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The Mediating Role of e-Lifestyles to Use the Fitness Center App

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ABSTRACT

This paper studies the effect of e-Lifestyles on the fitness industry. The aim is to investigate the (mediating) role of e-Lifestyles in the relationship between behavioral intentions to use the fitness center app, app usage behavior, and member overall satisfaction with the fitness center, i.e., explain whether e-Lifestyles allow us to better understand fitness center satisfaction or app usage intention. Results of 1403 members revealed that the relationship between behavioral intentions to use the app and the members' overall satisfaction with the fitness center is positively mediated by e-Lifestyles. Results further demonstrate that there is a direct positive effect of behavioral usage intentions of the app-on-app usage behavior and overall member satisfaction toward the fitness center. The study adds to the literature on e-Lifestyles by demonstrating its significance in the context of fitness center management. This study helps managers conduct more thorough marketing plans and develop differentiated strategies and provides information for app designers.

1. Introduction

The term lifestyle was first used by marketers in the mid-1950s to better understand consumer behavior (Havighurst & Feigenbaum, 1959). Understanding people's lifestyles is thought to be very useful to tailor and deliver services and products to a particular population.

In recent years, technologies have proven to be a growing reality in our lives and in society, making sports accessible to anyone (Smith & Westerbeek, 2010). This growth has prompted businesses to invest in technological innovation services, as a positive perception of technological innovation is a key antecedent for satisfaction and, ultimately, commitment (Schneiders & Rocha, 2022). The proliferation of technological services and products has been fueled by the Internet and mobile communications, resulting in an evolution of the concept of lifestyle and the emergence of e-Lifestyles. Thus, the concept of e-Lifestyles emerged to describe consumers' behaviors and attitudes toward technological services and products (Kim et al., 2002). This concept evolution is also occurring in the sports industry, conditioning variables in the management of information technologies (fitness applications (apps)). A study that examined the e-Lifestyles of fitness center members discovered that members consume and engage in technology media (Ferreira-Barbosa, Loureiro, et al., 2022). Despite this, few studies on e-Lifestyles related to the use of fitness apps have been conducted (Goodyear et al., 2019).

The competitiveness in the fitness sector is rising. The goal of every fitness center is to set itself apart from the competition. In this sense, to create competitive advantage, fitness centers invest in innovative technology services such as wearable fitness technologies (Pedragosa & Ferreira Barbosa, 2022; Pizzo et al., 2021), virtual classes, on-demand services, and the use of apps (King, 2018; Pedragosa & Ferreira Barbosa, 2022), although it is important to note that members differ and do not all have the same e-Lifestyle. Therefore, it is significant to consider which e-Lifestyles fitness center members have to manage the technology provided to them correctly. Managers must take this into account to improve the relationship between behavioral intentions, the use of fitness center apps, and overall member satisfaction.

Fitness center apps can provide users with activities that they can do independently or in a fitness center. Several fitness centers are now incorporating technologies into their facilities to motivate their members (Feld, 2018). Mobile apps for fitness centers are frequently incorporated into the management software that they employ. These apps are a very convenient and easy-to-use technology that allows fitness centers to stay in touch with their members on a regular basis. Members can use the fitness center app to easily purchase products and services (Feld, 2018). Automating procedures, like acquiring services such as spas, send push messages and communications instead of sending text messages, saving time and money. The member's use of the app to check in via a QR code simplifies the entrance to the fitness center and minimizes the cost with member cards, as well as freeing up team time from reception, and is one of the other advantages of employing this type of software. By cutting operating costs, fitness center apps can

help boost member satisfaction while also increasing income and referrals. These fitness center apps allow for more interaction with members, resulting in a stronger bond between the company and the member (Ferreira Barbosa & Pedragosa, 2021; King, 2018). For all the reasons mentioned, more and more fitness centers are resorting to the use of fitness center apps. For example, Portugal is seeing a surge in the development of these apps. According to Pedragosa and Cardadeiro (2021), the apps are used by approximately 68% of fitness centers in Portugal. All studies developed on technology and users in sport management, and specifically in fitness centers until now, have considered a common behavior for all users. However, different e-Lifestyles could bring about different behaviors. Our study considers the role of e-Lifestyles in different aspects of technology management in fitness centers.

