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ANALYSIS OF #TIKTOKCHALLENGES WITH PHYSICAL-MOTOR CONTENT: APPROACHES FROM A GENDER PERSPECTIVE

ANÁLISE DO #TIKTOKCHALLENGES COM CONTEÚDO FÍSICO-MOTOR: ABORDAGENS NUMA PERSPECTIVA DE GÉNERO

ANÁLISIS DE #TIKTOKCHALLENGES CON CONTENIDO FÍSICO-MOTOR: APROXIMACIONES DESDE LA PERSPECTIVA DE GÉNERO

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Abstract: The aim of this research was to analyse *#TikTokChallenges* with physical-motor content from a gender perspective. An observational and qualitative methodology was used on a purposive and pre-selected sample of 87 videos with physical-motor content. The categories of the observational analysis were based on previous literature, and the coding was carried out by two analysts. The coded data were processed using SPSS. The video captions were analyzed qualitatively using Atlas.ti through word count and inductive analysis. The results showed that most of the videos analyzed presented perceptual-motor skills, with body language and dance being the most common content. Six videos presented content with gender ideology. The need to deepen the knowledge of this social network, which can contribute to promoting physical activity and constructing gender identities in the young population, is discussed.

Keywords: Networking social. Physical activities. Physical education and training. Gender equity.

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1 INTRODUCTION

Social networks allow users to exchange information and discuss ideas through comments, posts and chats. They also facilitate interaction with others and effectively create collaborative communities (Yu; Lee; Chao, 2020). The impact of social networks on people's psycho-social development is undeniable (violence, gender construction, mental health, self-esteem, self-concept...) and the ramifications of this research problem are very broad. Therefore, it is necessary to pay more attention to the content created on social networks (Challco-Huaytalla; Rodríguez Vega; Jaimes-Soncco, 2016; Cuenca; Espinoza; Bonisoli, 2020; Rojo-Ramos *et al.*, 2022).

According to IAB Spain (2021), the TikTok network is one of the most popular platforms. Its use is becoming more common among the population, with a continuous increase year after year in both awareness of the social network and its use in Spain. This irruption and continuous growth occurred during the quarantine derived from COVID-19 in 2020, where the format of short looped videos accompanied by music served to create a new language for education, comedy, family activities, and physical activities (Escamilla-Fajardo; Alguacil; López-Carril, 2021; Ibanez-Ayuso; Limón; Ruiz-Alberdi, 2022). At the time, the hashtag *#fitnessencasa* was one of the most searched for and the hashtags now known as *#TikTokChallenges*[1] were born and became popular. Under this or similar names, several challenges related to physical-sport and artistic-expressive activities began to be tagged. *#toiletpaperchallenge* and *#levelupchallenge* were two of the most replicated challenges during incarceration (Olivares-García; Méndez-Majuelos, 2020). Nothing more than a new language, a new bodily form of relationship using movement supported by perceptual and physical-motor skills and abilities, was initiated by the antidote of TikTok challenges during imprisonment (Kennedy, 2020). Today, this phenomenon is viralized in challenges with multiple formats: Skill, physical conditioning, dramatization, or body rhythm dance. It is agreed with Escamilla-Fajardo, Alguacil and López-Carril (2021) that TikTok represents a valuable pedagogical tool and reflects an opportunity for the field of physical activity.

However, its recent growth does not provide a broad empirical field, reinforcing the need to study *#TikTokChallenges*[1] from a physical-motor perspective. Escamilla-Fajardo, Alguacil and López-Carril (2021) demonstrated the creative potential of challenges in Physical Activity and Sport Science courses, also showing a positive impact on motivation, curiosity, active and collaborative learning after using TikTok to create challenges of physical expression and creativity. Other previous landmark studies have delved into the content of the #TikTokChallenges themselves. Ibanez-Ayuso; Limón; Ruiz-Alberdi (2022) analyzed the role of these videos in shaping family and parent-child relationships. The results warn of possible risks in these videos such as, the creation of a digital footprint in children or the prioritization of the interests of mothers and fathers over those of children. González-Ramírez (2022) looked at the

1 There is no single, agreed definition of this concept. For the purposes of this paper, they are defined as those challenges that: (1) demonstrate and require the use of some physical, perceptual and/or motor skills; (2) can be developed individually, in pairs, or in groups; (3) are often accompanied by the *hashtags* '*trend*' or '*challenge*'; (4) whose main purpose is to go viral, to be seen and reproduced by other users of TikTok or other social networks. For better understanding, two examples are attached: #backpaintingchallenge or #calmdownchallenge.

