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THE RELATIONSHIP BETWEEN EXERCISE ADDICTION AND PERCEIVED SERVICE QUALITY IN FITNESS CENTERS

Fatih Mehmet Parlar^{1*} 

¹  Karabuk University, Hasan Doğan Faculty of Sport Sciences, Ankara, TÜRKİYE

Abstract: Although understanding member engagement is crucial in the competitive fitness industry, the relationship between perceptions of service quality and the psychology of exercise has not been sufficiently explored. This study aims to examine the relationship between exercise addiction levels and perceived service quality among fitness center members. Employing a relational survey model, data were collected via questionnaires from 244 voluntary participants who were members of corporate-level fitness centers in Karabük, Turkey. The research data were gathered using a three-part form consisting of a personal information form, the Exercise Addiction Scale, and the Sports-Fitness Centers' Perceived Service Quality Scale. The collected data were analyzed using correlation and multiple regression analyses. The findings revealed that participants' exercise addiction levels were moderate ($\bar{X} = 57.82 \pm 11.02$), while their perceived service quality levels were high ($\bar{X} = 132.30 \pm 16.79$). A statistically significant, positive, yet weak correlation was identified between the total scores of exercise addiction and perceived service quality ($r = .26, p < .001$). Multiple regression analysis ($F = 10.38, p < .001, R^2 = .12$) indicated that the sub-dimensions of exercise addiction, namely "Excessive Focus and Mood Modification" ($\beta = .26, p < .001$) and "Tolerance Development and Passion" ($\beta = .20, p < .05$), significantly and positively predicted perceived service quality. However, the sub-dimension "Postponement of Individual-Social Needs and Conflict" ($\beta = -.10, p > .05$) showed no significant effect. In conclusion, a weak positive relationship was observed between exercise addiction levels and perceived service quality among fitness center members. This can be explained by the fact that high-quality service better meets members' needs and that the positive emotions derived from exercise are reflected in their service perceptions. Since the study was conducted in a single province, with a specific participant profile and a cross-sectional design, the findings should be interpreted with caution. Nevertheless, the results indicated that perceived service quality may be positively associated with exercise addiction. It is recommended that fitness centers consider members' potential exercise addiction tendencies when developing strategies for target audience segmentation.

Keywords: Exercise Addiction, Perceived Service Quality, Fitness Centers

FİTNESS MERKEZLERİNDE EGZERSİZ BAĞIMLILIĞI İLE ALGILANAN HİZMET KALİTESİ İLİŞKİSİ

Öz: Fitness sektörünün rekabetçi ortamında üye bağlılığını anlamak kritik öneme sahipken hizmet kalitesi algısı ile egzersizin psikolojisi arasındaki ilişkiler yeterince incelenmemiştir. Bu çalışmanın amacı, fitness merkezi üyelerinin egzersiz bağımlılık düzeyleri ile bu merkezlerden algıladıkları hizmet kalitesi arasındaki ilişkiyi incelemektir. İlişkisel tarama modelinin kullanıldığı araştırmada veriler Karabük ilindeki kurumsal düzeyde hizmet veren işletmelere üye 244 gönüllü katılımcıdan anket tekniğiyle toplanmıştır. Araştırma verileri Kişisel Bilgi Formu, Egzersiz Bağımlılığı Ölçeği ve Spor-Fitness Merkezi Algılanan Hizmet Kalitesi Ölçeği olmak üzere üç bölümden oluşan form aracılığı ile toplanmıştır. Veriler, korelasyon ve çoklu regresyon analizleriyle çözümlenmiştir. Bulgulara göre, katılımcıların egzersiz bağımlılığı düzeyleri orta ($\bar{X} = 57.82 \pm 11.02$), algılanan hizmet kalitesi düzeyleri ise yüksek ($\bar{X} = 132.30 \pm 16.79$) bulunmuştur. Egzersiz bağımlılığı ile algılanan hizmet kalitesi ölçek puanları arasında istatistiksel olarak anlamlı, pozitif yönlü ancak zayıf bir ilişki saptanmıştır ($r = 0.26, p < .01$). Yapılan çoklu regresyon analizi ($F_{(3, 240)} = 10.38, p < .001, R^2 = 0.12$), egzersiz bağımlılığının alt boyutlarından "Aşırı Odaklanma ve Duygu Değişimi" ($\beta = 0.26, p < .001$) ve "Tolerans Gelişimi ve Tutku" ($\beta = .20, p < .05$) boyutlarının algılanan hizmet kalitesini anlamlı ve pozitif yönde yordadığını göstermiştir. Buna karşın, "Bireysel-Sosyal İhtiyaçların Ertelenmesi ve Çatışma" ($\beta = -.10, p > .05$) alt boyutunun anlamlı bir etkisi bulunmamıştır. Sonuç olarak, fitness merkezi üyelerinin egzersiz bağımlılık düzeyleri ile algıladıkları hizmet kalitesi arasında pozitif yönlü zayıf bir ilişki olduğu gözlemlenmiştir. Araştırmanın tek bir ilde yürütülmesi, katılımcı profili ve kesitsel desen nedeniyle sonuçlara ihtiyatla yaklaşılması gerekse de, elde edilen bulgular hizmet kalitesi algısının egzersiz bağımlılığı ile ilişkili olabileceğini göstermekte ve fitness sektörüyle ilgili akademik çalışmalara yeni bir bakış açısı ve ampirik kanıtlar sunmaktadır. Fitness merkezlerine, hedef kitle segmentasyonunda üyelerin potansiyel egzersiz bağımlılıklarını dikkate alarak stratejiler geliştirmeleri önerilmektedir.

Anahtar Kelimeler: Egzersiz Bağımlılığı, Algılanan Hizmet Kalitesi, Fitness Merkezleri



* Corresponding Author: Fatih Mehmet Parlar, Asst. Prof., E-mail: fatihparlar@karabuk.edu.tr

INTRODUCTION

Physical activity encompasses all types of bodily movements and includes activities performed in daily life (Çiçek, 2020, p. 1). Exercises are planned physical activities conducted systematically, forming a critical component of a healthy lifestyle (Bouchard et al., 2012). These activities—such as walking, running, and weight training—typically aim to enhance muscle strength, endurance, flexibility, and overall health, contributing to physical fitness and general well-being, even without a specific sports-related purpose (Moran, 2004). Beyond physical benefits, exercise positively impacts mental health (Üngür, 2021). Participation in exercise varies based on demographic and personal factors, including gender, height, weight, location, income level, education, and social environment (Sağıroğlu & Ayar, 2017, p. 171). Additionally, individual characteristics such as self-esteem, social appearance concerns, and loneliness anxiety can influence attitudes and behaviors toward exercise (Kılıç, 2015), potentially leading to conditions like exercise addiction, which may be considered a pathological disorder (Vardar, 2012).