There are several theories to analyze technology management in firms, and particularly in fitness centers. After analyzing some of the most prominent in the literature, such as the Technology Acceptance Model (TAM) (Davis, 1989) and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003), the Extended Unified Theory of Acceptance and Use of Technology (UTAUT2) was selected because currently it is the most sophisticated development about technology management. This theory was developed by Venkatesh et al. (2012) with the specific goal of investigating customer acceptance and use of technology. UTAUT2 is a more consumer-driven theory compared to other theories of technology use, which is why it was selected for this study.

The intention to use fitness center apps is known to be positively associated with app usage and overall member satisfaction with the fitness center (Ferreira Barbosa et al., 2022), though it is unknown how this relationship may be affected (i.e., mediated) through different members' e-Lifestyles. Typically, researchers ignore the effects of potential mediators and focus only on direct relationships. A mediating (indirect) impact refers to the impact of an independent variable on the dependent variable through the mediation of a third variable (Cepeda et al., 2017). Mediation analysis is important and can contribute to a better understanding of the relationship between an independent variable and a dependent variable.

According to the foregoing, the aim of this study is to investigate the (mediating) role of e-Lifestyles in the relationship between behavioral intentions to use the fitness center app, app usage behavior, and member overall satisfaction with the fitness center, i.e., to explain whether e-Lifestyles allow us to better understand fitness center satisfaction or app usage intention.

In the next section, the concept of e-Lifestyles will be discussed. It will also consider fitness apps in sports, particularly fitness, and will provide a description of the study variables. The research hypothesis and research method will be given in Section three. Section four will go over the methodology. Section five presents the results. Section six brings the work to a close by presenting a discussion and conclusions.

2. Literature review

In this topic, the concept of e-Lifestyles will be presented and the use of fitness apps in the sport context will also be addressed. The dependent variables investigated (overall member satisfaction and usage behavior) and also as the independent variable (behavioral intention to use the fitness app) will be further examined in this section.

2.1. E-lifestyles

As technology advanced, it became necessary to develop a term to describe consumers in the cyberspace environment and examine how consumer e-Lifestyles affected their consumption of technological products and services. Hence, the term e-Lifestyle was coined (Yu, 2011). E-Lifestyle was used by Kim et al. (2002) to describe what consumers want, are interested in, and how they feel about the Internet. According to Schiffman et al. (2003), the e-Lifestyle is a crucial factor in determining how individuals use the Internet for particular tasks or objectives. Lifestyle is necessary to determine market segments of consumer behavior. Companies can more effectively tailor their offerings to target specific information and communication technology segments by understanding e-Lifestyles (Chen & He, 2006; Yu, 2011). To identify the pattern of e-Lifestyle development in the technological generation (generation after 1995), Wijaya et al. (2020) found that the reasons that led to the e-Lifestyle of this generation corresponded to electronic activities, electronic interests, e-opinions, and electronic values. The same authors revealed that the technological generation often uses social networks and social media primarily for communication, entertainment, and shopping.

To give marketers the most effective technique to market and create services for their members, managers of various firms have concentrated on examining the perspective of e-Lifestyles (Chen & He, 2006; Yu, 2011). Several studies, the majority of which are recent, have been published on this subject (Abedini Koshksaray et al., 2015; Ferreira-Barbosa, Loureiro, et al., 2022; García-Fernandez, Gálvez-Ruiz, Grimaldi-Puyana, et al., 2020; Hassan et al., 2015a, 2015b; Kim et al., 2002; Wijaya et al., 2020; Yu, 2015).

Kim et al. (2002) found that the types of online games played have a significant impact on the association between an e-Lifestyle and reasons for using online games. Abedini Koshksaray et al. (2015), meanwhile, investigated Internet users' e-Lifestyles as a factor influencing Internet advertising. Yu (2015) analyzed the influence of individual e-Lifestyles on the adoption of mobile banking services using e-Lifestyles as a moderator. In the field of fitness and app usage, García-Fernandez, Gálvez-Ruiz, Grimaldi-Puyana, et al. (2020) found a link between e-Lifestyles and fitness app usage, while Ferreira-Barbosa, Loureiro, et al. (2022) investigated the e-Lifestyles of fitness center members.

According to the research conducted on e-Lifestyles and the importance discovered in studying e-Lifestyles to improve communication and service delivery to members, their study deserves consideration.

