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Research in Sport Education and Sciences

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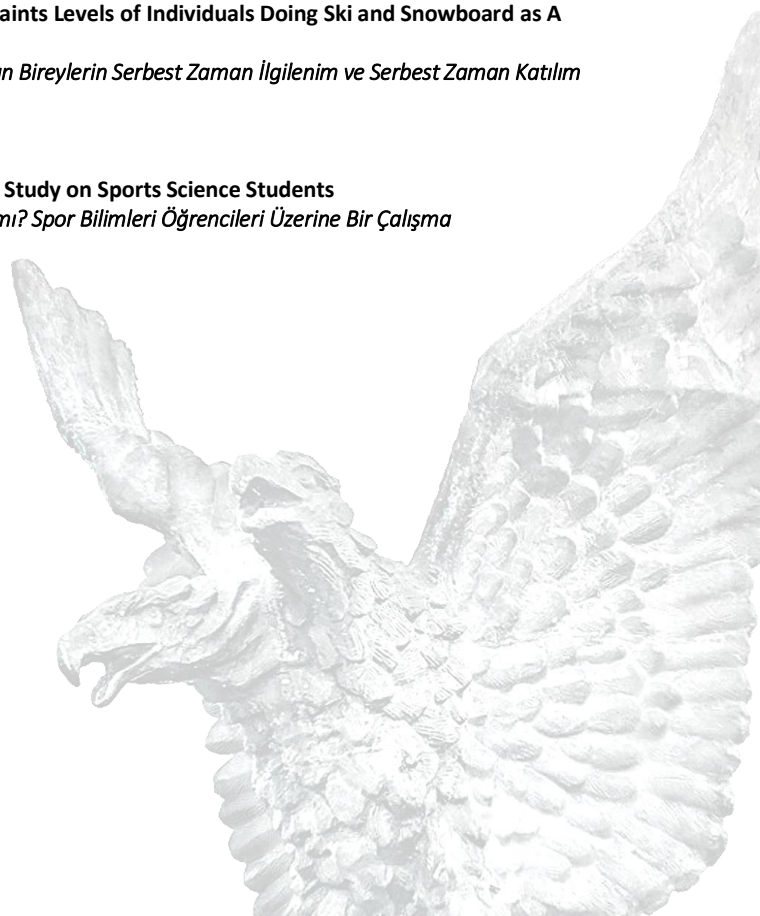

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Changes in Physical Fitness Parameters with Increasing Age

Fiziksel Uygunluk Parametrelerinin Yaşla Beraber Değişimi

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ABSTRACT

It is inevitable to see changes in physical fitness parameters with age. This study compares the physical fitness parameters, body composition, laxity, balance, proprioception, and muscle strength between different age groups. The study comprised 44 healthy individuals, divided into two age groups: 20-39 and 40-65. Body composition was measured with Tanita BC 418; balance was measured with a Biodex Biosway stabilometer device, and laxity was measured with a GNRB® knee arthrometer. The isokinetic system (Cybex NORM®, Humac, CA, USA) was used for strength and proprioception measurements. Anteroposterior, mediolateral, and overall stability index among the balance parameters between the two groups was significant. Among the groups, a statistically significant difference was observed in terms of body mass index (BMI), total body fat ratio, trunk fat ratio, and dominant leg fat ratio (p<.05). It was determined that individuals between the ages of 40-65 had higher BMI, total body fat ratio, trunk fat ratio, and dominant leg fat ratio compared to individuals between the ages of 20-39, and their postural stability was worse. There was no difference between the groups regarding laxity, proprioception, and muscle strength (p>.05). With increasing age, it is essential to be aware of the negatively changing body composition and deteriorating balance and encourage participation in physical activity and exercise to prevent physical fitness loss, especially from 40.

Keywords: Age, body composition, laxity, balance, proprioception, muscle strength

ÖZ

Yaşla birlikte fiziksel uygunluk parametrelerinde değişiklikler görülmesi kaçınılmazdır. Bu çalışma, farklı yaş grupları arasındaki fiziksel uygunluk parametrelerini, vücut kompozisyonunu, laksiteyi, dengeyi, propriyosepsiyon ve kas gücünü karşılaştırmaktadır. Araştırmaya 20-39 ve 40-65 yaş olmak üzere iki yaş grubuna ayrılan, sağlık durumu iyi olan 44 kişi katıldı. Vücut kompozisyonu, Tanita BC 418 ile; denge, Biodex Biosway stabilometre cihazı ile ölçüldü ve laksite GNRB® diz artrometresi ile ölçüldü. Kuvvet ve propriyosepsiyon ölçümleri için izokinetik sistem (Cybex NORM®, Humac, CA, ABD) kullanıldı. İki grup arasındaki denge parametreleri arasında ön-arka, mediolateral ve genel stabilite indeksi anlamlıydı. Gruplar arasında vücut kitle indeksi (BMI), toplam vücut yağ oranı, gövde yağ oranı ve dominant bacak yağ oranı açısından istatistiksel olarak anlamlı farklılık gözlendi (p<,05). 40-65 yaş arası bireylerin 20-39 yaş arası bireylere göre VKİ, toplam vücut yağ oranı, gövde yağ oranı ve dominant bacak yağ oranının daha yüksek olduğu ve postüral stabilitelerinin daha kötü olduğu belirlendi. Laksite, propriyosepsiyon ve kas kuvveti açısından gruplar arasında fark yoktu (p> ,05). Yaş ilerledikçe olumsuz yönde değişen vücut kompozisyonu ve bozulan dengenin farkında olmak ve bunları önlemek için özellikle 40'lı yaşlardan itibaren fiziksel aktivite ve egzersize katılımı teşvik etmek önemlidir.

Anahtar Kelimeler: Yaş, vücut kompozisyonu, laksite, denge, propriyosepsiyon, kas kuvveti

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Introduction

Physical fitness encompasses the ability to engage in daily activities without fatigue, sustaining this capacity over a lifetime(GÜNAY et al., 2008). Therefore, physical fitness is closely related to both health and sportive performance. Health and performance will likely be affected by the inadequacy or deterioration of physical fitness parameters such as balance, muscle strength and endurance, and body composition.

Balance is the ability to maintain a steady position on a stable surface with minimal movement, as well as to perform tasks while sustaining this stability (Bressel et al., 2007). Coordination of afferent inputs from the visual, somatosensory, and vestibular systems is needed for balance regulation (Melo et al., 2020). Postural balance (control) depends on somatosensory information from muscle and joint proprioceptors, cutaneous sensory information describing surface features, vestibular information for head and trunk orientation in the cavity, gravity information from gravity receptors in the trunk, and sensory input from visual inputs (Viswanathan & Sudarsky, 2012). Postural balance control involves integrating sensory input with information from the musculoskeletal systems. Proprioception, cutaneous sensitivity, and muscle strength are essential to balance control. It has been reported that postural balance, one of the basic parameters of functional capacity, deteriorates with age (Era et al., 2006). With increasing age, changes in the proprioceptive system may cause changes in postural control (balance) (Anson et al., 2017). Previous study results showed that poor joint position sense with increasing age is associated with greater body oscillations (Lord et al., 1991). Proprioception is a crucial component of the somatosensory system and plays a vital role in movement control via sensory signals from proprioceptors in muscles, tendons, and joint capsules (Riemann & Lephart, 2002).

Adequate muscle strength to maintain functional mobility is also one of the essential parameters in adults. For this reason, the loss of muscle strength with increasing age has become an increasingly important research topic in recent years(Newman et al., 2003). It is stated that there will be a 15% reduction in muscle strength every ten years after the ’50s (Larsson, 1983). Kallman et al. emphasized that hand grip strength starts to decrease after the age of 40. Previous studies have shown that hand grip strength is also related to other physical fitness parameters. Taking this study as a reference, we divided the groups into two groups before and after 40 years of age.

Optimal alignment and stability of the joints are biomechanically essential to maintain joint integrity and indicate the degree of joint laxity. Results regarding the change in knee laxity with age are contradictory. While some study results indicate that knee laxity decreases with age (Zyroul et al., 2014), different studies have shown that knee laxity increases with increasing age(Noyes & Grood, 1976). These conflicting results are thought to be caused by gender, knee ligament injuries, hormonal conditions, chronic joint pain and degeneration, collagen tissue diseases, and several types of metabolic syndromes (Zyroul et al., 2014). For this reason, it is crucial to reveal the change in joint laxity in different age groups.

Body composition assessment is an essential tool for assessing the nutritional status and health of the population, particularly concerning the prevention and treatment of cardiometabolic diseases (Carvalho et al., 2019). In general, as individuals age, the percentage of body fat increases, and it is known that lean mass and bone mineral density decrease(St-Onge & Gallagher, 2010).

As individuals age, various physiological systems, including proprioception and laxity, undergo significant changes, impacting physical fitness parameters. Decreased proprioception increases the risk of falls and negatively affects joint biomechanics. As a result of changes in neuromuscular control and proprioception in the lower extremities, the balance of individuals weakens, and the possibility of damage as a result of falls increases. In this case, with the results of our study, it will be possible to determine the degree of loss of knee proprioception and laxity in addition to physical fitness with age in individuals and to recommend appropriate physical activity and exercise programs. Alternatively, it will be possible to recommend preventive programs to prevent significant losses. While it's established that fitness levels deteriorate with age, our study specifically focuses on comparing physical fitness parameters such as body composition, balance, proprioception, and muscle strength across different age groups. This comparative approach provides valuable insights into how these parameters change with age and offers evidence for developing targeted interventions to mitigate age-related declines. This approach highlights the early onset of physical fitness decline in individuals as young as 40, underscoring the importance of early intervention and targeted exercise programs to mitigate these effects. To the best of our knowledge, no studies in the

literature investigate the changes in physical fitness parameters, knee proprioception, and laxity between 18-65 years of age. Therefore, this study aims to reveal differences in body composition, balance, proprioception, muscle strength, and laxity during aging in healthy individuals and differences between groups.

Methods

Participants

This research was conducted at Gazi University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation, Sports Health Unit. Healthy individuals (University employees of Caucasian origin and their relatives) between the ages of 20-65 (36 men and 8 women) who do not have regular exercise habits were included in the study, and they were divided into two groups: 20-39 years (25 people) and 40-65 years (19 people). All participants signed informed consent forms, and permission was obtained from the ethics committee of Gazi University (December 09, 2013, decision number: 241). The participant's physical activity levels between the ages of 20-65 were evaluated with the IPAQ short form. Sedentary participants whose physical activity was less than 3000 MET, min./week, were included in the study. The study excluded individuals with neurological or rheumatic conditions, as well as those experiencing balance issues (such as vestibular problems or diabetic foot syndrome), recent lower extremity surgery, more than three units of pain according to the visual analog scale, pregnancy or within one year postpartum, and professional athletes. Regular drug users and individuals with chronic diseases were not included in the study. We contacted the volunteers to participate in the study using snowball sampling.

Procedures

Bodyweight, total fat percentage, body mass index (BMI), individual muscle mass, and fat percentage of lower extremities were evaluated by a segmental body composition analysis scale (Tanita Corp, Tokyo, Japan). Prior to measurement, participants were instructed to abstain from alcohol for at least 24 hours, avoid vigorous exercise for at least 12 hours, refrain from eating or drinking for 3 hours, and empty their bladder immediately before measurement(Kutáč, 2015). Participants' age, gender, height, and clothing weight information were entered into the device, and the individuals were asked to climb on to the platform with bare feet and grasp the handpieces of the device (Kelly & Metcalfe, 2012). The measurement was taken while remaining firmly and comfortably on the device for approximately 10 seconds. After this measurement, BMI, whole-body fat ratio, body fat ratio, muscle mass, dominant leg fat ratio, and muscle mass values were recorded.

The strength of the knee muscles was evaluated with an isokinetic dynamometer (Cybex NORM®, Humac, CA, USA). For measurements, subjects were seated with their hips at 90^o of flexion. The dynamometer's rotation axis aligned with the knee joint's anatomical axis (lateral femoral condyle)(Arikan et al., 2021). Concentric strength evaluation of quadriceps femoris and hamstring muscles was performed in the 0-90^o knee flexion range at a speed of 60^o / sec. The tests were started from the 90^o knee flexion position. Submaximal three repetitions were performed before the test for warming. After a minute of rest, five maximal test repetitions were performed (Arikan et al., 2021). Peak torque/body weight values and hamstring/quadriceps muscle strength ratio (H / Q ratio) were recorded for the hamstring and quadriceps muscles of the dominant limb.

Proprioception was evaluated by an active joint reposition test using an isokinetic system (Cybex NORM®, Humac, CA, USA). Subjects were placed in a suitable position where strength assessments were made. The subjects were asked to knee extension from the starting position for the dominant leg (90^o knee flexion) until the patient reached the target angle of 60^o. After waiting 5 seconds in this position, he returned to his starting position. After the target angle was felt three times, individuals were asked to find the target angle they felt five times (Suner-Keklik et al., 2017).

The participants ' static balances were evaluated using the Biodex BioSway Balance System. Participants were asked to maintain their balance for 20 seconds while standing on the dominant side; 3 measurements were taken after a trial test. Overall stability index (OSI), anteroposterior stability index (APSI), and mediolateral stability index (MLSI) scores were obtained. These scores express the deviation between the participant's center of gravity and the center of the firm surface. Low scores indicate less deviation and good postural stability(Hinman, 2000).

The laxity of the ACL was evaluated with a GNRB® (GeNouRoB SAS, Montenay, France) knee arthrometer at 20 degrees of knee flexion in the Lachman test position. The measurements were made in the supine position. Before the measurement, the information of the individuals (name, date of birth, dominant extremity) was recorded in the system. The back of the treatment table was adjusted with a 30-degree tilt. The anterior tibial tubercle and the inferior of the patella were palpated

and marked. The participant's extremity was placed in the device in neutral rotation. The marked inferior of the patella was parallel to the line that should be in the knee apparatus of the device. The limb was fixed at the ankle and patella. The device sensor, which records the amount of displacement of the anterior tibial tubercle relative to the femur, was inserted into the anterior tibial tubercle. Measurements were made three times at a force of 200 N. The average displacement amount of the tibial tubercle in 3 measurements made at 200 N on the dominant side was calculated (Robert et al., 2009).

Statistical analysis

Sample size calculation was done using the G * Power 3.1 program (post-hoc power calculation). According to the power analysis, the study's sample size was estimated at 83%, with a 0.05 margin of error, using the data from Jia's study(Jia & Lubetkin, 2005).

Results

Thirty-six males, eight females, and a total of 44 people between the ages of 20-65 were evaluated. The demographic information of the participants is given in Table 1.

Table 1.

Demographic values of participants

	Male (n=36) (X±SD)	**95% CI**	**Female (n=8) (X±SD)**	**95% CI**	***p***
Age (year)	38.36 ±14.63	33.58 ± 43.14	36.67 ±10.94	32.38, 40.95	.668
Height (cm)	176.64 ±6.00	174.68 ± 178.60	166.50 ±4.99	164.54, 168.45	**.012***
Weight (kg)	71.64 ±14.02	67.06 ± 76.22	83.73 ±11.29	79.30, 88.15	**.001***
BMI (kg/m^2)	26.84 ± 3.50	25.69 ± 27.98	25.98± 5.77	23.71, 28.24	.581

BMI: Body Mass Index, * p<0.05

Significant moderately positive correlations were observed between age and various parameters. These included whole body fat ratio, trunk fat ratio, and dominant leg fat ratio ($p < 0.05$). Additionally, moderate positive correlations were found between age and anterior-posterior stability index, medial-lateral stability index, and overall stability index ($p < 0.05$), as detailed in (Table 2).

Table 2.

Age correlation with body composition, laxity, balance, proprioception, and muscle strength

		Whole body fat ratio (%)	Trunk fat ratio (%)	Trunk muscle mass (kg)	D.Leg Fat ratio (%)	D.Leg Muscle mass (kg)	Laxity (mm)	APSI	MLSI	OSI	Knee Proprio-ception (º)	Quadriceps Concentric PT/BW (N /kg)	Hamstring Concentric PT/BW (N/kg)	H/Q ratio (%)
Age	r	0.55	0.55	-0.01	0.45	-0.01	-0.20	0.54	0.41	0.44	-0.18	-0.21	-0.24	-0.17
	p	**.001***	**.001***	.94	**.001***	.96	.18	**.001***	**.006***	**.002***	.22	.17	.11	.26

* *p*<0.05, APSI: Anterior-Posterior Stability Index, MLSI: Medio-Lateral Stability Index, OSI: Overall Stability Index, PT/BW: Peak torque/body weight, H / Q ratio: Hamstring /Quadriceps Ratio, D: Dominant

When the two groups were compared, it was observed that total body fat ratio, trunk fat ratio, and dominant leg fat ratio of participants between the ages of 40-65 were statistically significantly higher than those aged 20-39 (*p*<.05, Table 3). Other parameters (trunk muscle mass and dominant leg muscle mass) related to body composition were found to be similar in the two groups (*p*>.05, Table 2).

A statistically significant difference was observed in the balance measurements between the two groups in APSI, MLSI, and OSI parameters (*p*<.05, Table 3). The postural stability of participants between 40 and 65 was worse than the 20 to 39 age group. There was no statistically significant difference between the two groups in laxity and proprioception (*p*>.05, Table 3). The two groups had no statistically significant difference in muscle strength measurements regarding hamstring, quadriceps muscle strength and H / Q ratio (*p*> .05, Table 3).

Table 3.
Comparison of the group's body composition, laxity, balance, proprioception, and muscle strength

	20-39 age (n=25) (21m, 4f) (x±SD)	40-65 age (n=19) (15m, 4f) (x±SD)	*p*	T	Effect size (d)
Whole body fat ratio (%)	20.16± 8.28	25.92± 5.71	**.013***	-2.596	**0.80**
Trunk fat ratio (%)	20.68± 8.13	26.80± 4.74	**.003***	-3.124	**0.91**
Trunk muscle mass (kg)	32.84± 5.19	33.67± 4.17	.559	-.590	0.17
Dominant leg fat ratio (%)	18.95± 9.45	30.64± 36.32	**.038***	-1.546	**0.44**
Dominant leg muscle mass (kg)	10.35± 1.60	10.57± 0.66	.510	-0.612	1.40
BMI	25.51±4.24	28.21±2.95	**.022**	-2.378	0.73
Knee laxity (mm)	5.51± 1.19	5.17± 1.20	.357	0.932	0.28
APSI (stability index)	0.87± 0.49	1.30± 0.53	**.001***	-2.788	**0.84**
MLSI (stability index)	0.48±0.27	0.67± 0.27	**.008***	-2.227	**0.70**
OSI (stability index)	1.06± 0.58	1.40± 0.47	**.011***	-2.052	**0.64**
Knee proprioception (º)	3.86± 2.77	3.78± 3.38	.291	0.083	0.02
Quadriceps concentric PT/BW (N /kg)	161.40± 55.28	151.98±36.86	0,525	0.641	0.20
Hamstring concentric PT/BW (N/kg)	83.60± 33.24	77.02± 25.64	0,479	0.715	0.22
H/Q ratio (%)	0.52±0.12	0.50±0.11	0,632	0.483	0.17

* *p*<.05, APSI: Anterior-Posterior Stability İndex, MLSI: Medio-Lateral Stability Index, OSI: Overall Stability İndex, PT/BW: Peak torque/body weight, H / Q ratio: Hamstring /Quadriceps Ratio

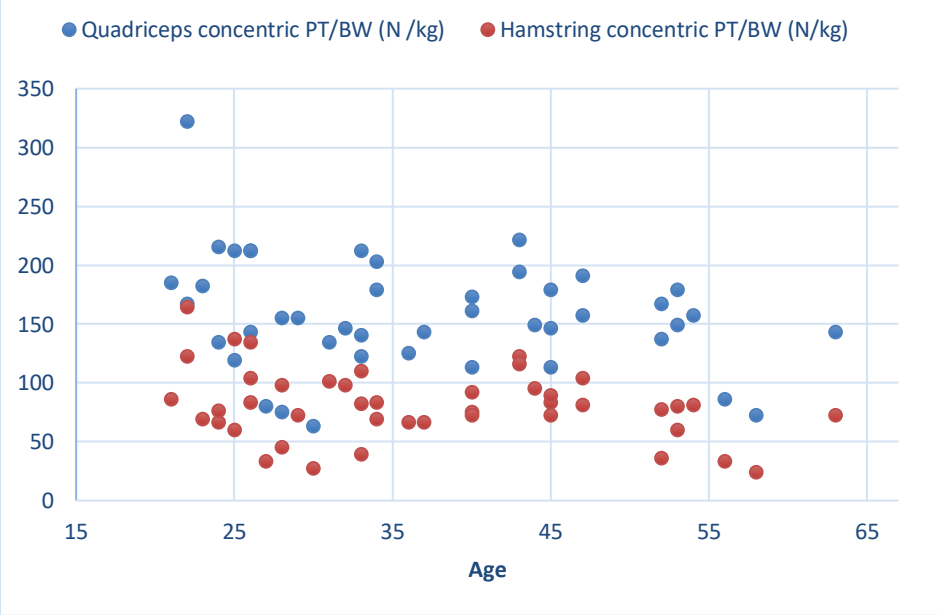

Figure 1. Distribution of changes in concentric muscle strength with age

The graph above shows the distribution of isokinetic quadriceps and hamstring muscle strength with age. (Figure 1)

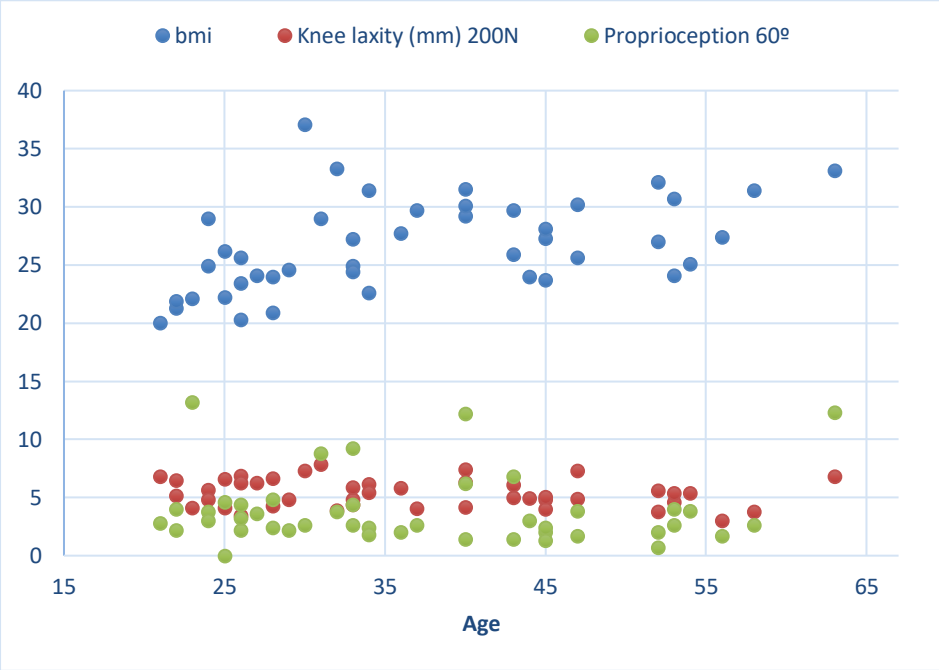

Figure 2. Distribution of changes in BMI, knee laxity and proprioception with age

The graph above shows the distribution of BMI, knee laxity (mm) 200N, and proprioception 60^{o} with age. (Figure 2)

Discussion

This study compared body composition, laxity, balance, proprioception, and muscle strength in healthy individuals of different age groups. It was determined that participants between the ages of 40-65 had deterioration in body composition and balance compared to the younger group.