challenges associated with dance or #dancechallenges. The results of this research showed how elite influencers (with more than one million followers) and intermediate influencers (with more than fifty thousand followers) reproduced this type of challenge, showing the impact that these publications can have. Furthermore, according to Kennedy (2020), the findings showed that the #dancechallenges contributed to the transmission of a gender ideology in which a racialized, sexualized, and stereotypical image of women according to traditional beauty ideals predominated: girls with long, straight hair, tight clothing, and confident sensual body language.

With this previous theoretical-empirical framework, it is necessary to deepen our knowledge of this social network. Although some previous research has analyzed dance challenges (González-Ramírez, 2022), the tags and physical-motor content can be very diverse in this social network and adopt other manifestations, other than dance itself, such as physical fitness challenges or skill challenges (Olivares-García; Méndez-Majuelos, 2020). Therefore, it seems necessary to broaden the analysis of these challenges, viewing them in a more global sense and bringing together more diverse physical-motor content in order to obtain a more panoramic view of the *#TikTokChallenges*. Likewise, given the impact on the gender construction of some of the *#dancechallenges* (González-Ramírez, 2022), it seems necessary to contrast these results with a gender perspective. These are the arguments and motivations for the present work, which has the general objective of analyzing descriptively different manifestations of *#TikTokChallenges* with physical-motor content and with a gender perspective. Specifically, it aims to address the following specific objectives:

a) To investigate the characteristics of *#TikTokChallenges* with physical-motor content.
b) To analyze in depth the content of these challenges from a gender perspective.

2 METHODOLOGY

To explore the study objectives, an observational and qualitative methodology was used, following some of the premises of the critical visual methodology (Rose, 2016) used in previous research on this problem (González-Ramírez, 2022).

2.1 VIDEO SEARCH AND SELECTION

According to Huamán and Ramírez (2022), the population or number of videos is infinite, due to the functioning of the TikTok network, so we proceeded with an intentional selective technique, whose selection criterion was that the video had to be related to physical sport or artistic-expressive activity. This search and selection were carried out by two experts in physical-sporting activity. For its development, hashtags were used, as they constitute a language that acts as a social configurator in the network, allowing information and topics of conversation among users to be identified (González-Ramírez, 2022). In this way, searches with the terms *#TikTokChallenge*, *#challenge*, *#reto*, or #trend were carried out on the platform, observing the results and selecting those videos that were related to motor skills and physical activity. In accordance with González-Ramírez's (2022) research, which showed that hashtags can be accompanied by other types of tags that do not reflect the *#challenge* concept,

the selection was enriched manually, browsing and viewing videos on the social network itself, which according to its algorithm shows content similar to that being viewed by the user. This procedure made it possible to obtain a larger sample and avoid losing content that might be less viral but had a physical-motor orientation. The sample analyzed was 87 videos.

2.2 INSTRUMENT AND CATEGORY OF ANALYSIS

For the analysis of the data, an *ad hoc* instrument was created: an observational coding system of the *#TikTokChallenges* with a gender perspective. This instrument has a descriptive purpose following a coding based on categories grouped into four dimensions: basic data, circulation and audience, production, and image (Charts 1 to 3). The design of the instrument was based on a bibliographic analysis and was supported by the dimensions of the critical visual methodology (Rose, 2016), used in previous studies on the research problem (González-Ramírez, 2022).

Chart 1 - Rationale and explanation of the categories of the #TikTokChallenges observational system for gendered physical-motor skills. Dimensions: basic analytical data; circulation and audience.

Dimension	Description dimension	Categories	Description category
Basic analytical data	Links to challenges and data from the date of analysis, given the dynamic and versatile nature of the social network.	Links to the challenge Date of analysis	The challenge is linked to TikTok or other storage applications and the date of analysis is collected, as this date conditions the circulation and audience results.
Circulation and audience	This dimension reflects the mobility of the image and its receptivity among users, taking into account the characteristics of the social network. Factors specific to the social network (users or accounts, views, comments, hashtags, etc.) are taken into account, as well as the places where the challenges circulate and are audited.	Text/Description of the challenge	Graphic-verbal information with which the TikTok video is published.
		No. of views	Number of interactions produced by the video.
		No. of comments	
		Number of likes	
		Link to user	Link to the account posting the challenge.
		Type of influencer	Classification of the level of influence (González-Ramírez, 2022).
		Gender influencer	Identification of the gender of the persons holding the account.
		Non-sporting context	Identification of the context of the challenge, urban or rural, in case it does not take place in a sports venue.
		Specification of the urban or natural space (e.g. street, square, beach...)	Open specifications to explain precisely where the challenge is taking place.
		Sporting contexts	Indication of the sports space where the challenge takes place: courts, swimming pools, changing rooms...
		Medium	Differentiation between the aquatic, terrestrial or aerial environment of the challenge.