2.2. Fitness apps phenomenon

The app world is transforming society and, as a result, the sports business. Because of the rapid advancement of mobile

technologies, apps have become a phenomenon in this business. Apps have changed the way people stay fit and monitor their health on a regular basis (Muntaner-Mas et al., 2021), especially among young people (Lupton, 2020), encouraging them to engage in more physical activity (Goodyear et al., 2019).

The global pandemic COVID-19 in 2020 has resulted in a significant evolution and flexibility of mobile apps to provide greater benefits not only to users, but also to app designers. As a result of the pandemic, health and fitness app revenues and downloads in the United States and Europe increased significantly by the end of 2020, with 593 million health and fitness apps downloaded (Statista & Statista, 2021). In relation to the pandemic, Liu et al. (2022) emphasize the role of fitness apps as an alternative to fitness centers and in-person exercise. At the moment, apps make adopting a fitness and physical activity regimen more convenient and accessible. Despite this, the download statistics for these apps remain high, even after the major pandemic outbreak. By 2022, the number of downloads in the Health and Fitness segment has been projected to reach around 3764 million downloads (Statista & Statista, 2022).

Users can use health and fitness apps to measure the intensity of physical activity, diet, weight control, and even sleep habits (Higgins, 2016). These apps are becoming more holistic, allowing control not only of physical activity but also of other health variables (menstrual cycle, for example), and everything points to the future of health and fitness apps becoming more immersive, as major Internet companies have begun to explore virtual reality and increase reality enhancements for apps in this category (Statista & Statista, 2022).

Individuals can benefit from using fitness apps in a variety of ways. Several studies have shown that its use is associated with an increase in physical activity (Busch et al., 2022; Muntaner-Mas et al., 2021; Sullivan & Lachman, 2016). West et al. (2016) determined that people who used the app were better able to develop weight loss strategies. Molina and Myrick (2021) identified several motivations for exercising and using fitness apps, including improved fitness, appearance, and wellness, as well as work-related responsibilities. According to studies, the social components of health and fitness apps can lead to friendly competition and social support among peers, which can improve social well-being and levels of physical activity (Chiu & Cho, 2020; Sullivan & Lachman, 2016). Chiu and Cho (2020) go on to say that adding gamified features (e.g., awarding prizes for reaching a goal) to health and fitness apps can lead to more effective app usage.

In recent times, there has been a lot of research on fitness apps (Acikgoz et al., 2022; Angosto et al., 2020; Beldad & Hegner, 2018; Cai et al., 2022; Chiu & Cho, 2020; Elsotouhy et al., 2022; García-Fernandez, Gálvez-Ruiz, Grimaldi-Puyana, et al., 2020; Molina & Myrick, 2021; Yeoh et al., 2022). The use of mobile apps has also been studied, especially in the fitness industry, given the link between member satisfaction and their use (Ferreira Barbosa et al., 2022). Fitness center apps allow members to remain in constant contact with the center, accessing information and services, as well as purchasing products, for example. For sports managers, this means lower administrative costs.

2.3. Behavioral intention, usage behavior of the app, and member satisfaction with the center

In the context of fitness services, the willingness to use and maintain the use of a specific technology is referred to as behavioral intention. This stands for the intention of the member to effectively utilize a future product or service (Venkatesh et al.,2012). Usage behavior is the behavior involved in actually using a technology, and it refers to the process of consuming specific technological goods/services (Davis, 1989; Venkatesh & Bala, 2008; Venkatesh & Davis, 2000). The usage behavior produces experience—based validation, which is the positive acceptance or corroboration of the experience, as well as experiential or cognitive transformation, which produces sharing behavior. This behavior is the result of the experience's validation and transformation from one person to another (Chu & Kim, 2011; Jalilvand et al., 2011).

Member satisfaction is derived from a variety of cognitive and emotional encounters that lead in a personal evaluation of a selection. In essence, member satisfaction is a psychological state that occurs as a result of the purchasing and consumption activity (Evrard, 1993). Member satisfaction is vital to evaluate since it serves as a prospective and foreseeable indicator of consumer behavior (Oliver, 1980). Kotler and Keller (2012), state that satisfaction is the reaction a person has when comparing the actual performance of a product to their expectations. Satisfaction results from the perceived service quality (Suh & Pedersen, 2010), the service offering, and the safety and image promoted by the fitness center in the context of the fitness industry (Ferrand et al., 2010). Additionally, several scholars agree that member satisfaction is critical for retention (Bodet, 2006; Fornell, 1992; Rahmatulloh & Melinda, 2021; Rust et al., 1995): As a result, sports organizations should strive toward it.

