

# Relationship between the engagement for the use of social networks and the practice of physical exercise in the municipal sports centers of Barcelona

Relación entre el *engagement* por uso de redes sociales y la práctica de ejercicio físico en los centros deportivos municipales de Barcelona

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## ABSTRACT

**Introduction.** This study analyzes the use of social networks by the municipal sports centers (CEM) of Barcelona and how this can be related to the practice of physical exercise. **Methodology.** The engagement of the municipal sports centers of Barcelona was calculated by registering the interactions in their social networks (Facebook and Twitter) and then determining the relationship between engagement and the practice of physical exercise in Barcelona. **Results** The data shows that there is a positive relationship between engagement and the practice of physical activity. Besides, it is identified that Facebook likes determined the highest relationship. **Discussion and Conclusions.** Although the data collection was very limited (82 days), it is recommended that sports centers manage communication through social networks and pay attention to how to involve users.

**KEYWORDS:** engagement; social networks; Facebook; Twitter; physical exercise; sports centers.

## RESUMEN

**Introducción.** El presente estudio analiza el uso de las redes sociales por parte de los centros deportivos municipales (CEM) de Barcelona y como esto puede relacionarse con la práctica de ejercicio físico. **Metodología.** Se calculó el *engagement* de los centros deportivos municipales de Barcelona mediante el registro de las interacciones en sus redes sociales (Facebook y Twitter), para luego determinar la relación existente entre el *engagement* y la práctica de ejercicio físico en Barcelona. **Resultados.** Los datos muestran que existe una relación positiva entre el *engagement* y la práctica de actividad física. Además, se identifica que los *likes* de Facebook determinaron la mayor relación. **Discusión y conclusiones.** A pesar de que la recogida de datos fue muy acotada (82 días), se recomienda que los centros deportivos gestionen la comunicación mediante redes sociales y presten atención en como involucrar a los usuarios.

**PALABRAS CLAVE:** compromiso; redes sociales; Facebook; Twitter; ejercicio físico; centros deportivos.

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### 1. Introduction

The fitness industry has seen constant growth in recent years. According to data from IHRSA (2019), the sector, worldwide, obtained revenues of 94 billion dollars in 2018. The United States is positioned, once again, in the first place, in the number of clubs and clients. Obtaining revenues of 32.2 billion dollars per year, contributing 32% of the global turnover (Palco 23, 2019 from IHRSA, 2019).

In Europe, fitness practice amounts to 60 million users, with the presence of 59,055 specialized centers (Deloitte and Europe Active, 2018). Germany ranked second, with 11.1 million members and revenues of 6.3 billion dollars, followed by Great Britain, in third place, whose revenues reached 6.2 billion dollars (IHRSA, 2019).

In 2018, Spain was the fifth European country in terms of the number of members registered in clubs (5.3 million) and it was the second country that grew the most, with a total income from centers of 2,701 million euros. The Spanish sector is made up of 4,650 centers, between public and private ones. The former are operated by private management companies with 550,000 members (Deloitte and Europe Active, 2018). In Barcelona, according to the guide *to sports equipment: offer and services* (Barcelona City Council, 2018), the network of municipal sports centers (CEM) is made up of 42 centers distributed throughout all the districts of the city.

As the fitness sector has steeply grown, so has technology and digitization in this industry thanks to the use of the internet (Dans, 2010). The well-known millennials, today exercise to use technology, and consequently to be able to obtain updated information about their health and diet (Goldman Sachs, 2013; Nielsen, 2014; Wellness Creative Co., 2018). At the European level, according to the International Telecommunications Union (ITU, 2018), 79.6% of the population regularly uses the

internet. In Spain, according to the National Institute of Statistics (INE, 2018), the use made by the population between 16 and 74 years old of the internet is 84.6%, while, in the specific case of Catalonia, for the same age rank, is 85.7% (Indecat, 2017).