Source: own elaboration.

Chart 2 - Justification and explanation of the categories of the observational system of #TikTokChallenges physical-motor with a gender perspective. Dimension: production

Dimension	Description dimension	Categories	Description category
Production	This dimension is linked to the content of the challenge itself and its production circumstances (intentionally chosen by the users). The challenges are examined in depth from a motor and musical point of view, as a binomial that drives and motivates the production of physical-motor challenges.	Type of content	Identification of the type of physical-motor content of the challenge: perceptual-motor, physical conditioning or basic motor skills (Del Valle *et al.* , 2014).
		Intentional body language	Identification of corporal expression as a specific perceptual-motor content when dealing with content such as dramatization, dance or shadow theatre.
		Motor skills involved	Explanation of the motor skills involved in the challenge (walking, running, jumping, turning, etc.).
		Basic physical quality 1	Identification of the basic physical qualities present in the challenge: strength, flexibility, speed or endurance. More than one category is included to reflect a manifestation of more than one of these.
		Basic physical quality 2	
		Language	Identification of verbal, non-verbal or combined language.
		Music style	Differentiation of the musical style present in the challenge (Cremades, 2022).
		Type of music	Identification of whether the music is vocal, non-vocal-body, non-vocal-instrumental or combined (Cremades, 2022).

Source: own elaboration.

Chart 3 - Justification and explanation of dimensions and categories of the observational system of #TikTokChallenges physical-motor with a gender perspective. Dimensions: image and observations

Dimension	Description dimension	Categories	Description category
Image	The analysis of this dimension is related to the analysis of the image from the most intuitive and palpable point of view. It describes the image in order to attend to the power of transmitting cultural and social information that is inherent to each image of the challenges.	Groupings	Number of people taking the challenge: individuals, couples...
		Gender clustering	Distinction between whether groups of people are of the same or different gender: homogeneous or heterogeneous.
		Material	Identification of the specific PE material used (Blández, 1995; Méndez-Giménez, 2008): conventional, alternative or recycled. An additional category is included to specify which materials were used.
		Orientation	Description of the orientation of the video recording: front, side, ...
		Map	Identification of the recording plane of the video: detail, American...
		Clothing	Analysis of gender stereotypes that may be present in clothing (Bustamante; Ferrer, 2019): stereotypical, non-stereotypical, or free expression or gender dissidence.
		Primary Emotional Expression 1	Identification of the primary emotional expression of the person: sadness, joy, anger, neutral... Two categories are included in case the evaluator identifies more than one overt emotion in the video.
		Primary Emotional Expression 2	
		Body expressiveness (parts)	Differentiation of the body parts that express information in the challenge: head, arms, hands...
		Type of movement	The distinction of expressive-bodily movement (Learreta,; Ruano; Sierra, 2006, p.53): figurative imitative, figurative symbolic and abstract.
		Type of subject	Identification of the expressive-corporal theme (Learreta; Ruano; Sierra, 2006, p. 56): concrete real, abstract real or imaginary-fictional.
Remarks	Space for the analyst to collect information related to the challenge of interest to the research.	Open	Details of information that the analyst wishes to highlight about the analysis itself or future lines of research.

Source: own elaboration.

2.3 ANALYSIS AND PROCESSING OF INFORMATION

The data were processed quantitatively using SPSS®, version 25. Closed and single-choice categories were transformed into numerical categories, e.g. type of influencer, language, or medium. Categories relating to materials, spaces, the physical abilities involved, or emotional expression, which were open-ended, received multiple-response treatment. A calculation of frequencies and percentages was

applied for the presentation of the results. Likewise, Chi-square tests were applied to analyze the relationships between the gender of the influencer and some categories such as the type of content, motor skills, or physical abilities observed in the videos.