3. Methodology

This topic will address the sample and data collection, the instrument used to collect the data, the research hypotheses, and the data analysis.

3.1. Sample and data collection

For data collection, an online questionnaire (google forms) was sent. The questionnaire was disseminated by the Portuguese Association of Fitness Centers and Gyms, which sent the questionnaire to the managers of Portuguese fitness centers from the north to the south of the country. The fitness center managers, in turn, disseminated the questionnaire to their members, reaching 1678 members of Portuguese fitness centers.

According to the most recent data on the number of fitness center members in Portugal, there are 354,253 active

members (Pedragosa et al., 2022). This presupposes that for a confidence interval of 99.99% a sample of at least 1508 members is needed (Dean et al., 2013), which we have achieved ($n = 1678$ members). However, the study included all the participants who indicated that they use their fitness center's app. Because 275 of the 1678 respondents stated that they do not use the app, 1403 members were included in the study.

The questionnaire was sent to fitness center chains, and individual fitness centers, without exception. Each fitness center, in turn, could use a different application. However, it can be indicated that most fitness centers mostly use one of these four apps: Regybox, OnVirtualGym, Trainingym and myHut. All of these apps have an almost identical design, functionality and ease of use, making the study fairly homogeneous (Baretta et al., 2019; Conroy et al., 2014; Shabir et al., 2022).

It was found that 59% of members ($n = 982$) were female while 41% were male ($n = 696$). The age range that most responded to the questionnaire was 25–34 years (29%; $n = 491$) and 35–44 years (29%; $n = 486$). In terms of educational qualifications, 66% ($n = 1101$) of the members had higher education. Additionally, 32% of the fitness center's members had been part of the center for more than four years, while another 32% ($n = 541$) had been part of the center for between two and three years. The study is represented by members of 13 cities in the country, with a greater predominance in Lisbon ($n = 903$) and Porto ($n = 236$), which is justified by the fact that these are the cities with the highest levels of national population. The fitness app was used by the majority of the clients (84%; $n = 1403$), and included in the final sample.

3.2. Measurement instrument

A 52-item online survey was used to collect the data. From these, 24 items were based on the UTAUT2 model (although the price variable was excluded since the app is free to members), four items assessed behavioral intentions to use the app, one item assessed usage behavior and four assessed members' overall satisfaction with the fitness center, based on, Cronin et al. (2000), updated by García-Fernández et al. (2018). Additionally, 19 items were added using the scale proposed by Lee et al. (2009) to identify relevant aspects of e-Lifestyle that influence consumer adoption of technological products. Two of these 19 items assessed respondents' fashion awareness, reflecting their interest in a product's visual appearance, design, or uniqueness. Three items assessed leisure orientation by inquiring about respondents' leisure time and the importance they placed on a leisure lifestyle. Three items assessed Internet engagement by inquiring about the respondents' level of Internet use, and seven items assessed e-shopping predisposition by asking about their perception of shopping and shopping online. Two items were used to assess perceived usefulness and two to assess perceived ease of use. These items were used to reflect the context of usage of the technological product (Appendix 1).

The Likert scale responses ranged from 1 to 5. The questionnaire also inquired about sociodemographic and member characteristics, age, gender, educational qualifications,

attendance at the fitness center, registration time, and questions about fitness app usage (whether or if the member utilizes a fitness app, and if so, which one is used by the fitness center he/she attends). In order to investigate concerns regarding endogeneity and common method bias, these variables were employed as both instrumental factors and control variables.

3.3. Research hypotheses

Member satisfaction is defined by the service expectations members have and the impressions they have after using the product or service, and it is important for managers to understand the true level of member satisfaction and the causes of this satisfaction. To achieve loyalty and retention, it is critical to check which features of the services are most valued, as well as to comprehend the reasons for satisfaction. As a result, in order for businesses to continue to compete in the market, they must develop and maintain member loyalty, and member satisfaction emerges as a critical approach to achieving this goal. According to several studies over the years, satisfaction is linked to behavioral intentions (Eskiler & Altunışık, 2021; Foroughi et al., 2019; García-Fernández, Gálvez-Ruiz, Sánchez-Oliver, et al., 2020; Howat et al., 1999; Murray & Howat, 2002; Whitburn et al., 2020). Ferreira Barbosa et al. (2022), on the other hand, demonstrate that the usage behavioral intentions of a product service (fitness center app) influence member satisfaction with the fitness center.