Along with the explosive growth of the internet, so have social media. In Spain, according to the Association for Media Research (AIMC, 2017), 80.3% of Spaniards visit social networks. Likewise, town halls make extensive use of them (López Alonso & Moreno López, 2019) 85% of the 30 million Spanish Internet users between 16 and 65 years of age make use of these social networks (Interactive Advertising Bureau, 2018). Social networks are understood as a set of relationships between individuals (Gallego, 2010; Grossetti, 2009) that have connections between them Christakis and Fowler (2010). For Berners-Lee (2000), in computing, the social network refers to the website that people use to generate their profile and share information, becoming a powerful media (Barrientos-Báez et al, 2018) able to influence thought and emotions (Segado-Boj et al, 2020; Aladro Vico & Requeijo Rey, 2020) and having a pedagogical effect (Moreira et al, 2019; Fondevilla Cascón et al, 2012) with uses reaching the field of healthcare (Barquero Cabrero et al, 2018) and investigation (Niño González & Linares Herrera, 2020).

In Spain, according to AIMC (2018), Facebook, whose mission is to give people the power to build community and bring the world closer (Facebook, 2018), is positioned in the first place of preference, being used by 85.6% of internet users. This thanks to its tools that make it a unique network, connecting users regardless of place (Holzner, 2009). In the second position, with a 46.4% preference, is Twitter, a social network that allows you to follow last-minute events (Twitter, 2018) and also provides the retweet function, a function considered by several studies as a reliable indicator regarding popularity (Boyd, Golder, and Lotan, 2010). It also allows the use of hashtags, which point to a specific topic that is shared by all tweets (Zarella, 2010). Based on this, hashtags can be used by companies to promote and develop their brand (Blaszka, Burch, Frederick, Clavio, and Walsh, 2012). This is how, in company sports terms, Twitter is presented as a social network that has redefined the form of communication in the sports sector (Fisher, 2009). For this reason, Twitter is constantly present in sports communication since its beginnings in 2006 (Clavio and Kian, 2010).

On the other hand, Facebook has also been used to maintain customer-company contact, since, as indicated by Holzner (2009), advertising and companies circulate on this social network, allowing the interests and preferences of users to be determined. In the same way, Filo, Lock, and Karg (2014), point out that social networks have generated that brands invest time and resources to improve engagement with their customers.

Shilbury, Westerbeek, Quick, Funk, and Karg (2014), indicate that social networks create a profitable medium that involves interaction, collaboration, and co-creation (as cited in Filo et al., 2014). Likewise, for Witkemper, Lim, and Waldburger (2012), these allow sports media to interact with consumers and identify the reasons why clients use social networks (as cited in García-Fernández et al., 2017). For Hopkins (2013) they are the main communication platforms between brands and sports customers. For all these reasons, companies dedicated to sports, teams, and athletes use social networks to interact with their audience (Blaszka et al., 2012), as well as, for Stavros, Meng, Westberg, and Farrelly (2014) these allow fans to become more closely involved with their team or organization, which strengthens the relationship between participants. Because of the above, as Katz and Cohen (1959) argued, it is more important to know what people do with the media, rather than to know what the media does with people.

Thanks to this, companies began to consider social networks within their marketing strategy (Villagómez Manrique & Acosta Gonzaga, 2020), which, according to Kotler and Armstrong (2008), should seek to satisfy customer needs. Stanton, Etzel, and Walker (2007) state it in the same way, indicating that products must satisfy the customers' needs and achieve the objectives of the organization. Faced with this, the concept of engagement begins to be outlined, which for Aristóteles (2007) is related to voluntarily obtaining products or services. According to Mainou and Lozoya (2012) and Maslow's theory, the concept is related to the decision of the acquisition. For Kahn (2004) it would be translated as commitment, although Salanova and Llorens (2008) indicate that they do not agree with this translation without falling into repetitions or errors. It is here when we begin to talk about engagement marketing, which listens to the consumer and focuses on their needs (Muñoz and Martí, 2006), and that according to Roberts (2010) gives life to *Lovemarks*, people loyal to a brand beyond reason (as cited in Maram, 2014).