The treatment of video captions or graphic-verbal information accompanying the publication was treated qualitatively using Atlas.ti® version 23. For this purpose, tools such as word count and word cloud were used. Likewise, an inductive analysis was carried out on those video captions that reflected words related to gender, identifying the information with two categories: gender discrimination and inequality (those that presented some discriminatory element); and gender equality (those that claimed gender equality or women's empowerment).

3 RESULTS

3.1 CHARACTERISTICS OF THE #TIKTOKCHALLENGES WITH PHYSICAL-MOTOR CONTENT

The 87 videos were analyzed according to the dimensions of analysis: circulation and audience; production; and image. Regarding the dimension of circulation and audience (Tables 1 and 2), the analyzed videos had an average of 315830.1 views, 179030.84 'likes', and 3915.05 comments. Elite influencers (n=33, 37.9%) and influencers with more than one person of a different gender were the most common (n=44, 50.6%). The terrestrial medium (n=85, 97.7%) and urban non-sport context were the most frequent (n=65, 74.7%). Most of the videos were recorded in non-sporting spaces (n=68, 78.2%) and the most frequently used sporting spaces were multi-sport courts (n=10, 11.5%). Specifically, the most used non-sport space was the home (n=47, 68.1%).

Table 1 - Analysis of the circulation and audience dimension categories

Category	Subcategory	N	%
Type of influencer	Elite (1-5M followers)	33	37.9
	Macro-influencer (500K-1M followers)	4	4.6
	Intermediate influencer (50K-500K followers)	23	26.4
	Micro-influencer (10K-50K followers)	18	20.7
	Nano-influencer (1K-10K followers)	2	2.3
	No influencer (less than 1K followers)	6	6.9
	No account access	1	1.1
Gender influencer	Male (one or more persons)	11	12.6
	Female (one or more persons)	31	35.6
	More than two people of different gender	44	50.6
	No account access	1	1.1
Medium	Aquatic	1	1.1
	Aerial	1	1.1
	Terrestrial	85	97.7
Non-sporting contexts	Natural	4	4.6
	Urban	65	74.7
	Other	18	20.7
Sporting contexts	Gyms	3	3.4
	Sports or multi-sports courts	10	11.5
	Dance or multi-purpose halls	3	3.4
	Changing rooms	1	1.1
	Aquatic facilities	1	1.1
	Bleachers or other annexed places	1	1.1
	Non-sporting	68	78.2

Note: N=number of citations; %=percentage.
Source: Authors

Table 2 - Category analysis with multiple-choice treatment of the circulation and audience dimension

Category	Subcategory	N	%	% of cases
Spaces used	Home	47	68.1	70.1
	Trade/shopping center	2	2.9	3
	Street	9	13	13.4
	Park	4	5.8	6
	Parking/Garages	3	4.3	4.5
	Beach	1	1.4	1.5
	Open air, forest or countryside	1	1.4	1.5

Note: N=number of citations; %=percentage.
Source: Authors

In terms of the production dimension (Tables 3 and 4), the physical-motor content most present in the videos was perceptual-motor (n=43, 49.4%) and non-verbal language was most frequently used (n=71, 81.6%). In terms of music, the most frequent type of music was vocal (n=66, 75.9%) and dance style (n=22, 25.3%). Throwing was the most common motor skill in the challenges (n=12, 31.6%), and

strength was the most common overt physical ability in the fitness challenges (n=13, 54.2%).

Table 3 - Analysis of the production dimension categories

Category	Subcategory	N	%
Type of content	Perceptual-motor	44	50.5
	Basic or specific motor skills	13	14.9
	Physical conditioning	17	19.5
	Perceptual-motor and motor skills	5	5.7
	Conditioning and motor skills	5	5.7
	Perceptual-motor and physical conditioning	3	3.4
Language used	Verbal	4	4.6
	Non-verbal	71	81.6
	Combined	12	13.8
Type of music	Vocal	66	75.9
	Toolkit	15	17.2
	Without music	6	6.9
Music style	Reguetón	8	9.2
	Pop	11	12.6
	Rap-Hip-hop	11	12.6
	Electronics	10	11.5
	Dembow	1	1.1
	Dance	22	25.3
	Rock&Roll	3	3.4
	Techno	6	6.9
	Heavy Metal	1	1.1
	Folkloric	2	2.3
	Jazz	1	1.1
	Indie	1	1.1
	Without music	6	6.9
	Vallenato	1	1.1
	BSO	3	3.4