Body composition is considered a health-related physical fitness parameter among the physical fitness parameters. Following up on body composition is imperative because it is associated with many metabolic diseases. Since it is not practical to determine body fat clinically, the normal aging process and high body weight may cause the rising incidence of obesity with aging and the corresponding low quality of life (Banks et al., 2006). Supportively, it was observed in our study that the BMI values of individuals between the ages of 40-65 were higher than those between the ages of 20-39. However, BMI may not be a sufficient parameter in body composition evaluations. There is also evidence that abdominal obesity is more critical in physical health outcomes than BMI values(Vogelzangs et al., 2008).

The aging process leads to significant changes in body composition. While fat distribution is generally more balanced at a young age, fat tissue shifts to the abdominal region as age progresses (Zamboni et al., 2014). This situation becomes more pronounced in women during the postmenopausal period and in men with the decrease in testosterone levels (JafariNasabian et al., 2017). In addition, the decrease in basal metabolic rate and decreased physical activity also contribute to the increase in body fat percentage. In addition, it has been previously shown that abdominal obesity is associated with mortality. Our study found that the body fat percentages, trunk fat ratio especially the total body and dominant leg fat ratio, of individuals in the 40-65 age group were higher than those in the 20-40 age group. The dominant leg fat percentage increase may be associated with decreased leg muscle mass and increased adipose tissue with age (Koster et.al., 2011) Decreased physical activity levels and the replacement of muscle mass with adipose tissue generally explain this. Also, a 1% increase in fat percentage was observed in men throughout life, and an increase in fat mass was observed in women until the age of 60-70, after which it decreased (Kuk et al., 2009). These results show that changes in body fat ratio with aging are related to factors such as sedentary lifestyle, changes in eating habits and decreased metabolic rate (Arterburn et al., 2004).

Physiological knee laxity, defining the natural knee laxity of symptomatic and non-traumatic individuals, is complex due to the knee joint's various anatomical features. Combined anterior and rotational laxity measurements enable the characterization of knee laxity profiles in healthy individuals. As a result of the hypermobility caused by the decrease in the width of the collagen tissue and the increase in the irregular fiber ratio, the tendency to traumatic lesions increases, and the tone of the body's elastic tissue decreases(Russek, 2000). Unstable joints are accompanied by loss of strength in soft tissues, laxity, loss of proprioception, a tendency to injury, and immobility due to pain(Maillard & Murray, 2003). It has been observed that knee laxity decreases after 55 in men and women. As we age, increasing stiffness in the knee ligaments is thought to cause this condition(Zyroul et al., 2014). Our study found no significant difference in laxity values in different age groups. The reason may be the extensive age range in the groups and the small number of cases above 55, where the difference began to occur.

Muscle strength and function impairment are inevitable consequences of normal aging. It may be associated with an increased risk of falls, hip fractures, loss of bone mineral density, functional limitations, and restrictions in participation in the activity. Naturally, losses in muscle strength cause a decrease in functional capacity and an increased risk of possible injury(Zhang & Buhr, 2002). Kim et al. stated that there are significant differences between young and middle-aged individuals when muscle strength is normalized in the isokinetic system. Flexor muscles are weaker in middle-aged individuals than extensor muscles(Kim et al., 2010). However, no statistically significant difference was found in the peak torques of the dominant side extensor and flexor muscles between the two groups. However, the strength values of the individuals in the 40-65 age group were lower than the other group. It was also observed that the H / Q ratio was similar in both groups. It is suggested that the H / Q ratio should be more than 0.6 when measured at a speed of 60º / sec in the isokinetic system(Kocahan et al., 2018). However, it was found that the H / Q ratios of the individuals in both groups were lower than the normative values. Therefore, giving exercises to normalize the H / Q ratio in both groups is essential in reducing the risk of injury. The consistently low results across both age groups relative to their respective norms may stem from the sedentary lifestyles prevalent among younger individuals.

Proprioception is the ability to perceive the position, movement, and sense of the force of joints in the organism. Neuromuscular control of the lower extremity may change with increasing age and possible loss of proprioception due to impaired joint biomechanics. This situation may cause imbalance and a higher risk of falling. Appropriate physical activity can slow the age-related decline in proprioception (Ferlinc et al., 2019). Advanced age causes a decrease in proprioception at both the central and peripheral levels. A study comparing young and old individuals has shown that proprioception is reduced in older individuals compared to young people(Petrella et al., 1997). There was no significant difference in proprioception between the two groups, which we can describe as young and middle-aged, in our study. This study exclusively assessed individuals under 65, omitting those aged 65 and older whose physical fitness parameters typically become more pronounced. This exclusion might account for the observed outcomes.

The literature has extensively evaluated the effect of age-related changes in sensorimotor function on increased postural sway (Peterka, 2002). Factors associated with increased release include decreased lower limb calf muscle strength, decreased peripheral sensation, poor vision, and slow reaction time (Hughes et al., 1996). It has been reported that the relationship between vestibular function and postural sway is relatively less than other factors. Although it is unclear how much one input can compensate for the loss of another, there is some evidence that peripheral sensation is the most important sensory system in regulating standing balance in older adults(Lord & St George, 2003). Therefore, having problems in postural stability is one indicator of sensory loss and general loss of function. As a result of our study, it was observed that individuals between the ages of 40 and 65 had worse static balance than those between the ages of 20 and 39. Although studies in the literature show that the balance is impaired in elderly individuals, it was found that there are disturbances in static balance in middle-aged individuals compared to younger individuals. Balance differences can be seen in this age group, and exercises that improve balance should be given to older people and middle-aged individuals to prevent falls and injuries.

The common conclusion in research on the elderly is that cognitive-motor reactions often slow as people age. Therefore, a reduction in postural stability may be significantly influenced by increased slowness in processing information from the vestibular, ocular, and somatosensory systems. Specifically, keeping an upright posture in dynamic settings seems primarily dependent on diminishing strength, balance, and coordination (Skelton & Dinan-Young, 2008). With age and inactivity, these unconscious processes (balance and coordination) may not integrate as well or as quickly as they did when the person was

younger. Individuals who became sedentary in their 30s and 40s have worse responses to physical activity and balance training than individuals who became sedentary in their retirement years (Teasdale et al., 1991). Teasdale et al. stated that postural stability decreases as part of the normal aging process. Our study found a deterioration in balance parameters with age, similar to Teasdale's results.

Many studies have indicated that BMI has a linear relationship with age. However, few studies have examined period effects for age-stratified groups and how BMI distribution changes in different age strata. The increasing rightward skewness of the BMI distribution in high-income countries is well documented (Hayes et al., 2015). Our study also confirms that BMI increases with age.

The essential limitations of our study are that elderly individuals over 65 were not included in the study and that a comparison between genders could not be made due to the insufficient number of cases. Additionally, one of the limitations of our study is that women's menopausal status was not questioned, and we were unable to assess the physical fitness characteristics of flexibility and agility. Studies conducted so far investigating physical fitness with age have focused on one or two of these parameters. However, the fact that we did not investigate other parameters except flexibility and agility, as well as proprioception and laxity, is one of the strengths of our study.

Our research results showed that body composition and balance deteriorate after age 40. According to Paige et al., problems occurring in physical fitness parameters can typically be repaired or compensated for, but the capacity for plasticity and repair is also affected by age (Paige, 1992).

Individuals over 40 who apply to clinics should be given balance and coordination exercises and activity recommendations that will reduce fat content. In future studies, it is vital to investigate interventions for losses (balance and body composition) in individuals over 40.

Conclusion and Recommendations

In this study, healthy individuals in a broad age group were evaluated, and expected performance levels were determined as the therapeutic target of the disease. At the same time, muscle strength, joint position sense, and laxity, which affect the balance between all age groups and genders, were determined. Thus, the following decades collected data for healthier development and healthy aging. While aging, body composition, and balance deterioration were observed in this study. It is crucial to be aware of these changes in body composition and balance and encourage this group to participate in physical activity and exercise. More comprehensive studies that include elderly individuals over 65 and examine the interrelationships of parameters are needed.

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Yazar Katkıları: Fikir-EA, NAG, NK; Tasarım-EA, NK, NAG; Denetleme-NK, NAG; Kaynaklar-EA, ÇMG; Veri Toplanması ve/veya İşlenmesi: iEA, SSK, ÇMG, GÇ, AZ; Analiz ve/ veya Yorum-ÇMG, EAP, SSK, GÇ; Literatür Taraması-ÇMG, GÇ, AZ, SSK,E AP; Yazıyı Yazan-EA, NK, NAG; Eleştirel İnceleme-NK, NAG
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Evaluation of Awareness Levels Towards Winter Sports in Secondary School Students Studying in Different Climatic Conditions

Farklı İklim Koşullarında Öğrenim Gören Ortaöğretim Öğrencilerinin Kış Sporlarına Yönelik Farkındalık Düzeylerinin Değerlendirilmesi

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ABSTRACT

This study aimed to evaluate the awareness levels of secondary school students studying in different climatic conditions toward winter sports by employing a descriptive scanning model, a quantitative research method. The SPSS 22.0 package program was used to analyze the data, while normality was assessed using the Kolmogorov and Smirnov tests. One-way analysis of variance (ANOVA) and t-tests were performed for normally distributed data. In addition, the homogeneity of the variances was examined to determine between which groups the statistically significant differences occurred; since the variances did not exhibit homogeneous features, Tamhane's T2 test, a post-hoc multiple comparison technique, was used. A significance level of $p<.05$ was accepted for the findings obtained from the analyses. In order to test the reliability of the scales, internal consistency coefficients (Cronbach's alpha) were calculated, with the results presented in table format. Based on our findings, certain demographic and socioeconomic variables were observed to affect the awareness levels of secondary school students with regard to winter sports. Comparing students living in different climatic conditions, a greater awareness of winter sports was found among those residing in regions with low snowfall, where winter conditions are unsuited to winter sports. The level of awareness concerning winter sports was thus determined to vary according to education, socioeconomic situation, and demographic characteristics rather than climatic conditions

Keywords: Climate, secondary education, student, winter sports, awareness

ÖZ

Bu araştırma, farklı iklim koşullarında öğrenim gören ortaöğretim öğrencilerinin kış sporlarına yönelik farkındalık düzeylerinin değerlendirilmesi amacıyla yapılmıştır. Bu çalışmada nicel araştırma yöntemlerinden betimsel nitelikte tarama modeli kullanılmıştır. Verilerin analizinde SPSS 22.0 paket programı kullanılmış, verilerin normallik dağılımı kolmogorof ve smirnov testi ile incelenmiştir. Normallik dağılımı sağlayan veriler Tek Yönlü Varyans Analizi (ANOVA) ve t-Testi kullanılmıştır. Ayrıca istatistiksel olarak anlamlı farklılığın hangi gruplar arasında meydana geldiğini tespit etmek için varyansların homojenliği incelenmiş ve varyanslar homojen özellikler taşımadığı için Post-Hoc çoklu karşılaştırma tekniklerinden Tamhane's T2 Testi kullanılmıştır. Analizlerden elde edilen bulguların anlamlılık düzeyi $p<,05$ olarak kabul edilmiştir. Ayrıca ölçeklerin güvenirliğini test etmek için iç tutarlılık katsayıları (Cronbac‟h Alpha) hesaplanmış ve elde edilen bulgular tablolar halinde düzenlenmiştir. Araştırma sonuçlarına göre, ortaöğretim öğrencilerinin kış sporlarına yönelik farkındalık düzeylerinde bazı demografik ve sosyoekonomik değişkenlerin etkili olduğu belirlenmiştir. Farklı iklim koşullarında ikamet eden öğrencilerden kar yağışının çok az olduğu ve kış mevsimi koşullarının kış sporları için uygun olmadığı bölgelerde ikamet eden öğrencilerin kış sporları farkındalık düzeylerinin daha yüksek olduğu tespit edilmiştir. Bu durumda kış sporları ile ilgili farkındalık düzeyinin iklim koşullarından çok eğitim, sosyoekonomik durum ve demografik özelliklere göre değişkenlik gösterdiği söylenebilir.

Anahtar kelimeler: İklim, ortaöğretim, öğrenci, kış sporları, farkındanlık

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Introduction

Based on fundamental principles of social, economic, and cultural development, sport mediates individuals' physical and psychological development, personality formation, character development, and adaptation to the environment. Furthermore, it involves activities aimed at ensuring international solidarity and peace while fostering a competitive spirit in which to participate and strive to prevail within the rules of the competition. Thus, sport incorporates various dimensions and has become universally aligned with functional and useful objectives. As a meaningful component in people's lives in modern societies, participation in sports has progressively increased in recent years (Yetim, 2006).

Numerous branches of sports exist; one of these, namely winter sports, is gaining popularity with every passing year. Tournaments involving these sports (such as the Olympic Games) are widely held and broadcast live on television, reaching the entire world, thus further increasing their popularity. Enjoyed by professional and amateur athletes alike, the most prominent winter sports include ice skating, snowboarding, skiing, and sledding (Tetik et al., 2002).

The development of winter sports has developed because of skiing and sledding efforts based on actions reflecting physical needs such as transportation and shipping from the struggle of man with nature on the by means of vehicles in history. On the other hand, it has taken its place in sports as a sports-based field after developing as transportation and shipping only in certain areas because of the negative forces of geographical conditions (Fişek, 1998).

The Turks living in the mountainous regions of the north and north-west of China, covered with forests, used sleds and skis to move easily on the ice in order to adapt to the struggle against negative weather conditions and nature due to the early arrival of the winter season, the snow falling a lot, and the ice on the rivers due to the long duration of this season. Thus, we learn the knowledge of the Turks about skiing from the Chinese (Tanyeri, 2000).

The Gokturks ran and played on the ice, riding horses made of wood. When they ran, they pushed a tree branch that they took in their hands against them while ski racing, causing them to ski faster. According to the records of the Tang 8 dynasty, it was reported that the Gokturks practiced skiing for sporting purposes as well as transportation and hunting activities (Güven, 1992).

Skiing, formerly used for transportation and hunting, became a sport after the mid-18th century and the first competition was held in Christiana in 1866. The California La Porte Association organized a major ski race in 1867. The first ski club was founded in Christiana in 1877 with the participation of Telemarkans (Urartu, 1986).

Skiing which has spread from Scandinavia to Europe started to develop in 1890 (Eski, 2010). Climate represents a major variable affecting human societies. Its impact on human life is observed in regions with winter seasons, whereby activities such as skiing and sledding, which meet needs such as public transport as well as the movement of goods, have over time evolved into discrete branches of sport. Winter sports, based primarily on sledding and skiing, have emerged as a universal culture, while winter games contribute to the development of participating countries by uniting all interests under the banner of sports. Within this context, winter games constitute a phenomenon that brings together individuals with different languages, religions, and races. The growing number of ski resorts in our country and the fact that we have hosted international tournaments have led to a rapid increase in interest in winter sports.

Awareness, which is an emotional and cognitive activity, creates a set of schemas when the process of becoming aware is completed in our minds. Awareness is also known as the expansion of the field of consciousness. Through the new schemas we establish in our minds, we realize an awareness of the universe, the environment and ourselves (Dökmen, 2002).

Being aware is one of the basic elements of how the individual-environment relationship can be realized in our lives. Awareness provides the regulation and necessary feedback between us and our environment. If the interaction between us and the environment is lacking, it is very difficult to realize an effective individual-environment relationship. This individual-environment relationship plays an important role in the growth and development of people (Akkoyun, 2005).

Mindfulness, which is translated in different ways in Turkish, is defined as 'wise awareness' by Karacaoğlan and Şahin (2016), 'awareness' by Uzun (2019), 'conscious mindfulness' by Özyeşil (2011), and 'mindfulness' by Çatak and Ögel (2010).

The concept of consciousness includes the elements of attention and awareness. Individuals notice internal and external stimuli without a focal point, but focus on a conscious awareness in limited moments such as high sensitivity and attention (Deci & Ryan, 1980; as cited in Brown & Ryan, 2003). The concept of mindfulness comes from the meditation philosophies of Buddhists in the historical process. The word Sati, which is frequently used in Pali, an ancient Buddhist written language, is known as mindfulness (Stahl & Goldstein, 2010). The word Sati also means attention and recollection (Alidina, 2010).

It is known that mindfulness, which is frequently used in many fields today, comes from Asian traditions of thought (Zelazo & Lyons, 2012).

The basic element required for people to interact with others is awareness, defined as the process of being cognizant of oneself, extending into the future, that also expresses the individual's selectivity at that moment in his or her life (Polat, 2019). In our country,

where all four seasons are experienced, introducing winter sports at an early age and raising awareness in this context will contribute to the development of winter sports domestically, which in turn will advance our country athletically as well as promote winter tourism. The present study aimed to examine the awareness of secondary school students living under different climatic conditions in our country regarding winter sports in terms of certain demographic characteristics.

Methods

This study was performed using a descriptive survey model, a quantitative research method that aims to describe a past or present situation as it exists/existed. This approach involves endeavoring to define the subject of the research, whether human or not, as is, within its own context; no effort is made to alter or otherwise influence the subject in any way (Karasar, 2017). Our research was carried out on a strictly voluntary basis, with consent forms obtained from the study participants.

Research Ethics

Prior to the start of our study, ethical approval was granted by the Scientific Research and Publication Ethics Board of Muş Alparslan University, as the 18th decision of meeting number 5 dated, 06.04.2021.

Study Participants

The study population was comprised of a total of 628 secondary school students residing in different provinces in the regions of Thrace and Eastern Anatolia, all of whom participated in the research voluntarily.

Data Collection

The present study employed the Winter Sports Awareness Scale developed by Eski and Yıldıran as a data collection tool (Eski and Yıldıran, 2020). The data analyzed in the study was obtained via Google Forms.

Data Analysis

For this study, the IBM SPSS 22.0 package program was used to analyze the data and its distribution. Descriptive statistical methods (percentage/frequency) were employed and one-way analysis of variance (ANOVA) and t-tests were performed. In addition, the homogeneity of the variances was examined in order to determine between which groups statistically significant differences occurred; since the variances did not exhibit homogeneous features, Tamhane's T2 Test, a post-hoc multiple comparison technique, was used. A significance level of $p < .05$ was accepted for the findings obtained from the analyses. Furthermore, to test the reliability of the scales, internal consistency coefficients (Cronbach's alpha) were calculated, with the findings presented in table format.

Results

Table 1.
Statistical distributions of participants based on demographic characteristics

Variable	Group	n	%
Gender	Female	481	76.6
	Male	147	23.4
	Total	628	100.0
Family Member(s) Participating in Sports	Yes	234	37.3
	No	394	62.7
	Total	628	100.0
Type of High School	Sports High School	166	26.4
	Vocational High School	229	36.5
	Anatolian High School	233	37.1
	Total	628	100.0
Grade Level	9th Grade	250	39.8
	10th Grade	102	16.2
	11th Grade	127	20.2
	12th Grade	149	23.7
	Total	628	100.0
Maternal Education Level	Illiterate	164	26.1
	Primary Education	264	42.0
	High School	135	21.5
	College or higher	65	10.4
	Total	628	100.0
Paternal Education Level	Illiterate	46	7.3
	Primary Education	301	47.9
	High School	180	28.7
	College or higher	101	16.1
	Total	628	100.0
Household Income Level	3,000 TL or less	341	54.3
	3,001 to 6,000 TL	178	28.3
	6,001 TL or more	109	17.4
	Total	628	100.0

Table 1 shows the statistical distribution of the participants according to their demographic characteristics.

Table 2.
Comparison of participants' winter sports awareness scale scores by gender

Variable	Gender	n	$\overline{X}$	St. Dev.	*t* -Test		
					t	Sd	*p*
Cognitive Subdimension	Female	481	2.02	0.85	0.21	626	.84
	Male	147	2.00	0.76			
Affective Subdimension	Female	481	3.15	1.39	-0.28	626	.53
	Male	147	3.23	1.33			
Psychomotor Subdimension	Female	481	1.97	0.89	0.73	626	.90
	Male	147	1.96	0.92			

*$p<.05$

An examination of Table 2 reveals that the participants' subdimension scores on the Winter Sports Awareness Scale did not show statistically significant differences with respect to gender.

Table 3.
Comparison of participants' winter sports awareness scale scores based on the presence of an athlete in the family

Variable	Family Member(s) Participating in Sports	n	$\overline{X}$	St. Dev.	*t* -Test		
					t	Sd	*p*
Cognitive Subdimension	Yes	234	2.30	0.88	6.98	626	.00*
	No	394	1.84	0.74			
Affective Subdimension	Yes	234	3.40	1.35	3.35	626	.00*
	No	394	3.02	1.37			
Psychomotor Subdimension	Yes	234	2.12	1.01	3.38	626	.00*
	No	394	1.87	0.81			

*p<.05

As shown in Table 3, the cognitive, affective, and psychomotor subdimensions scores on the Winter Sports Awareness Scale exhibited statistically significant differences in favor of those participants with at least one family member who engages in sports.

Table 4.
Comparison of participants' winter sports awareness scale scores based on type of high school

Variable	Type of High School	n	$\bar{x}$	St. Dev.	F	*p*	Significant Difference
Cognitive Subdimension	Sports (A)	166	2.08	0.82	25.45	.00*	A-B
	Vocational (B)	229	1.72	0.74			B-C
	Anatolian (C)	233	2.25	0.83			
	Total	628	2.01	0.83			
Affective Subdimension	Sports (A)	166	3.25	1.38	31.17	.00*	A-B
	Vocational (B)	229	2.65	1.41			A-C
	Anatolian (C)	233	3.61	1.15			B-C
	Total	628	3.16	1.37			
Psychomotor Subdimension	Sports (A)	166	2.07	0.97	3.96	.02*	A-B
	Vocational (B)	229	1.84	0.86			
	Anatolian (C)	233	2.02	0.86			
	Total	628	1.97	0.89			

*p<.05

The data in Table 4 indicate that the cognitive, affective, and psychomotor subdimension scores on the Winter Sports Awareness Scale displayed statistically significant differences according to the type of high school attended by the participants

In order to determine between which groups the statistically significant differences occurred, the homogeneity of the variances was evaluated. Since the variances did not exhibit homogeneous characteristics, Tamhane's T2 Test, a post-hoc multiple comparison technique, was performed. In the cognitive subdimension, statistically significant differences were observed between the participants attending sports and vocational high schools as well as between those in vocational and Anatolian high schools. As for the affective subdimension, statistically significant differences occurred between the participants in sports and vocational high schools, between those in sports and Anatolian high schools, and between the groups in Anatolian and vocational high schools. For the psychomotor subdimension, a statistically significant difference was only found between the groups of participants attending sports and vocational high schools.

Table 5.