Currently, companies seek to generate engagement by providing information and learning from customers (Algesheimer, Dholakia, and Herrman, 2005). Social networks have been considered in the marketing and branding activities of companies (Kaplan and Haenlein, 2010) since the existence of a relationship between social networks and engagement has been detected, which influences the purchase behavior (Libai, 2011) and that goes beyond a transaction (Verhoef, Reinartz, and Krafft, 2010; Felipe Morales et al, 2018). In this sense, many companies use social networks to find new customers, build loyalty, improve satisfaction, increase sales and income, or build a good reputation (He, Zha, and Li, 2013).

Some authors have tried to relate social networks and followers, proposing formulas for it. Thus, Liu-Thompkins and Rogers (2012) analyze the number of subscribers to YouTube channels, while Oviedo, Muñoz, Castellanos, and Sancho (2014) propose formulas to determine the engagement for Facebook and Twitter users, considering the number of likes, comments, shares, and post. It is for the above reasons that this study aims to calculate the engagement on Facebook and Twitter of the CEMs to then determine how it influences the practice of physical exercise, accepting or discarding the following hypothesis:

H1: There is a positive relationship between engagement and physical exercise.

## 2. Methods

### 2.1. Participants

The 42 existing CEMs in Barcelona were considered according to the Sports Equipment Guide: offer and services (Barcelona City Council, 2018). From here, the website of each CEM or its management center was also extracted to later locate their Facebook and Twitter profiles.

Once the profiles were reviewed, the following inclusion criteria were applied for each CEM:

- 80% or more of the publications had to make direct reference to the CEM, not considering those referring to external activities or events, nor to the competitive area of the clubs.
- Have at least one publication during the review period.
- The profiles had to refer to the exclusive management of Barcelona.
- Being considered within the *Sports Habits in Barcelona* survey (Barcelona City Council, 2017).

The review period was between April 25<sup>th</sup> and July 16<sup>th</sup>, 2017, since during this period the data from the *Sports Habits in Barcelona* survey (Barcelona City Council, 2017) were collected, which was used to reflect the practice of physical exercise in Barcelona. This survey was applied to 4113 people.

Finally, the sample was made up of 32 sports centers for Facebook and 14 for Twitter.

## 2.2. Instruments

An observation sheet was used to record the CEMs, their social networks, and follower activity. Then, the following method devised by Oviedo et al. (2014) to determine engagement was used, which quantifies the interaction of users in social networks:

$$\text{Engagement on Facebook: } \frac{\text{Likes} + \text{Comments} + \text{Shares} + \text{Other clics}}{\text{Number of posts} \times \text{Average impressions} \times \text{Average reach}}$$

Due to the limitations of this formula, such as the other clicks value, average impressions, and average reach; which can only be obtained from the administration panel, the following formula adapted by García-Fernández et al., (2017) was used:

$$\text{Engagement on Facebook: } \frac{\text{Likes} + \text{Comments} + \text{Shares}}{\text{Number of posts}}$$

In the same way, the formula for Twitter was adapted by García-Fernández et al., (2017):

$$\text{Engagement on Twitter: } \frac{\text{Favorites} + \text{Mentions} + \text{Retweets}}{\text{Number of tweets}}$$

## 2.3. Procedures and data analysis

A retroactive review of the Facebook and Twitter profiles was carried out, for the period between April 25<sup>th</sup> and July 16<sup>th</sup>, 2017. For Twitter, the publications retweeted by the CEM were not considered, since they belonged to other profiles together with their reactions.

Then, the engagement of each CEM was calculated, to later establish the relationship between this and the practice of physical exercise through correlations and linear regressions, using the SPSS software version 25.