To measure behavioral intention to use technology, the variable intention to use comes before the usage construct. The main determinant of actual usage is behavioral intention (Davis, 1989). Consumers who establish intentions about a specific conduct will be more motivated to carry out that behavior due to the increased likelihood of using that technology (Orbell et al., 1997). According to Ferreira Barbosa et al. (2022), behavioral intentions have an impact on usage behavior.

It is considered that members' e-Lifestyles can play a mediating role in both relationships. The mediation hypotheses postulate how, or by what means, an independent variable (X) affects a dependent variable (Y) through one or more mediating variables (Mn). In this case, we have a simple mediation (Mediation process in which there is only one mediation variable). The causal effect of variable X can be split into an indirect effect on Y via M ($a \times b$) and a direct effect on Y (path c').

According to Rungtusanatham et al. (2014), there are two main types of mediation approach, segmentation, and transmission. Three hypotheses should be developed, according to the authors, when the segmentation approach is used:

H1: the independent variable (X) affects the mediator (M),
H2: the mediator (M) affects the outcome variable (Y),
H3: the mediation effect (i.e., M mediates the relationship between X and Y).

The mediator variable (e-Lifestyles) is believed to mediate the relationship between the independent variable (behavioral intentions) and the dependent variables (member

overall satisfaction and usage behavior). Thus, the research model includes two direct hypotheses and two mediating ones:

H1: Behavioral intentions (BI) to use the fitness center app positively affects the overall satisfaction (OS) of the member with the fitness center.

H2: Behavioral intentions (BI) to use the fitness center app positively affect the actual usage behavior (UB) of the app.

H3: The relationship between behavioral intentions (BI) to use the fitness center app and overall satisfaction (OS) of the member with the fitness center is positively mediated by e-Lifestyles (EL).

H4: The relationship between behavioral intentions (BI) to use the fitness center app and actual usage behavior (UB) is positively mediated by e-Lifestyles (EL).

3.4. Data analysis

SmartPLS 3.3.3 was the software used to analyze the data (Ringle et al., 2015). This program focuses on PLS-SEM models (partial least squares structural equation modeling). As stated previously, the presence of a third variable that functions as an intermediary in the interaction between the independent and dependent variables is the primary characteristic of a mediating effect, also known as an indirect effect or mediation. There are several methods to test for indirect effects. Hayes and Scharkow (2013) consider the percentile bootstrap CI to be a good test in general terms and more suitable in the PLS (partial least squares) setting and recommend its use.

According to Nitzl et al. (2016), there are two fundamental steps to testing for mediation. Determining the significance of the indirect effects ($a \times b$) is the first step. To determine a mediating effect, the indirect effect $a \times b$ has to be significant, calculated by bootstrapping. The $5 - 95\%$ confidence intervals were used to test significance, since the bootstrapped confidence intervals employing a one-sided (one-tailed) significance test (direction (+) have been used in the formulation of the hypotheses.). The bootstrap procedure is a nonparametric inferential method that randomly selects a large number of subsamples (10,000 in this study's case) from the original dataset. PLS-SEM estimates the underlying PLS path model using each subsample (Cepeda et al., 2017).

The second step is to specify the kind of effect and/or mediation. When the indirect impact $a \times b$ in step 1 is significant, there is always a mediating effect. The existing mediation literature examines two forms of mediation: total mediation and partial mediation. Partial mediation is classified into two types: complementary partial mediation and competitive partial mediation (Cepeda et al., 2017).

The variance of the value accounted for (VAF) was calculated to measure the strength of mediation. The VAF measures how well the mediation process explains the variation of the dependent variable, and it measures the size of the indirect effect over the total effect (direct effect + indirect effect) (Hair et al., 2017).

4. Results

This study investigated the (mediating) role of e-Lifestyles in the relationship between behavioral intentions to use the fitness center app, app usage behavior, and member overall satisfaction with the fitness center, i.e., to explain whether e-Lifestyles allow us to better understand fitness center satisfaction or app usage intention. The results indicated that the significance of two direct ($c' 1$ and $c' 2$) and two indirect effects ($a \times b1$, and $a \times b2$) effects was assessed. The bootstrapping procedure with 10,000 sub-samples was run, with no sign changes. In Figure 1 we can see the estimates of the direct effects.