Exercise addiction refers to an intense craving for regular physical activity and the development of a pronounced dependency on it (Landolfi, 2013). Examining exercise addiction in detail, including its sub-dimensions, can facilitate understanding its relationship with other variables. The psychological dimension of exercise addiction involves the level of commitment to exercise, motivational factors, emotional influences on behavior, and the pleasure and rewards associated with exercise (Berczik et al., 2012, p. 404; Landolfi, 2013, p. 117). The physiological dimension focuses on the effects of exercise on the body, such as endorphin release, and signs of physiological dependence (Leuenberger, 2006). Furthermore, exercise addiction may influence perceptions of the exercise environment. Today, individuals engage in exercise in various settings—indoor or outdoor, with or without equipment, individually or in groups, and with or without an instructor (Santos-Rocha, 2022). The physical environment significantly impacts exercise participation, with the availability of public or private sports facilities, open or indoor sports areas, and fitness centers influencing engagement in physical activity (Humpel et al., 2002). Individuals seeking fitness, health, or socialization often join fitness centers within the private sector to access exercise services.

Fitness centers vary in size and capacity. However, regardless of these differences, they are expected to maintain a certain service quality standard (Lagrosen & Lagrosen, 2007). Service quality in fitness centers is typically assessed through the concept of perceived service quality (Ergin et al., 2011; Lam et al., 2005; Uçan, 2007). In the literature, studies examining the relationship between perceived service quality in fitness centers and behavioral outcomes such as user satisfaction, behavioral intention, psychological commitment, and loyalty are noteworthy. For instance, a structural equation modeling study conducted in China confirmed both the direct and indirect effects of service quality on behavioral intention through user satisfaction (Zhou & Kikuchi, 2009); whereas research on women-only fitness clubs demonstrated that perceived value, satisfaction, and service quality strongly predicted behavioral outcomes such as membership renewal and commitment (Lim et al., 2016). Furthermore, when members were segmented according to their exercise motivations, significant differences emerged in service quality and levels of psychological commitment (Tsitskari et al., 2017) while systematic reviews highlighted that service quality factors shape satisfaction, loyalty, and brand attachment (Barbosa et al., 2022). In studies conducted with Turkish samples, robust structural relationships have been found among perceived service quality, perceived value, satisfaction, and behavioral intentions (Sevilmiş et al., 2022). Moreover, studies focusing on experience quality (e.g., communication, physical environment,

service delivery) supported the positive impact of these dimensions on satisfaction and behavioral intentions (Sevilmiş et al., 2024).

Understanding the theoretical relationship between exercise addiction and perceived service quality is critical, as it holds the potential to improve service delivery and member segmentation strategies in fitness businesses. In today's competitive fitness sector, member satisfaction and loyalty are vital for business sustainability (García-Fernández et al., 2018). In this context, analyzing the perceptions of service quality among members who exhibit exercise addiction is critical, as this analysis represents both a strategic challenge and an opportunity for customer retention and the management of potential risks.

The potential network of relationships between exercise addiction and perceived service quality can be theoretically explained through different theories and approaches. From the perspective of Self-Determination Theory (SDT), a high perception of service quality may contribute to individuals' internalization of exercise by satisfying their needs for autonomy, competence, and relatedness. According to SDT, meeting these basic needs is essential for ensuring psychological well-being in health and fitness centers; thus, beyond the services and facilities provided, the quality of interactions with staff and service providers is emphasized as a key component (Thal & Hudson, 2019). From this angle, individuals exhibiting exercise addiction may be more selective in evaluating whether the services they receive adequately meet their heightened exercise needs. When the exercise addiction–perceived service quality relationship is evaluated in the context of Emotion Regulation Theory, the opportunities provided by high-quality services may transform exercise into an effective emotion regulation strategy (Ordu, 2022). In this process, individuals dependent on exercise may anchor their need to maintain emotional balance in the facilities offered by the fitness center, thereby making their quality perceptions more decisive.

From the perspective of the Theory of Planned Behavior, service quality may strengthen users' positive attitudes, subjective norms, and perceived behavioral control, thereby increasing their intention to participate in exercise. Moreover, individuals with exercise addiction may shape their perceptions of quality in line with sustaining their behavioral intentions (Ajzen, 1991; Boulding et al., 1993; Zeithaml et al., 1996). On the other hand, from the standpoint of the Cognitive-Behavioral Model, which is particularly used in psychology to explain addictive behaviors, the relationship between exercise addiction (Anshel, 2013) and perceived service quality can be understood differently. Individuals with higher levels of exercise addiction may perceive service quality as higher or even indispensable due to cognitive distortions and reinforcements such as “I cannot exercise without this center.” This mechanism reflects the cognitive distortions underlying addictive behaviors (Berczik et al., 2012). The relationship between perceived service quality and exercise addiction can be linked to the cognitive-behavioral model too (Meyer et al., 2011, p. 177). Higher perceived service quality may reinforce exercise-related behaviors and increase the risk of developing addictive tendencies, while individuals with higher levels of exercise addiction may evaluate service quality more positively due to cognitive biases and distorted perceptions.

Consequently, the service quality provided by fitness centers (e.g., adequate and modern equipment, motivating atmosphere, cleanliness, professional staff support) directly influences the extent to which individuals achieve the reinforcements they seek from exercise (i.e., enhancing positive emotions or reducing negative ones). For individuals who use exercise as a maladaptive emotion regulation or avoidance strategy, the consistent and effective provision of exercise opportunities is critical. Thus, high perceived service quality may fulfill this essential

need and be evaluated more positively by such individuals. Additionally, in cases of tolerance development (needing more exercise for the same effect), as outlined in the Diagnostic and Statistical Manual of Mental Disorders criteria (Demirel, 2020, p. 20), fitness centers that meet increased exercise demands (e.g., through extended operating hours or diverse equipment) may be perceived as offering higher service quality. Consequently, for individuals with exercise addiction, a fitness center is not merely a place for exercise but also a space where fundamental psychological needs (e.g., reinforcement, emotion regulation, compulsion fulfillment) are met (García-Pascual et al., 2020, p. 2). The extent to which these needs are effectively addressed (i.e., the level of perceived service quality) is likely to influence members' overall perceptions and satisfaction with the center.