## 3. Results

### 3.1. Social Networks

100% of the sample of municipal sports centers in Barcelona used in this study (n=32 Facebook; n=14 Twitter) had websites, whether they were their own or of their management centers. For Facebook, 81.25% (n=26) of the CEMs had their own profile, while 18.74% (n=6) were managed by the profile of the management centers; For Twitter, 57.14% (n=8) of the CEMS had their own profile and the remaining 42.8% (n=6) were managed by their management centers.

Among the 5 profiles that had the most followers in July 2017, for Facebook, were the *Claror* group (9,089), *Picornell* (7,238), *Bac de Roda* (5,075), *Cotxeres Borbó* (5,033), and *Perill* (4,249); for Twitter, *Picornell* (2,363), *Claror* (1,819), *Nova Icària* (1,203), *Can Caralleu* (1,107), and *Atles Esports* with 457 followers.

### 3.2. Engagement Facebook and Twitter

By using the adapted engagement formula from Garcia et al. (2016), the centers with the highest engagement for Facebook were the CEM *Can Ricart* (31.63) and CEM *Maresme* (29.37). The average for Facebook was 13.06. For Twitter, the centers that achieved the highest engagement were CEM *Espanya Industrial* (3.47) and CEM *Horta* (2). The average was 1.18.

### 3.3. Relationship between engagement with physical exercise and followers

To validate or rule out the study hypothesis, Pearson's correlation was calculated using bivariate data. As shown in Table 1, for Facebook the result was a correlation coefficient  $r=0.197$ , determining the existence of a positive and weak relationship. For Twitter, the result was a correlation coefficient of  $r=0.028$ , determining the existence of a positive and weak relationship. Because in both cases the relationship was weak, linear regressions were not performed to predict the behavior of physical exercise practice regarding the variation in engagement.

**Table 1.** *The correlation coefficient between Facebook and Twitter engagement regarding physical exercise practice.*

Nº	Social network	r	Direction	Force
1	Facebook	0,197	Positive	Weak
2	Twitter	0,028	Positive	Weak

Note. r = correlation.

Subsequently, the Pearson's correlation was calculated to determine the relationship between likes/followers and the practice of physical exercise. As shown in Table 2, for Facebook, the correlation coefficient obtained was  $r=0.722$ , which determines the existence of a strong and positive relationship. For Twitter, the correlation coefficient was  $r=0.405$ , which determines the existence of a moderate and positive relationship. Linear regressions were carried out for both correlations, thus the regression for the likes yielded  $R^2=0.521$ , indicating a positive and moderate relationship. For followers, it yielded  $R^2=0.164$ , indicating a positive and weak relationship.

**Table 2.** *Linear regression between likes/followers regarding the practice of physical exercise.*

Nº	Social Network	r	Dr	Fr	r <sup>2</sup>	Dr <sup>2</sup>	Fr <sup>2</sup>
1	Facebook	0.722	Positive	Strong	0.521	Positive	Moderate
2	Twitter	0.405	Positive	Moderate	0.164	Positive	Weak

Note. r = Correlation; Dr = Correlation direction; Fr = Correlation Force; r<sup>2</sup> = Regression; Dr<sup>2</sup> = Regression direction; Fr<sup>2</sup> = Regression force.

Multiple regression was calculated considering the likes and followers regarding the practice of physical exercise, seeking to determine which of these variables was presented as the best predictor. As shown in Table 3, an  $R^2=0.522$  was obtained, indicating that the model is statistically significant and establishing that the "like" variable on Facebook was the best predictor of the practice of physical exercise.

**Table 3.** *Multiple regression model for likes and followers. Regression coefficient.*

	<u>Non-standardized coefficient</u>		<u>Standardized coefficient</u>	<b>T</b>	<b>Sig.</b>
	<b>B</b>	<b>Standard Error</b>	<b>Beta</b>		
Constant	3.531	2.626		1.345	.189
Likes	.006	.001	.707	4.997	.000
Followers	.001	.004	.034	.244	.809

Regarding the above, for the Facebook likes, the regression slope of the line was calculated, which was  $m=0.005$ . With this, it can be interpreted that for every 1,000 new Facebook likes, there would be 5 new attendees or users in a CEM.