Comparison of participants' winter sports awareness scale scores based on grade level

Variable	Grade Level	n	$\bar{x}$	St. Dev.	F	*p*	Significant Difference
Cognitive Subdimension	9th Grade (A)	250	1.85	0.76	6.15	.00*	A-B
	10th Grade (B)	102	2.22	0.80			A-D
	11th Grade (C)	127	2.06	0.79			
	12th Grade (D)	149	2.09	0.93			
	Total	628	2.01	0.83			
Affective Subdimension	9th Grade (A)	250	2.88	1.39	6.75	.00*	A-B
	10th Grade (B)	102	3.50	1.20			A-C
	11th Grade (C)	127	3.32	1.47			A-D
	12th Grade (D)	149	3.28	1.29			
	Total	628	3.16	1.37			
Psychomotor Subdimension	9th Grade (A)	250	1.79	0.84	5.88	.01*	A-B
	10th Grade (B)	102	2.11	0.86			A-D
	11th Grade (C)	127	2.03	0.87			
	12th Grade (D)	149	2.12	0.98			
	Total	628	1.97	0.89			

*p<.05

According to the data presented in Table 5, statistically significant differences based on grade level were found for the cognitive, affective, and psychomotor subdimensions scores of the Winter Sports Awareness Scale.

The homogeneity of the variances was analyzed to identify the groups between which the statistically significant differences were observed. The variances did not display homogeneous characteristics, so Tamhane's T2 Test, a post-hoc multiple comparison technique, was employed. For both the cognitive and psychomotor subdimensions, there were statistically significant differences between the 9th and 10th grades as well as between the 9th and 12th grades. The statistically significant differences for the affective subdimension occurred when comparing the 9th-grade students with those in the 10th, 11th, and 12th grades.

Table 6.

Comparison of participants' winter sports awareness scale scores based on maternal education level

Variable	Maternal Education Level	n	$\bar{x}$	St. Dev.	F	*p*	Significant Difference
Cognitive Subdimension	Illiterate (A)	164	1.69	0.78	18.93	.00*	A-B
	Primary Education (B)	264	1.98	0.78			A-C
	High School (C)	135	2.30	0.84			A-D
	College or higher (D)	65	2.35	0.78			B-C
	Total	628	2.01	0.83			B-D
Affective Subdimension	Illiterate (A)	164	2.67	1.47	12.60	.00*	A-B
	Primary Education (B)	264	3.20	1.31			A-C
	High School (C)	135	3.43	1.27			A-D
	College or higher (D)	65	3.69	1.21			B-C
	Total	628	3.16	1.37			B-D
Psychomotor Subdimension	Illiterate (A)	164	1.89	0.94	1.63	.18	
	Primary Education (B)	264	1.99	0.83			
	High School (C)	135	2.09	0.96			
	College or higher (D)	65	1.85	0.88			
	Total	628	1.97	0.89			

*p<.05

Based on the data in Table 6, the cognitive and affective subdimension scores of the Winter Sports Awareness Scale showed statistically significant differences with respect to the mother's educational level, whereas the psychomotor subdimension scores did not.

As before, to determine between which groups the statistically significant differences occurred, the homogeneity of the variances was examined, and, as they lacked homogeneous characteristics, Tamhane's T2 Test, a post-hoc multiple comparison technique, was used. In both the cognitive and affective subdimensions, statistically significant differences were detected between the groups whose mothers were either illiterate compared with those who had received primary education, high school, and college or higher, as well as between those with mothers with only primary education versus the high school and college or higher groups.

Table 7.
Comparison of participants' winter sports awareness scale scores based on paternal education level

Variable	Paternal Education Level		n	x̄	St. Dev.	F	*p*	Significant Difference
Cognitive Subdimension	Illiterate	(A)	46	1.51	0.86	17.22	.00*	A-B
	Primary Education	(B)	301	1.91	0.75			A-C
	High School	(C)	180	2.08	0.80			A-D
	College or higher	(D)	101	2.43	0.89			B-D
	Total		628	2.01	0.83			C-D
Affective Subdimension	Illiterate	(A)	46	1.97	1.35	19.91	.00*	A-B
	Primary Education	(B)	301	3.09	1.34			A-C
	High School	(C)	180	3.26	1.32			A-D
	College or higher	(D)	101	3.76	1.21			B-D
	Total		628	3.16	1.37			C-D
Psychomotor Subdimension	Illiterate	(A)	46	1.60	0.81	2.84	.03*	A-B
	Primary Education	(B)	301	1.98	0.86			A-C
	High School	(C)	180	2.01	0.89			
	College or higher	(D)	101	2.01	0.99			
	Total		628	1.97	0.89			

*p<.05

As shown in Table 7, statistically significant differences with respect to the father's educational level were observed for the cognitive, affective, and psychomotor subdimensions scores of the Winter Sports Awareness Scale.

To identify the groups between which the statistically significant differences occurred, first an analysis of the homogeneity of the variances was performed. Tamhane's T2 Test, a post-hoc multiple comparison technique, was then employed since the variances did not possess homogeneous characteristics. In both the cognitive and affective subdimensions, there were statistically significant differences between the participants whose fathers were illiterate versus those with primary education, high school, and college or above, as well as between those with fathers with only primary education compared with the high school education and college or higher groups. Regarding the psychomotor subdimension, statistically significant differences were found between the groups with illiterate fathers and those with primary education and high school education.

Table 8.
Comparison of participants' winter sports awareness scale scores based on household income

Variable	Household Income Level		n	x̄	St. Dev.	F	*p*	Significant Difference
Cognitive Subdimension	3,000 TL or less	(A)	341	1.81	0.75	24.79	.00*	A-B
	3,001 TL to 6.000 TL	(B)	178	2.23	0.85			A-C
	6,001 TL or more	(C)	109	2.30	0.83			
	Total		628	2.01	0.83			
Affective Subdimension	3,000 TL or less	(A)	341	2.87	1.39	17.68	.00*	A-B
	3,001 TL to 6.000 TL	(B)	178	3.53	1.25			A-C
	6,001 TL or more	(C)	109	3.48	1.32			
	Total		628	3.16	1.37			
Psychomotor Subdimension	3,000 TL or less	(A)	341	1.94	0.89	0.81	.44	
	3,001 TL to 6.000 TL	(B)	178	2.04	0.91			
	6,001 TL or more	(C)	109	1.94	0.88			
	Total		628	1.97	0.89			

*p<.05

Table 8 shows the statistically significant differences found between the various household (family) income level groups in the cognitive and affective subdimension scores of the Winter Sports Awareness Scale, while such differences were not observed for the psychomotor subdimension scores.

The homogeneity of the variances was examined to determine between which groups the statistically significant difference occurred; since the variances did not exhibit homogeneous characteristics, Tamhane's T2 Test, a post-hoc multiple comparison technique, was performed. Statistically significant differences were determined to exist between the participants in the lowest income group (3,000 TL or less) and the middle (3,001 to 6,000 TL) and highest levels (6,001 TL or more) in both the cognitive and affective subdimensions.

Table 9.

Comparison of participants' winter sports awareness scale scores based on the region of residence

Variable	Region of Residence	n	$\overline{X}$	St. Dev.	*t* Test		
					t	Sd	*p*
Cognitive Subdimension	Eastern Anatolia	276	1.80	0.81	-5.80	626	.00*
	Thrace	352	2.18	0.80			
Affective Subdimension	Eastern Anatolia	276	2.74	1.43	-7.07	626	.00*
	Thrace	352	3.50	1.23			
Psychomotor Subdimension	Eastern Anatolia	276	1.89	0.93	-1.95	626	.05*
	Thrace	352	2.03	0.86			

*p<.05

According to Table 9, the cognitive, affective, and psychomotor subdimension scores of the Winter Sports Awareness Scale were all determined to have statistically significant differences with respect to the region in which the participants resided, in favor of Thrace.

Discussion

According to our findings, no statistically significant differences based on gender were detected in any of the subdimensions of the Winter Sports Awareness Scale. By contrast, Polat (2019), in his study examining recognition and awareness levels of winter sports facilities among university students, reported that the participants differed according to gender, finding that men's awareness exceeded that of women. In his study on the same topic, Küçük (2020) reported the opposite results, observing higher levels of awareness levels among women than men. A study conducted by Er et al. (2020) determined that there was a significant difference in favor of male participants in the subdimensions of students' awareness levels of winter sports. Eski (2010) also observed a significant difference in favor of male participants when analyzing the data by gender, as did Ünal (2017) in his study. The discrepancy between the results reported in the literature and those of the present study may be due to the different study populations.

Our results showed statistically significant differences in favor of students with family members participating in sports for the cognitive, affective, and psychomotor subdimensions of the Winter Sports Awareness Scale. According to a study conducted by Hasbrook, Greendolfe, and Mc Mullen (1981), the main factors determining individuals' attitudes towards sports are their family's attitude towards sports, their environment, economic and social situations, participation in sports activities in childhood and the social status history of the parents (cited in Hergüner and Seraslan, 2000). In Eski's (2010) study, the cognitive awareness averages of students reporting family members who engage in sports were significantly higher. However, contrary to the results of our study, there were no significant differences in the psychomotor and affective subdimensions between the students with respect to this particular criterion. Kılcıgil (1998) and Onay Özkaya and Güzel (2006) reported that having family members actively take part in sports positively influences other members of the family. A review of the literature reveals that the presence of individuals interested in winter sports increases the interest of other family members in winter sports, by including them in their visits to winter sports facilities, encouraging them, and accompanying them, thus contributing to the development of their awareness of and involvement in winter sports.

Regarding the type of high school, the present study detected statistically significant differences in favor of the participants attending sports high schools in the cognitive, affective, and psychomotor subdimensions. Eski (2010) reported statistically significant differences in the cognitive, affective, and psychomotor subdimension scores of the participants based on the type of school. Duman et al. (2020), in their study to determine the attitudes of students at Anatolian and sports high schools towards physical education and sports, found that students attending the latter displayed higher levels of awareness levels concerning sports. In their study, Hazar, Demir, and Can (2018) examined the motivations of high school students to engage in sports according to different variables, reporting statistically significant differences between the variables of active participation in sports and school type. Upon reviewing the literature, it is possible to conclude that the findings of the studies conducted are generally consistent with our results.

The present study found that for the cognitive, affective, and psychomotor subdimension scores, the level of awareness concerning winter sports increased statistically significantly as the grade level increased. Eski (2010) reported statistically significant differences in favor of the upper grade levels for the cognitive, affective, and psychomotor subdimensions. In his study, Küçük (2020) stated that there was a statistically significant difference in favor of the higher grade levels in the cognitive and psychomotor subdimensions, while Polat (2019) observed a statistically significant difference in the cognitive awareness subdimension in favor of the upper grade levels. The latter study detected no statistical differences between grade levels in the affective and psychomotor subscales. The literature generally supports our research findings.

In our study, the cognitive and affective subdimension scores were determined to increase to a statistically significant degree as the mother's educational level increased, whereas no statistically significant differences occurred in the psychomotor subdimension. Polat (2019) detected statistically significant differences in favor of students with high maternal education levels in the cognitive and psychomotor subdimensions but discovered no such differences for the affective subdimension. Eski (2010) reported statistically significant differences in favor of students with high maternal education levels in the cognitive and affective subdimensions, while there were no statistically significant differences in the psychomotor subdimension. The present study found that increases in the father's education level corresponded to statistically significant increases in the cognitive, affective, and psychomotor subdimensions scores. Eski (2010) observed statistically significant differences in favor of students whose fathers were more educated in the cognitive and affective subdimensions but found no statistically significant differences in the psychomotor subdimension based on that variable. In the study conducted by Polat (2019), there were statistically significant differences in favor of students whose fathers had a higher educational level for the cognitive subdimension, while there were no statistically significant differences in the affective and psychomotor subdimensions. Studies in the literature have reported similar findings.

The present study determined that with a rise in family income, cognitive and affective subdimension scores exhibited a statistically significant increase, while there was no statistically significant difference in the psychomotor subdimension based on the mother's educational level. Polat (2019) reported finding a statistically significant difference in favor of students with high household income levels in the cognitive subdimension but found no statistically significant differences in the affective and psychomotor subdimensions with respect to that same variable. Orçanlı et al. (2018) concluded that an increase in family income was positively correlated with the formation of awareness of winter sports centers in people living in the Erzurum city center. Reviewing the literature on this topic, it is possible to encounter studies whose findings do not overlap with our own, although studies with similar results also exist. We hypothesize that the diverse geographical, cultural, and social lives of the study participants may result in different research outcomes.

According to the findings of our study on students living in different climatic regimes, those residing in regions with low snowfall and winter conditions unsuited to winter sports exhibited higher levels of awareness regarding winter sports. In a sense, the level of winter sports awareness among secondary school students appeared to emerge with the influence of social media and other social communication tools, regardless of the season.

In conclusion, upon examination of secondary school students' awareness of winter sports, no significant difference with respect to gender was detected in the three subdimensions of the scale, whereas there were significant differences based on having a family member engaged in sports, type of school, grade, maternal and paternal education levels, and household income. With regard to climatic conditions, there was a difference in favor of students living in regions that do not experience winter weather. In this case, the level of awareness concerning winter sports was determined to vary according to education, socioeconomic status, and demographic characteristics more so than climatic conditions.

Suggestions

- Developing sports awareness in society appears to increase the level of sports participation.
- Considering that a family's interest in sports boosts the level of encouragement for engaging in sports, we believe that parents who emphasize sports will be productive in raising children who are drawn to sports and can succeed as athletes.
- Due to the ever-increasing popularity of winter sports, it is possible to train more successful athletes by encouraging students to participate in these sports at the secondary school level.
- We believe that it is vital to develop sports awareness in children beginning at school in order to raise healthy future generations.

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Katılımcı Onamı: Çalışmaya katılan tüm katılımcılardan sözlü onam alınmıştır.
Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Fikir- S.K., M:F.B; Tasarım S.K., Ö.F.B; Denetleme-S.K; Kaynakla-D.E.; Veri Toplanması ve/veya İşlemesi S.K., S.O., S.A., T.İ., M.F.B. ; Analiz ve/ veya Yorum- Ö.F.B; Literatür Taraması-S.K., S.A.; Yazıyı Yazan-S.K., M.F.B.; Eleştirel İnceleme-S.K., Ö.F.B., D.E., S.O., S.A., T.İ., M.F.B.
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Düzenli Spor Yapan ve Sedanter Genç Bireylerde Bedeni Beğenme ve Sosyal Medya Etkileşimi: Demografik Faktörlerin Rolü

Body Satisfaction and Social Media Interaction in Regularly Exercising and Sedentary Young Individuals: The Role of Demographic Factors

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Öz

Bu çalışma; düzenli olarak spor yapan ve spor yapmayan lise öğrencilerinin beden imge algıları ve sosyal medya kullanımlarının farklı değişkenler açısından incelenmesi amacıyla gerçekleştirilmiştir. Ergenlik döneminde ergenin fiziksel görüntüsü ve çevresi tarafından beğenilme arzusunun olması önemlidir, günümüzde sosyal medya platformlarının çok yaygın ve sıklıkla kullanımı ve ayrıca sosyal medya platformları üzerinden fiziksel görünüşün gençler arasında daha önemli bir hale gelmesi açısından çalışmanın önemli olduğu düşünülmektedir. Çalışmaya Anadolu, Meslek ve Spor liselerinde eğitim gören ve yaşları 14-18 arasında değişen 140 kız ve 130 erkek öğrenci olmak üzere toplamda 270 öğrenci katılmıştır. Öğrencilere yüz yüze anket formu uygulanmış olup kız ve erkek öğrencilerin beden imge algıları ve sosyal medya kullanım düzeyleri incelenmiştir. Sosyal medya kullanımı için 'Sosyal Medya Bağımlılığı Ölçeği'' ve beden algıları için ise ''Bedeni Beğenme Ölçeği'' kullanılmıştır. Araştırma sonucunda kız öğrencilerin erkek öğrencilere kıyasla bedenlerini beğenme oranlarının daha yüksek olduğu, spor yapan bireylerin spor yapmayan bireylere göre sosyal medyayı kullanma düzeylerinin daha düşük olduğu, boyu diğer bireylere göre daha uzun olan ve daha zayıf bir beden kitle indeksine sahip bireylerin bedenlerini daha fazla beğendikleri, sosyal medya kullanım süresi uzadıkça sosyal medya kullanım oranlarının daha fazla arttığı, sosyal medyayı daha fazla kullanan bireylerin bedenlerini diğerlerine göre daha az beğendikleri tespit edilmiştir.

Anahtar Kelimeler: Sosyal medya kullanımı, beden algısı, fiziksel aktivite

Abstract

This study was conducted with the aim of examining the body image perceptions and social media usage of high school students who regularly engage in sports and those who do not, in terms of various variables. During adolescence, the desire for the adolescent's physical appearance to be liked by their surroundings is important. Considering the widespread and frequent use of social media platforms today, as well as the increasing significance of physical appearance among young people through these platforms, the study is considered important. A total of 270 students, consisting of 140 girls and 130 boys aged between 14 and 18, attending Anatolian, Vocational, and Sports high schools participated in the study. A face-to-face survey form was administered to the students, and their body image perceptions and levels of social media usage were examined. The "Social Media Addiction Scale" was used for social media usage, and the "Body Appreciation Scale" was used for body image perceptions. The research revealed that girls had higher rates of body appreciation compared to boys, individuals engaged in sports had lower levels of social media usage compared to those who did not, individuals who were taller and had a lower body mass index liked their bodies more, social media usage increased as the duration of social media usage extended, and individuals who used social media more tended to appreciate their bodies less compared to others.

Keywords: Social media use, body image, physical activity

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Giriş

Teknolojinin son dönemlerde hızla gelişmesiyle birlikte ortaya çıkan yeni ve farklı sosyal medya uygulamalarının (twitter,facebook,instagram,tiktok gibi) sınırsız bir içeriğe , eşsiz özelliklere, kullanımının altında yatan farklı güdülere ve farklı tatminlere sahip olması (Alhabash, 2017) özellikle gençleri cezbederek onları sedanter bir yaşam tarzı içerisine çekmektedir. We Are Social 2024 Raporuna göre 5 milyardan fazla aktif sosyal medya kullanıcı kimliğinin mevcut olduğu, Dünyada ortalama 2,23 saat de sosyal medyada vakit geçirildiği açıklanmıştır (Wearesocial, 2024). Sosyal medya üzerinde çok fazla geçirilen vakitten dolayı ergenlik döneminde ortaya çıkan hareketsiz yaşam tarzı 15-17 yaş arası gençlerin bilişsel ve ruhsal gelişim dengesizliği ile kötü beslenme alışkanlıklarından kaynaklı obezite gibi ciddi sağlık sorunlarıyla karşı karşıya kalmalarına neden olduğu görülmektedir (Alper ve ark., 2017). Sosyal medya uygulamaları üzerinde geçirilen zamanın farkında olunmaması, uygulamaları kullandıkça giderek artan kullanım süresi gençleri bağımlılık içerisine sürüklemektedir. Sosyal medya uygulamaları ''bağımlılık'' adı altında tanımlanmasa da bireyin günlük sorumluluklarını aksatma ihtimalinin olması ve bazı olumsuz sonuçların ortaya çıkışına yol açabilmesi nedeniyle psikolojik bir bağımlılık olarak da tanımlanabilmektedir (Serenko ve Türel, 2015). Günümüzde pek çok genç, "Instagram hesabıma bakmadan duramıyorum, başkalarının paylaşımlarını merak ediyorum, farkında olmadan telefonumu elime alıyorum ve amaçsızca sosyal medyada dolaşıyorum" şeklinde kendilerini ifade etmektedirler. Geleneksel medya kullanımını anlamak için kullanılan kullanım ve doyum teorisi (Katz ve ark., 1973), bireylerin medya aracılığıyla psikolojik ihtiyaçlarını karşılamak amacıyla medya kullandığını öne sürmektedir. Ayrıca, sosyal medyanın popülerliği, onun artık birçok kişi için alışkanlık haline geldiği, hatta günlük yaşamdan kaçış biçimi olarak kullanıldığı görülmektedir. Gençlerin sosyal medya kullanım amaçlarında bağımlılık davranışlarına neden olabilecek sosyal ve psikolojik ihtiyaçlar arasında; eğlence, güncel olayların takibi, sosyal etkileşim ve iletişim, bilgi paylaşımı, zaman geçirme, sermaye, kaçış, dış görünüş ve geri bildirim motivasyonları yer almaktadır (Rodgers ve ark. 2020). Bunların yanı sıra sosyal medya uygulamalarının genç neslin içerik üretebilmeleri, çeşitli uygulama platformları aracılığıyla seslerini duyurabilmeleri, aynı görüşü paylaştıkları insanlarla bir araya gelerek farklı ağlar üzerinden iletişim kurabilmeleri, toplumsal, siyasal ve politik konularda fikirlerini paylaşabilmelerine olanaklar da sağlamaktadır. Sosyal medya uygulamaları görsel anlamda bilgi paylaşımına (fotoğraf ve video) daha fazla yer verecek şekilde geliştikçe, bedensel görünüm karşılaştırmalarının da daha kolaylaştığı ve çoğaldığı görülmektedir. Özellikle son birkaç yılda yapılan araştırmalarda resim tabanlı sosyal medya kullanımının genellikle beden memnuniyetsizliğiyle bağlantılı olduğunu öne sürmüştür (Cohen ve ark., 2018). Bu uygulamalar üzerinden olumlu beden imajının çizilmesi ve kendi bedeninden memnun olma hali kişide özsaygıyı artırırken, kendi bedeninden duyulan memnuniyetsizliğin ise özgüven eksikliği yarattığı görülmektedir. Ayrıca kendi değerlerini fiziksel görünümlerine bağlayan genç bireyler, bu karşılaştırmaların sonucunda ortaya çıkan beden memnuniyetsizliğinden kaynaklı olarak depresyon (Tosun ve Çoban, 2020) ve birtakım duygu durum bozukluklarını da beraberinde getirebilmektedir (Ercan, 2020). Farklı araştırmalarda, olumsuz beden imgesinin düşük özsaygıya yol açabileceği ve bireylerin kendileri ve çevreleri tarafından ince bir bedene sahip olma baskısı hissetmeleri gibi durumların, kısıtlanma duygusu, olumsuz duygulanım, sosyal anksiyete ve yeme bozuklukları gibi sonuçlar doğurabileceği incelenmiştir (Holmes ve ark., 2015). Fioravanti ve arkadaşları (2020) Instagram kullanımından kısa süreli uzak durmanın yaşam memnuniyetini arttırdığını ve öznel iyi oluş düzeylerinde de artışlar meydana geldiğini ortaya koymuşlardır. Medyada aktarılan ince yapıda ve zayıf bir bedene sahipsen güzel ya da yakışıklısın şeklinde yaratılan algının günümüzde yapay bir beden imajının oluşmasına hizmet ettiği görülmektedir. Bireylerin vücutlarından memnun olma isteği, onları kendileri için uygun buldukları vücut yapısı ve ölçülere ulaşma çabası içerisine sokmaktadır. Fiziksel görünümünden memnun olmayan kişiler görsel sosyal medya platformlarının kullanıcıların görünümünü değiştirmelerine ve kendilerinin idealize edilmiş versiyonlarını sergilemelerine olanak tanıdıkları filtrelerden yararlanma (Rousseau, 2021), estetik ameliyatlar yaptırmakta, değişik stillerde kıyafetler giyme ve çeşitli fiziksel aktivitelerde bulunmaya kadar birçok farklı metod kullanarak yenilenme yoluna gitmektedir. Bu yüzden bu durum kullanıcılarının, beden imgeleri ve psikolojik olarak iyi oluşlarıyla alakalı birçok araştırma yapılan gözde bir konu haline gelmiştir (Tosun ve Çoban, 2020). Burada dikkat edilmesi gereken bir konu olan, fiziksel görünümle ilgili memnuniyetsizliğin bazen fiziksel etkinliklere katılımı teşvik eden bir faktör olabilirken, bazı durumlarda da olumsuz değerlendirmelere maruz kalmaktan kaçınmak için bu etkinliklere katılmamaya neden olabilmesidir. Ancak, günümüzde gençlerin sosyal medya platformlarını yoğun şekilde kullanmaları beden imgelerine ilişkin düşüncelerinin farklı yönlerde ortaya çıkmasını ve bu platformların fiziksel aktivitelere yönelmelerini teşvik etme eğilimini artıran yaygın bir durum olduğu görülmektedir. Soylu ve arkadaşları (2017) yaptıkları araştırma sonucunda spor yapmanın ergenlerde sosyal görünüş kaygısına olumlu yönde etki ettiğini ifade etmişlerdir. Gür ve Küçükoğlu (1992)'da fiziksel aktivitelere katılımın ergenlerde, kendini ifade edebilme düzeyini geliştirdiği, kendine olan güveni artırdığı, iletişim becerilerini geliştirdiği, başarıyı arttırdığı, zihin yorgunluğunu ve gerginliğini azaltmada yardımcı olduğunu ifade etmişlerdir. Bu nedenle özellikle son yıllarda egzersiz ve spor psikolojisi alanındaki araştırmacılar için bedensel görünüş kaygısı önemli bir araştırma

konusu haline gelmiştir. Yeni ve çekici bir fiziksel görünüme sahip olabilmek amacıyla tercih edilen yöntemler arasında, fiziksel aktivitelere katılımın en yaygın ve popüler yöntem olduğu bilinmektedir (Ballı ve ark.,2006).