A review of the existing literature highlights a significant and under-researched gap regarding the relationship between exercise addiction levels and perceived service quality among fitness center members. This area remains surprisingly overlooked despite the highly competitive nature of the fitness industry. Because individuals with high exercise addiction may exhibit distinct expectations and attitudes toward their fitness center experiences. Some may prioritize services that meet the demands of their addiction, while others may focus solely on exercise opportunities, placing less emphasis on service quality. For instance, an individual with high exercise addiction may prioritize access to suitable equipment and space, overlooking aspects like locker room cleanliness or staff interaction. This suggests that addiction levels can influence service quality perceptions. Conversely, high-quality service delivery may enhance loyalty among addicted individuals and reinforce their dependency, while inadequate service quality may lead to dissatisfaction. From a theoretical standpoint, examining the relationship between exercise addiction—a form of behavioral addiction—and perceived service quality, which is considered a consumer behavior, holds the potential to fill an important gap between the fields of sport psychology and service marketing. From a practical perspective, identifying this relationship may contribute to the development of strategies by fitness center managers aimed at member segmentation, personalized service delivery, and enhancing customer loyalty. Therefore, exploring the psychological characteristics of exercise addiction, the behavioral dimension of perceived service quality in the fitness sector, and the interaction of these two variables from the perspective of fitness center members carries both theoretical and practical value. In this context, the study seeks to answer the following core question: Is there a relationship between exercise addiction and perceived service quality?

Exercise Addiction and Its Dimensions

Exercise addiction is evaluated through psychological and physiological factors (Vardar, 2012). From a psychological perspective, individuals' level of addiction to exercise is influenced by their motivations, emotional factors affecting their behaviors, and the pleasure and rewards associated with exercise (Szabo & Egorov, 2015). On the physiological side, factors such as the effects of exercise on the body, endorphin release, and symptoms of physiological dependence are emphasized (Leuenberger, 2006). Addiction to exercise occurs in four stages. What begins for enjoyment progresses with increasing risk, continues with organizing social life around intense exercise levels, and culminates when exercise becomes uncontrollable (Szabo & Egorov, 2015, p. 304). Factors representing exercise addiction have been the subject of various studies, and many perspectives have emerged in which the psychological characteristics of exercise addiction come to the forefront. In these studies, traits such as temperament and character, perfectionism, narcissistic personality, self-esteem, and anxiety have stood out significantly (Bircher et al., 2017). In their study, (Hall et al., 2009) examined exercise addiction from a psychological perspective and addressed it in four dimensions: perfectionism, self-focus, self-esteem, and self-presentation styles. Spano (2001) also examined exercise addiction in

terms of narcissism and focused on aspects of constant anxiety and obsession. In the study by (Tekkurşun Demir et al., 2018), the psychological dimensions representing exercise addiction were addressed as excessive focus and emotional change, postponement of individual-social needs and conflict, tolerance development, and passion. As can be seen, exercise addiction has been the subject of many studies, and these studies have addressed the dimensions representing exercise addiction as a psychological factor. Therefore, for individuals who engage in exercise, exercise carries the potential to turn into an addiction. One of the most frequently preferred environments for exercise is fitness centers (Lichtenstein et al., 2017). It is evident that individuals who attend these centers for reasons such as physical development, socialization, and weight loss should be evaluated in terms of their varying levels of exercise addiction. This is because members may or may not prioritize the quality of the service provided depending on their level of exercise addiction. Therefore, it can be said that the concept of service quality in fitness centers is a variable that needs to be examined in terms of exercise addiction.

Perceived Service Quality and Its Dimensions in Fitness Centers

Service quality is the level of fulfilling the promised service and exceeding customer expectations (Parasuraman et al., 2004). For fitness centers, service quality is the ability of the service experiences to meet customer expectations, and as competition exists in the sports industry just like in other sectors, fitness centers strive to improve their service quality and thus differentiate themselves from their competitors (Jasinskias et al., 2013; Moxham & Wiseman, 2009). Good service quality in fitness centers can positively affect customers' perceptions and experiences, increasing their level of satisfaction and loyalty (Bandyopadhyay, 2018). Therefore, attention should be paid to service quality and its constituent factors in fitness management. Many models have been developed for service quality in fitness centers, each focusing on different dimensions (Uçan, 2007, pp. 24-29). A notable feature of the studies on service quality is related to how the quality of the provided service will be measured, and the most preferred method for measuring the service quality of fitness centers is assessing member attitudes. In the study conducted by (Kim & Kim, 1995), while evaluating the quality and service delivery of sports centers, customers emphasized factors such as the environment, staff attitude, reliability, information, programming, personal attention, privileges, price, convenience, stimulation, and comfort. In the study adapted by (Gürbüz et al., 2005) on service quality in sports to Turkish culture, the factors included staff, program, locker room, physical facility, training facility, and childcare. In his study, (Uçan, 2007) stated that the perceived service quality of fitness centers consists of six dimensions: physical environment, ambient conditions, exercise equipment, program, interaction, and output quality. Therefore, it can be said that customer experiences are given importance in fitness centers, and measuring these through specific dimensions can provide important indicators for improving service quality. Moreover, knowing the level of perceived service quality in fitness centers can also be used to identify relationships between this and other individual characteristics of the members.

Literature Review

Studies on exercise addiction among fitness center members have been the subject of research (Başaran et al., 2019; Bureau et al., 2019; Can, 2022; Hazar & Özpolat, 2023; Kaşka, 2022; Katra, 2021; Kayhan et al., 2021; Lichtenstein et al., 2017; Pular & Gedik, 2021; Yıldırım & Gören, 2024). Additionally, (Ünüvar et al., 2025) examined graduate theses conducted in Turkey on the subject of exercise addiction. Studies aimed at determining the perceived service quality in fitness centers are also available in the literature (Aras et al., 2019; Çiftçi & Çakmak, 2018; Dhurup et al., 2006; Jasinskias et al., 2013; Lapa & Baştaç, 2012; León-Quismondo et al., 2020; Savaş, 2012; Soygüden et al., 2015; Yıldız et al., 2016; Yıldız et al., 2018; Yıldız &

Tüfekçi, 2010). However, no study exists in the literature examining the relationship between the exercise addiction levels of fitness center customers and their perceived service quality.