Bootstrap CI, according to Hayes and Scharkow (2013), is an excellent method for determining the importance of path coefficients. As shown in Figure 1, all the path coefficients are significant, supporting our hypotheses H1 and H2. As can be seen above, all R^2 values range from 0 to 1. Also, the model is better able to predict a variable when its value is higher. As a result, the model accounts for 73.8% of the variance in behavioral intentions, 30.4% of the variance in overall member satisfaction, 49.3% of the variance in usage behavior, and 14.9% of the variance in member e-Lifestyles. Behavioral intentions to use the fitness center app have a significant direct effect on the overall satisfaction of the member with the fitness center (H1: $c'1$) (Table 1). Therefore, H1 is supported. Similarly, behavioral intentions to use the fitness center app also have a significant direct effect on the usage behavior of the fitness app, supporting H2. The indirect effects of e-Lifestyles on the overall satisfaction of the member with the fitness center are significant. This means that H3 has been supported. Thus, e-Lifestyles positively mediate the relationship between behavioral intentions to use the fitness center app and the general satisfaction of the member. These results indicate that we are in the presence of a complementary partial mediation. The direct effect c' as well as the indirect effect a x b both point in the same direction (Baron & Kenny, 1986).

The indirect effects of e-Lifestyles on fitness center app usage behavior, on the other hand, are not significant and do not support H4. In this case, because the indirect effect a x b is not significant whereas the direct path $c'2$ is, the mediator variable e-Lifestyles has no impact on the relationship between behavioral intention to use the fitness app and actual usage behavior, indicating that a direct non-mediating effect exists.

The VAF factor was calculated to establish the extent to which the mediation process explains the variance of the dependent variable. A VAF more than 80% indicates full mediation, while a VAF less than 20% indicates no mediation effects. A VAF that is between 20 and 80% indicates partial mediation (Cepeda et al., 2017). Table 1 shows that the mediating effect is 15% in which the VAF is not within the range of 20–80%, indicating that there is no mediation, despite the direct effects being significant in all the
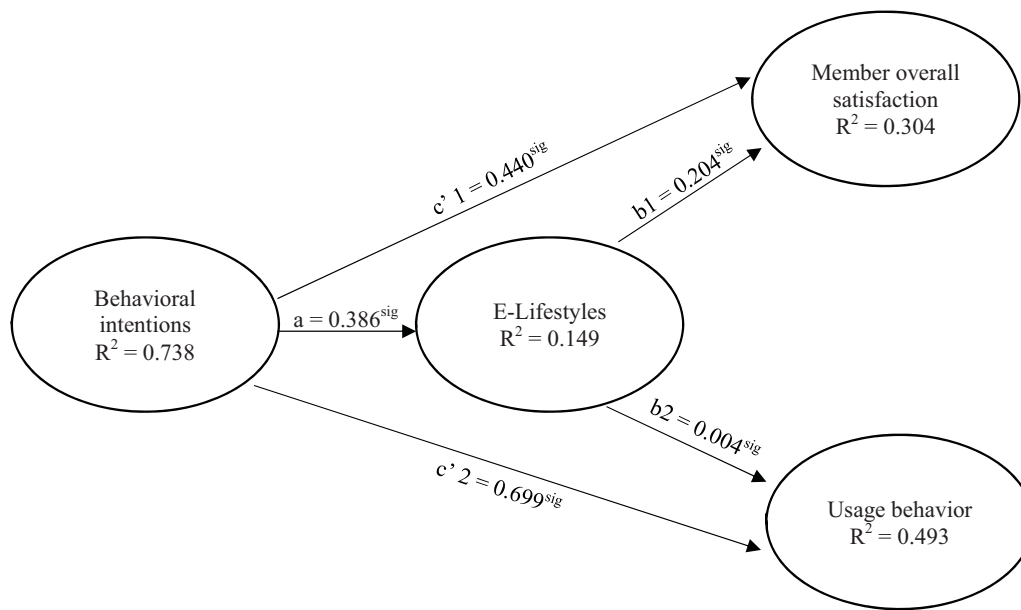
Figure 1. Mediator model. *Note.* sig: significant based on one-sided test.

Table 1. Summary of mediating effects tests.