Ergenlik dönemi, bireyin kimlik gelişiminin başladığı, duygusal ve fiziksel değişimlerin yaşandığı bir evredir. Bu süreçte, dış görünüşe verilen önem, sosyal kabul, kendini ifade etme ve beğenilme arzusu gibi faktörlerin belirleyici bir rol oynadığı görülmektedir. Gençlerin bedenleriyle olan memnuniyetleri ve varsa olumsuzlukların tespiti, sağlıklı bir gelişim için kritik bir öneme sahiptir. Ayrıca, ergenlik döneminde edinilen fiziksel aktivite alışkanlıklarının, ilerleyen yaşlarda sağlık ve yaşam kalitesi üzerinde önemli etkileri bulunmaktadır. Bu bağlamda, gençlerin sosyal medya uygulamalarını ne kadar kullandıklarının tespiti ve bu uygulamaların onları hareketsiz bir yaşam tarzına mı yoksa fiziksel aktivitelere mi yönlendirdiğinin belirlenmesinin önemli olduğu düşünülmektedir. Bu araştırma sonucunda, bireylerin fiziksel aktivite seviyelerinin belirlenmesi ve kişiselleştirilmiş egzersiz programlarının oluşturulması, hareketsiz yaşam süren gençler için sedanter yaşam tarzını azaltabilir ve ruhsal, fiziksel, uyku ve yaşam kalitesine olumlu katkılar sağlayabilir. Ayrıca, sporla ilgili sosyal politikaların geliştirilmesi ve multidisipliner müdahalelerin yapılması önemlidir. Gençlerin fiziksel aktivitelere yönlendirilmesi, okul ortamında aktivite imkanlarının artırılması, sağlıklı bir yaşam tarzı ve sosyal ilişkilerin yanı sıra akademik başarı için de önemlidir. Tüm bu faktörler dikkate alındığında, ergen bireylerin beden algısı ile sosyal medya kullanımı arasındaki ilişkinin çeşitli değişkenlere göre incelenmesinin farklı bir bakış açısıyla literatüre önemli bir katkı sağlayacağı düşünülmektedir.

Yöntem

Araştırma Türü

Araştırmada, birden fazla değişkenin bir arada değişiminin varlığına ya da derecesine işaret eden ilişkisel tarama modeli kullanılmıştır.

Etik Onayı

Bu çalışma için etik komite onayı Aydın Adnan Menderes Üniversitesi'nden (Tarih: 03.04.2023, Karar No: 25, Protokol No: 31906847/050.04.04-08-324) alınmıştır. Ayrıca Çalışmaya katılan tüm katılımcıların velilerinden sözlü onam alınmıştır.

Araştırma Grubu

Araştırmaya Orta Karadeniz Bölgesi'nde bulunan bir ilde Anadolu, Meslek ve Spor liselerinde öğrenim gören, yaşları 14-18 arasında değişen toplam 270 öğrenci katılmıştır; bu öğrencilerden 140'ı kız, 130'u erkektir. Katılımcılara tamamen yüz yüze anket formları uygulanmış olup, araştırmacı uygulama öncesinde gönüllülüğün esas olduğuna vurgu yapmıştır ve anket uygulamaları sırasında uygulamacıların başında bulunmuştur. Tablo 1, örneklemin sınıflandırılmasına ilişkin ayrıntılı verileri sunmaktadır. Buna göre, örneklemin %51,85'ini (n:140) erkek, %48,15'ini (130) kadın , %61,48'ini (n:166) spor yapan bireyler, %38,52'sini (104) spor yapmayan bireyler, %59,65'ini (n:102) takım branşındaki bireyler, %40,35'ini ise bireysel spor yapan bireyler oluşturmaktadır.

Kişisel Bilgi Formu

Ergenlerin demografik özelliklerinin yanı sıra sosyal medya kullanım alışkanlıklarını, sosyal medyayı ne kadar süre kullandıkları, ilgilendikleri spor dallarını belirlemek için çeşitli sorular içermektedir. Bu sorular, gençlerin beden imge algıları ile sosyal medya kullanımı arasındaki ilişkiyi ve araştırmadaki diğer değişkenler üzerindeki etkisini incelemek ve değerlendirmek amacıyla oluşturulmuştur.

Bedeni Beğenme Ölçeği

Araştırmada Tylka ve WoodBarcalow (2015)'ın geliştirdikleri, Anlı ve arkadaşları (2015) tarafından Türkçe'ye çevrilmiş ve geçerlik ile güvenirlik analizleri yapılan Bedeni Beğenme Ölçeği (BBÖ) kullanılmıştır. Ölçek, 5'li Likert ölçeği şeklinde düzenlenmiştir: (1) Asla, (2) Nadiren, (3) Bazen, (4) Sık sık ve (5) Her zaman. Toplamda 10 maddeden oluşmaktadır.

Sosyal Medya Bağımlılığı Ölçeği

Araştırmada diğer bir ölçek olarak Günüç (2009) tarafından geliştirilen ve geçerlik-güvenirlik analizleri yapılan İnternet Bağımlılığı Ölçeği'nin (İBÖ) Çömlekçi ve Başol (2019) tarafından revize edilen versiyonu kullanılmıştır. Bu versiyon, ölçekteki maddelerin internet bağımlılığı yerine sosyal medya bağımlılığı üzerine odaklanmıştır. Örneğin, "Sosyal medyayı kullanmamdan dolayı ailem ile sorunlar yaşarım" gibi bir madde bulunmaktadır. Toplamda 7 maddeden oluşan ölçek, 5'li Likert tipinde düzenlenmiştir: (1) Hiçbir zaman, (2) Nadiren, (3) Bazen, (4) Sıklıkla ve (5) Her zaman şeklinde derecelendirmesi mevcuttur

Verilerin Analizi ve Yorumlanması

Tüm veriler istatistik programına kaydedilerek analiz edilmiştir. Bağımsız iki grup karşılaştırmasında t-testi (Independent sample t-testi) kullanılmıştır. Sayısal değişkenler arası ilişkiye Pearson korelasyon analizi ile bakılmıştır. Elde edilen değerlerin anlamlı olup olmadığının yorumlanmasında 0.05 anlamlılık düzeyi ölçüt olarak kullanılmıştır. Analiz sonuçları aşağıdaki tablolarda sunulmuştur.

Bulgular

Araştırmadan elde edilen analiz sonuçları aşağıdaki tablolarda verilmiştir.

Tablo.1
Kategorik ve sayısal değişkenlere ilişkin özet istatistikler

		n	%
Cinsiyet	Erkek	140	51,85
	Kadın	130	48,15
Spor Yapma	Evet	166	61,48
	Hayır	104	38,52
Branş	Bireysel	69	40,35
	Takım	102	59,65
Yas	$\overline{X}$±Ss	16,05±0,87	
Boy	$\overline{X}$±Ss	169,85±8,56	
Kilo	$\overline{X}$±Ss	60,40±10,70	
VKİ	$\overline{X}$±Ss	20,87±2,93	
Sosyal Medya Süresi dk	$\overline{X}$±Ss	164,98±96,72	
BBÖ toplam	$\overline{X}$±Ss	3,88±0,90	
SMK toplam	$\overline{X}$±Ss	1,85±0,76	

Çalışma örnekleminin %51,85'ini (n:140) erkek, %48,15'ini (130) kadın bireyler, %61,48'ini (n:166) spor yapan bireyler, %38,52'sini (104) spor yapmayan bireyler, %59,65'ini (n:102) takım branşındaki bireyler, %40,35'ini ise bireysel spor yapan bireyler oluşturmaktadır.

Tablo.2
Ölçek puanlarının kategorik değişkenlere göre karşılaştırılmasına yönelik bulgular

Değişken		Grup	n	$\overline{X}$±Ss	t	sd	*p*
Bedeni Beğenme Ölçeği (BBÖ)	Cinsiyet	Erkek	140	3,77±0,96	-2,02	268	,04
		Kadın	130	3,99±0,82			
Sosyal Medya Kullanımı (SMK)		Erkek	140	1,86±0,80	0,19	268	,85
		Kadın	130	1,84±0,70			
Bedeni Beğenme Ölçeği (BBÖ)	Spor yapma	Evet	166	3,95±0,89	1,71	268	,08
		Hayır	104	3,76±0,90			
Sosyal Medya Kullanımı (SMK)		Evet	166	1,76±0,71	-2,53	268	,01
		Hayır	104	1,99±0,80			
Bedeni Beğenme Ölçeği (BBÖ)	Branş	Bireysel	69	4,07±0,95	1,25	169	,22
		Takım	102	3,90±0,84			
Sosyal Medya Kullanımı (SMK)		Bireysel	69	1,83±0,85	1,06	169	,28
		Takım	102	1,71±0,58			

Bedeni Beğenme Ölçeği (BBÖ) puanları kişilerin cinsiyetine göre istatistiksel olarak anlamlı bir fark göstermektedir (t: -2,02; *p*<,05). Ortalama değerlere bakıldığında kadınların (3,99±0,82) erkeklere göre (3,77±0,96) Bedeni Beğenme Ölçeği (BBÖ) puanlarının daha yüksek olduğu tespit edilmiştir.

Sosyal Medya Kullanım (SMK) puanları kişilerin cinsiyetine göre istatistiksel olarak anlamlı bir fark göstermemektedir (*p*>,05). Bedeni Beğenme Ölçeği (BBÖ) puanları kişilerin spor yapma durumuna göre istatistiksel olarak anlamlı bir fark göstermemektedir (*p*>,05). Sosyal Medya Kullanım (SMK) puanları kişilerin spor yapma durumuna göre istatistiksel olarak

anlamlı bir fark göstermektedir (t: -2,53; *p*<,05). Ortalama değerlere bakıldığında spor yapanların (1,76±0,71) yapmayanlara göre (1,99±0,80) Sosyal Medya Kullanım (SMK) puanlarının daha düşük olduğu tespit edilmiştir. Bedeni Beğenme Ölçeği (BBÖ) ve Sosyal Medya Kullanım (SMK) puanları kişilerin branşına göre istatistiksel olarak anlamlı bir fark göstermemektedir (*p*>,05).

Tablo.3
Değişkenler Arasındaki ilişkiye Yönelik Bulgular

		Bedeni Beğenme Ölçeği	Sosyal Medya Kullanımı
Yaş	r	0,12	-0,07
	p	,04	,24
Boy	r	.147*	0,01
	p	,02	,92
Kilo	r	-0,05	-0,01
	p	,41	,86
Beden Kitle İndeksi	r	-.173**	-0,02
	p	,00	,71
Sosyal Medya Süresi (dk)	r	-0,09	.334**
	p	,13	,00
Bedeni Beğenme Ölçeği	r	1,00	-.221**
	p		,00

Bedeni Beğenme Ölçeği (BBÖ) puanları ile yaş arasında düşük ve pozitif yönde anlamlı bir ilişki mevcuttur (r: 0,12; *p*<,05). Sosyal Medya Kullanımı (SMK) ile yaş arasında ise çok düşük düzeyde ve negatif yönde bir ilişki bulunmaktadır (r: -0,07; *p*> ,05). Bedeni Beğenme Ölçeği (BBÖ) ile boy arasında pozitif yönde düşük düzeyde anlamlı bir ilişki tespit edilmiştir (r: 0,147; *p* <,05). Sosyal Medya Kullanımı (SMK) ile boy arasında istatistiksel olarak anlamlı bir ilişki yoktur (r: 0,01;*p*>,05). Bedeni Beğenme Ölçeği (BBÖ) ile kilo arasında düşük düzeyde negatif yönde bir ilişki mevcuttur (r: -0,05;*p*>,05). Sosyal Medya Kullanımı (SMK) ile kilo arasında mevcut bir ilişki yoktur (r: -0,01; *p*>,05). Beden Kitle İndeksi ile bedeni beğenme ölçeği arasında negatif yönde anlamlı bir ilişki gözlemlenmişken (r: -0,173, *p*<,05), sosyal medya kullanımı arasında ise anlamlı bir ilişkiye rastlanmamıştır (r: 0,71; *p*>,05). Sosyal medya süresi ile Bedeni beğenme ölçeği arasında istatistiksel olarak anlamlı bir ilişkiye rastlanmamışken (r: -0,09; *p*>,05), Sosyal medya süresi ile sosyal medya kullanımı arasında orta düzeyde pozitif yönde anlamlı bir ilişki mevcuttur (r: 0,334; *p*<,05). Son olarak Bedeni beğenme ölçeği ile sosyal medya kullanımı arasında negatif yönde anlamlı bir ilişki gözlemlenmektedir (r: -0,221; *p*<,05).

Tartışma

Araştırma sonucuna göre, Bedeni Beğenme Ölçeği (BBÖ) puanları cinsiyete göre belirgin bir farklılık göstermektedir. Cinsiyetin bu farklılık üzerindeki etkileri incelendiğinde, kadın bireylerde beden memnuniyetinin daha yüksek olabileceği ve bu durumun bazı sosyal ilişkiler ve fiziksel nedenlerle ilişkilendirilebileceği öngörülmektedir. Bu bağlamda, kadınların ergenlik döneminde vücutlarında meydana gelen olgunlaşmaların beden memnuniyetini artırıcı bir etkiye sahip olabileceği ve sosyal medyada beğendikleri vücut ölçülerine ulaşmalarının psikolojik olarak olumlu bir etki yaratabileceği düşünülmektedir. Bu dönem içerisinde erkeklerin beden memnuniyetlerinin daha düşük olması, ergenlik döneminde vücuttaki olgunlaşmaların gecikmesi veya yetersiz olmasının muhtemel olduğu söylenebilir. Sosyokültürel kurama göre, kitle iletişim araçlarının etkisiyle erkekler arasında ideal olarak kabul edilen kaslı beden görüntüsünün beden memnuniyetsizliğini arttırdığı görülmektedir (Thompson ve Stice, 2001). Araştırmamızla benzer bir sonuca ulaşan Avan (2015) araştırmasında, kadın bireylerin erkek bireylere kıyasla sosyal medya platformlarındaki görünüşlerine daha fazla önem verme eğiliminde olduklarını belirtmiştir. Ortaya çıkan bu sonuçlar, kadın bireylerin bedenlerine daha fazla dikkat ettikleri, sosyal medya paylaşımlarına gelen beğenilerin ve olumlu yorumların, çevrelerinden aldıkları olumlu geri bildirimlerin ve ideal bir fizikle uyumlu giyim ürünlerinin kendilerini mutlu etmesiyle ilişkili olduğu düşünülebilir. Ayrıca bu durumun, fiziksel aktiviteyi daha istekli sürdürmeleri için onlara ek bir motivasyon sağladığı da düşünülebilir. Diğer bir açıdan bakıldığında, sosyokültürel kurama göre, kitle iletişim araçlarının etkisiyle erkekler arasında ideal olarak görülen kaslı beden görüntüsü beden memnuniyetsizliğini arttırmaktadır (Thompson ve Stice, 2001). Doğan ve Durmuş'ta (2023) araştırmalarında kadınların dış görünüşle ilgili sosyal medya bilincinin erkeklere oranla daha yüksek olduğu sonucuna ulaşmışlardır. Yine benzer bir araştırmada Hart ve arkadaşları (2008) erkeklerin sosyal görünüş kaygılarının kadınlardan daha yüksek olmasının nedenini, erkeklerin daha kaslı ve güçlü görünme arzusundan kaynaklı olduğunu ifade etmişlerdir. Araştırma bulgumuzla ters nitelik taşıyan bir başka araştırma sonucunda ise adolesan dönemdeki erkek öğrencilerin, aynı yaş grubundaki kız öğrencilere kıyasla bedenleriyle daha barışık oldukları sonucuna

ulaşılmıştır (Çok, 1990). Bu durumun sebebinin, yaşadıkları sosyal çevre ve toplum tarafından kabul gören ideal vücut ölçütleri (örneğin bacak uzunluğu, bel inceliği gibi) nedeniyle kadın bireylerin ince ve zayıf bir bedene sahip olma konusunda baskı altında olması ve bu nedenle kadınların beden imajlarından hoşnutsuzluk ve sosyal görünüş kaygısı yaşamalarından kaynaklandığı düşünülebilir. Ayrıca literatür araştırmalarında sosyal medya uygulamalarının genellikle kadın bireylere odaklandığı ve kadınlar için sosyal medya platformlarında belirlenmiş ideal vücut ölçüleri ile içerik üreticiliği kapsamında çeşitli manipülasyonlar bulunduğu, ancak erkekler için belirgin bir ideal vücut ölçüsünün mevcut olmadığı belirtilmektedir. Bu farklılığının sebebi erkeklere göre kadınların bedenlerini daha ayrıntılı şekilde incelemeleri ve bu ayrıntılar üzerinde çok fazla yoğunlaşmalarından; ayrıca yeni medyanın ideal beden algısında kadınların daha fazla fiziksel görünüşleri üzerine odaklanan içeriklere yer verilmesinden (ince, simetrik ve orantılı beden; pürüzsüz cilt) kaynaklandığı göz önüne alınabilir. Bu sonuçlara bakıldığında bireyin çevresi ve sosyal medya uygulamalarının aslında bireyi hem olumlu hem de olumsuz yönde etkilediği görülmektedir.

Araştırma bulguları arasında dikkat çeken bir diğer sonuç, bireylerin spor yapıp yapmamalarının bedenlerini beğenme düzeylerini etkileyen bir faktör olmadığıdır. Bu çıkan sonucun farklı nedenleri olabilir. Beden algısını etkileyen birçok faktör (medya etkisi, kişisel deneyimler, genetik özellikler) olduğu düşünüldüğünde sadece spor yapmanın beden beğenme algısı üzerinde doğrudan bir etkisi olmayabilir. Spor yapmanın bedeni beğenme algısı üzerindeki etkisi belki de kısa vadeli yapılan sporların etkilerini değerlendirmiş olabilir. Çünkü uzun vadeli yapılan sporların etkileri daha fazla belirgin olabilir. Araştırmada yer alan spor aktiviteleri, bedeni beğenme algısı üzerinde beklenen etkiyi yaratacak türde veya yoğunlukta olmayabilir; örneğin, hafif egzersizler yerine yüksek yoğunluklu antrenmanların daha belirgin sonuçlar doğurduğu göz önüne alınabilir. Son olarak katılımcıların kişisel özellikleri ve psikolojik durumları, spor yapma alışkanlıklarının bedeni beğenme algısı üzerindeki etkilerini etkileyebilir. Örneklendirecek olursak, bazı bireyler spor yapmalarına rağmen bedenlerini beğenmezler ve bu da spor yapmanın etkilerini maskeleyebilir. Bedeni beğenme durumunun, sadece fiziksel aktivite ile değil, aynı zamanda psikolojik ve sosyal faktörlerle de ilgili olduğu düşünülmelidir.

Araştırmanın bir başka bulgusuna göre Sosyal Medya Kullanım (SMK) puanlarının kişilerin cinsiyetlerine göre anlamlı bir fark göstermediği sonucudur. Bu sonuç, günümüzde sosyal medyanın yaygın olarak kullanılması göz önüne alındığında şaşırtıcı olmayacaktır. Hem erkekler hem de kadınlar kendilerine uygun platformlarda gezinmeyi tercih etmelerinin yanı sıra, farklı amaçlarla sosyal medyayı kullanmaktadırlar; bunlar arasında ders takibi, moda, magazin, ünlülerin günlük yaşantılarını takip etme, sağlık ve fiziksel aktivite gibi alanlar bulunmaktadır. Ancak, bu bulgular literatürdeki bazı araştırmalarla çelişmektedir. Örneğin, bazı çalışmalar kadın lise öğrencilerinde sosyal medya bağımlılığının erkeklerden daha yüksek olduğunu (Deniz ve Gürültü, 2018), erkeklerde ise oyun içerikli platformlarda oyun oynama süresinin daha fazla bağımlılık oluşturduğu görülmektedir (Yayman, 2019). Gökkaya ve arkadaşları (2020) araştırmalarında, erkeklerde sosyal medya bağımlılığı düzeylerinin kadınlara göre daha yüksek olduğunu bulmuşlardır. Demografik değişkenler arasında yer alan spor branşıyla sosyal medya kullanım düzeyi ve bedeni beğenme düzeyi arasında ise ilişki saptanmamıştır. Bu durum, araştırmada spor branşı çeşitliliğinin yetersiz olmasından kaynaklanıyor olabilir. Benzer şekilde, bedeni beğenme düzeyleri, bireylerin spor yapma durumuna göre değişmemektedir. Bunun nedeni, bazı bireylerin düzenli spor yaparak vücutlarından memnuniyet duyması, ancak diğerlerinin spor yapmalarına rağmen mükemmeliyetçilik eğilimleri nedeniyle kendilerini yetersiz hissetmelerinden kaynaklanıyor olabilir. Bireylerin vücut yapılarının normal ölçülerde veya hatta aşırı kaslı olmasına rağmen, kendilerini zayıf ve yetersiz olarak algıladıkları düşünülebilir. Bu tür düşüncelerin ve davranışların varlığı, "bigoreksiya" bozukluğunun belirtileriyle de örtüşebileceği dikkate alınmalıdır. Araştırma sonucunu destekler nitelikte olan Musa (2020) araştırmasında rekabet etmeyi seven, fitness merkezlerine giden bireylerin sosyal görünüş kaygı düzeylerinde artış oldukça, özgüven düzeylerinde de önemli derecede düşme meydana geldiğini ifade etmiştir. Keskinbıçak (2021) araştırma sonucunun aksine düzenli fitness yapan bireylerin vücut imaj algılarında artış oldukça benlik saygılarının da arttığı sonucuna ulaşmıştır. Yılmaz ve Ağgön (2023) de aktif olarak spor yapan üniversite öğrencilerinin beden memnuniyetlerinin spor yapmayanlara göre daha yüksek olduğunu ifade etmişlerdir. Araştırma sonuçlarından elde edilen bütün bu bulgular aslında spor yapmanın bireylerin beden algısı ve özgüveni üzerinde karmaşık bir etkiye sahip olduğunu göstermektedir.