METHOD

This study was conducted using the relational survey design, which falls under the category of general survey models (Karasar, 1999, p. 77). This approach investigates the relationships between two or more variables in their natural state, without applying any intervention or manipulation (Creswell, 2014). Its main goal is to explore whether a relationship exists among the variables, and if so, to determine the nature and strength of that relationship (Büyüköztürk, 2020).

Table 1. Information regarding the personal characteristics of the participants in the research group

Variables	Groups	Frequency	Percentage (%)
Age	18-24	160	65,6%
	25-34	65	26,6%
	35-44	15	6,1%
	45 and older	4	1,6%
Gender	Female	46	18.9%
	Male	198	81.1%
Marital Status	Married	28	11.5%
	Single	216	88.5%
Education Level	Primary school	23	9.4%
	Secondary school	32	13.1%
	Associate degree	125	51.2%
	Bachelor's degree	59	24.2%
	Postgraduate	5	2%
Income Level	Less than 20,000 ₺	71	29.1%
	20,000-30,000 ₺	60	24.6%
	31,000-40,000 ₺	45	18.4%
	40,000 ₺ and higher	68	27.9%
Participation in Licensed Sports	Yes	100	41.0%
	No	144	59.0%
Duration of Physical Activity	Less than 1 year	67	27.5%
	1-2 years	59	24.2%
	3-4 years	39	16.0%
	4 Years and over	79	32.4%
Purpose of Participation	Socialization	22	9%%
	Health	72	29.5%
	Performance	129	52.9%
	Other	21	8.6%
Duration of Membership	Less than 1 month	37	15.2%
	1-6 Months	86	35.2%
	7-12 Months	35	14.3%
	1 Years and over	86	35.2%
Weekly Frequency of Participation	1-2 Times	27	11.1%
	3 Times and more	217	88.9%
Duration of Daily Training	0-60 Minutes	43	17.6%
	61-90 Minutes	120	49.2%
	91 Minutes and longer	81	33.2%
Total		244	100%

Research Group

The participant group of the study consists of members from three different fitness centers located in Karabük, Turkey. These fitness centers are branches of nationwide franchise companies. Participants were selected using the convenience sampling method. This method was chosen due to its practicality, speed, and low research cost in accessing the research group. In total, data were collected from 267 participants aged 18 and over. However, 23 questionnaire forms were excluded due to incomplete or erroneous responses, resulting in 244 forms included in the analysis phase.

Examination of the demographic characteristics and fitness center usage habits of the participants (Table 1) revealed that 65.6% were aged 18–24, 81.1% were male, 88.5% were single, and 51.2% held an associate degree. Regarding income distribution, 29.1% of participants reported an income of less than 20.000 ₺. Additionally, 59.0% indicated they had not previously participated in licensed sports, while 32.4% had been engaging in physical activity for four years or more. The primary purpose of fitness center participation was performance 52.9%, and 35.2% of participants had been members for over one year. Weekly participation frequency was three or more times for 88.9% of participants, with daily training durations predominantly ranging from 61–90 minutes (49.2%).

Data Collection Tools

This study utilized a three-part data collection tool, comprising a demographic characteristics and fitness center usage habits information form developed by the research team, the Exercise Addiction Scale, and the Sports-Fitness Centers' Perceived Service Quality Scale.

Demographic Characteristics and Fitness Center Usage Habits Information Form: The first section of the data collection tool was designed to gather information on participants' demographic characteristics and fitness center usage habits. This section consisted of 11 questions aimed at collecting basic demographic information, such as age and gender, as well as insights into the research group's general tendencies toward physical activity and sports, and their relationship with the fitness center. Specific details queried included licensed sports participation, total weekly physical activity duration, purpose of fitness center participation (e.g., health, socialization, performance), duration of current fitness center membership, frequency of weekly visits to the center, and average duration of each training session (Table 1).

Exercise Addiction Scale: The second section of the data collection tool employed the Exercise Addiction Scale to measure participants' potential levels of exercise addiction. This scale was developed by Tekkurşun Demir et al. (2018) and consists of 17 items organized into three factors: Excessive Focus and Mood Modification, Postponement of Individual-Social Needs and Conflict, and Tolerance Development and Passion. The scale uses a 5-point Likert format, with responses scored as follows: “Strongly Disagree” (1 point), “Disagree” (2 points), “Moderately Agree” (3 points), “Agree” (4 points), and “Strongly Agree” (5 points). The scale's evaluation is based on score ranges: 1–17 (normal group), 18–34 (low-risk group), 35–51 (risk group), 52–69 (addicted group), and 70–85 (highly addicted group). Reliability coefficients (Cronbach's Alpha) for the original scale and the current study are presented in Table 2.

Sports-Fitness Centers' Perceived Service Quality Scale: The third and final section of the data collection tool consisted of the Sports-Fitness Centers' Perceived Service Quality Scale, developed by (Uçan, 2007), to assess participants' perceptions of the service quality provided by their fitness centers. This scale comprises 31 items organized into six factors: Interaction

Quality, Output Quality, Physical Environment Quality, Exercise Equipment Quality, Program Quality, and Ambient Conditions Quality. The scale employs a 5-point Likert format, with responses scored as follows: “Strongly Disagree” (1 point), “Disagree” (2 points), “Moderately Agree” (3 points), “Agree” (4 points), and “Strongly Agree” (5 points). Scores range from a minimum of 31 to a maximum of 155. Reliability coefficients (Cronbach’s Alpha) for the original scale and the current study are also provided in Table 2.

