20then%20the%20executive,one%20league%20source%20told%20Digiday

Tobar, N. M., Narvaez, L. M. C., & Hurtado, A. F. V. (2023). El uso del videojuego y su relación en el sobrepeso en universitarios, Popayán, Colombia. Retos: nuevas tendencias en educación física, deporte y recreación, 48, 138-144.

Trotter, M. G., Coulter, T. J., Davis, P. A., Poulus, D. R.,

& Polman, R. (2021). Social Support, Self-Regulation, and Psychological Skill Use in E-Athletes. Frontiers in Psychology, 12, 722030. https://doi.org/10.3389/fpsyg.2021.722030

Varela-Ruiz, M., Díaz-Bravo, L., & García. Durán, R. (2012). Description and uses of the Delphi method in health research [in Spanish]. Investigación en Educación Médica, 1(2), 90-95.

Wilson, E.B. (1927). Probable inference, the law of succession, and statistical inference. Journal of the American Statistical Association, 22, 209-212. https://doi.org/10.1080/01621459.1927.10502953

Zubillaga-Olague, M., & Cañadas, L. (2021). Diseño y validación del cuestionario "# EvalEF" para conocer el proceso de evaluación desarrollado por los docentes de educación física. Retos: nuevas tendencias en educación física, deporte y recreación, 42, 47-55.

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