Note: N=number of citations; %=percentage.
Source: Authors

Table 4 - Analysis of the categories with multiple-choice treatment of the production dimension

Category	Subcategory	N	%	% of cases
Motor skills	Jump	8	21.1	33.3
	March	1	2.6	4.2
	Career	1	2.6	4.2
	Crawling	1	2.6	4.2
	Launch	12	31.6	50
	Reception	8	21.1	33.3
	Giro	5	13.2	20.8
	Kicking	1	2.6	4.2
	Climb	1	2.6	4.2
	Total	38	100	158.3
Basic physical capacities	Force	13	54.2	68.4
	Flexibility	7	29.2	36.8
	Resistance	2	8.3	10.5
	Speed	2	8.3	10.5
	Total	24	100	126.3

Note: N=number of citations; %=percentage.
Source: Authors

In relation to images (Tables 5 and 6), the videos were most frequently developed without material (n=55, 67.8%), in pairs (n=43, 49.4%), and heterogeneous or mixed gender groups (n=39, 44.8%). In terms of body image and expression, the most frequent type of theme was imaginary (n=75, 86.2%), with abstract movement (n=75, 86.2%) and involving the expression and use of the body as a whole (n=73, 83.9%). The most identified primary emotional expression was joy (n=67, 65.7%).

Table 5 - Analysis of the image dimension categories

Category	Subcategory	N	%
Materials from a FE point of view	No material	59	67.8
	Conventional FE	15	17.2
	EF Alternative	2	2.3
	Recycling	7	8
	More than one of these types	4	4.6
Groupings	Individual	22	25.3
	Couples	43	49.4
	Three or more persons	22	25.3
Gender groupings	Individual	21	24.1
	Heterogeneous	39	44.8
	Homogeneous	25	28.7
	Unidentifiable	2	2.3
Type of subject	Imaginary	75	86.2
	Real-concrete	7	8
	Real-abstract	5	5.7
Type of movement	Abstract movement	75	86.2
	Figurative-imitative movement	6	6.9
	Figurative-symbolic movement	6	6.9
Body expressiveness (parts involved)	Hands, arms and shoulders	5	5.7
	Trunk	2	2.3
	Legs and feet	4	4.6
	Global corporal expression	73	83.9
	Head and face / Shoulders, arms and hands	3	3.4

Note: N=number of citations; %=percentage.
Source: Authors

Table 6 - Analysis of the category with multiple choice treatment of the image dimension

Category	Subcategory	N	%	% of cases
Primary emotional expression	Joy	67	65.7	77
	Anger	1	1	1.1
	Fear	1	1	1.1
	Ira	3	2.9	3.4
	Surprise	6	5.9	6.9
	Neutral/no expression	3	2.9	3.4
	Unidentifiable	15	14.7	17.2
	Combined	6	5.9	6.9
	Total	102	100	117.2

Note: N=number of citations; %=percentage.
Source: Authors

The quantitative results were corroborated by the qualitative analysis of the video captions (Figure 1 and Table 10). Regarding the type of content, it was found that perceptual-motor content, and specifically dance, was the most used, with terms such as ‘dance’ (n=4), ‘bailar’ (n=3), or ‘bailesdetiktok’ (n=3) being among the most used (Table 7). In addition to these results, other terms such as ‘afrodance’, ‘ballet’,

or 'baile' appeared on the periphery of the word cloud (Figure 1). In relation to the groupings, it is also relevant how one of the most repeated words in the video captions was related to interaction in couples ('couple', n=5), which also coincides with other terms that were found among the twenty most cited, such as 'couplechallenge' (n=5) or 'couplegoal' (n=4). Likewise, the number of references to positive emotions of joy and love in these videos is remarkable, with 'funny' (n=7) or 'humor' (n=3) being highly cited words; as well as faces or emojis of happiness, laughter or joy are also frequent. In fact, three of the ten most used concepts are three smiley emojis, which make up a total of 22 quotes.

Figure 1 - Word cloud of video caption terms

Note: The word categories of nouns, verbs, pronouns and adjectives were applied as a filter for the analysis.
Source: Authors.