Table 2. Original Cronbach’s Alpha reliability coefficients of the measurement tools

Scales	Number of Items	Original	Current Study
Exercise Addiction Scale	17	.88	.85
Excessive Focus and Mood Modification	7	.83	.76
Postponement of Individual-Social Needs and Conflict	6	.79	.77
Tolerance Development and Passion	4	.77	.71
Sports-Fitness Centers’ Perceived Service Quality Scale	31	.95	.94
Interaction Quality	10	.88	.86
Output Quality	5	.92	.82
Physical Environment Quality	7	.85	.87
Exercise Equipment Quality	3	.82	.83
Program Quality	3	.83	.72
Ambient Conditions Quality	3	.77	.82

An examination of the original reliability coefficients of the measurement tools presented in Table 2 indicates that both the Exercise Addiction Scale and the Sports-Fitness Centers’ Perceived Service Quality Scale, including their total scores and sub-dimensions, exhibit satisfactory reliability coefficients (Nunnally, 1978). These scales have been utilized in numerous studies since their development, consistently demonstrating high reliability values in those works (Batu & Aydın, 2020; Cengiz & Yaşartürk, 2020; Erdoğan et al., 2024; Pepe & Doğu, 2024; Yıldırım & Gören, 2024). This supports the robust reliability foundation of the measurement tools used in this study, thereby enhancing the reliability of the research findings. The Cronbach’s Alpha reliability coefficients for the current study also indicate that both scales and their sub-dimensions possess acceptable reliability levels (Cortina, 1993; Nunnally & Bernstein, 1967).

Data Collection Process

The research data were collected in three corporate-level fitness centers in Karabük through a face-to-face, observation-assisted survey technique, following the approval of the ethics committee, between 01.02.2024 and 01.10.2024. The data collection tool was administered by the research team to members in the customer waiting/rest areas of the fitness centers, using the convenience sampling method and on a voluntary participation basis, in accordance with ethical principles (see Ethical Considerations section).

Data Analysis

The research data were entered into the SPSS v.26 statistical software, and initial analyses included frequency distributions and reliability coefficients. Subsequently, normality checks were conducted using skewness and kurtosis values to determine the appropriate statistical methods. As both scales and their sub-dimensions exhibited normal distribution, parametric

tests were applied (Büyüköztürk, 2020; Tabachnick & Fidell, 2007). To investigate the relationship between the exercise addiction levels of fitness center members and their perceived service quality of the fitness centers, Pearson correlation and multiple regression analyses were conducted. Correlation test results were interpreted at a minimum significance level of $p < .05$, with coefficients categorized as high (.70–1.00), moderate (.30–.69), or low (.00–.29) (Büyüköztürk, 2020).

Ethical Considerations

Prior to data collection, participants were informed about the research topic, and their voluntary written consent was obtained. Additionally, written approval and permission were secured from the respective fitness centers to collect data. All voluntary participants included in the study were thoroughly informed about the study's purpose, procedures, and the confidentiality of their personal data prior to data collection. Participants' informed consent was obtained through signed consent forms, and the data collection process commenced following this approval. The permission required for the ethical aspect of the research was obtained from Karabuk University Social and Human Sciences Scientific Research and Publication Ethics Committee with the decision dated 26.01.2024, numbered E-41823941-100-304056 and 2024/2.

FINDINGS

In this section, descriptive statistics—including arithmetic means, standard deviations, skewness, and kurtosis—related to the scales employed in the research are initially presented. Following this, findings from the correlation and regression analyses that were carried out to explore the relationship between exercise addiction levels of fitness center members and their perceptions of service quality are detailed.

Table 3. Distribution of scores obtained from the scales

Scales	<i>N</i>	\bar{X}	<i>SD</i>	<i>Skewness</i>	<i>Kurtosis</i>	<i>Min.</i>	<i>Max.</i>
Exercise Addiction Scale	244	57.82	11.02	0.06	0.12	23.00	85.00
Excessive Focus and Mood Modification	244	27.83	4.69	-0.89	1.00	11.00	35.00
Postponement of Individual-Social Needs and Conflict	244	16.43	5.49	0.45	-0.22	6.00	30.00
Tolerance Development and Passion	244	13.57	3.56	-0.14	-0.41	4.00	20.00
Sports-Fitness Centers' Perceived Service Quality Scale	244	132.30	16.79	-0.78	-0.08	82.00	155.00
Interaction Quality	244	40.57	6.79	-0.67	-0.09	20.00	50.00
Output Quality	244	20.30	3.59	-0.60	-0.04	9.00	25.00
Physical Environment Quality	244	30.78	4.37	-1.03	0.34	17.00	35.00
Exercise Equipment Quality	244	13.28	2.07	-1.21	0.81	6.00	15.00
Program Quality	244	13.61	1.64	-0.99	0.17	8.00	15.00
Ambient Conditions Quality	244	13.75	1.73	-1.38	1.27	8.00	15.00

An analysis of Table 3 indicates that the overall mean score for the Exercise Addiction Scale ($\bar{X}=57.82$) corresponds to the “Addicted” level. Among the sub-dimensions, the highest mean was observed for “Excessive Focus and Mood Modification” ($\bar{X}=27.83$), while the lowest was for “Postponement of Individual-Social Needs and Conflict” ($\bar{X}=16.43$). Participants' overall perception of fitness center service quality was notably high ($\bar{X}=132.30$). All sub-dimensions of service quality yielded high means (ranging from 13.28 to 40.57), with “Ambient Conditions Quality” ($\bar{X}=13.75$), “Program Quality” ($\bar{X}=13.61$), and “Exercise Equipment Quality” ($\bar{X}=13.28$).

13.28) receiving the highest scores. The skewness and kurtosis values fell between -1.5 and +1.5, suggesting that the data were normally distributed (Tabachnick & Fidell, 2007).

Table 4. Correlation analysis results examining the relationship between exercise addiction and sports-fitness centers' perceived service quality

		Service Quality	Interaction Quality	Output Quality	Physical Environment Quality	Exercise Equipment Quality	Program Quality	Ambient Conditions Quality
Exercise Addiction	<i>r</i>	.264**	0.278**	0.209**	0.179**	0.111	0.260**	0.203**
	<i>p</i>	0.000	0.000	0.001	0.005	0.085	0.000	0.001
Excessive Focus and Mood Modification	<i>r</i>	.300**	0.291**	0.191**	0.242**	0.154*	0.312**	0.285**
	<i>p</i>	0.000	0.000	0.003	0.000	0.016	0.000	0.000
Postponement of Individual-Social Needs and Conflict	<i>r</i>	0.113	0.154*	0.114	0.050	0.028	0.087	0.019
	<i>p</i>	0.077	0.016	0.077	0.436	0.666	0.178	0.762
Tolerance Development and Passion	<i>r</i>	0.246**	0.241**	0.220**	0.159*	0.097	0.259**	0.224**
	<i>p</i>	0.000	0.000	0.001	0.013	0.132	0.000	0.000