Direct effects	Path coefficient	Bootstrap 5–95%		p-Value	
H1: c' 1	0.440sig	0.395	0.482	0.000	
H2: c' 2	0.699sig	0.664	0.733	0.000	
a	0.386sig	0.344	0.430	0.000	
b1	0.204sig	0.162	0.245	0.000	
b2	0.012nsig	0.013	0.023	0.301	
Indirect effects	Point estimate	Bootstrap 5–95%		p-Value	VAF (%)
H3: a × b1	0.079sig	0.018	0.061	0.000	15
H4: a × b2	0.036nsig	0.037	−0.004	0.076	1.8

Notes. sig: Significant; nsig: not significant.

situations and the indirect effects significant in the relationship of behavioral intentions on the overall satisfaction of the member with the fitness center, mediated by e-Lifestyles.

5. Discussion and conclusions

The fitness industry is getting more and more competitive. Every fitness center is striving to differentiate itself from the competition and harder than ever to stay afloat. Therefore, any novel approaches that might be developed are essential to this market. Having said that, it is believed that it is critical to understand how a member's e-Lifestyle influences their engagement with the fitness center app and their satisfaction with the center. The findings of this study provide evidence for the mediating effect of e-Lifestyles in the relationship between behavioral intentions to use the fitness center app and the general satisfaction of the member with the fitness center. E-Lifestyles were found to be conditioning variables in the management of information technology (fitness apps), affecting the intention to use it and further explaining member satisfaction.

The results supported our hypotheses H1 and H2, namely that there is a direct positive effect of behavioral usage

intentions of the fitness center app on app usage behavior and the overall satisfaction of members with the fitness center. These findings are consistent with those of Ferreira Barbosa et al. (2022), who found that members' satisfaction with the fitness center is influenced by behavioral intentions to use the app. This study is also supported by Vinnikova et al. (2020), who found that influencing behavioral intention to use a fitness app can be an effective way to increase its use. According to Fitrianie et al. (2021), behavioral intention also explains the use-behavior. The findings contradict those of Valcarce-Torrente et al. (2021) on Fitness Apps and Satisfaction and Intentions to Stay in a Fitness Center.

It was also revealed that the relationship of intentions of behavioral usage with the satisfaction of members with the center through member e-Lifestyles is positive, supporting our third hypothesis. However, the relationship between behavioral intentions and app usage is not mediated by e-Lifestyles, i.e., members' e-Lifestyles have no effect on the relationship between app intention and actual usage. Therefore, the fourth hypothesis was not supported.

There are no studies on the topic of this paper, so these findings fill a gap in the sports literature by pointing to members' e-Lifestyles as mediating the relationship between behavioral intentions and member satisfaction with the fitness center. However, studies that link e-Lifestyles to satisfaction have discovered a relation between the e-Lifestyle and member satisfaction (Hassan et al., 2016). Hassan et al. (2015b) also discovered that members' e-Lifestyles influence their satisfaction. The study's findings could help businesses improve customer satisfaction by incorporating e-Lifestyles and customer corporate identity into an effective marketing strategy (Hassan et al., 2016).

Regarding the relationship between e-Lifestyles and app behavioral intention and actual usage, García-Fernandez, Gálvez-Ruiz, Grimaldi-Puyana, et al. (2020) concluded in their study that e-Lifestyles have a positive effect on fitness app usage intentions, highlighting the importance of e-

Lifestyles as a predictor of fitness app usage. According to Lee et al. (2009), there is a positive relationship between e-Lifestyles and the intention to use applications in high-tech products. Yu (2015), on the other hand, discovered that e-Lifestyles have no moderating effect on the relationship between behavioral intention and actual behavior.

According to statistical analysis, members who reported using the fitness center app had considerably higher levels of behavior toward e-Lifestyles (Ferreira-Barbosa, Loureiro, et al., 2022). Additionally, it is well known that members in Portugal use these apps frequently (Ferreira Barbosa & Pedragosa, 2021). Managers should therefore have a better grasp of their members' e-Lifestyles and implement corresponding marketing tactics if e-Lifestyles have an indirect impact on the relationship between app usage behavioral intentions and the member's overall happiness with the fitness center. This conclusion is consistent with the findings of Hassan et al. (2015a, 2015b) and García-Fernandez, Gálvez-Ruiz, Grimaldi-Puyana, et al. (2020).

