

Examination of Leisure Time Satisfaction and Sleepiness of Individuals Engaged in Physical Activity during Their Leisure Time*

Serbest Zamanlarında Fiziksel Aktiviteye Katılan Bireylerin Serbest Zaman Tatmini Ve Uykululuk Durumlarının İncelenmesi

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Abstract

Sleep is a crucial element that facilitates the healing and recuperation of the body. This study aims to investigate leisure satisfaction and daytime sleepiness among persons engaged in leisure-time physical activity. The study sample comprises 326 persons chosen through random sampling, who participate in physical exercise a minimum of twice weekly during their free time. A personal information form comprising demographic inquiries, the Leisure Satisfaction Scale, and the Epworth Sleepiness Scale served as the data collection instrument. Data were evaluated utilizing SPSS software through descriptive analysis, independent samples t-test, and Pearson correlation analysis. The findings demonstrate no significant difference in psychological and physical characteristics based on reported sleep quality ($p>0.05$). Nonetheless, a notable difference was observed in the relaxation dimension based on gender ($p<0.05$). Correlation analyses reveal an inverse association between age, frequency of physical activity, and daytime sleepiness, alongside positive correlations between activity frequency and some subdimensions of leisure enjoyment. In conclusion, engagement in leisure-time physical exercise is a significant factor for leisure enjoyment and daytime sleepiness.

Keywords Physical Activity, Leisure, Satisfaction, Sleepiness

Öz

Uyku, vücudun iyileşmesi ve toparlanmasını kolaylaştıran çok önemli bir unsurdur. Bu çalışma, boş zamanlarında fiziksel aktivite yapan kişilerde boş zaman memnuniyeti ve gündüz uykusuzluğunu araştırmayı amaçlamaktadır. Çalışma örneklemini, boş zamanlarında haftada en az iki kez fiziksel egzersiz yapan, rastgele örnekleme yöntemiyle seçilen 326 kişiden oluşmaktadır. Veri toplama aracı olarak demografik sorular, Boş Zaman Memnuniyeti Ölçeği ve Epworth Uykusuzluk Ölçeği'ni içeren bir kişisel bilgi formu kullanılmıştır. Veriler, SPSS yazılımı kullanılarak tanımlayıcı analiz, bağımsız örneklem t-testi ve Pearson korelasyon analizi ile değerlendirilmiştir. Bulgular, bildirilen uyku kalitesine bağlı olarak psikolojik ve fiziksel özelliklerde anlamlı bir fark olmadığını göstermektedir ($p>0,05$). Bununla birlikte, cinsiyete bağlı olarak gevşeme boyutunda önemli bir fark gözlemlenmiştir ($p<0,05$). Korelasyon analizleri, yaş, fiziksel aktivite sıklığı ve gündüz uykusuzluğu arasında ters bir ilişki, aktivite sıklığı ile boş zaman keyfinin bazı alt boyutları arasında ise pozitif korelasyonlar ortaya koymaktadır. Sonuç olarak, boş zaman fiziksel egzersizine katılım, boş zaman keyfi ve gündüz uykusuzluğu için önemli bir faktördür.

Anahtar Kelimeler Fiziksel Aktivite, Serbest Zaman, Tatmin, Uykusuzluk.

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Introduction

Leisure activities are essential to contemporary living, offering individuals a means to alleviate the stress of everyday routines and participate in significant and rejuvenating endeavors. These voluntarily selected activities aimed at alleviating stress, fostering personal development, and enhancing satisfaction are crucial for sustaining long-term health and well-being (Cevik et al., 2021; Nolte et al., 2009; Zulyniak et al., 2020). As cultures grow more sedentary due to technology advancements and demanding work-life balances, engagement in leisure physical activities is crucial for preserving and enhancing both physical and mental health (Acar & Yilmaz, 2021; Coşkuntürk et al., 2023;). Participating in physical activity in one's leisure time contributes to physical health and positively improves mental well-being (Wang & Boros, 2021; Warburton et al., 2006; Yel et al., 2024).