* $p < 0.05$, ** $p < 0.01$

According to Table 4, a significant, weak, and positive correlation was identified between the total score of the Exercise Addiction Scale and the total score of the Sports-Fitness Centers' Perceived Service Quality Scale ($r = .264$, $p < .001$). At the sub-dimension level, significant, weak, and positive correlations were found between the total Exercise Addiction score and Interaction Quality ($r = .278$, $p < .001$), Output Quality ($r = .209$, $p < .01$), Physical Environment Quality ($r = .179$, $p < .01$), Program Quality ($r = .260$, $p < .001$), and Ambient Conditions Quality ($r = .203$, $p < .01$). No significant correlation was observed with Exercise Equipment Quality ($r = .111$, $p > .05$). For the "Excessive Focus and Mood Modification" sub-dimension, moderate and positive correlations were found with Service Quality (overall) ($r = .300$, $p < .001$) and Program Quality ($r = .312$, $p < .01$), while weak and positive correlations were observed with Interaction Quality ($r = .291$, $p < .001$), Output Quality ($r = .191$, $p < .01$), Physical Environment Quality ($r = .242$, $p < .001$), Exercise Equipment Quality ($r = .154$, $p < .05$), and Ambient Conditions Quality ($r = .285$, $p < .001$). For the "Postponement of Individual-Social Needs and Conflict" sub-dimension, a significant, weak, and positive correlation was found only with Interaction Quality ($r = .154$, $p < .05$), with no significant correlations observed with other service quality sub-dimensions ($p > .05$). Lastly, the "Tolerance Development and Passion" sub-dimension showed significant, weak, and positive correlations with Service Quality (overall) ($r = .246$; $p < .001$), Interaction Quality ($r = .241$, $p < .001$), Output Quality ($r = .220$, $p < 0.01$), Physical Environment Quality ($r = .159$; $p < .05$), Program Quality ($r = .259$; $p < .001$), and Ambient Conditions Quality ($r = .224$; $p < .001$), but no significant correlation was found with Exercise Equipment Quality ($r = .097$; $p > .05$).

Table 5. Results of regression analysis examining the relationship between exercise addiction and sports-fitness centers' perceived service quality

	<i>B</i>	<i>Standard Error</i>	β	<i>t</i>	<i>p</i>	<i>Bivariate r</i>	<i>Partial R</i>
Perceived Service Quality	3.196	.0204		15.687	0.000		
Excessive Focus and Mood Modification	0.207	0.055	0.257	3.778	0.000**	0.300	0.237
Postponement of Individual-Social Needs and Conflict	-0.061	.0450	-0.102	-1.343	0.181	0.113	-0.082
Tolerance Development and Passion	0.122	0.047	0.200	2.586	0.010*	0.246	0.157
R=0.339 R ² =0.115							
F _(3, 240) =10.376 p=0.000							

* $p < 0.05$, ** $p < 0.001$

In Table 5, the explanatory power, effect, and direction of the independent variables, which are the sub-dimensions of Exercise Addiction (Excessive Focus and Mood Variation, Delay of Individual-Social Needs and Conflict, Tolerance Development, and Passion), on the dependent variable, Sports-Fitness Centers' Perceived Service Quality, is presented through the established regression model. Upon evaluation of the findings, the F value of 10.376, indicating the effect of the sub-dimensions of Exercise Addiction on Perceived Service Quality, was found to be statistically significant at the $p = .000$ level, demonstrating the validity and significance of the model. In summary, the multiple regression model is statistically significant ($F_{(3, 240)} = 10.376$; $p < .001$). The R^2 value of the model was determined to be .115. This finding indicates that the independent variables of the sub-dimensions of Exercise Addiction account for approximately 11.5% of the changes in the dependent variable of Perceived Service Quality. Examining the importance of the independent variables in influencing the dependent variable through the Beta (β) indicators, it is observed that significant positive effects exist in the sub-dimensions of Exercise Addiction, specifically in "Excessive Focus and Mood Variation" ($\beta = .257$, $p < .001$) and "Tolerance Development and Passion" ($\beta = .200$, $p < .05$). However, the sub-dimension of "Delay of Individual-Social Needs and Conflict" did not show a statistically significant effect on Perceived Service Quality ($\beta = -0.102$, $p > .05$).

DISCUSSION

This study aimed to examine the relationship between exercise addiction levels among fitness center members and the perceived service quality from these centers. In highly competitive fitness environments, service quality is critical for customer satisfaction and loyalty (Jasinskis et al., 2013; Moxham & Wiseman, 2009). Exercise addiction impacts individual attitudes and behaviors toward physical activity and can be considered a potential pathological condition (Vardar, 2012). While there is existing literature on both exercise addiction and service quality in fitness centers, a systematic exploration of their interplay is scarce, thus providing the basis for this study. Within this context, we sought to clarify how levels of exercise addiction might impact perceptions of service quality in fitness centers, or conversely, how perceived service quality might influence addictive exercise behaviors.

Upon analyzing the findings (see Table 3), it was evident that the fitness center members exhibited levels of exercise addiction above the average ($\bar{X} = 57.82$). Notably, in the subdimensions of exercise addiction, the highest scores were found in "Excessive Focus and Emotion Change" ($\bar{X} = 27.83$), indicating that exercise serves as a significant focal point for participants and plays a role in emotional regulation. Conversely, the lowest average ($\bar{X} = 16.43$) was recorded in "Postponement of Individual-Social Needs and Conflict," suggesting a minimal tendency for exercise to create serious conflicts in personal and social realms within the sample group. These findings demonstrate that the psychological dimensions of exercise addiction can manifest differently within individuals (Berczik et al., 2012; Yıldız et al., 2016). A review of the limited studies in the literature indicates that the exercise addiction levels of fitness center members are similar to those found in the present study (Erdoğan et al., 2024; Hazar & Özpolat, 2023; Pulur & Gedik, 2021).

Participants rated their perceived service quality quite highly ($\bar{X} = 132.30$), particularly in the dimensions of "Quality of Environmental Conditions" ($\bar{X} = 13.75$), "Quality of Program" ($\bar{X} = 13.61$), and "Quality of Exercise Equipment" ($\bar{X} = 13.28$). This reflects a generally positive evaluation of fitness centers regarding their physical facilities, exercise programs offered, and equipment adequacy, aligning with previous research on quality perceptions in fitness contexts

(Erdoğan & Şirin, 2020; Soygüden et al., 2015; Yıldız et al., 2016). High perceived service quality could enhance member satisfaction and loyalty Bandyopadhyay (2018), which potentially influences regular exercise behavior and, by extension, addiction tendencies. Moreover, evaluating the relationships identified between exercise addiction and perceived service quality within the context of similar studies and theoretical models in the literature can provide a reference point for future research. With this perspective in mind, the relational findings obtained are discussed in the following paragraphs.