Table 7 - Analysis of the twenty most cited terms in the video captions

Word	Number of appointments	Percentage of appointments
challenge	28	3.9
viral	19	2.7
fyp	17	2.4
trend	12	1.7
parati	11	1.6
🤣	10	1.4
😂	9	1.3
foryou	9	1.3
funny	7	1
couple	5	0.7
coupleschallenge	5	0.7
foryoupage	5	0.7
couplegoal	4	0.6
dance	4	0.6
hacer	4	0.6
tiktok	4	0.6
😅	3	0.4
😱	3	0.4
bailar	3	0.4
bailesdetiktok	3	0.4
Total citations included in the analysis	701	100

Note: noun, verb, pronoun and adjective were applied as a filter for the word count. The table shows the 20 most cited terms among the 501 reported by Atlas.ti. The complete analysis is attached.
Source: Authors.

3.2 CONTENT ANALYSIS OF *#TIKTOKCHALLENGES* WITH PHYSICAL-MOTOR CONTENT WITH A GENDER PERSPECTIVE

The qualitative analysis of the video captions showed how six of the videos presented information related to gender construction and the promotion of equality. Specifically, two of the videos showed expressions of confrontation or gender inequality; while four of the videos reflected some claim in relation to gender equality, two of them linked to women's sports, namely tennis and football (Table 8).

Table 8 - Analysis of video captions with physical-motor content with a gender perspective

Category	Number of appointments	Quote	Link	Type of physical-motor content
Confrontation - gender inequality	2	"Going to the toilet 🤣🚽♨️ #fyp #humour #comedy #men #men #women #scketch"	Video 1	Perceptual-motor (dramatisation)
		"We challenge you!!! No woman can do this🤨 #fyp #foryoupage #challenge #menvswomen".	Video 2	Physical conditioning (flexibility)
Gender equality	4	"Genderbend 💪😱🔥 #fyp #viral #moana #maui tag @therock @ maribelspiritualjourney"	Video 3	Perceptual-motor (dramatisation)
		"Genderbend 💪▶️😄🏳️‍🌈 #fyp #moana #viral #maui"	Video 4	Perceptual-motor (dramatisation-rhythm)
		"#tenischallenge #training #tiktok #womenssports #skills #fyp"	Video 5	Motor skills
		"#misarodriguez #asensio #marcoasensio #realmadrid #realmadridfem #woso #football #world cup #qatar #qatar2022 #realmadridfemale"	Video 6	Perceptual-motor (imitation)

Source: Video 1: @yesususramírez; Video 2: @lottaharala; Video 3 and 4: @maribelsjourney_; Video 5: @natalia-guitler; Video 6: @_futbol_femenino_.

Delving into the physical-motor content, the Chi-square tests found no significant relationships between the type of physical-motor content used in the challenges and the gender of the influencer, $\chi2(18)=16.590$, $p=.55$, or the grouping from the point of view of gender, $\chi2(18)=14.873$, $p=.67$.

4 DISCUSSION AND CONCLUSIONS

The first objective of this study was to investigate the characteristics of #TikTokChallenges with physical-motor content, the videos analyzed showed mostly perceptual-motor content, with body expression being the most common content, predominantly non-verbal language and involving the body globally in abstract movements. The qualitative analysis of the video captions reinforced these results and showed how the concepts 'dance', 'bailar' or 'bailesdetiktok' were the most frequently cited, coinciding with previous literature that identified this social network with dance and music (González-Ramírez, 2022). However, this was not the only physical-motor content present in the videos, as challenges linked to physical fitness, predominantly strength, or motor skills were found, with throwing being the most frequent. Even though no descriptive studies were found on this study problem and emphasizing the need for further study, the findings of this research reveal how this social network