Araştırmadan elde edilen bir başka bulgu ise spor yapan ergenlerin, yapmayanlara göre sosyal medya uygulamalarını daha az kullandıklarıdır. Bu bulgu, ergenlerin fiziksel olarak aktif olmalarının, sedanter davranışların azalmasını ve dolayısıyla sosyal medya kullanımının da azalmasını sağladığını göstermektedir. Ortaokul öğrencileriyle yapılan benzer bir araştırmada, öğrencilerin sosyal ağ kullanımı arttıkça fiziksel aktivite düzeylerinin düştüğü görülmüştür (Karademir, 2017). Farklı yaş gruplarıyla yapılan ve benzer sonuçlara ulaşılan bir araştırmada ise, Beden Eğitimi ve Spor Yüksekokulu öğrencilerinin Diş Hekimliği Fakültesi öğrencilerine göre sosyal medya ağları bağımlılıklarının daha yüksek olduğu görülmüştür (Eroğlu ve Yıldırım, 2017). Yapılan alan yazını incelemesi sonucunda, pek çok çalışmanın dijital teknolojilerin fiziksel aktiviteyi arttırmaya başlangıçta önemli bir etkiye sahip olduğunu, ancak müdahale süreleri uzadıkça etkinin azaldığını gösterdiği belirtilmektedir (Ahraz ve ark., 2021). Benzer şekilde, Vatansever (2017) çalışmasında, spor yapma alışkanlığı edinmiş olan gençlerin sosyal

görünüş kaygılarının, spor yapmayanlara kıyasla daha az olduğu sonucunu ortaya koymuştur. Yukarıda bahsedilen araştırma sonuçlarının, çalışmayı destekler nitelikte olduğu gözlemlenmektedir. Ayrıca, elit düzeyde spor yapan sporcularda da benzer durumlar yaygın şekilde görülmektedir. Özellikle toplum tarafından algılanan sporcunun bedeninin belirli şekilde olması gerektiği gibi algılar ve medya baskısı gibi durumlar, sporcular üzerinde beden memnuniyetsizliği yaratarak performanslarını olumsuz yönde etkileyebilmekte ve sporcularda yeme bozukluklarına da neden olabilmektedir (Bayköse ve Esin, 2019).

Araştırmadan elde edilen bir diğer bulgu ise, yaş ilerledikçe bedeni beğenme düzeyinde de artış olmasıdır. Yaş ile sosyal medya kullanımı arasında negatif yönlü çok zayıf bir ilişki gözlemlenmiştir. Genç yaşlarda beden algısı, genellikle toplumun güzellik standartlarına uyum sağlama kaygısıyla şekillenirken, yaş ilerledikçe bireylerin kendi bedenleriyle daha fazla uyum sağladıkları görülmektedir ve zamanla bu durumla daha barışık hale gelmektedirler. Kısacası, yaş ilerledikçe bireyler kendilerini ve bedenlerini daha iyi tanıyıp kabul etmeye başlarlar. Hurd ve McFadden (2021) araştırmalarında, yaşla birlikte bedensel değişimlere karşı daha fazla uyum sağlandığını ve olumlu tutumlar geliştirildiğini, fiziksel değişimlere karşı daha fazla öz-kabul içerisinde olunduğunu ifade etmişlerdir.

Araştırmaya göre, bedeni beğenme puanları ile boy arasında düşük düzeyde negatif bir ilişki bulunurken, beden kitle indeksi ile negatif ve düşük düzeyde bir ilişki tespit edilmiştir. Bu durum, ergenlerin toplum içerisinde statü edinme ve saygınlık kazanma isteklerinden kaynaklanabilir. Ergenlik dönemi, biyolojik değişimlerle başlayıp zihinsel gelişimle son bulan bir dönemdir. Bu dönemde fiziksel büyüme ve beden oranlarındaki değişiklikler, bireye özgü ayırıcı nitelikler taşımaktadır. Örneğin 16 yaşındaki bir ergen bu süre içerisinde kendine özgü bazı gelişim özelliklerini tanımakta ve bu özelliklerini insanlarla olan ilişkilerinde kullanabilmektedir. Bu nedenle, zayıf ya da şişman olmak, uzun boylu ya da kısa boylu olmak ergenin bir grup içerisine dahil olabilmesini, arkadaş ilişkilerini ve grup içerisindeki statüsünü etkileyen önemli bir faktördür. Yapılan bir araştırmada beden kitle indeksinin çocuk ve gençlerin yaşadıkları akran sorunlarıyla ilişkili olduğu bulunmuştur (Eray, 2022). Altıntaş ve arkadaşları (2012) araştırmalarında, normal kilolu öğrencilerin beden imajlarından daha memnun olduklarını ve beden algılarının kilolu ve obez öğrencilere kıyasla daha fazla olduğunu ortaya koymuşlardır. Ayrıca sosyal fiziksel kaygıların daha az olduğu gözlemlenmiştir. Kanatsız ve Gökçe'nin (2020) çalışmasında, yüksek beden kitle indeksine sahip gençlerin sosyal dış görünüş endişesi taşıdığı belirlenmiştir. Ayrıca, sosyal medya üzerinden aktarılan ince yapıda ve zayıf fiziksel özelliklere sahip olmanın güzellik kriteri olarak sunulması, toplumda güzellik algısının uzun boylu ve zayıf olmaya yönelik şekillenmesine neden olmaktadır.

Araştırmanın bir diğer bulgusuna göre, sosyal medya kullanım süresi yani geçirilen vakit arttıkça sosyal medya kullanımının da arttığı görülmektedir. Bunun en yaygın sebepleri arasında sosyal medya uygulamalarının çeşitli ve sınırsız içeriklere sahip olmasından kaynaklandığı düşünülebilir. Dolayısıyla bireyler sosyal medya platformları içerisinde daha fazla vakit geçirdikçe bireyler daha fazla içerik tüketmeye başlarlar. Aslında bu, daha fazla gönderi, fotoğraf, video ve hikâye görüntülemek anlamına gelmektedir. Artan içerik tüketimi, sosyal medya platformlarında daha aktif bir rol oynama ve daha fazla etkileşimde bulunma eğilimlerini beraberinde getirmektedir. Başka bir açıdan bakacak olursak, sosyal medya platformlarını uzun süre kullanan bireyler, bu platformlar üzerinde daha fazla zaman geçirme alışkanlığı geliştirmektedirler. Bu alışkanlıklar, kullanıcıların sosyal medya kullanım düzeyinin artmasına yol açar ve zamanla sosyal medya platformlarına yönelik düzenli ve sürekli bir erişim sağlamaktadır. Bireylerin sosyal medya kullanımı, kişisel ihtiyaçlarını karşılamak için de olabilir. Örneğin, sosyal tanınma, beğeni toplama veya sosyal destek arayışı gibi motivasyonlar, sosyal medya kullanım süresinin artmasına neden olabilir. Kişisel motivasyonlar, kullanıcıların sosyal medya üzerinde daha fazla zaman geçirmelerini teşvik edebilir. Bir kullanıcının sosyal medya platformlarında geçirdiği süre uzadıkça, bir platformdan diğerine geçiş yapma ve farklı platformlarda etkileşimde bulunma eğilimleri artabilir. Bu, genel sosyal medya kullanım düzeyinin artmasına neden olabilir. Benzer şekilde Vannucci ve Ohannessian (2021)'nın sosyal medya kullanım süresi ile etkileşim düzeyi arasındaki ilişkiyi inceledikleri araştırmanın sonucunda, sosyal medya üzerinde geçirilen zaman arttıkça etkileşimlerin ve kullanım düzeyinin de artış olduğu görülmüştür. Smith ve Duggan (2022)'da sosyal medya kullanım süresinin artmasının, etkileşim düzeyinde ve genel kullanımda artışa yol açtığı sonucuna ulaşmışlardır. COVID-19 pandemisi sırasında sosyal medya kullanımının sosyal bağlılık ve yalnızlık üzerindeki etkilerini inceleyen Baker ve McNally (2021) de araştırmalarında sosyal medya kullanım süresinin artmasıyla sosyal medya üzerindeki etkileşimin ve kullanım düzeyinin de arttığını vurgulamışlardır.

Araştırmanın son sonuca göre, sosyal medya kullanımı ile bedeni beğenme ölçeği puanları arasında düşük düzeyde ve negatif yönde anlamlı bir ilişki olduğu saptanmıştır. Bu bulgu, genç bireylerde sosyal medya kullanımının artmasıyla birlikte beden memnuniyetinde azalma yaşandığını göstermektedir. Bu durum, düzenli ve aktif sosyal medya kullanımının gençlerde özgüven düşüklüğüne neden olabileceğini işaret etmektedir. Gençler, sosyal medya platformlarında başkaları tarafından beğenilme beklentisi içinde olup, kendi zihninde hayal ettiği beden görünümlerini değiştirmeye çalışarak özgüvenlerini artırmaya yönelmektedirler. Bu sonuçların, literatürde çeşitli deneysel ve boylamsal çalışmaların beden görünümü karşılaştırmalarının gençlerde beden memnuniyetini azalttığını (Tiggemann ve Brown 2018) ve gelecekteki depresyon düzeylerini etkilediğini (Feinstein ve ark. 2013, Nesi ve Prinstein 2015) göstermektedir. Ayrıca, gençler üzerindeki fiziksel algıya

yönelik artan baskının, anoreksiya nervoza ve bulimiya gibi yeme bozuklukları sorunlarına da neden olabileceği gözlemlenmektedir. Young ve Rogers (1998) bedeni başkalarının beğenisine sunma isteğinin internet kullanımını artırdığını belirtmişlerdir. Gökkaya ve arkadaşları (2020) ise araştırmalarında sosyal medya bağımlılığının artmasıyla birlikte sosyal onaya olan ihtiyacın arttığını ve beden memnuniyetinde düşüş yaşandığını bulmuşlardır.

Bu yaş dönemi hem duygusal ve hem de fiziksel değişimlerin hızlı yaşandığı bir dönem olduğundan dolayı, kısa süreli bocalamaların etkisi, oluşturulmaya çalışılan kimlik karmaşası, sosyal çevre içerisinde oluşturulmaya çalışılan beden imajı ergenlerin benlik saygısı algılamalarında değişiklikler yaratabilmektedir. Okullar, psiko-sosyal deneyimlerin yaşandığı önemli ortamlardır. Doğal olarak aktif sosyal medya kullanan adolesan bireylerin, birbirlerinin paylaşımlarını görebildikleri sosyal medya uygulamaları üzerinden popülarite kazanmakta ya da çok kolay alay konusu olmaya açık bir alan haline gelebilmektedir. Bu durumda sağlıklı ruh haline sahip ve mutlu bireylerin yetişmesinde ailelere, devlete, kamuya, öğretmenlere ve okul yönetimine önemli görevler düşmektedir. Literatür içerisinde adolesan çağındaki bireylerin fiziksel aktivite yapma düzeyleriyle alakalı farklı araştırmalar bulunmasına rağmen bedenlerini beğenme, sosyal medya kullanımları ve fiziksel aktivite yapma düzeyleri ile ilgili ilişkiler barındıran çok az çalışma bulunmaktadır. Ergenlik dönemi içerisinde sonucu olumsuz noktalara kadar gidebilecek böyle önemli bir konuyla alakalı çeşitli araştırmalar yapılarak, gençlerin fiziksel aktivitelere yönlendirilmelerinin yanı sıra sosyal medya ve toplum baskısından kaynaklanabilecek sorunların gözlemlenerek kısa sürede ortaya çıkarılması ve gerekli önlemlerin alınması açısından da önem taşıdığı düşünülmektedir.

Sonuç ve Öneriler

Aile Desteği ve İletişimi: Aileler, çocuklarının sosyal medya kullanımını izlemeli ve onlarla bu konuda sağlıklı iletişim kurmalıdır. Ailenin, çocukların beden imajıyla ilgili endişelerini ve sosyal medya kullanım alışkanlıklarını anlaması ve desteklemesi bu süreçte önem taşımaktadır.

Okul ve Eğitim Programları: Okulların, öğrencilerin fiziksel, sosyal ve duygusal gelişimlerinin yaşandığı yerler olduğu göz önüne alındığında gençlerin bu gelişimlerini desteklemek için çeşitli spor etkinlikleri, kültürel etkinlikler ve psikososyal destek programları sunmalıdır. Özellikle beden imajı ve özgüvenle ilgili konularla ilgili eğitimler düzenlenmeli ve öğrencilere bu konularda rehberlik sağlanmalıdır.

Spor Aktivitelerinin Teşviki: Okullar ve aileler, gençleri çeşitli fiziksel aktivitelere teşvik etmeli ve desteklemelidir. Farklı spor dallarını deneme imkanları sunarak gençlerin ilgi duydukları spor aktivitelerini keşfetmelerine yardımcı olunabilir.

Psikolojik Destek ve Danışmanlık: Okullar, gençlere psikolojik destek ve danışmanlık hizmetleri sunarak, beden memnuniyeti, özgüven ve sosyal medya kullanımı gibi konularda destek sağlayabilirler. Gençlerin duygusal ihtiyaçlarına yanıt verebilecek profesyonel yardım hizmetlerinin sunulması bu gelişim dönemi içerisinde önemlidir.

Kamunun Katkısıyla Toplumsal Bilinçlendirme: Toplumda; aileler, okullar, sağlık kuruluşları ve medya iş birlikleriyle gençlerin beden imajıyla ilgili konular ve sosyal medya kullanımının etkileri hakkında farkındalık oluşturacak kampanyalar düzenlenebilir.

Sosyal Medya Eğitimi: Okullar, gençlere sosyal medya kullanımıyla ilgili bilinçlendirici eğitim programları sunmalıdır. Gençlerin sosyal medyayı sağlıklı bir şekilde kullanmalarını ve olumsuz etkilerinden korunmalarını sağlayacak bilgi ve becerileri kazanmalarına yardımcı olunmalıdır.

Medya ve Reklam Denetimi: Hükümetler, medya ve reklam endüstrisini denetleyerek, gençleri olumsuz beden imajıyla etkileyebilecek içeriklerin yayılmasını önlemelidir. Toplumun genel sağlığını ve refahını korumak için uygun regülasyonlar ve standartlar belirlenmelidir.

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Investigation of Foot Biomechanics in 5-15 Years Old Children Performing Gymnastics

5-15 Yaş Arası Cimnastik Yapan Çocuklarda Ayak Biyomekaniğinin İncelenmesi

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ABSTRACT

Gymnastics is a basic sport branch consisting of eight disciplines and is recommended to be taught to children at an early age. Our study aimed to evaluate the foot biomechanics and static plantar pressure of children aged 5-15 years who were performing rhythmic and artistic gymnastics. The study included 58 (19 Men/39 Women) child gymnasts and aged 5-15 years. Sociodemographic form, static plantar pressure analysis in bipedal position with pedobarography device, hallux valgus angle measurement (HVA), navicular drop test (NDT) and subtalar pronation angle measurement were performed respectively. The measurements were performed in the same way by an experienced expert. IBM Statistical Package for Social Sciences Version 26.0 (SPSS inc, Chicago, IL, USA) statistical programme was used. Tests were analyzed pairwise with Pearson correlation ($p \leq .05$). The mean age was 7.43±2.37 years, height 124.68±16.97 cm, weight 27.39±11.39 kg and body mass index (BMI) 16.99±3.22 kg/m^2. There was no significant difference between weighted and unweighted in NDT results. In pedobarography analysis, hindfoot percentages were higher than forefoot percentages in static bipedal positions. A positive correlation was found between HVA and subtalar angles (p=0.00). In children performing artistic and rhythmic gymnastics, lateral ankle sprain may be observed due to a pronation tendency in subtalar angles. In addition, in the static bipedal position, distortions occurred in the bipedal static force center because the percentage of hindfoot pressure in plantar pressures was higher than the forefoot. Studies with foot-ankle exercises are needed for these.

Keywords: Gymnastics, pedobarography, foot biomechanics

ÖZ

Cimnastik, sekiz disiplinden oluşan temel bir spor branşıdır ve çocuklara erken yaşta öğretilmesi önerilmektedir. Çalışmamızda 5-15 yaş arası ritmik ve artistik cimnastik yapan çocukların ayak biyomekaniği ile statik plantar basıncının değerlendirilmesi hedeflenmiştir. Çalışmaya yaşları 5-15 arasında 58 (19 Erkek/39 Kadın) çocuk cimnastikçi dahil edildi. Çocuklara, sırasıyla sosyodemografik form, pedobarografi cihazı ile bipedal pozsiyonda statik plantar basınç analizi, halluks valgus açısı ölçümü (HVA), navikular drop testi (NDT) ve subtalar pronasyon açısı ölçümü yapıldı. Ölçümler deneyimli bir uzman tarafından herkese aynı şekilde uygulandı. IBM Statistical Package for Social Sciences Version 26.0 (SPSS inc, Chicago, IL, USA) statistical program was used. Testler Pearson korelasyonu ile çift yönlü olarak analiz yapıldı. ($p \leq ,05$). Yaşları ortalaması 7,43±2,37 yıl, boyları 124,68±16,97 cm, kilogramları 27,39±11,39 kg ve vücut kütle indeksleri (VKİ) 16,99±3,22 kg/m^2 bulunmuştur. NDT sonuçlarında ağırlıklı ve ağırlıksız arasında anlamlı bir fark görülmemiştir. Pedobarografi analizinde statik bipedal pozisyonda arka ayak yüzdeleri, ön ayak yüzlerine göre daha fazla bulundu. HVA ile subtalar açılar arasında pozitif yönlü korelasyon bulunmuştur (p=0.00). Artistik ve ritmik cimnastik yapan çocuklarda, subtalar açılarda pronasyona yönelim olduğundan dolayı lateral ayak bileği burkulması gözlemlenebilir. Ayrıca statik bipedal pozisyonda plantar basınçlarında arka ayak basınç yüzdeliği ön ayağa göre fazla bulunduğundan bipedal statik kuvvet merkezinde bozulmalar meydana gelmiştir. Bunlara yönelik ayak-ayak bileği egzersizleri ile çalışmalara ihtiyaç bulunmaktadır.

Anahtar Kelimeler: Cimnastik, pedobarografi, ayak biyomekaniği

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Introduction

Gymnastics is accepted as a basic sport branch worldwide. It consists of eight different disciplines: artistic gymnastics, rhythmic gymnastics, trampoline gymnastics, double mini trampoline gymnastics, tumbling, acrobatic gymnastics, parkour and aerobic gymnastics. Therefore, it is emphasized that gymnastics should be consciously taught to children from preschool (Mengütay, 1998). Various studies show that gymnastics is accepted as the basis of sports. Basic skills such as speed, strength and flexibility play an important role in gymnastics (Kesilmiş, 2012). The literature shows that athletes who have received gymnastics training at a young age are superior in these basic skills. In addition, the flexibility level of gymnastics athletes is quite high compared to other branches (Gallahue & Donnelly, 2003).

Nowadays, gymnastics, which has high spectator pleasure and creates excitement in the audience, is a sport branch that requires the use of all muscles. Gymnastics consists of flexibility, strength, endurance, speed, coordination and body control exercises with or without instruments. Gymnastics has a great effect on the motor development of children (Malina et al., 2003). The concept of sport is generally considered as inter-team or individual competitions; therefore, it may be difficult to consider gymnastics as an athletic activity. However, as in other sports, in gymnastics, the athlete tries to show his/her best performance by exhibiting all his/her abilities (Mengütay, 1998). Gymnastics provides the development and active working of muscles and joints by using the body's natural movements. It is one of the important physical activities that support the acquisition of endurance, flexibility, agility, coordination and motor skills. In gymnastics, movements such as running, jumping and rolling increase the body's flexibility. In addition, flexion, reaching and stretching movements directly affect psycho-motor development in children. It is important for children to learn how to move and control their bodies for their cognitive and social development. Since gymnastics requires multiple muscle movements and coordination, it supports the development of basic motor characteristics such as coordination, attention, balance, and flexibility (Mülazımoğlu & Bruninks-Oseretsky, 2006). In addition, it enables the fulfillment of the functions of muscles and joints and develops physical and psychological abilities together (Bencke et al., 2002).

The foot and ankle have 7 tarsal bones (calcaneus, talus, navicular, cuboid, and 3 uniforms), 5 metatarsal bones, and 14 phalanges. The foot is analyzed in three main sections: forefoot, midfoot, and hindfoot. These sections define foot and ankle deformities and functions (Kanatlı et al., 2003). The foot is a complex structure consisting of 26 bones, 33 ligaments and numerous joints, which is in the most distal part of the body and provides our contact with the earth. The foot absorbs shocks during activities such as running, walking, jumping, and pushing the body forward. The sole contains three arches: the medial longitudinal arch, lateral arch, and transverse arch. The height of the medial longitudinal arch varies between 15-18 mm, and the height of the lateral arch varies between 3-5 mm. Plantar flexion and dorsi flexion movements are observed in the ankle; some inversion and adduction movements occur during plantar flexion, and eversion and abduction movements occur during dorsi flexion (Şener & Erbahçeci, 2016). In the bipedal position, 60% of the body weight is distributed on the heel and 40% on the metatarsal heads. While 1/3 of this 40% load is concentrated on the first metatarsal, the remaining part is equally distributed to the other metatarsal heads. The midfoot carries 8% load, the forefoot 28% and the toes 4% (11). Plantar pressure measurements evaluate foot and ankle functions. Pedobarography is a method that dynamically measures the pressures on the plantar surface of the foot. These measurements are used to examine the foot structure, determine pressure changes, and detect lower extremity pathologies (Orlin & McPoil, 2000). Thanks to technological advances, these measurements can be performed statically and dynamically utilizing platforms with sensors and computers (Hurkmans et al., 2003). Static plantar pressure analysis involves standing motionless for a certain period. This method obtains data such as pressure and loading values, plantar contact surface, maximum and average pressure on both extremities and the support surface. These data provide information about foot deformities (Thavets et al., 2005; Ünver & Bek, 2014).

When the studies in the literature were analyzed, it was found that shoulder injuries were frequently encountered in female artistic gymnasts. However, it has been reported that more detailed studies are needed to determine the risk factors of these injuries (Hinds et al., 2019). Afterward, ankle and wrist injuries are frequently encountered (Goulart et al., 2016). However, detailed data cannot be found in these studies. This study aimed to investigate the relationship between static plantar pressures and foot biomechanics in gymnastic children aged 5-15.

Methods

Participants

The inclusion criteria were that the child be between the ages of 5 and 15 and do artistic and rhythmic gymnastics. The exclusion criteria were having had any lower extremity surgery in the last year and having any neurological or psychiatric problems. The study's sample size was calculated using the G*Power 3.1.9.7 program to include 58 individuals with 80% power (Sobera et al., 2015). Ethical approval was obtained from Çankırı Karatekin University Ethics Committee Institutional Review Board within protocol June 05, 2024-14. In addition, this study adhered to the principles outlined in the Declaration of Helsinki. All participants gave informed consent, and written informed consent was obtained from the participants' families. The evaluations were conducted face-to-face.

Evaluations

Sociodemographic Form: It includes items such as height, weight and gender.