According to the primary relational analysis results of the study (Table 4), a statistically significant but weak positive correlation ($r = .264, p < .001$) was identified between the total Exercise Addiction score and the total Perceived Service Quality score. This indicates that as the level of exercise addiction increases, the perception of service quality at the fitness center improves to some extent. However, the weak level of the correlation suggests that the relationship between these two variables is limited and that exercise addiction is neither the sole nor the strongest factor explaining perceived service quality. In a study by (Can & Kızılet, 2021), which examined the relationship between sports commitment and perceived service quality among individuals regularly exercising at gyms in Istanbul, a high correlation (.77) was found between sports commitment and perceived service quality. Unlike the present study, the high correlation identified between the two variables by Can and Kızılet (2021) may be due to the use of different measurement instruments and the fact that the participants were not directly fitness center members. In this study, the low-level positive correlation detected between the total scale scores also manifested across most of the subdimensions of the scale.

When the correlation analysis was examined at the subscale level, the total Exercise Addiction score showed significant positive correlations with “Interaction Quality,” “Output Quality,” “Physical Environment Quality,” “Program Quality,” and “Ambient Conditions Quality,” but no significant correlation was observed with “Exercise Equipment Quality”. This finding suggests that the general tendency toward exercise addiction is more closely associated with perceptions of factors such as staff interaction, the physical environment of the facility, and the quality of offered programs. Interestingly, the lack of a significant correlation between exercise addiction and the quality of exercise equipment, which are fundamental tools for exercise, is noteworthy. This finding indicates that members' exercise addiction is not sensitive to the quality of equipment. However, these relationships should be interpreted with caution, as the identified positive correlations are weak, which limits the strength of the recommendations. Moreover, no previous study has directly examined the relationship between exercise addiction and perceived service quality using the scales employed in this study. Therefore, there is no source available for direct comparison with the existing literature. This highlights the exploratory nature of the current findings and indicates the need for further research. In this context, it is possible to evaluate the reasons behind the relationships between the scales and their subdimensions through certain theories and models in the literature.

Upon examining the subscales of the Exercise Addiction Scale, it is significant that the “Excessive Focus and Mood Modification” dimension exhibits the strongest positive correlations with multiple subscales of Perceived Service Quality (including all subscales, even Exercise Equipment Quality) and its total score. This suggests that individuals who intensely center their lives around exercise and manage their emotional states through exercise may be more sensitive to or have a more positive perception of the quality of services provided by the fitness center. These individuals may place greater value on the environment and services that enable their exercise routines. The correlation between the Overcommitment and Mood Modification dimension and Perceived Service Quality can be linked to theoretical models in

the literature, even if it is not specific to exercise. For instance, cognitive-behavioral approaches suggest that factors reinforcing addictive behaviors are related to both environmental and cognitive processes (Türkçapar & Sargın, 2012, p. 8). From this perspective, positive service experiences can function as reinforcers that sustain exercise behavior. From the emotion regulation standpoint, uncontrolled and intense exercise providing temporary relief is associated with deficiencies in an individual's emotion regulation skills. Such maladaptive processes are emphasized as potentially supporting the development of exercise addiction (Ordu, 2022, p. 537). Accordingly, individuals exhibiting exercise addiction may be expected to perceive service conditions that facilitate emotional relief more positively. Within the framework of Self-Determination Theory, the frustration of basic psychological needs may increase the risk of addiction, creating a context for compensatory behaviors (Richards et al., 2024; Wegmann et al., 2025). From this perspective, when the service environment is structured to support these needs—for example, by providing conditions that support autonomy, competence, or relatedness—individuals may become more selective in their quality perceptions of the services offered.

One of the most striking findings of the study was observed in the “Postponement of Individual-Social Needs and Conflict” dimension of exercise addiction. The findings revealed that individuals with high scores on this dimension were largely indifferent to the physical elements of the fitness centers (e.g., equipment, environment, cleanliness) and exhibited only a weak relationship with “Interaction Quality”. Within the framework of the Cognitive-Behavioral Model, this situation can be explained by the fact that addictive behavior moves away from rational consumer preferences and turns into an internal necessity. At this stage, the fitness center is perceived not as a place of enjoyment, but as a setting where a compulsory behavior is performed. Suri et al. (2018), emphasize that not only individual intrinsic factors but also environmental opportunities play an important role in choosing an emotion regulation strategy. In this context, individuals may turn to fitness centers for exercise needs by using addiction as a means of emotion regulation and may be insensitive to the environmental characteristics of the service offered here. The observed relationship with interaction quality can be explained within the framework of the relationality dimension of Self-Determination Theory. It has been observed that social ties are weakened in individuals with exercise addiction (Demir, 2022). However, while meeting their exercise needs in fitness centers, these individuals can achieve partial satisfaction through the social interactions they experience, albeit limited (Schüler et al., 2018, p. 2). This connection is also supported by the weak positive relationship found in the study between the dimension of Deferral of Individual-Social Needs and Conflict and the dimension of Interaction Quality.

The “Tolerance Development and Passion” sub-dimension of exercise addiction showed a positive relationship with most sub-dimensions of perceived service quality. It is possible to explain the significant relationships, even if they are weak, with the theories in the literature. Self-determination and Emotion Regulation theories emphasize that a quality environment can lead to positive attitudes by meeting psychological needs (competence, relatedness) and providing emotional balance (Inan et al., 2023; Teixeira et al., 2012). This is consistent with the relationships identified in the study. However, as seen in Table 4, no significant relationship was found between “Tolerance Development and Passion” and “Quality of Exercise Equipment” dimensions. This shows that the participants' tolerance and passion for exercise are shaped independently of their perception of the quality of the equipment they use. Tolerance development and passion are more closely related to intrinsic motivational processes emphasized by Self-Determination Theory (Vallerand, 2010) and emotional coping strategies

emphasized by Emotion Regulation Theory (Gross & Thompson, 2007) Therefore, it can be expected that extrinsic factors such as equipment quality do not have a significant effect on these dimensions.