Sleep quality, a crucial component of health, intricately links to both physical and mental wellbeing (Buxton & Marcelli, 2010; Kurt et al., 2010). Getting quality sleep aids physical recovery, keeps emotions steady, and sharpens cognitive abilities (Belayachi et al., 2013; Gonçalves et al., 2004; Çakır & Erbaş, 2021). Poor sleep quality or excessive daytime sleepiness can adversely affect performance in everyday activities and result in a notable decline in perceived happiness (Kim et al., 2015). Studies indicate that consistent physical activity, particularly during leisure time, might markedly enhance sleep quality and diminish daytime drowsiness (Andrianasolo et al., 2016; Tucker et al., 2008). Research indicates that persons engaging in physical exercise experience improved sleep quality and elevated melatonin synthesis, which governs sleep-wake cycles (Kruk et al., 2021). Simultaneously, research underscores the advantages of physical activity on both physical and mental health outcomes, including cardiovascular function, metabolic equilibrium, and psychological well-being (Warburton et al., 2006; Flora & Faulkner, 2017; Toschi et al., 2021; Çakır et al., 2025). Adequate and high-quality sleep not only replenishes physical and mental energy but also enhances cognitive and emotional functioning, thereby improving performance in everyday tasks and the whole quality of life (Toschi et al., 2021).

Despite the increasing evidence concerning the individual effects of physical activity on sleep quality and life satisfaction, insufficient focus has been directed towards the specific relationship between leisure satisfaction and daytime sleepiness in individuals who partake in physical activity during their leisure time. Although prior research has established the overall advantages of physical activity, a notable deficiency exists in comprehending how these benefits are influenced by leisure activities, which are frequently determined by individual preferences, incentives, and social connections (Wang & Boros, 2021). A comprehensive study of these dynamics could yield critical insights for formulating policies that encourage healthy lifestyles and enhance engagement in recreational activities.

This study investigates the previously underexplored connection between leisure satisfaction and daytime sleepiness for individuals who participate in physical exercise during their leisure time. The results may offer significant insights for the formulation of public health policies designed to improve quality of life and overall health outcomes.

Materials and Methods

Research Model

This study employs a descriptive and correlational approach to investigate the connection between leisure happiness and daytime sleepiness in adults who participate in physical activity during their leisure time. The data-gathering strategy utilized a quantitative methodology through an online structured survey, facilitating rapid and efficient data acquisition from January to March 2024. Participants were asked if they volunteered via the established internet link, and those who affirmed their participation thereafter responded to the survey questions.

Research Group

The study sample comprised 326 persons engaged in leisure-time physical exercise. Participants were chosen by a basic random selection technique. The study included individuals over 18 years of age who participated in recreational physical activity at least twice a week and did not have a diagnosis of a sleep disorder. Accordingly, the mean age of the participants was calculated as 24.83 (SD=8.21).

Data Collection Tools

Personal Information Form:

This form collects demographic data (age, gender, education level) and information on the frequency of physical activities.

Leisure Satisfaction Scale (LSS):

The "Leisure Satisfaction Scale" (LSS) was utilized. Gökçe & Orhan (2011) modified it for Turkish, and investigations were done to make sure it was valid and reliable. The scale consists of 24 items on a 5-point Likert scale (1 "Almost never true", 2 "Rarely true", 3 "Sometimes true", 4 "Frequently true", and 5 "Almost always true"). The mean Cronbach's alpha coefficient for the short form of the scale is 0.93.

Epworth Sleepiness Scale (ESS):

The Cronbach's alpha coefficient of the scale, converted to Turkish and confirmed by Ağargün et al. (1999), was determined to be 0.80. This scale has eight questions that try to find out if people fall asleep or doze off while doing certain things they do every day. You receive 0 to 3 points for answering questions. The way to score all the questions is the same. A participant who is unlikely to fall asleep gets 0 points, a participant who is likely to stay awake gets 1 point, a participant who is likely to fall asleep gets 2 points, and a participant who is very likely to fall asleep gets 3 points. In the ESS, the subject receives a score that ranges from 0 to 24. If you score 10 or higher, you probably have a problem with "increased daytime sleepiness."

Data Analysis

The data obtained were analyzed using SPSS 25.0 software. In addition to descriptive statistics, an independent samples t-test was conducted to compare differences in results

related to gender and perceived sleep quality. Pearson correlation analysis was applied to examine the relationships between weekly physical activity frequency, subscale scores of the leisure time satisfaction scale, and Epworth Sleep Scale (ESS) scores. The statistical significance level for all analyses was set at $p < 0.05$.

Results

A total of 326 individuals participated in the study; 53.4% of the participants were female ($n=174$) and 46.6% were male ($n=152$). The mean age of the participants was 24.88 years ($SD=8.15$), with an age range of 18 to 65. Weekly participation in physical activities varied from 1 to 7 days, with an average of 4.08 days ($SD=1.71$). In addition, 48.5% ($n=158$) of the participants reported having quality sleep in the past two weeks, while 51.5% ($n=168$) reported not having quality sleep in the same period.