Pedobarography Plantar Pressure Measurement: Plantar pressures were measured statically in the bipedal position, and the percentage distributions of the right and left foot, forefoot, and hindfoot were calculated (Figure 1). These measurements were performed using the AS Foot Scan (Analysis System, Istanbul, Turkey). The device has a sensor area of 400mm x 400mm, 2288 sensors (1.4 sensors/cm²) and a data rate of 200 to 400Hz. The delay rate is <3%.

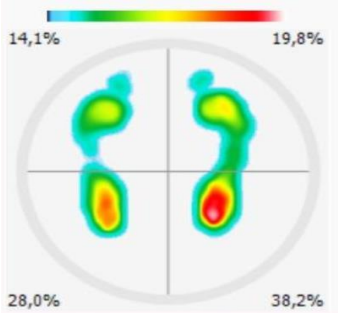

Figure 1. Plantar pressure analysis in static pedorabarography device

Hallux Valgus Angle Measurement: The pivot point of the goniometer should be placed on the medial projection of the metatarsophalangeal joint. The fixed arm should extend parallel to the medial aspect of the first metatarsal (Figure 2). The mobile arm should be placed parallel to the medial aspect of the first proximal phalanx. The measured acute angle is recorded as the angular severity of the deformity (Karabıcak et al., 2015).

Figure 2. Hallux Valgus Angle measurement with goniometer

Navicular Drop Test: While the patient is standing in a bipedal position, he/she is positioned to carry full weight along the lower extremity, and the subtalar joint is kept in a neutral position. The most prominent part of the navicular tuberosity is marked and the distance to the support surface is measured. After the patient is asked to relax, the movement of the navicular in the sagittal plane is measured with a ruler. If the difference between the measurements is less than 5 mm, it is considered as pes cavus, and if it is greater than 10 mm, it is considered as pes planus (Menz, 1998).

Subtalar pronation: The angle between the calcaneus's midpoint and the Achilles tendons long line is measured with a

goniometer while the person is standing on a high platform. This measurement determines the angle between the calcaneus's midpoint and the Achilles tendon (Jastifer & Gustafson, 2014).

Statistical Analysis

IBM Statistical Package for Social Sciences Version 26.0 (IBM SPSS Corp., Armonk, NY, USA) statistical program was used. Pearson test analysis was used in the study and statistical significance was taken as $p \leq .05$ for all two-way measurements.

Results

Of the 58 children who participated in the study, 19 were male and 39 were female. BMI scores were found to be normal.

Sociodemographic data are given in detail in Table 1.

Table 1.
Sociodemographic Data

	N	Mean	SD (±)
Age (years)	58	7.43	2.37
Height (cm)	58	124.68	16.97
Kilogram (kg)	58	27.39	11.39
BMI	58	16.99	3.22

BMI; Body mass index, N; number of participants, SD; Standard deviation.

According to the children's NDT results, there was no medial transverse posterior drop because there was less than 10 mm difference between the unweighted and weighted calculations in both feet. These results are given in Table 2.

Table 2.
NDT Data of the Children Performing Gymnastics

	N	Mean	SD (±)
R.F NDT Weightless	58	5.27	1.43
L.F NDT Weightless	58	5.20	1.34
R.L NDT Weighted	58	4.27	1.38
L.F NDT Weighted	58	4.36	1.27

NDT: Navicular Drop Test, R.F: Right Foot, L.F: Left Foot, SD: Standard Deviation

When the percentages of the plantar pressures of the children performing gymnastics in the static bipedal position were analyzed, it was found that the percentage plantar pressures of the hindfoot were higher than the percentage plantar pressures of the forefoot in both feet. Related data are given in Table 3.

Table 3.
Plantar Pressure Analysis Results in a Static Bipedal Position of the Children Performing Gymnastics

	N	Mean	SD (±)
R. Forefoot (%)	58	15.89	6.39
R. Hindfoot (%)	58	30.27	7.97
L. Forefoot (%)	58	18.10	5.66
L. Hindfoot (%)	58	35.74	8.58

R: Right, L: Left, SD: Standard Deviation

When the HVA and subtalar angles of the children were analysed, it was found that hallux valgus angles were normal but subtalar angles were towards pronation. Related values are given in Table 4.

Table 4.
Subtalar Angle Data with HVA of the Children Performing Gymnastics

	N	Mean	SD (±)
R.F HVA (°)	58	14.34	2.77
L. F HVA (°)	58	14.72	2.37
R.F Subtalar pronation (°)	58	6.48	1.69
L.F Subtalar pronation (°)	58	6.39	2.44

HVA; Hallux Valgus, F: Right Foot, L.F: Left Foot, (°): Angle, SD: Standard Deviation

In the correlation analysis performed between HVA and subtalar angles of the children performing gymnastics, a moderate positive correlation was found (p=0.00). Table is given in Table 5.

Table 5.
Correlation Analysis Performed Between HVA and Subtalar Angles of the Children Performing Gymnastics

	L.F Subtalar pronation (°)	R.F Subtalar pronation (°)	L.F HVA (°)	R.F HVA (°)
L.F Subtalar pronation (°)	-	-	-	-
R.F Subtalar pronation (°)	.571*	-	-	-
L.F HVA (°)	.699	,564*	-	-
R.F HVA (°)	.662*	,637*	,849*	-

F: Right Foot, L.F: Left Foot, p<0.05*

Discussion

As a result of the analysis of the HVA of the children who performed gymnastics, it was found that they did not have hallux valgus. Hallux valgus is called positive when the HVA is 15° and above (Samoto et al., 2000). Hallux valgus is rare in children. However, it is more common in girls than boys and the cause is unknown. In addition, the probability of hallux valgus appearing bipedal is 87% (Coughlin & Jones, 2007). Casado et al. included 1768 children aged 5-17 years in the study conducted in 2023. In the study, BMI was divided into three groups as normal, overweight and obese according to age. Hallux

valgus deformity and pes planus were observed in overweight individuals. It was reported that the rate of hallux valgus surgery was high in overweight children at a later age (Martín-Casado et al., 2023). Other studies reported that hallux valgus was more likely to be observed in children with high BMI (Tasatan & Tekin, 2024; Tomaru et al., 2020). In our study, BMI was ideal in children who performed gymnastics; accordingly, low medial arch and hallux valgus deformity were not observed.

When the subtalar angles are analyzed, it is said that there is a tendency towards subtalar pronation with angles of 5° and above (Jastifer & Gustafson, 2014). Since gymnastics is a type of exercise with a tendency to stretch, it is thought that there is an increase in the subtalar angle especially due to the flexibility in the peroneal longus and brevis muscles. In addition, it is thought that a high subtalar angle increases the possibility of ankle injury during gymnastics (Charpy et al., 2023).

When the foot percentage distributions were analyzed, hindfoot pressures (%) were found to be higher than forefoot pressures (%). When the literature was examined, it was found that there should not be much difference between forefoot and hindfoot percentage distributions (Tuna et al., 2004). This is because children performing gymnastics are in development due to their age and the structural features of the shoes they wear, and changes in their pressures can be observed because they exercise on different surfaces during gymnastics (Pérez-Soriano et al., 2010).

A positive correlation was found between HVA and subtalar angles. In a review study conducted in 2016, Cheron et al. examined the differences between sports regarding the diagnoses and anatomical regions with the highest probability of injury. This study analyzed football, handball, orienteering, running, dance, and gymnastics. It was found that the lower leg region was affected more frequently than the upper leg region in all sports. Another important finding was that foot injuries were more common in gymnastics than in other sports. The reason for this was observed to be the high loads on the foot during gymnastics and impaired foot biomechanics (Chéron et al., 2016). In another study conducted in 2015, Sobera et al. determined the incidence of foot and ankle deformities in trampoline and artistic gymnasts. A total of 20 participants, 10 acrobatic gymnasts (trampoline) and 10 artistic gymnasts aged 6-14 years, were included in the study. Subtalar pronation angle was determined as the angle of the superior calcaneal tendon and the longitudinal heel axis, while Clarke angles were determined by podoscopy. A statistically significant higher subtalar pronation angle was observed in the trampoline group compared to the artistic gymnastics group. As a result of the study, considering the prevalence of foot and ankle deformities in both gymnastics disciplines, it was emphasized that this situation should be considered by coaches from an early age during gymnastics training (Sobera et al., 2015).

Conclusion and Recommendations

There was a tendency towards pronation in the subtalar angle of the foot of rhythmic and artistic gymnastic children aged 5-15 years. A positive correlation was found between HVA and subtalar angle. In addition, when the plantar pressure was analyzed in a static bipedal position, the hindfoot's percentage pressure was higher than the forefoot. Therefore, lateral ankle injuries can be observed in these individuals.

Etik Komite Onayı: Bu çalışma için etik komite onayı Çankırı Karatekin Üniversitesi Etik Kurulu Kurumsal İnceleme Kurulu'ndan 05 Haziran 2024, Karar no: 14) protokolü kapsamında alınmıştır.
Hasta Onamı: Çalışmaya katılan tüm katılımcıların ailelerinden yazılı onam alınmıştır.
Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Konsept- G.A; Tasarım- S.S; Denetim- S.S; Kaynaklar- B.Ü; Malzemeler- G.A; Veri Toplama ve/veya İşleme- S.S, H.S; Analiz ve/veya Yorum- Y.Y; Literatür Taraması- G.A; Yazma- G.A, S.S, B.Ü
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Finansal Destek: Yazarlar, bu çalışma için finansal destek almadığını beyan etmiştir.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Çankırı Karatekin University (Date: June 05, 2024, Decision Number: 14).
Informed Consent: Written consent was obtained from the families of all participants who participated in the study.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept – G.A; Design – S.S; Supervision – S.S; Resources – B.Ü; Materials – G.A; Data Collection and/or Processing – S.S, H.S; Analysis and/or Interpretation – Y.Y; Literature Search – G.A; Writing Manuscript – G.A, S.S, B.Ü
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Examination of the Leisure Involvement and Leisure Constraints Levels of Individuals Doing Ski and Snowboard as a Recreational Physical Activity

Rekreasyonel Fiziksel Aktivite Olarak Kayak ve Snowboard Yapan Bireylerin Serbest Zaman İlgilenim ve Serbest Zaman Katılım Engelleri Düzeylerinin İncelenmesi

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ABSTRACT

This study aimed to examine the levels of leisure involvement and perceived leisure constraints of individuals who ski and snowboard based on various characteristics. The study group of research consisted of 796 individuals who ski/snowboard in 5 ski resorts in Turkey. In the research, "Leisure Involvement Scale" (LIS) and "Leisure Constraints Scale" (LCS) were used as data collection tools. MANOVA, and ANOVA analyses were used to analyze the collected data. According to the MANOVA results with regard to gender, there were statistically significant differences between the average scores of the groups in all subscales of the "LIS" except the "interpersonal constraints" subscale of the "LCS". There was no significant difference between the participants' "LCS" mean scores according to the education level variable. On the other hand, it was found that there were statistically significant differences in all subscales of the "LIS" of the participants concerning the education level. MANOVA analysis results revealed that the average scores of the participants in all subscales of "LCS", "interpersonal constraints" "intrapersonal constraints" and "LIS" differed significantly according to the variable of having their materials. As a result, it was concluded that the most important factor that constrained individuals from participating in ski and snowboard sports as a leisure activity was "structural factors". In addition, it has been found that the three most important reasons why individuals are interested in skiing or snowboarding or both as winter sports are "attraction, "social bonding" and "centrality", respectively.

Keywords: Leisure constraints, leisure involvement, ski

ÖZ

Bu çalışmada kayak ve snowboard yapan kişilerin serbest zaman ilgilenim ve serbest zaman engelleri algı düzeylerinin çeşitli değişkenlere göre incelenmesi amaçlanmıştır. Araştırmanın çalışma grubunu Türkiye'deki 5 farklı kayak merkezinde kayak/snowboard yapan toplam 796 (age=32.48±12.82) birey oluşturmuştur. Araştırmada veri toplama aracı olarak "Serbest Zaman İlgilenim Ölçeği" (SZİÖ) ve "Boş Zaman Engelleri Ölçeği" (BZEÖ) kullanılmıştır. Elde edilen verilerin analizi için, MANOVA ve ANOVA analizi yöntemleri kullanılmıştır. Katılımcıların cinsiyetlerine göre yapılan MANOVA sonuçlarına göre, "BZEÖ"nin "kişisel engeller" alt boyutu hariç "SZİÖ"nin tüm alt boyutlarında grupların ortalama puanları arasında istatistiki olarak anlamlı farklılıklar vardır. Katılımcıların "BZEÖ" ortalama puanları arasında eğitimi düzeyi değişkenine göre anlamlı bir farklılık yoktur. Buna karşın, eğitim düzeyi değişkenine göre katılımcıların "SZİÖ"nin tüm alt boyutlarında istatistiksel olarak anlamlı farklılıklar olduğu bulunmuştur. MANOVA analiz sonuçları, katılımcıların "BZEÖ"nin "bireysel engeller" ve "bireylerarası engeller" ve "SZİÖ"nin tüm alt boyutlarındaki ortalama puanlarının kendine ait malzemeye sahip olma durumu değişkenine göre anlamlı farklılık gösterdiğini ortaya koymuştur. Sonuç olarak, bireylerin serbest zaman aktivitesi olarak kayak ve snowboard sporlarına katılımlarını engelleyen en önemli faktörün "yapısal engeller" olduğu belirlenmiştir. Ayrıca bireylerin kış sporu olarak kayak veya snowboard ya da her ikisi ile de ilgilenmelerindeki en önemli üç nedenin sırasıyla "çekicilik", "sosyal ilişki" ve "özdeşleşme" olduğu tespit edilmiştir.

Anahtar Kelimeler: Serbest zaman engelleri, serbest zaman ilgilenimi, kayak

Introduction

In the leisure time literature, it is seen that the concept of involvement is examined by researchers on the basis of "definition", "conceptualisation" and "measurement-method development" (Kyle & Chink, 2004; Wiley et al., 2000). In recent years, studies have been conducted to develop measurement tools for determining individuals' level of involvement (Hickerson et al., 2014). Additionally, conceptual framework studies have been conducted to reveal the relationship and usage patterns of the concept with different subjects in detail (Lee et al., 2023). In this context, Lawler (1973) proposed that the relationship between involvement and motivation in leisure activities can be understood with the expectancy-value model. In this study, it was reported that the motivation level of individuals towards such activities is formed with the expectation of obtaining some benefits, and as a result of the realisation of this expectation, the level of involvement of individuals will increase as their needs are met in the best way. Therefore, this relationship offers significant opportunities for researchers to comprehend the motives behind leisure time behaviour, which is demonstrated through consistent participation in recreational activities (Chen et al., 2008; Gürbüz & Henderson, 2013).

Various leisure time studies have shown that the relationship between involvement and motivation may vary depending on the type of activity, experience style, and personal characteristics of the individual (Argan et al., 2023; Kara et al., 2019). For instance, Gould and Horn (1984) stated that young individuals are interested in such activities for reasons such as fun, excitement, making friends or success. In their 1993 study, Wold and Kannas evaluated the involvement and motivation of young people towards physical activities. The findings from the question 'What do you liken physical activities to?' led to the conclusion that socialisation, health, and entertainment are the primary motivating factors. Chen and his friends (2008) found that adolescents' strong interest in leisure activities increased their motivation levels for such activities. They also discovered that maintaining a continuous involvement in the activity had a positive impact on their life satisfaction levels. Many individuals participate in physical activity programs for various reasons, such as weight loss, improved appearance, and enhanced well-being (Avci et al., 2021). However, individuals who participate in activities with extrinsic motivation may experience a lower level of enjoyment, which can negatively impact their involvement (Bagoien & Halvari, 2005). According to Perrin (1979), individuals who engage in physical activities with the goal of appearing healthy are more likely to continue participating if they find the activity enjoyable. This leads to long-term participation, which is driven by intrinsic motivation rather than extrinsic. Perrin's statement highlights the importance of finding enjoyment in physical activity to maintain a healthy lifestyle. Yetim (2014) conducted a study to determine the impact of leisure involvement on the satisfaction and loyalty of fitness centre members in Eskişehir. The study found that various demographic characteristics affect the level of involvement of the participants towards the activities. Additionally, leisure involvement has a positive effect on leisure time satisfaction and loyalty. The research results may assist fitness centre operators and leisure researchers in identifying individuals' involvement profiles in leisure activities. The Turkish adaptation of the Leisure Involvement Scale (Kyle et al., 2007), which includes statements to determine the involvement levels of individuals participating in leisure time activities, was first tested on fitness participants by Gürbüz and colleagues (2018) in domestic literature. The research findings indicate that the involvement scale, comprising of 3 subscales and 15 items, can be a valid and reliable measurement tool in the Turkish language without any loss of items or subscales. The adaptation of the scale to Turkish culture has led to an increase in the number of studies conducted in this area. For instance, Ayhan and colleagues (2019) discovered that the level of involvement in leisure time activities may vary depending on the coping strategies developed to overcome obstacles faced by young individuals. They found that developing new strategies can help overcome these obstacles and increase the level of involvement once again.

As a result, in parallel with the developments in the international literature, it is seen that the concepts of Leisure Involvement Scale and constraints are frequently addressed by researchers in Turkey, which is in the category of developing countries. Determining the level of involvement of individuals participating in leisure time activities and the factors preventing them or examining the relationship with variables such as leisure time satisfaction and participation intention will contribute to the existing literature. Furthermore, the results of this research are expected to be valuable for professionals and managers in the field, aiding in the development of policies to promote community engagement in leisure activities.

Theoretical Background and Hypothesis

Leisure involvement

The concept of involvement started to be included in the literature for the first time in 1966 with Krugman's research in the field of marketing. In his research, Krugman expresses involvement as the number of connections of clues or individual references to establish a voluntary connection between the content of a persuasive stimulus and the content of one's own life within a minute (Kandemir, 2018). In its general form, involvement can be expressed as individual preference or attitude of desire for any activity and the satisfaction, pleasure and excitement derived from it (Decloe et al., 2009). Approaches that focus on the concept of involvement , expressed as consumer behaviour in other sectors, have been present in leisure time literature since the mid-1980s (Havitz & Dimanche, 1997). This is due to the rapid development of recreation in the world economy and its perception as a product model based on consumption in society's lives (Odabaşı & Barış, 2002). Since then, the concept of involvement has become a phenomenon that has been discussed and analysed by researchers working in the field of leisure (Wiley et al., 2000).

Leisure researchers commonly define involvement by drawing on consumer behaviour literature (Jun et al., 2012). For instance, Havitz and Dimanche (1997) describe involvement as an unobservable state of motivation, arousal, or interest in a recreational activity or related product, which is adapted from consumer behaviour research. Although researchers have proposed many definitions of leisure involvement (Kyle et al., 2007), they mainly conceptualise involvement as personal involvement in a recreational activity (Slama & Tashchian, 1985).

Leisure constraints

In the leisure literature, the concept of "constrain" refers to the reasons encountered by the person that prevent or prevent the person from participating in recreational activities in their free time (Gürbüz & Henderson, 2014). This concept is defined as factors that limit people's participation in leisure activities, use of leisure services or enjoyment of activities (Jackson & Scott, 1999). Jenkins and Pigram (2003) defined the concept of constrain as a set of factors that affect individuals' participation in leisure activities, their satisfaction or enjoyment of the activities they participate in and their utilisation of leisure services. Crawford et al. (1991) analysed leisure constraints in three formats as intrapersonal, interpersonal and structural and stated that the most effective of these factors is the intrapersonal dimension and that this occurs in the decision-making step. According to this model, the most important factor that prevents or restricts participation in recreational activities is "personal constraints ", while "structural constraints" are in the last step (Gürbüz & Henderson, 2014).

Alexandris and Carroll (1997) categorise constraints as internal and external. Constraints such as time, money, geographical distance and lack of opportunities are classified as external constraints, while individual skills, abilities, knowledge and field of interests are classified as internal constraints. Environmental constraints are external obstacles that are not caused by the individual and cannot be controlled. Examples of environmental constraint include noise, lack of social support, time constraints, and financial limitations. Personal constraints, on the other hand, are internal obstacles that are caused by the individual themselves. Examples of personal constraints include lack of knowledge, social skills, and poor health. Socio-demographic factors generally refer to variables such as financial status and education level, which can significantly affect the constraints faced by individuals and their ability to cope with them. It is important to note that subjective evaluations should be excluded unless clearly marked as such. Socio-demographic factors generally refer to variables such as financial status and education level, which can significantly affect the constraints faced by individuals and their ability to cope with them.

The relationship between leisure constraints and leisure involvement

Numerous empirical studies have shown a correlation between individuals' involvement in leisure activities and constraints to participation (Alexandris et al., 2008). For instance, Warren (1990) discovered that women face more limited chances and opportunities to participate in leisure activities than men, which is linked to their position in society In other words, women's participation in leisure activities may be limited due to their societal role of primarily being responsible for housework and childcare, particularly in developing countries. Additionally, a study found that the amount of free time available is the most significant factor influencing individuals' leisure involvements. However, participation in leisure activities

is not solely determined by time constraints. According to Kyle and Mowen (2004), individuals also employ various strategies to engage in leisure activities.

Various factors contribute to differences in individuals' leisure involvements. According to Wiley et al. (2000), individuals' preferred activities are related to the impression of self they wish to convey to others. For instance, Kyle and Mowen (2005) found that participants' engagement increased in proportion to their positive perception that their preferred activity reflects their qualities. In this context, individuals' positive attitudes about the extent to which the activities they participate in reflect their own personality and/or image also affect their commitment to this activity, their intention to participate again and their intention to recommend it. For example, in the study conducted by Sakai (2010), it was determined that people with higher education level in leisure involvement were found to be involved in more recreational activities. Similarly, Lee and Bhargava (2004) stated that there are significant relationships between the increase in the level of education of individuals and the level of creating leisure time and using leisure time effectively and efficiently. Furthermore, research has shown that as education levels increase, individuals tend to participate in leisure activities more frequently and with greater intentionality, leading to a higher level of sustained engagement (Aslan, 2005). Based on this literature and rationale, the following hypotheses are presented:

H1: There is a statistically significant difference in the mean scores of participants' leisure constraints and leisure involvement levels according to gender variable.

H2: The participants' leisure constraints and leisure involvement levels showed a statistically significant difference based on their educational level.

H3: The activity type variable shows a statistically significant difference in the mean scores of participants' leisure constraints and leisure involvement levels.

H4: The variable of having their own materials shows a statistically significant difference in the mean scores of the participants' leisure constraints and leisure involvement levels.

Methods

Ethics committee approval for this study was obtained from Atatürk University Scientific Publishing and Ethics Board. (Date: Fabruary 21 2023 Number: E-70400699-050.02.04-2300255410). Verbal consent was obtained from all the participants.

Participants

In this study, the correlational research method, which is one of the quantitative research types frequently preferred in the field of social sciences, was used. The main purpose of the correlational survey method is to examine and explain the relationship between two or more variables. In this research model, the researcher tries to determine how the variables change together and if there is a change, how (positive, negative) it is (Karasar, 2005). A total of 796 individuals (mean age=25.86± 8.87), including 499 males (mean age=26.99± 9.31) and 297 females (mean age=23.96± 7.72), aged between 18 and 70, who ski/snowboard or do both in 5 ski centers (Erciyes, Kartalkaya, Palandöken, Sarıkamış, Uludağ) and other centers with the highest number of capacity (accommodation, etc.) and runways, participated voluntarily.