5.1. Practical and theoretical implications

According to the findings of this study, not all members are the same and have different e-Lifestyles, which influences the use of the app. As a result, it was established that the relationship between app usage and overall satisfaction with the fitness center is mediated by members' e-Lifestyles. Therefore, it is critical to understand what members prefer, consume, and value in terms of technology items and services. Managers must consider the e-Lifestyles of members to improve the satisfaction with the fitness center. Consequently, this study contributes to sports management since the findings can help fitness center managers define better sports management strategies based on members' e-Lifestyles in order to achieve their satisfaction. In addition, it is believed that learning more about technological lifestyles and consumer preferences will benefit the designers of these apps.

This article contributes to the current understanding of e-Lifestyles, enabling managers to conduct more thorough marketing research and develop differentiated strategies for highly valuable and potential members, strengthening their competitive strategy. The study also contributes to the literature on e-Lifestyles by revealing the importance of this variable in the fitness center industry.

5.2. Limitations of the study and future lines of investigation

Some limitations were found during the development of the study. The first limitation was the scarcity of studies involving fitness center apps and the investigation of e-Lifestyles in the sports sector, which limited the conclusions. The second limitation is that the research was only carried out in Portugal.

Based on these limitations, it is proposed that this study be conducted in other countries. Understanding this new concept of e-Lifestyles and the importance of its study, it is suggested that studies can be performed in other sports sectors as future research lines.

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Appendix 1. Scale items.

UTAUT 2 ITEMS

Performance expectancy
1. I find the fitness app of my fitness center useful.
2. By using my fitness app I increase the opportunity to achieve things that are important to me.
3. My fitness app helps me perform activities faster.
4. In general, the use of my fitness app is advantageous.

Effort expectancy
1. Learning to use my fitness app is easy.
2. My interaction with my fitness app is clear and understandable.
3. My fitness app is easy to use.
4. It is easy to become skilful in using my fitness app.

Social influence
1. People who are important to me think I should use the fitness app.
2. People who influence my behavior think that I should use the fitness app.
3. People whose opinion I value would like me to use the fitness app.
4. Members of the fitness center staff have been helpful in use of the fitness app.
5. In general, the fitness center has supported the use of the fitness app.

Facilitating conditions
1. I have the resources necessary to use the fitness app.
2. I have the knowledge necessary to use the fitness app.
3. The fitness app is compatible with other technologies I use (e.g., cell phone).
4. I can get help from the fitness center staff when I have difficulties using the fitness app.

Hedonic motivation
1. Using the fitness app is fun.
2. Using the fitness app is enjoyable.
3. Using the fitness app is very entertaining.

Habit
1. The use of the fitness app has become a habit for me.
2. I'm addicted to using the fitness app.
3. I must use the fitness app.
4. Using the fitness app has become natural to me.

BEHAVIORAL INTENTIONS AND USE BEHAVIOR ITEMS

Behavioral intention
1. I intend to continue using the fitness app in the future.
2. I will always try to use the fitness app in my daily life.
3. I plan to continue to use the fitness app frequently.
4. I intend to make positive comments about the fitness app to other people.

Use behavior
1. I use the fitness app frequently.

OVERALL CUSTOMER SATISFACTION ITEMS

Overall customer satisfaction
1. I am satisfied with the programs and services of this fitness center.
2. I am happy with the programs and services of this fitness center.
3. I am pleased to have taken the decision to become a member of this fitness center.
4. My decision to be a member of this fitness center was successful.

E-LIFESTYLE ITEMS

Fashion Consciousness
1. When I must choose between the two, I usually buy an electronic product with a unique style, not one with a simple style.
2. Design is the most important factor in choosing electronic products.

Leisure Orientation
1. I thoroughly enjoy my leisure time.
2. Leisure is worth the extra money spent for it.
3. I would rather enjoy leisure time than work hard.

Internet Involvement
1. I don't know much about using the Internet.
2. I am doing more shopping on the Internet than before.
3. I spend less time watching TV because of the Internet.

E-shopping Preference
1. I think online buying is a novel, fun way to shop.
2. E-shopping is easier than local shopping.
3. I like browsing on the Internet.
4. I think e-shopping offers lower prices than local stores.
5. I enjoy buying things on the Internet.
6. Buying things on the Internet scares me.
7. I think e-shopping offers a better selection than local stores.

Perceived Usefulness
1. Using electronic products with multiple functions can make one productive.
2. Using a home networking system can make things efficient

Perceived Ease of Use
1. I find most of the functions in electronic products are easy to use.
2. Overall, it is easy to use digital products.