Table 1: Descriptive statistics of LSS and ESS

Variable		n	\bar{x}	\pm	SD	Min	Max
LSS	Psychological	326	3.599	\pm	.770	1	5
	Educational	326	3.791	\pm	.827	1	5
	Social	326	3.724	\pm	.844	1	5
	physiological	326	4.018	\pm	.824	1	5
	Relaxation	326	3.653	\pm	.852	1	5
	Aesthetic	326	3.624	\pm	.819	1	5
	Total	326	3.735	\pm	.678	1	5
ESS		326	11.236	\pm	4.311	4	24

Table 1 provides descriptive statistics for LSS and ESS scores. The LSS subscales ranged from 1 to 5, with participants exhibiting a generally high mean score, particularly on the physiological subscale ($M=4.02$). The ESS mean score was 11.24, indicating that some participants may experience daytime sleepiness.

Table 2: T-test analysis according to participants' sleep quality evaluations for the last two weeks.

Variable	Group	n	\bar{x}	t	F	P
Psychological	Quality	158	3.68 \pm .698	1.869	6.587	.630
	Poor Quality	168	3.52 \pm .827			
Educational	Quality	158	3.89 \pm .771	2.157	1.739	.032
	Poor Quality	168	3.70 \pm .868			
Social	Quality	158	3.84 \pm .762	2.442	3.763	.015
	Poor Quality	168	3.61 \pm .904			
Physiological	Quality	158	4.10 \pm .772	1.687	1.081	.093
	Poor Quality	168	3.94 \pm .865			
Relaxation	Quality	158	3.78 \pm .814	2.683	2.114	.008
	Poor Quality	168	3.53 \pm .870			
Aesthetic	Quality	158	3.73 \pm .801	2.213	.097	.028
	Poor Quality	168	3.53 \pm .827			

* $p < 0.01$

Independent sample t-test analysis was used to compare the scores of the LSS sub-dimensions according to the participants' subjective perception of sleep quality. The results show that sleep quality has a significant effect on some subdimensions of the LSS. Participants who reported having good sleep quality had significantly higher scores in the educational ($p=0.032$), social ($p=0.015$), relaxation ($p=0.008$), and aesthetic ($p=0.028$)

* $p < 0.01$

Age was negatively correlated with weekly physical activity participation frequency ($r = -0.204$, $p = 0.000$) and with ESS ($r = -0.151$, $p = 0.006$), indicating that younger participants were generally more active and had higher levels of sleepiness than older participants. Weekly frequency of participation in physical activities was positively correlated with ESS ($r = 0.124$, $p = 0.025$), suggesting that increased frequency of physical activity may be associated with a slight increase in daytime sleepiness. Based on the LSS sub-dimensions, the ESS is linked to the psychological ($r = 0.113$, $p = 0.042$), educational ($r = 0.112$, $p = 0.043$), and social ($r = 0.124$, $p = 0.026$) sub-dimensions in a positive way. This result shows that although sleepiness can be perceived as a negative indicator, it can also reflect greater participation in leisure-time physical activities and thus contribute to the improvement in some aspects of leisure satisfaction. Finally, weekly participation in physical activities was found to be positively correlated with the relaxation subscale ($r = 0.136$, $p = 0.014$) and aesthetic subscale ($r = 0.144$, $p = 0.009$). These results indicate that more frequent participation in physical activities improves the perception of well-being, provides better relaxation, and increases aesthetic satisfaction during leisure activities.

Discussion and Conclusion

The findings of our study corroborate and enhance the current literature regarding the impact of physical activity on well-being and the alleviation of sleep disturbances, highlighting significant correlations among weekly engagement in physical activities, sleep quality, and leisure satisfaction. Based on the study's findings, we established a significant difference in educational, social, relaxation, aesthetic, and overall scores in the t-test analysis among the LSS subdimensions, contingent upon participants' perceptions of sleep quality over the preceding two weeks ($p < 0.05$). These findings indicate that while sleep quality may influence overall leisure pleasure, certain sub-dimensions, such as psychological aspects, may exhibit reduced sensitivity to variations in sleep quality. These findings confirm the importance of quality sleep for both physical and mental well-being, as well as for enhancing the overall enjoyment of recreational physical activities, particularly for relaxation and social satisfaction. Research conducted by D'Aurea et al. (2022) and Monteiro et al. (2023) indicates that aerobic exercises and yoga enhance subjective sleep quality without affecting objective metrics assessed through polysomnography. Tucker et al. (2008) established that engagement in evening leisure activities, especially those requiring physical exertion, enhanced sleep quality, indicating that the timing and kind of leisure activities are significant factors influencing their advantages. Literature indicates that consistent physical activity can enhance sleep length and quality, mitigate insomnia, and elevate psychological well-being (Buxton & Marcelli, 2010; Baron et al., 2023; Hartescu et al., 2015). Our study revealed that participants who rated their sleep quality as satisfactory exhibited markedly higher overall satisfaction scores, corroborating the findings of Schnohr et al. (2005) and Wennman et al. (2017) that the interplay of physical activity and quality sleep diminishes stress and enhances life satisfaction.