The results of the multiple regression analysis (Table 5) provide clearer insights into the impact of Exercise Addiction subscales on Perceived Service Quality. The model was statistically significant ($p < .001$) and explained 11.5% of the total variance ($R^2 = .115$), confirming that Exercise Addiction has a significant but limited explanatory power on Perceived Service Quality. According to the beta coefficients, the subscales "Excessive Focus and Mood Modification" ($\beta = .257$; $p < .001$) and "Tolerance Development and Passion" ($\beta = .200$; $p < .05$) were found to have significant and positive effects on Perceived Service Quality. This indicates that specific aspects of exercise addiction, particularly intense focus on exercise, its use as an emotional regulation tool, tolerance development, and passion, positively influence the perception of service quality at the fitness center. These findings support the notion that the psychological dimensions of exercise addiction (Bircher et al., 2017; Hall et al., 2009; Spano, 2001) may play a role in shaping individuals' perceptions of the exercise environment. The lack of a significant effect of the "Postponement of Individual-Social Needs and Conflict" subscale on Perceived Service Quality is consistent with the correlation analysis results and reinforces that this dimension of addiction is not directly related to service quality perception.

The statistically significant, positive but weak relationship ($r = .264$) found between exercise addiction and perceived service quality among fitness center members, when evaluated together with the theoretical framework, presents implications that need to be interpreted with caution in the literature. In relation to the Cognitive-behavioral Model; the positive (sense of achievement) and negative (escape from negative emotions) reinforcements provided by exercise may play a critical role in maintaining this behavior (Egorov & Szabo, 2013). Individuals may perceive more positively the environment in which they obtain these reinforcements, namely the fitness center, which may partially explain the positive relationship between perceived service quality and exercise addiction. Regression analysis further elaborated this relationship, showing that the subdimensions of exercise addiction, "Excessive Focus and Mood Change" (related to emotion regulation function) and "Tolerance Development and Passion" (related to the necessity of meeting the increasing need for exercise), were significant positive predictors of perceived service quality. This indicates that individuals attribute greater importance to the quality of the environment in which they manage their mood through exercise and meet their increasing exercise needs. Furthermore, within the framework of Self-Determination Theory, it can be suggested that individuals with a tendency toward addiction, where intrinsic motivation is relatively weakened, may derive partial satisfaction from the social interaction and supportive environment provided in the fitness center, which may have strengthened the perception of service quality (Wilson et al., 2003). However, the fact that the subdimension of exercise addiction reflecting its negative consequences, "Postponement of Individual-Social Needs and Conflict," did not have a significant effect on perceived service quality, may be related to the avoidance strategy mentioned in theory (Deci & Ryan, 2000, p. 236). For individuals at this stage, the opportunity to engage in exercise may become more important than the quality of the facility or the external problems created by exercise. The finding that of exercise addiction explain only 11.5% of the variance in perceived service quality suggests that perceived service quality may depend on other factors such as cleanliness, staff, and price, but also that certain dimensions of exercise addiction may play a partial role in this perception, particularly through reinforcement, tolerance, and limited social interaction mechanisms. These findings can be used as a potential clue for fitness center managers in service planning by taking exercise addiction into account in member

segmentation. This is because there are studies showing that exercise addiction can be perceived by society as a socially acceptable behavior in the context of fitness centers (Lichtenstein et al., 2017). However, the fact that the relationship identified between exercise addiction and perceived service quality is weak indicates that this is due not only to conceptual differences but also to methodological limitations in this research. The self-report nature of the scales, the limited sample, and the lack of control over other variables that may affect addiction (e.g., personality traits, types of motivation, socioeconomic factors) necessitate a critical evaluation of the findings. Therefore, although the results obtained indicate that there is a weak positive relationship between exercise addiction and perceived service quality (both between total scale scores and at the subscale level), they reveal the need for more comprehensive and multivariate studies to understand why this relationship occurs at a weak level.

CONCLUSION

The results of this study revealed that the exercise addiction levels of fitness center members were moderate, while their perceived service quality levels were high. A positive but weak relationship was found between exercise addiction and perceived service quality. The findings indicate that, in particular, the dimensions of exercise addiction, “Excessive Focus and Mood Change” and “Tolerance Development and Passion,” significantly predicted the perception of service quality, albeit at a low level. In contrast, the dimension of “Postponement of Individual-Social Needs and Conflict” was not found to have a significant effect. This suggests that the perception of service quality may be more closely associated with the positive emotions and motivational factors provided by exercise.

The findings obtained offer important implications for the fitness business. Members’ perceptions of service quality are influenced not only by the service standards provided by the facility but also by the pleasure, passion, and motivation derived from exercise. Therefore, by considering members’ exercise motivations and potential tendencies toward addiction in shaping service strategies, fitness centers can enhance both customer satisfaction and long-term membership commitment. Moreover, the weak level of the relationship between exercise addiction and service quality indicates that the perception of service quality cannot be explained solely by the level of addiction, and that various personal and environmental factors may also play a role.

In conclusion, this study addressed the relationship between exercise addiction and perceived service quality, supporting a topic that has been examined only to a limited extent in the literature with empirical findings. Although caution should be exercised in generalizing the results due to the study being conducted in a single province and employing a cross-sectional design, the research demonstrates that the perception of service quality may be linked to exercise addiction and provides a new perspective for academic studies related to the fitness sector. Future studies are recommended to explore the relationship in greater depth using different samples and longitudinal designs.

LIMITATIONS OF THE STUDY AND FUTURE RESEARCH STUDIES

This study possesses certain limitations. Firstly, the fact that the sample group was limited to Karabük Province and the participants were mostly young people (66%) between the ages of 18-24 limits the generalizability of the findings. Future studies that include larger samples with diverse demographic characteristics and are conducted in different geographical locations could enhance the validity of the results. Furthermore, the use of a survey as a data collection method

carries the limitations associated with self-reported data from participants. For future research, longitudinal studies are recommended to gain a better understanding of the dynamics between exercise addiction and service quality. Qualitative or mixed-methods research could be beneficial for a deeper exploration of the service quality expectations and perceptions of individuals with exercise addiction. Additionally, investigating the roles of other variables that may mediate or moderate the relationship between exercise addiction and perceptions of service quality—such as self-esteem, social support, types of motivation, purchasing and consumption preferences—could enrich our understanding of this topic. The ethical dimensions of how improvements in service quality at fitness centers may affect members' exercise behaviors and tendencies toward addiction should also be examined in future studies.

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