can favor the reproduction and creative design of challenges with diverse physical-motor content. According to these results, TikTok can act as a constraint or variable that drives physical practice and motor development in multiple social settings, such as the family (Ibanez-Ayuso; Limón; Ruiz-Alberdi, 2022) or higher education (Escamilla-Fajardo; Alguacil; López-Carril, 2021); Presa *et al.* , 2021), with variable and adaptive practices (Haywood; Getchell, 2021). Therefore, the responsible use of this social network through the design and reproduction of challenges can be a strategy for promoting active lifestyle habits, especially in the young population that makes more frequent use of this network (IAB Spain, 2021), which encourages the debate on new technologies and their possible contribution to an active life. TikTok, through the design, dissemination, and implementation of physical-motor challenges, can provide a complementary and compatible meeting point between screen time and physical activity, which moves away from the traditional link between sedentary time and electronic devices (Guevara; Urchaga; Sánchez-Moro, 2019). This idea was reinforced by the findings in several categories of analysis in this work, such as emotional expression, the place where the challenges take place, and the materials used in the challenges. Concerning emotional expression, the videos analyzed frequently showed positive emotions of joy, which was corroborated by the qualitative analysis, where the word funny or emojis symbolizing laughter were among the most frequently used terms. These findings are consistent with the results of Gil, Ruiz, and Olmo (2022), who showed how the young population perceived TikTok as a funnier social network than others, such as Instagram. About the places and materials present in the videos analyzed, the home was the space most used for the development of these challenges, and in most of them, no material was used. The combination of these results suggests the presence of a physical sport or artistic-expressive activity with reduced requirements for its reproduction (accessible spaces and few material requirements) which, according to the results obtained, are linked to positive emotions of joy and fun, which can act as key factors for the promotion of physical activity on this social network. Similarly, this accessibility may favor the implementation of these challenges in other areas, such as the field of Physical Education and the promotion of active homework, the latter being a strategy used in programs to promote physical activity in the young population that seek to compensate for the lack of daily physical activity concerning the recommendations of the World Health Organization (Galmés-Panadés; Vidal-Conti, 2020).

However, the promotion of this type of challenge in socio-educational settings must be supported by a critical vision and a deep knowledge of the reality of this social network. Although the number of studies on TikTok is less frequent, some previous research has shown how social networks can be a breeding ground for violence and/or discrimination based on gender (Rojo-Ramos *et al.* , 2022); they can also transmit gender stereotypes (Cuenca; Espinoza; Bonisoli, 2020). The analysis of the physical-motor challenges in this work showed how the challenges were frequently performed in pairs, the groupings were mostly heterogeneous or mixed, and the accounts that reproduced the challenges analyzed in this work belonged mostly to more than two people of different genders. Consistent with the findings of Delbosc and Mokhtarian

(2018), these results are evidence that the connections generated through these challenges in TikTok can drive certain physical, not virtual, social interactions for their design or playback and recording, which can act on the construction of gender and the necessary promotion of gender-positive interactions.

Consequently, and continuing with the analysis of the second objective of this study: to analyze in depth the content of these challenges from a gender perspective, it was found that some of these challenges presented audiovisual and verbal information that contributed to the construction of gender, the transmission of stereotypes and even contained discriminatory content. Therefore, the physical-motor content of this social network is crossed by hegemonic masculinity and the traits and roles attributed to gender in the field of physical-sport and artistic-expressive activity (Blández; Fernández-García; Sierra-Zamorano, 2007; Xiang *et al.*, 2017). Specifically, two videos confronted the capacities and roles traditionally assigned to masculinity and femininity, not only through images but also using verbal language through hashtags such as '#menvswomen', '#men', or '#women'. The first of these was through a parody in which attributes of power, strength, and control were shown when boys go to the toilet, as opposed to the submission and gentleness of girls in the same situation. The second showed how a man had a greater ability to achieve a movement with a high demand for flexibility than a woman who could not perform this gesture. In this sense, it is relevant that it is the man who is shown to be the greatest exponent of flexibility since this ability and gymnastics were traditionally associated with stereotypes that coincide with the traditional ideal of femininity in the physical sports sphere (Chalabaev *et al.*, 2013). In contrast to this type of content, four videos were identified that broke with these stereotypes and acted as precursors of gender equality. In two of the videos, the body image was the transgressive element. They showed a woman imitating a male character in a film (Moana), supported by graphic elements (such as the feminist symbol of the flexed arm contracting the biceps) and verbal elements, using the hashtag '#genderbend'. The images showed a woman displaying strength, power, and mastery of the situation. The other two videos called for gender equality in football, a sport that was mostly associated with the male gender (Chalabaev *et al.*, 2013). One video showed a woman performing an eye-foot coordination skill with tennis mobiles, while the other used the imitation of celebrations in men's and women's football as a critical element to claim equality for professional footballers. In these two football-related videos, the hashtags '#realmadridfemenino' or '#womenssports' appeared as descriptive concepts in the videos and are indicative of the evolving and changing nature of gender stereotypes and their link to certain sports activities and physical abilities associated with one gender or the other (Xiang *et al.*, 2017).