Research examining the relationship between physical activity and sleep quality is garnering heightened interest in academic literature. Andrianasolo et al. (2016) indicated that participants participating in elevated levels of physical exercise during leisure exhibited markedly reduced daytime sleepiness. Kim et al. (2015) found similar results, showing that college students who work out regularly are happier and more satisfied with their lives. Ku et al. (2016) emphasized a favorable correlation between physical

exercise and leisure satisfaction among older individuals, underscoring the broader emotional and psychological advantages of active lifestyles.

A noteworthy element of our research pertains to gender disparities in the impression of relaxation; women indicated markedly higher scores than males ($t=-2.808$, $p<0.01$). This outcome aligns with the research of Skałacka & Błońska (2023) and D'Aurea et al. (2022), which suggests that women typically favor pursuits focused on personal well-being and socializing, hence enhancing their relaxation experience. Hachenberger et al. (2023) proposed that physiological factors may influence this impression and that further investigation is required to examine the fundamental causes of these disparities. Moreover, recreational physical activities hold significant importance for public health. Fekedulegn et al. (2018) demonstrated that police officers who consistently engage in physical activities experience improved sleep quality and more stable cortisol levels, highlighting the possible protective function of such activities in high-stress occupational settings. Leino-Arjas et al. (2004) demonstrated that consistent physical activity enhances physical function and endurance in older individuals, perhaps serving as a lifetime preventive factor that mitigates aging-related hazards.

The analysis of the acquired data revealed a negative correlation between age and weekly engagement in leisure physical activity ($r=-0.204$, $p <0.01$), indicating that younger participants were more inclined to partake in regular leisure physical activities. This finding aligns with the observations of Andrianasolo et al. (2016) and Cao et al. (2022), who demonstrated that engagement in physical activities diminishes with age yet remains crucial for sustaining well-being in older individuals. The correlation between age and daytime drowsiness ($r=-0.151$, $p=0.006$) indicates that younger individuals may exhibit increased sleepiness attributable to their more active lifestyles and regular engagement in social activities. Consistent with this finding, Hachenberger et al. (2023) propose that young individuals may encounter heightened sleepiness attributable to their more active lifestyles and frequent social engagements, indicating that lifestyle factors need investigation. Murray et al. (2017) posited that physical activity affects the sleep quality of older adults. Their study, which included three age groups (21–29, 36–64, and 65–81), indicated that older adults who participate in higher levels of physical activity experience improved sleep quality. Furthermore, both moderate and vigorous physical activity positively influence sleep quality, whereas light physical activity does not affect it.

A positive correlation was found between individuals' weekly physical activity participation and the dimensions of relaxation ($r=0.136$, $p <0.05$) and aesthetics ($r=0.144$, $p<0.01$). These findings align with the observations of Monteiro et al. (2023) and Ku et al. (2016), who highlighted the efficacy of recreational activities in enhancing well-being perception and aesthetic pleasure. The literature underscores that engagement in physical activities can positively influence social and psychological well-being. Research conducted by J. Kim et al. (2021) and Mutz et al. (2021) indicates that outdoor group activities enhance social contact and promote psychological and social wellbeing. The evidence aligns with our study findings, indicating a significant correlation between sleepiness and both psychological ($r = 0.113$, $p = 0.042$) and social ($r = 0.124$, $p = 0.026$) satisfaction dimensions, implying that mild sleepiness may signify increased engagement in leisure activities. The notable correlation between sleep quality and the educational and aesthetic aspects of the leisure satisfaction scale is compelling. This data aligns with evidence demonstrating that educational and social activities can enhance the impression of overall wellbeing (Kim et al., 2021).