Measurements

To gather demographic information on the study group, the researcher used a 'Demographic Information Form' along with the Leisure Involvements and Leisure Constraints Scale (LCS). The characteristics of these tools are presented in detail below.

Leisure Involvement Scale (LIS)

The study group participants' Leisure involvement scale levels were determined using the Leisure Involvement Scale developed by Kyle et al. (2007). The LIS was adapted into Turkish culture by Gürbüz et al. (2018) and consists of 15 items and 5 subscales. Attractiveness (three items), Caring (three items), Social Relationship (three items), Identification (three items), and Self-Expression (three items). The scale comprises five subscales: Participants evaluate the statements using a 5-point Likert scale.

Leisure Constraints Scale (LCS)

The 'Leisure Constraints Scale', developed by Alexandris and Carroll (1997) and validated for Turkish culture by Gürbüz et al. (2020), was used to identify constraints that may prevent or restrict participants from engaging in leisure activities. The

scale comprises 18 items and uses a 4-point Likert scale, with options ranging from 'Absolutely Unimportant' (1) to 'Very Important' (4). The scale's Turkish version comprises six subscales: Individual Psychology, Lack of Information, Facility, Lack of Friends, Lack of Time, and Lack of Interest. However, the scale's items can also be scored in three dimensions: Personal Constraints, Interpersonal Constraints, and Structural Constraints.

Procedure

The social sciences consider different sampling techniques based on probability of selection as the most common ways to meet representativeness requirements, which are sometimes seen as the gold standard of research. However, it is important to note that this method often requires a school or club setting to be preferred. Simple random sampling, a type of random sampling strategy, requires that the names of everyone in the population of interest are available in order to obtain a sample, and that each individual has an equal chance of selection in this process. For this reason, the individuals in the study group were reached through convenience sampling, a type of non-random sampling method (Bishop, 2017). The study participants completed the measurement tools online within 8-10 minutes. Prior to participation, they were informed of the study's purpose and that their data would only be used for scientific research. Volunteers were recruited for the study.

Statistical Analysis

The data collected through the online method was transferred to the SPSS online form. Missing or incorrect data was checked and the study excluded data from a total of 44 participants. To determine the normal distribution status of the data suitable for analysis, we examined the skewness and kurtosis values, as well as the results of the Levene test for equality of variances. Based on these results, we decided to perform either parametric or nonparametric tests. Before beginning hypothesis testing, we also calculated the internal consistency coefficients for the scales. Descriptive statistics, multivariate analysis of variance (MANOVA), one-way analysis of variance (ANOVA,Tukey Test), and simple linear Pearson correlation analyses were used to test the hypotheses formed within the scope of the research. The language used is clear, objective, and value-neutral, and the technical terms are consistent throughout the text. The sentence structure is simple and the logical flow of information is maintained. The text is free from grammatical errors, spelling mistakes, and punctuation errors. No additional content has been added to the text.

Results

Descriptive Statistics

Table 1 presents the descriptive statistics of the scores obtained from the scales used to determine the leisure constraints and leisure involvement levels of the individuals in the study group, as well as the normality distribution scores and internal consistency coefficients of the scales.

Table 1.
Average Scores, Skewness and Kurtosis Values for LCS and LIS

Scale	Subscales	N	Mean	Sd	Skewness	Kurtosis	C. Alfa
LCS	Interpersonal factors	796	2.69	0.68	-0.351	-0.254	0.82
	Intrapersonal factors	796	2.60	0.90	-0.111	-0.898	0.80
	Structural factors	796	2.98	0.68	-0.561	0.003	0.79
LIS	Attraction	796	3.39	1.28	-0.389	-0.958	0.92
	Centrality	796	2.56	1.22	0.457	-0.768	0.88
	Social Bonding	796	3.12	1.14	-0.129	-0.782	0.83
	Identity Affirmation	796	3.06	1.21	-0.081	-0.936	0.86
	Identity Expression	796	2.88	1.22	0.124	-0.941	0.88

Lcs: Leisure Constraints Scale Lıs: Leisure Involvement Scale

The study participants achieved an average score of 2.98 for the 'Structural constraints subscale of the 'Leisure Constraints Scale , and an average score of 3.39 for the 'Attractiveness' subscale of the 'Leisure Involvement Scale '. The study found that the skewness and kurtosis coefficients for the subscales of the LIS and LCS were within the range of +2 and -2 values, meeting the assumption required for parametric analysis (Kline, 2005). Additionally, both scales had subscale Cronbach's Alpha coefficients greater than 0.70.

Table 2.
Comparison of Participants Leisure Constraints Scale and Leisure Involvement Scale Scores According to Gender Variables

Scale	Subscales	Gender	N	Mean	Sd	F	p
LCS	Interpersonal factors	Woman	499	2.79	0.60	9.524	.002*
		Male	297	2.64	0.71		
	IIntrapersonal factors	Woman	499	2.61	0.90	0.079	.779
		Male	297	2.59	0.91		
	Structural factors	Woman	499	3.04	0.64	3.692	.055
		Male	297	2.95	0.71		
LIS	Attraction	Woman	499	3.18	1.31	12.486	.000*
		Male	297	3.51	1.18		
	Centrality	Woman	499	2.31	1.09	21.396	.000*
		Male	297	2.72	1.27		
	Social Bonding	Woman	499	2.95	1.08	10.902	.001*
		Male	297	3.22	1.16		
	Identity Affirmation	Woman	499	2.99	1.19	1.838	.176
		Male	297	3.11	1.22		
	Identity Expression	Woman	499	2.74	1.17	6.964	.008*
		Male	297	2.97	1.23		

*p<.01 (LCS) *Leisure Constraints Scale*
*p<.05 (LIS) *Leisure Involvement Scale*

When comparing IPSAS scores by gender [λ=0.987, F (3, 792) =3.515, p<.05], a significant difference was observed only in the personal constraints subscale of IPSAS [F (1, 794) =9.524, p<.01]. Female participants had higher average scores on the 'personal constraints subscale of 'IPSAS' than male participants.

The MANOVA analysis revealed a significant effect of gender on the subscales of 'CPS' (λ=0.952, F(5, 790)=7.946, p<.05). Specifically, there were significant differences in the scores for 'attractiveness' (F(1, 794)=12.486, p<.01), 'caring' (F(1, 794)=21.396, p<.01), 'social relationship' (F(1, 794)=10.902, p<.01), and 'self-expression' (F(1, 794)=6.964, p<.01) among the participants. In the subscales of 'attractiveness', 'caring', 'social relationship' and 'self-expression', where a significant difference was found, male participants scored higher on average than female participants.

Table 3.
Comparison of Leisure Constraints Scale and Leisure Involvement Scale Scores of Participants According to Education Level Variables

Scale	Subscales	Education level	N	M	Sd	F	p	PostHoc/ Tukey
LCS	Interpersonal factors	High school and less	124	2.66	0.60	2.001	.136	-
		Licence	601	2.72	0.68			
		Master's/PhD	71	2.55	0.77			
	Intrapersonal factors	High school and less	124	2.72	0.83	1.303	.272	-
		Licence	601	2.58	0.89			
		Master's/PhD	71	2.54	1.14			
	Structural factors	High school and less	124	3.06	0.67	1.234	.292	-
		Licence	601	2.96	0.68			
		Master's/PhD	71	3.03	0.76			
LIS	Attraction	High school and less	124	3.57	1.31	8.998	.000*	2-3
		Licence	601	3.29	1.27			
		Master's/PhD	71	3.91	1.09			
	Centrality	High school and less	124	2.93	1.21	11.318	.000*	1-2
		Licence	601	2.45	1.19			2-3
		Master's/PhD	71	2.90	1.34			
	Social Bonding	High school and less	124	3.24	1.28	4.500	.011*	2-3
		Licence	601	3.06	1.12			
		Master's/PhD	71	3.45	1.01			
	Identity Affirmation	High school and less	124	3.22	1.30	9.903	.000*	2-3
		Licence	601	2.97	1.19			
		Master's/PhD	71	3.60	1.09			
	Identity Expression	High school and less	124	3.12	1.27	9.607	.000*	1-2
		Licence	601	2.78	1.18			2-3
		Master's/PhD	71	3.34	1.31			

*p<.05 *((LCS) Leisure Constraints Scale*
*p<.05 *(LIS) Leisure Involvement Scale*

Table 4.
Comparison of Participants Leisure Constraints Scale and Leisure Involvement Scale Scores According to Activity Type Variables

Scale	Subscales	Activity Type	n	Mean	Sd	t	*p*	PostHoc/Tukey
LCS	Interpersonal factors	Ski Only	609	2.72	0.67	6.672	0.000*	1-2 2-4
		Snowboard only	43	2.31	0.70			
		Mostly Skiing	84	2.58	0.64			
		Rarely Snowboarding	60	2.84	0.65			
		Mostly Snowboarding						
		Rarely Ski						
	Intrapersonal factors	Ski Only	609	2.61	0.91	0.254	0.859	-
		Snowboard only	43	2.55	0.97			
		Mostly Skiing	84	2.53	0.87			
		Rarely Snowboarding	60	2.61	0.85			
		Mostly Snowboarding						
		Rarely Ski						
	Structural factors	Ski Only	609	2.99	0.69	0.563	0.640	-
		Snowboard only	43	2.90	0.60			
		Mostly Skiing	84	2.92	0.67			
		Rarely Snowboarding	60	3.03	0.74			
		Mostly Snowboarding						
		Rarely Ski						
LIS	Attraction	Ski Only	609	3.29	1.24	8.573	0.000*	1-2 1-3 2-4
		Snowboard only	43	4.07	1.30			
		Mostly Skiing	84	3.81	1.15			
		Rarely Snowboarding	60	3.29	1.53			
		Mostly Snowboarding						
		Rarely Ski						
	Centrality	Ski Only	609	2.44	1.17	8.419	0.000*	1-3 1-4
		Snowboard only	43	2.89	1.23			
		Mostly Skiing	84	2.99	1.32			
		Rarely Snowboarding	60	2.94	1.34			
		Mostly Snowboarding						
		Rarely Ski						
	Social Bonding	Ski Only	609	3.05	1.13	3.692	0.012*	1-3
		Snowboard only	43	3.50	1.16			
		Mostly Skiing	84	3.36	1.05			
		Rarely Snowboarding	60	3.21	1.26			
		Mostly Snowboarding						
		Rarely Ski						
	Identity Affirmation	Ski Only	609	2.98	1.18	4.512	0.00*	1-2
		Snowboard only	43	3.51	1.23			
		Mostly Skiing	84	3.28	1.21			
		Rarely Snowboarding	60	3.28	1.34			
		Mostly Snowboarding						
		Rarely Ski						
	Identity Expression	Ski Only	609	2.80	1.18	4.337	0.005*	1-4
		Snowboard only	43	3.06	1.32			
		Mostly Skiing	84	3.13	1.23			
		Rarely Snowboarding	60	3.26	1.37			
		Mostly Snowboarding						
		Rarely Ski						

**p<.05 (LCS) Leisure Constraints Scale*
**p<.05 (LIS) Leisure Involvement Scale*

The MANOVA analysis revealed a significant effect of education level on the subscales of LCS [λ=0.977, F (6, 1582) =3.032, *p*<.05]. The ANOVA analysis, however, showed no statistically significant difference (*p*>.05) in the subscale scores of the

participants in 'IPSAS'.

MANOVA analysis was conducted to test the differentiation of the scores of the participants according to their level of education. According to the results of the analysis, it was seen that the education level variable had a statistically significant effect on the subscales of "LIS" [λ=0.952, F (10, 1578) =3.936, *p*<.05]. When the ANOVA test results were evaluated, it was observed that the participants' "attractiveness" [F (2, 793) =8.998, *p*<.01], "caring" [F (2, 793) =11.318, *p*<.05]. 01], "social relationship" [F (2, 793) =4.500, *p*<.05], "identification" [F (2, 793) =9.903, *p*<.01] and "self-expression" [F (2, 793) =9.607, *p*<.01] subscale scores showed a significant difference. Accordingly, the average scores of participants who attended high school or less in the subscales of "caring", "attractiveness", "social relationship", "identification" and "self-expression" were higher than the average scores of the others.

According to the results of the MANOVA analysis, it was seen that the activity type variable had a significant effect on the subscales of "IPSAS" [λ=0.968, F (9, 1922) =2.849, *p*<.01]. When the results of the ANOVA analysis were evaluated, it was found that there was a significant difference in the participants' scores on the "personal constraints" subscale of the "LCS" [F (3, 792) =6.672, *p*<.01]. Accordingly, in the subscale of 'personal constraints where this difference occurred, it was seen that the mean scores of the participants who preferred the activity type 'Mostly snowboarding Rarely skiing' were higher than the others.

It was found that the results of the analysis carried out according to the type of activity frequently preferred by the participants had a significant effect on the subscales of "LIS" [λ=0.930, F (15, 2175) =3.879, *p*<.01]. ANOVA analysis was performed to determine the source of this difference. According to the results of the analysis, the participants' "attractiveness" [F (3, 792) =8.573, *p*<.01], "caring" [F (3, 792) =8.419, *p*<.01], 'social relationship' [F (3, 792) =3.692, *p*<.05], 'identification' [F (3, 792) =4.512, *p*<.01] and 'self-expression' [F (3, 792) =4.337, *p*<.01] in the subdimension scores. Correspondingly, the mean scores of the participants who prefer snowboarding only in the subscales "attraction", "social relationship", "identification", who mostly ski and rarely snowboard in the subscale "giving importance" and who mostly snowboard and rarely ski in the subscale "self-expression" are higher than the others.

Table 5.
Comparison of Leisure Constraints Scale and Leisure Involvement Scale Scores According to Participants' Own Material Ownership Status

Scale	Subscales	Material Ownership Status	N	Mean	Sd	F	*p*
LCS	Interpersonal factors	Yes	181	2.49	0.75	20.475	.000*
		No	615	2.75	0.64		
	Intrapersonal factors	Yes	181	2.39	0.96	11.765	.001*
		No	615	2.66	0.88		
	Structural factors	Yes	181	2.97	0.72	0.041	.840
		No	615	2.98	0.67		
LIS	Attraction	Yes	181	4.28	1.02	131.427	.000*
		No	615	3.13	1.22		
	Centrality	Yes	181	3.38	1.25	119.311	.000*
		No	615	2.32	1.10		
	Social Bonding	Yes	181	3.74	1.01	76.042	.000*
		No	615	2.94	1.11		
	Identity Affirmation	Yes	181	3.76	1.05	84.766	.000*
		No	615	2.86	1.18		
	Identity Expression	Yes	181	3.58	1.23	82.525	.000*
		No	615	2.68	1.14		

**p<.05 (LCS) Leisure Constraints Scale*
*p<.05 (LIS) *Leisure Involvement Scale*

A MANOVA analysis was carried out according to whether the participants had their own equipment to participate in winter sports. The results of the analysis showed that the effect of owning equipment on the subscales of "LCS" [λ=0.951, F (3, 792) =13.563, *p*<.01] was significant. When the results of the ANOVA analysis were examined, it was understood that there was a significant difference in the participants' scores on the "personal constraints" [F (1, 794) =20.475, *p*<.01] and "interpersonal constraints" [F (1, 794) =11.765, *p*<.01] subscales. Accordingly, the mean scores of participants who reported that they did not have their own material were higher than the mean scores of the others in the 'personal constraints and 'interpersonal constraints' subscales.

The results of the MANOVA analysis showed that the variable "own equipment to participate in winter sports" had a significant effect on the subdimensions of "LIS" [λ=0.840, F (5, 790) =30.126, *p*<.01]. When the results of the ANOVA analysis were examined, it was found that the participants' "attractiveness" [F (1, 794) =131.427, *p*<.01], "caring" [F (1, 794) =119.311, *p*<.01], 'social relationship' [F (1, 794) =76.042, *p*<.01], 'identification' [F (1, 794) =84.766, *p*<.01] and 'self-expression' [F (1, 794) =82.525, p<.01] in the subscale scores. Accordingly, the mean scores of the participants who reported having their own material were higher than the mean scores of the others on the subscales of attractiveness, caring, social relationship, identification and self-expression.

Discussion

This study aimed to explore the relationship between adult individuals' leisure involvement s and leisure constraints s. This was examined in relation to the participants' gender, level of education, type of activity and material possession status.

Gender, leisure constraints and leisure involvement *(H1)*

It was concluded that women's mean scores were higher than men's on the 'personal constraints subscale of the participants' IPSAS (table 2). This finding suggests that women face more constraints than men when participating in recreational skiing or snowboarding activities. In their research, Guthold et al. (2008) found that gender is one of the factors thought to influence participation in recreational activities and that there are many gender-based constraints to women's participation. Godbey et al. (2010), in their study of leisure constraints, found gender to be an important constraint.

It was found that the gender variable created a significant difference in the subscales of LIS. According to the results of the analysis, it was found that there was a statistically significant difference in the scores of the 'attractiveness', 'caring', 'social relationship' and 'self-expression' subscales of 'LIS'. This finding is similar to other studies in the literature. For example, Güngörmüş et al. (2019) aimed to determine the leisure involvement and leisure time activity attitude levels of individuals who participate in racquet sports as a physical activity according to various variables and found that the gender variable is an important variable in determining attitudes towards such activities, especially male participants have higher attitude scores than females.

Education status, leisure constraints and leisure involvement *(H2)*

It was found that the variable level of education had a significant effect on the subscales of IPSAS. According to the results of the ANOVA analysis, it was concluded that there was no statistically significant difference in the subscale scores of the participants (table 3). According to Tudor-Locke (2005), education is one of the factors thought to influence regular participation in leisure activities. Alexandris and Carroll (1997) stated that it is important to find more variables such as employment status, financial status and education level among the socio-demographic variables to determine the importance of personal constraints. In the multivariate analysis of our research results, a significant difference on the factor of education is in line with the literature. As educational status is intertwined with many factors (financial status, social environment, etc.), it is related to many issues in our research.

According to the analysis of the research on the level of education, it was found that the variable of the level of education had a significant effect on the subscales of "LIS". According to the ANOVA results, it was understood that there was a significant difference in the participants' scores on the subscales of "attractiveness", "importance", "social relationship", "identification" and "self-expression". This significant difference was found to be higher in the subscale of 'caring' than in the subscales of 'attractiveness', 'social relationship', 'identification' and 'self-expression' of participants with a high school education or less, and in the subscales of 'attractiveness', 'social relationship', 'identification' and 'self-expression', the average scores of M.A./Ph.D. students were higher than the scores of others. Similar to this finding, Park et al. (2019) found in their study that a higher level of education has a positive effect on increasing the cognitive level, that is, the individual's attitude towards participating in the activity, and thus increasing recreational participation.

Activity type, leisure constraints and leisure involvement *(H3)*

According to the results of the ANOVA analysis, it was found that there was a significant difference in the scores of the "personal obstacles" subscale of the participants' "LCS". In this subscale, where a significant difference occurred, it was found that the mean scores of the participants who preferred the activity type "Mostly snowboarding, rarely skiing" were higher than the others (table 4). Several factors may play a role in the fact that individuals who mostly prefer snowboarding and rarely ski perceive fewer personal constraint. For example, it can be assumed that participants who prefer "mostly snowboarding, rarely skiing" perceive the constraints they face as more important due to their involvement and passion for this activity.

When the results of the research were analysed, it was found that there was a significant difference in all the subscales of the "LIS", and that this difference was caused by the high level of involvement of people who "mostly ski, rarely snowboard". It is thought that various factors may be at work in producing this result. For example, the belief that the ability and experience in the skiing activity type is higher will have a positive effect on the involvement level of the individuals who do this branch. In addition, the popularity or social acceptance of a particular activity in the relevant field may also have an effect on the involvement levels of individuals.

Owning one's materials, leisure constraints and leisure involvement *(H4)*

According to the results of the analyses, it was found that the variable of owning equipment had a significant effect on the subscales of "LCS" (table 5). In other words, individuals who do not own equipment for skiing or snowboarding are more affected by personal or interpersonal constraints to participating in these activities. In line with this finding, it was also found that those with their own equipment had a higher level of leisure involvement than the others. One of the most basic prerequisites for skiing or snowboarding is the factor of owning equipment. Therefore, if a person who is interested in participating in one of these activities does not have the appropriate equipment, this may reduce the accessibility or motivation of the individual and thus constitute a constraint. If the opposite is the case, i.e. the individual has their own equipment, the level of involvement in the activity will be high. In addition, individuals who have their own equipment for skiing or snowboarding may have more control or planning over their participation in activities. This may increase their interest in skiing or snowboarding.

Conclusion

This study was conducted to determine the leisure constraints to participation in skiing or snowboarding and the level of involvement in participating in these activities. According to the results obtained, it was found that the most fundamental obstacle or limiting factor for individuals to ski or snowboard as a recreational physical activity is "structural constraints" and the least influential factor is "interpersonal constraints". It can also be said that these constraints are perceived as more important by female participants and those with lower levels of education than by others. These results indicate the importance of reducing structural constraints in order to increase participation in such activities, especially for women. It was also found that the two most important factors for individuals to ski or snowboard were 'attractiveness' and 'social relationships'. In addition, it was concluded that having one's own equipment has a significant effect on individuals' skiing or snowboarding. From this point of view, it is thought that it would be useful to develop different strategies to increase the level of attractiveness and social relationship of the activities.

Limitation and future research directions

In general, this study was carried out with the participation of adults only. Future studies can be conducted with the participation of more specific groups, such as adolescents, who are considered as a high-risk group in the literature, and health professionals, who do not have enough free time and autonomy. Our study was conducted in 5 ski resorts (Erciyes, Kartalkaya, Palandöken, Palandöken, Sarıkamış, Uludağ) which have the highest number of ski slopes (accommodation, etc.). Similar studies can be repeated in other ski resorts in different cities in different periods and comparisons can be made. Our study was conducted only in skiing and snowboarding branches. Future studies can be carried out on people interested in different industries. It is also suggested that modelling studies, longitudinal and empirical studies are needed to better explain leisure behaviour and to investigate the causal relationships between these variables.

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Reasons for Gambling in University Students, Loneliness? A Study on Sports Science Students

Üniversite Öğrencilerinde Kumar Oynama Nedenleri, Yalnızlık mı? Spor Bilimleri Öğrencileri Üzerine Bir Çalışma

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ABSTRACT

This study was conducted to investigate the reasons behind university students' gambling and especially to examine the relationship between loneliness and gambling. The population of the research consists of the students of the Faculty of Sports Sciences in Istanbul. The sample consisted of 1051 volunteer students of the Faculty of Sports Sciences selected randomly. The study data were obtained through Personal Information Form, Reasons for Gambling Scale, and UCLA Loneliness Scale. The sample group of the study consisted of students from 5 private and 2 foundation universities with a Faculty of Sports Sciences who had played at least one of the online games, sports betting, horse racing, lottery, card/table games, and numerical lotto games with money in the last 3 months. The data obtained were analyzed using SPSS 25.0 package programme and the significance level was set as 0.05. According to the findings obtained as a result of the study, it was determined that students studying at private universities need to gamble for the reason of earning money, while students studying at public universities have a high urge to have fun/excitement as a reason for gambling. In addition, it was determined that students who do not work need to gamble for the reason of earning money. As another result, it was determined that students who do not do sports as licensed athlete feel themselves more lonely than licensed athletes. In line with the main purpose of the study, it was concluded that loneliness triggers the urge to gamble.