These results are congruent with the work of Kennedy (2020), Gil, Ruiz, and Olmo (2022), or González-Ramírez (2022) and reinforce the idea that TikTok can act as a gender-constructing container. It is relevant that in the case of the selection of challenges with physical-motor content analyzed in this study, feminist messages were more frequent. According to González-Ramírez (2022), it was corroborated how hashtags are part of a new feminist language used in TikTok. However, the results

contrast with those expressed by Kennedy (2020) or González-Ramírez (2022), whose work highlighted the transmission of a racialized, sexualized, and stereotyped image of women. The direct attention of these researchers to influencers and #dancechallenges content traditionally associated with femininity (Chalabaev *et al.*, 2013), may account for the differences with this study, which analyzed a more diverse sample of content.

According to the results of this work and previous literature, it becomes essential to address the content of this social network increasingly used by girls, boys, and adolescents from a critical point of view to encourage responsible use of it (Presa *et al.*, 2021) and promote physical-sporting activity with equal gender opportunities. Previous interventions obtained positive results after using TikTok with an artistic-expressive orientation (Escamilla-Fajardo; Alguacil; López-Carril, 2021), and the major influencers (referents for a large part of the young population) tend to reproduce some dance challenges on this social network (González-Ramírez, 2022). Consequently, TikTok and its physical-motor challenges can be an element of support for the training and awareness of the young population. However, responsible use of this network through physical-sporting activity should pay attention to both the audiovisual content and the hashtags and information written in the video captions to promote gender equality. Therefore, future lines of research should delve deeper into the analysis of audiovisual content, paying attention to body image and even music from a gender perspective, as both the results of this study and those of other previous works (González-Ramírez, 2022; Kennedy, 2020) are evidence of the transmission of gender stereotypes and discriminatory situations on this social network. Similarly, the audiovisual sample analyzed is a prospective of this work and at the same time a limitation of this study, and future research is needed to expand the number of videos encoded and delve deeper into broad, dynamic, and changing content such as the challenges developed, disseminated and consumed on TikTok.

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Resumo: O objetivo desta investigação foi analisar o #TikTokChallenges com conteúdo físico-motor numa perspetiva de género. Foi utilizada uma metodologia observacional e qualitativa numa amostra intencional e previamente selecionada de 87 vídeos com conteúdo físico-motor. As categorias da análise observacional foram baseadas na literatura prévia e a codificação foi realizada por dois analistas. Os dados codificados foram processados no SPSS. As legendas dos vídeos foram analisadas qualitativamente com o Atlas.ti por contagem de palavras e análise indutiva. Os resultados mostraram que a maioria dos vídeos analisados apresentava competências perceptivo-motoras, sendo a linguagem corporal e a dança os conteúdos mais frequentes. Seis vídeos apresentaram conteúdo com ideologia de gênero. Discute-se a necessidade de aprofundar o conhecimento desta rede social, que pode atuar na promoção da atividade física e na construção do género na população jovem.

Palavras-chave: Redes sociais. Atividades físicas. Educação física e treinamento. Equidade de gênero.

Resumen: El objetivo de esta investigación fue analizar #TikTokChallenges con contenido físico-motor realizando una aproximación desde la perspectiva de género. Se utilizó una metodología observacional y cualitativa sobre una muestra, intencional y previamente seleccionada, de 87 vídeos con contenido físico-motor. Las categorías del análisis observacional se fundamentaron en la literatura previa y la codificación fue realizada por dos analistas. Los datos de dicha codificación fueron tratados en SPSS. Los pies de vídeo fueron analizados cualitativamente con Atlas.ti procediendo con un conteo de palabras y un análisis inductivo. Los resultados mostraron que la mayoría de los vídeos analizados manifestaron capacidades perceptivo-motrices, siendo la expresión corporal y el baile los contenidos más frecuentes. Seis vídeos presentaron contenido con ideología de género. Se discute sobre la necesidad de ahondar en el conocimiento de esta red social que puede actuar en la promoción de actividad física y la construcción de género en la población joven.

Palabras clave: Redes Sociales. Actividades físicas. Educación y entrenamiento físico. Equidad de género.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest in this study.

AUTHOR CONTRIBUTIONS

Jorge Agustín Zapatero Ayuso: Formal analysis; Project administration; Writing - Original draft.

Elena Ramírez Rico: Conceptualization; Investigation; Writing – Review and edition.

Elisa García Obrero: Formal analysis; Investigation; Writing – Review and editing

Miguel Villa de Gregorio: Investigation; Writing – Review and editing.

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