The findings of our study validate the significance of physical activities in enhancing sleep quality and overall life happiness. Individuals with superior sleep quality

demonstrated markedly higher scores on the educational, social, and resting subscales, indicating that adequate sleep may beneficially affect psychological well-being and recreational pursuits. The associations between the weekly frequency of physical activities and the aesthetic and relaxation characteristics indicate that consistent engagement may enhance not just physical health but also provide a more fulfilling aesthetic and psychological experience during leisure time. Considering the significance of physical activity for overall well-being, it is prudent to advocate for varied and accessible physical activity programs for all demographics, particularly targeting fewer active adults and those experiencing sleep disorders. Combined therapies that incorporate physical exercise and strategies to enhance sleep quality may effectively augment overall life satisfaction and diminish daytime sleepiness, particularly in vulnerable populations. Furthermore, encouraging physical activity during leisure time may augment the aesthetic and psychological benefits of these intervals. Subsequent study could examine the identified gender disparities in relaxation perceptions and assess the enduring impacts of consistent physical activity on sleep quality and overall well-being.

Kısaltmalar / Abbreviations

SD	Standart sapma (Standard deviation)
X	Ortalama (Mean)
SPSS	Sosyal bilimler için istatistik paketi (Statistical package for the social sciences)
p value	Anlamlılık değeri (Significant value)
t value	T değeri (T value)
N	Katılımcı sayısı (Number of participant)
Min	Minimum (Minimum)
Max	Maksimum (Maximum)
LSS	Leisure Satisfaction Scale
ESS	Epworth Sleepiness Scale

Beyanlar / Declarations

Etik Onay ve Katılım Onayı / Ethics approval and consent to participate

Bu çalışmanın hazırlanma ve yazım sürecinde "Yükseköğretim Kurumları Bilimsel Araştırma ve Yayın Etiği Yönergesi" kapsamında bilimsel, etik ve alıntı kurallarına uyulmuş olup; toplanan veriler üzerinde herhangi bir tahrifat yapılmamış ve bu çalışma herhangi başka bir akademik yayın ortamına değerlendirme için gönderilmemiştir. Makale ile ilgili doğabilecek her türlü ihlallerde sorumluluk yazara aittir. Çalışma, Hitit Üniversitesi Girişimsel Olmayan Araştırmalar Etik Kurulu (2023-17) tarafından onaylanmıştır ve Helsinki beyanı olarak da bilinen Dünya Tabipler Birliği Etik Kuralları uyarınca gerçekleştirilmiştir. Tüm katılımcılar bu çalışmaya gönüllü olarak katılmıştır. /

During the preparation and writing of this study, scientific, ethical and citation rules were followed in accordance with the 'Higher Education Institutions Scientific Research and Publication Ethics Guidelines'; no alterations were made to the collected data, and this study has not been submitted for evaluation to any other academic publication medium. The author is solely responsible for any violations that may arise in connection with this article. The study was approved by the Hitit University Non-Interventional Research Ethics Committee (2023-17) and conducted in accordance with the World Medical Association's Code of Ethics, also known as the Helsinki Declaration. All participants voluntarily participated in this study.

Veri Ve Materyal Erişilebilirliği / Availability of data and material

Bu çalışmanın bulgularını destekleyen veriler, makul talepler üzerine sorumlu yazardan temin edilebilir. Veri seti yalnızca akademik amaçlar için erişilebilir olacak ve verilerin herhangi bir kullanımı, orijinal çalışmayı referans gösterecek ve katılımcıların gizliliğini koruyacaktır.

The data that support the findings of this study are available from the corresponding author upon reasonable request. The dataset will be accessible only for academic purposes, and any use of the data will recognize the original study and maintain the confidentiality of the participants.

Çıkar Çatışması / Competing interests

Yazarlar, bu makalede sunulan çalışmayı etkileyebilecek herhangi bir çıkar çatışması veya kişisel ilişkiye sahip olmadıklarını beyan etmektedirler.

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Yazar Katkıları / Authors' Contribution Statement

Çalışmanın tasarımı ve planlanması: M.A., G.Y., G.D., İ.E.A.; Veri toplama, analizi veya yorumlanması: G.Y., G.D.; Makalenin yazımı: M.A., G.Y., G.D., İ.E.A.; Veri düzenleme, yöntem belirleme, yazım – özgün taslak, yazım – gözden geçirme ve düzenleme: M.A., G.Y., G.D., İ.E.A.; Tüm yazarlar, makalenin önemli noktalarını eleştirel bir şekilde gözden geçirmiştir. Tüm yazarlar makalenin son halini onaylamıştır. /

Design and planning of the study: M.A., G.Y., G.D., İ.E.A.; Data collection, analysis or interpretation: G.Y., G.D.; Manuscript preparation: M.A., G.Y., G.D., İ.E.A.; Data organization, methodology development, writing - original draft, writing - review and editing: M.A., G.Y., G.D., İ.E.A.; All authors critically reviewed the key points of the manuscript and approved the final version.

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