#### **4. Discussion and conclusión**

A satisfactory experience in social networks by users allows users to recommend the product or service offered by the company that manages the social network (He et al., 2013). This is why it is important to correctly manage social networks since it is becoming a useful form of interaction between company-user for the management of sports services (Hambrick, Frederick, and Sanderson, 2015).

The objective of this research is to determine the existence of a positive relationship between the engagement generated by the social networks of the CEM, calculated with the formula of Oviedo et al. (2014), with the practice of physical exercise reflected by the *Sports Habits in Barcelona* survey (Barcelona City Council, 2017). According to the results obtained in this study, the existence of a positive relationship between these variables is confirmed. In the same way, it is indicated that there is a positive direction in the relationship between likes and followers, regarding the practice of physical exercise. When calculating the regression coefficient for likes, force is kept moderate, and when performing a multiple regression, Facebook likes indicate a Beta of 0.707, indicating that Facebook likes are the best predictors of the practice of physical exercise.

These obtained results are highly representative for Facebook, since, regarding the total population, the sample represents 76.19% of the CEM. Similarly, the formula used by Oviedo et al. (2014) validates the results on the calculation of engagement, this formula having been already used in previous studies by Herrera, Pérez, García, and Fernández (2017), and by García-Fernández et al., (2017), for the calculation of engagement in Facebook profiles.

Regarding Twitter, the obtained results are less representative and of weak to moderate force, this may be because the sample is smaller compared to Facebook, however, the inclusion criteria for both networks were the same. This is because the CEMs prioritize posts on Facebook over Twitter, even though there is the option of sharing posts between both networks. The low use of Twitter is strange, considering that it is a network in which audio and image can be included, which would allow a more direct impact on consumers (García, Fernández, Durán, and Vélez, 2015).

Besides the use of social networks, all the sports centers in this study (32 CEM for Facebook and 14 CEM for Twitter) have a website, either owned by the CEM or the management center, it is even recorded that the total population (42 CEM) have a website. However, this digital platform is designed to generate information in one direction, from the center to the user, which does not allow generating interaction with users.

Regarding the engagement achieved for CEMS on Facebook and Twitter, the values are low, indicating that social networks are unable to establish a relationship with their clients through this media, even though this and other studies indicate that social networks are a good tool to maintain a connection with users. Therefore, it is recommended that sports centers make publications that generate interest and reactions from users, that these publications are meaningful for them, and make them feel like part of the center. That the social profile not only has one direction in the transmission of information, from the center to the user, but also has a return address, from the user to the center. In the same way, the present study shows that social networks are used by users not only for entertainment purposes, unlike what was indicated by Witkemper et al. (2012), but also as a means to establish relationships and search for information regarding those entities that they follow or are of interest to them, being able to make inquiries and solve doubts. Due to this, sports centers must incorporate social networks into their marketing plan, since these will allow greater interaction between the center and users, allowing them to achieve a greater presence in the digital world and with this increase loyalty. They should pay attention to how to involve users and try to generate emotional ties with them (Mejía, 2013).

Although the research topic is relatively new, and therefore necessary to enhance the management of CEM, it is not without limitations. First of all, reference is made to the limited data collection period of only 82 days, leaving out of the analysis those centers that did not publish within this period. This is why longitudinal analyzes must be carried out to have a more complete vision of the interaction in social networks.

Regarding the instruments used, these only considered data from external observation, leaving out those data that can only be recorded by the internal panel of each social network profile. This is why adapted metrics were used that only considered external data. Besides the above, there is the research limitation of the lack of specific literature on this subject.

However, these limitations outline the way forward regarding future research in this field, which will allow a better adjustment of the positive relationship between sports practice and the use of social networks.

With all the above, this study concludes that there is a positive relationship between both engagement and likes/followers of the CEMS with the practice of physical exercise in Barcelona.

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