Keywords: Gambling, betting, loneliness, university, university student

ÖZ

Bu çalışma, üniversite öğrencilerinin kumar oynama nedenlerini araştırmak ve özellikle yalnızlık ile kumar oynama arasındaki ilişkiyi incelemek amacıyla yapılmıştır. Araştırmanın evrenini İstanbul'daki Spor Bilimleri Fakültesi öğrencileri oluşturmaktadır. Örneklem ise rastgele yöntemle seçilen 1051 gönüllü Spor Bilimleri Fakültesi öğrencisinden oluşmaktadır. Araştırmanın verileri Kişisel Bilgi Formu, Kumar Oynama Nedenleri Ölçeği ve UCLA Yalnızlık Ölçeği ile elde edilmiştir. Araştırmanın örneklem grubunu, Spor Bilimleri Fakültesi bulunan 5 özel ve 2 vakıf üniversitesinden son 3 ay içinde paralı online oyunlar, spor bahisleri, at yarışı, piyango, kart/masa oyunları ve sayısal loto oyunlarından en az birini oynamış olan öğrenciler oluşturmuştur. Elde edilen veriler SPSS 25.0 paket programı kullanılarak analiz edilmiş ve anlamlılık düzeyi 0.05 olarak belirlenmiştir. Çalışma sonucunda elde edilen bulgulara göre, özel üniversitelerde okuyan öğrencilerin para kazanma amacıyla kumar oynama ihtiyacı duydukları, devlet üniversitelerinde okuyan öğrencilerin ise kumar oynama nedeni olarak eğlenme/heyecan duyma dürtülerinin yüksek olduğu tespit edilmiştir. Ayrıca, çalışmayan öğrencilerin para kazanmak için kumar oynama ihtiyacı duydukları tespit edilmiştir. Bir diğer sonuç olarak spor yapmayan öğrencilerin lisanslı sporculara göre kendilerini daha yalnız hissettikleri tespit edilmiştir. Araştırmanın temel amacı doğrultusunda yalnızlığın kumar oynama dürtüsünü tetiklediği sonucuna ulaşılmıştır.

Anahtar Kelimeler: Kumar, bahis, yalnızlık, üniversite, üniversite öğrencisi

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Introduction

Gambling has been an endeavor of humanity from the past to the present. By making a financial payment in advance in the hope of winning money or a valuable good, the situation of financial loss or financial gain with the realization of the uncertain outcome due to chance is called gambling (Karaaziz, et al., 2010). In brief, gambling is the activity of taking risks to value (Duman & Tosun, 2017). Online gambling may increase according to the frequency and preference of table gambling due to easy access, attractiveness, interfaces, advertisements, and easy spending-winning (access to money), as well as the opportunities provided by technological developments that are diversifying and multiplying day by day (Gainsbury, 2015).

In 1996, Bruce and Johnson stated that gambling involves activities that require skill and explained with the following example: "A bookmaker's knowledge of the layout of the game may increase the chances of winning in certain card games; his knowledge of horses and jockeys may improve predictions of possible outcomes in a horse race." The use of such skills can reduce losing outcomes, but other factors that cannot be predicted or are not taken into account remain uncertain (Barrett et al., 2003). While most of the games played through various machines in casinos are based on luck, games such as poker and sports betting require both luck and a certain skill (Çakmak & Tamam 2018). Betting, which is the most important gambling game, requires placing financial bets on the results of events, especially sports, horse racing, or other competitions. Betting, unlike gambling, may involve an element of skill or understanding about the event being bet on. Both activities have inherent risks because the outcome is uncertain and because players can win or lose money. Gambling and betting can provide entertainment and relaxation for some people, but for others, they can lead to addiction and financial misery. Governments often regulate and license these activities to ensure fair play, protect consumers, and address societal concerns about excessive gaming or betting. Individuals need to approach these activities with caution and be aware of the possible consequences (Mateo-Flor et al., 2020).

Until 1991, casinos in Turkey were open only to non-Turkish citizens. After 1991, they were also open to the use of Turkish citizens. Casinos were closed in 1996 due to various problems (Bayındır, 2018). In our country, some games of chance and betting are still legalized by the state. The control and operation of betting and games of chance are carried out by the National Lottery Administration. The National Lottery Administration was established in 1939. However, the history of games of chance dates back to the republican period. The first game of chance was played in 1926. Virtual gambling as a result of the determinations of the Anti-Cybercrime Branch Directorate, 2.5 million people aged between 15 and 40 years participated in virtual gambling. The reason why individuals prefer virtual gambling can be shown as easy access and difficulty of control (Babayiğit, 2018). One of the most common misconceptions of individuals is that some games of chance are not categorized as gambling. Regardless of the type, form, or name, it can be said that all of them, including sports betting, are gambling since individuals play them to obtain "financial gain" (Onal, 2023).

Gambling and betting play important roles in many areas of society, including the economic, leisure, and entertainment sectors. From an economic perspective, these activities generate significant amounts of money through taxation, license fees, and the development of employment in areas such as casinos, internet gaming platforms, and betting. Gambling and betting can provide leisure options for those seeking entertainment and excitement. Many people enjoy the ability to take risks and the possibility of financial gain, which is why these activities are considered leisure time. Sporting events can also enhance viewers' viewing experiences by adding layer of excitement and engagement (King et al., 2020).

Gambling, which is seen as a leisure-time activity and a means of entertainment in almost all cultures, can lead to personal and social problems when it reaches pathological levels (George et al., 2016). Studies have shown that there are many factors affecting the desire to gamble. These included hereditary characteristics, smoking status, alcohol and substance use status, marital and income status, and educational status (George & Murali, 2005). Studies have shown that individuals with pathological gambling disorders frequently engage in thrill-seeking behaviors.

Due to the pandemic and the economic crisis after the pandemic, middle-income families became poorer, the use of social media/internet by young people who stayed at home increased, and the air of panic and uncertainty led more people to new excitement. With the anxiety, social media addiction, and economic problems that occurred during the pandemic, people started to turn to virtual betting more than ever before. Gambling has always existed but became widespread during the pandemic (İncekara & Taş, 2022).

The shift from traditional brick-and-mortar casinos to online platforms and the introduction of online gambling platforms have removed geographical restrictions, allowing people to gamble from the comfort of their own homes or while on the road. The availability of a variety of gaming alternatives combined with convenient and fast payment methods has attracted the attention of new and diverse audiences of all age groups. This progress has not only served existing gambling fans but also new demographics, helping to expand the industry overall. Furthermore, the integration of virtual reality (VR) and augmented reality (AR) technology represents a major step forward in improving the user experience. Virtual and augmented reality technologies increase player engagement by creating immersive and engaging gaming experiences. Virtual worlds mimic the atmosphere of real casinos, providing a realistic and exciting experience beyond what regular online platforms can offer (Giroux et al., 2013).

Loneliness is an emotional state that affects people psychologically negatively and causes detachment from society. Loneliness is an undesirable and unpleasant situation accompanied by feelings such as anxiety, anger, sadness, and feeling different from other people, and contrary to what is known, it occurs more often among adolescents and young adults than older people (Baltaci & Bacanli, 2020). People who become lonely may feel restless, and various addictions may occur. People who experience intense feelings of loneliness may also fall into the network of technological addictions to eliminate this feeling for a moment (David & Roberts 2017).

The main aim of this study is to investigate the reasons for gambling among the students of the Faculty of Sport Sciences and especially to examine the relationship between loneliness and gambling. In this context, it is important to determine how important a role loneliness plays for these reasons by analyzing the factors affecting the gambling of university students of the Faculty of Sports Sciences. Our study provides insight into the relationship between loneliness and gambling. This may contribute to the development of more effective strategies for the prevention or reduction of gambling addiction.

Methods

In this section, information about the research model, study group, data collection tools, data analysis and research ethics will be presented. Ethics committee approval for this study was obtained from Istanbul Nisantasi University (Date: May 02, 2024, Decision No: 2024/05, Protocol No: 20240502-1). Written informed consent was obtained from participants who participated in this study.

Research Model

In this research, the relational survey model was used. The relational survey model is used to indicate the occurrence of a situation or event in research and to determine the interaction, effect, and degree of interaction between the variables that cause this situation (Karasar, 2020). This study was conducted with ethical approval and informed consent in accordance with the rules of the Declaration of Helsinki.

Universe and Sample

The purposive sampling method, a nonprobability sampling method, was used in this study. The purposive sampling method is defined as a sampling method in which subjects who are considered suitable for the research and have certain characteristics are included (Gürbüz & Şahin, 2016). In this context, the population of the study consisted of students studying in the faculties of sports sciences in Turkey.

The research group consisted of 1051 volunteer students studying at Marmara University, Health Sciences University, Istanbul Topkapi University, Istanbul Fenerbahce University, Istanbul Gedik University, Istanbul Rumeli University, and Istanbul Aydin University in the 2023-2024 academic year because they have a Faculty of Sports Sciences.

The inclusion criteria for the students in the study were to volunteer to participate in the study, to be a student of the Faculty of Sports Sciences, and to have played at least one of the following online games: sports betting, horse racing, lottery, card/table games and numerical lotto games with money in the last 3 months.

Data collection tools

The sociodemographic information form, Reasons for Gambling Scale (CRS) and UCLA Loneliness Scale III were used as data collection tools in the study.

Sociodemographic Information Form

A total of eight items were included in the personal information form created by the researcher by considering the relevant literature. The variables used were sex, age, university type, employment status, place of residence, smoking status, participation in licensed sports, and type of gambling game.

Reasons for Gambling Scale (CRS)

The Reasons for Gambling Scale (REGS) was developed by Lee et al. (2007) and adapted for Turkey by Arcan and Karancı (2014). This scale is a tool that determines the motivation for gambling behavior. The subdimensions of this four-factor scale developed by Lee et al. (2007) are fun/excitement, avoidance, making money, and socialization. According to the findings obtained from the adaptation study of the scale to Turkish culture, it was determined that this four-factor model was appropriate for the scale. In addition, the gambling factors did not significantly differ for the fun and excitement subdimensions. The highest correlation values were calculated between the excitement and enjoyment factors. Therefore, in line with these findings, a quadratic scale model was proposed for the GAM (Arcan & Karanci, 2014). The items of the scale were scored on a Likert scale as "agree", "partially agree" or "disagree". The total motivation score of the participants for gambling was determined by the score obtained from the whole scale. When the internal consistency coefficients of the subdimensions of the adaptation study of the GAMS were examined, the internal consistency coefficient of socialization was calculated (α=. 83), the internal consistency coefficient of fun/excitement (α= .78), the internal consistency coefficient of avoidance (α= .90), and the internal consistency coefficient of making money (α= .87) were found.

UCLA Loneliness Scale III

The UCLA Loneliness Scale Short Form was used to determine the loneliness levels of the students. The UCLA loneliness scale is a Likert-type self-assessment scale used to determine the general degree of loneliness of an individual. It was developed by Russell in 1978 and renewed in 1980. It was renewed again in 1996 after some deficiencies were observed on the scale. The validity and reliability of the 3rd version of the UCLA Loneliness Scale were assessed by Durak & Durak (2010). The 3rd version of the scale consists of a total of 20 items, 9 of which are positive, i.e., do not contain loneliness in a semantic sense, and the other 11 items are negative, i.e., semantically lonely individuals. In each item of this scale, a situation indicating feelings and thoughts about social relations is presented, and individuals are asked to indicate how often they experience this situation on a four-point Likert-type scale. The items containing positive expressions are never: 4, rarely: 3, sometimes: 2, often: 1; the items containing positive expressions are never: 4, rarely: 3, sometimes: 2, often: 1: 2, sometimes: 2, often: 1; and the items containing statements in the negative direction, on the contrary, never: 1, rarely: 1, sometimes: 2, sometimes: 2: 2, sometimes: 3, sometimes: 3, often: 4: 4. When the individuals' scores from all the items are totaled, a total scale score is obtained for each individual. Theoretically, since the score for each item varies between 1 and 4, the highest possible score is 80, and the lowest possible score is 20. As the score increases, the level of loneliness increases.

Data collection and analysis

The analysis of the research findings was performed with the SPSS (IBM SPSS Corp., Armonk, NY, USA) 25.0 package. Frequency analyses of the demographic characteristics of the students participating in the study were performed. To determine the normality of the distribution of the data, the Kolmogorov–Smirnov and Shapiro–Wilk tests were performed, and the skewness and kurtosis values were between ±2 (George & Mallery., 2010). Parametric tests were applied to the normally distributed data. According to the results obtained, independent groups t tests, one-way analysis of variance (ANOVA) for multiple comparisons between different variables, and Tukey's test were used to determine the source of differences. The ability of the loneliness levels of the students in the study to predict subfactors related to gambling was tested by simple regression analysis.

Results

Table 1.
Frequency and Percentage Distributions Regarding the Demographic Information of the Participants

Variable		Frequency (n)	Percentage (%)
Gender			
	Female	894	85.06
	Male	157	14.94
Age			
	17-20	304	28.92
	21-24	422	40.15
	25 and above	325	30.92
University Type			
	State University	477	45.39
	Private University	574	54.61
Do you work?			
	Working	684	65.08
	Not working	367	34.92
Your living space			
	I live with the family	635	60.42
	I live in a dormitory	289	27.50
	I live in a student house	127	12.08
Do you smoke?			
	Yes	762	72.50
	No	289	27.50
Do you play sports under license?			
	Yes	612	58.23
	No	439	41.77
What games do you play?			
	Online games	121	11.51
	Sports Betting	611	58.14
	Horse Racing	132	12.56
	Lottery	83	7.90
	Paper/Board Games	40	3.81
	Numeric lotto	64	6.09
	Total	**1051**	**%100**

In terms of demographic characteristics, 894 of the students who participated in the study were male, and 157 were female. While 304 of the students were between the ages of 17 and 20, 422 were 21-24 years old, and 325 were 25 years old or older. A total of 477 students study at state universities, while 574 students study at private universities. A total of 635 students lived with their families, 289 students lived in dormitories, and 127 students lived alone or with friends. While 762 of the students who participated in the study were smokers, 289 were nonsmokers. A total of 612 students were active and licensed for sports. While most of the students play sports betting online or in betting offices, 121 students play online table games, 132 students play horse racing, 83 students play lottery games, 40 students play card/table games and 64 students play numerical lottos.

Table 2.
T Test Results of The Students Participating in The Study According to The Variables

		University type	n	$\bar{X}$	Sd	t	*p*
Reasons for Gambling Scale	Enjoyment/Excitement	State University	477	15.03	2.71	2.082	**.036***
		Private University	574	12.04	2.61		
	Avoidance	State University	477	15.28	2.04	1.295	.198
		Private University	574	14.17	2.04		
	Monetization	State University	477	13.88	2.23	2.658	**.010***
		Private University	574	16.32	1.99		
	Socialization	State University	477	14.97	2.67	1.413	.161
		Private University	574	14.13	2.23		
UCLA Loneliness Scale		State University	477	34,80	8,75	1.154	.250
		Private University	574	33,17	10,14		

As shown in Table 2, no statistically significant difference was found between the mean scores on the avoidance and socialization subdimensions of the reasons for gambling scale and the type of university (***p***>.05). There was a statistically significant difference in the subdimensions of having fun/excitement and making money according to the university type variable (***p***<.05). While students who study at private universities by paying an annual fee need to gamble for the reason of earning money, students studying at state universities have the urge to have fun/excitement as the reason for gambling.

Table 3.
T Test Results According to The Type of Study The Students Participated in

		Employment status	n	X̄	Sd	t	*p*
Reasons for Gambling Scale	Enjoyment/Excitement	Working	684	12.24	2.18	-0.769	.444
		Not working	367	13.00	4.56		
	Avoidance	Working	684	10.43	4.01	-1.564	.121
		Not working	367	13.17	6.30		
	Monetization	Working	684	13.16	1.97	2.326	**.036***
		Not working	367	15.70	3.06		
	Socialization	Working	684	10.19	4.12	-1.299	.197
		Not working	367	12.50	5.95		
UCLA Loneliness Scale		Working	684	28.20	10.55	2.33	**.020***
		Not working	367	32.48	11.69		

According to Table 3, no statistically significant difference was found between the mean scores of the participants' reasons for gambling subscale subdimensions of fun/excitement, avoidance and socialization subdimensions and their employment status (*p*>.05). There was a statistically significant difference in the subdimension of earning money according to employment status (*p*<.05). Students who do not work need to gamble for reasons related to earning money.

There was a significant difference in the loneliness levels of the students according to their working status in favor of the nonworking students (*p*<.05). It was determined that nonworking students felt lonelier.

Table 4.
One-Way Analysis of Variance (ANOVA) Test Results According to The Place of Residence of The Students Participating in The Study

		Area of residence	N	X̄	Sd	f	*p*	tukey
Reasons for Gambling Scale	Enjoyment/Excitement	I live with the family[1]	635	15.13	1.55	0.597	.619	
		I live in a dormitory[2]	289	15.24	1.87			
		I live in a student house[3]	127	15.28	2.18			
	Avoidance	I live with the family[1]	635	15.10	1.88	0.441	.645	
		I live in a dormitory[2]	289	15.13	2.22			
		I live in a student house[3]	127	15.60	1.84			
	Monetization	I live with the family[1]	635	14.20	3.76	3.017	**.018***	1>3
		I live in a dormitory[2]	289	13.38	2.58			
		I live in a student house[3]	127	12.61	2.43			
	Socialization	I live with the family[1]	635	14.84	2.97	3.276	**.012***	3>1
		I live in a dormitory[2]	289	15.86	2.47			
		I live in a student house[3]	127	16.40	4.03			
UCLA Loneliness Scale		I live with the family[1]	635	34.76	5.95	9.624	**.000***	2>1
		I live in a dormitory[2]	289	38.66	5.97			
		I live in a student house[3]	127	34.30	6.09			

As shown in Table 4, no statistically significant differences were found between the mean scores on the subdimensions of the reasons for gambling scale, fun/excitement or avoidance subdimensions, or the places where the participants stayed (*p*>.05). There was a statistically significant difference in the subdimensions of earning money and socializing according to the places where they lived (*p*<.05).

In the subdimension of earning money, the mean scores of those living with their families were significantly greater than those of those living in student houses. In the socialization subdimension, the mean scores of those living in student houses were significantly greater than those living with their families.

Table 4 shows that the places where the students lived differed according to their loneliness levels (p<.05). Students living in dormitories felt lonelier than those living with their families.

Table 5.
T Test Results According to The Athlete License Status of The Students Participating in The Study

		Are you a licensed athlete?	n	X̄	Sd	t	p
Reasons for Gambling Scale	Enjoyment/Excitement	Yes	612	10.27	3.84	0.214	0.644
		No.	439	10.50	4.48		
	Avoidance	Yes	612	10.28	4.06		
		No.	439	10.46	4.90	0.026	0.873
	Monetization	Yes	612	10.59	4.16		
		No.	439	11.25	4.86	0.027	0.870
	Socialization	Yes	612	10.71	3.41		
		No.	439	11.17	4.65	0.892	0.347
UCLA Loneliness Scale		Yes	612	33.30	5.94	5.,73	**.000***
		No.	439	37.01	5.81		

As shown in Table 5, there was no statistically significant difference between the reasons for gambling subdimensions among the students and the variable of participating in sports as a licensed (p>.05).

There was a significant difference in the loneliness levels of the students according to their participation in licensed sports in favor of the students who did not perform sports as licensed (***p***<.05). Students who do not perform sports as licensed feel lonelier.

Table 6.
Simple Regression Analysis to Investigate The Effect of Loneliness on Gambling

Dependent Variable	Independent Variable	β	Standard Error	Beta	t	p	F	R2	Durbin Watson
Fixed	Loneliness	2.309	.191	-	12.148	.000	49.861	.312	1.161
Enjoyment/Excitement		.379	.055	.564	7.064	**.000****			
Fixed	Loneliness	2.254	.194	-	12.158	.000	43.452	.283	1.725
Avoidance		.351	.055	.538	6.601	**.000****			
Fixed	Loneliness	2.288	.206	-	11.322	.000	39.863	.265	1.835
Monetization		.349	.055	.521	6.278	**.000****			
Fixed	Loneliness	2.140	.202	-	11.241	.000	47.453	.306	1.763
Socialization		.378	.056	.559	6.873	**.000****			

p<0.01**, p<0.05*

According to the regression analysis results in Table 6, Loneliness has a statistically significant and positive effect on having fun/excitement. A total of 31.2% of the change in gambling was explained (adjusted R2=0.312). One unit of loneliness caused an increase of .389 in having fun/excitement (β=.379).

The regression analysis performed to determine the effect of loneliness on self-protection revealed that loneliness had a statistically significant and positive effect. A 28.3% change in gambling was detected (adjusted R2=0.283). An increase of 1 unit in the loneliness variable causes an increase of .360 in avoidance (β=.351).

According to the regression analysis conducted to determine the effect of loneliness on Money, there was a statistically significant and positive effect. A total of 26.5% of the change in gambling was explained (adjusted R2=0.265). An increase of

1 unit in the loneliness variable causes an increase of .349 in loneliness (β=.349).

The regression analysis conducted to determine the effect of loneliness on socialization revealed that loneliness had a statistically significant and positive effect. A total of 30.6% of the change in gambling was explained (adjusted R2=0.306). An increase of 1 unit in the loneliness variable causes an increase of .393 in socialization (β=.378).

Discussion

This study aimed to investigate the reasons behind university students' gambling according to demographic characteristics and, in particular, to examine the relationship between loneliness and gambling. A high frequency of gambling an early age may increase the risk of developing gambling problems in adulthood (Winters et al., 2002). Therefore, prevention studies should prioritize university students who can be considered at risk in terms of gambling in the transition process from adolescence to adulthood.

There are many studies in the literature on gambling addiction and loneliness. However, few studies have examined the effect of individuals' loneliness on gambling. In this respect, the study is expected to make a significant contribution to the field.

In this section, dependent and independent variables are discussed with similar examples in the literature.

While students who study at private universities by paying a certain annual fee need to gamble to earn money, it was concluded that students studying at state universities have the motive of having fun/excitement as the reason for gambling (Table 2). As a result of the literature review, no study has revealed the effects of university students studying at private or foundation universities on the motivation to gamble. In this respect, this study is expected to contribute to the literature and provide a new approach to the activities of authorities to solve the problem of gambling, which is widespread among university students.

No statistically significant difference was found in the loneliness levels of the students according to the type of university at which they studied. In his study, Mohammed (2022) did not find any significant relationship between loneliness level and university type for students of the Faculty of Sport Sciences. Although there are no other studies directly related to the results of this study in the literature, our study is unique in terms of examining university types in the national and international literature. It is hoped that these findings will serve as a basis and contribute to the studies to be conducted in this field in the literature.

Students who do not work need to gamble to earn money (Table 3). Although this is a predicted result, students' financial difficulties, such as university costs, living expenses, and personal expenses, push them to seek additional income. Gambling becomes attractive in the hope of winning fast and large amounts of money. They also interact with friends who are in a similar situation; gambling is likely normalized and even supported in friend groups, and these students are more likely to be directed toward gambling. Çakici (2012) examined the prevalence of and risk factors for gambling behavior among individuals between the ages of 18 and 65 living in Cyprus and found that the reason for gambling among nonworking individuals was to earn money. Hong (2019) stated that low-income or nonworking individuals gamble more for money-making and avoidance purposes than self-employed individuals. In another study, unemployed people gamble to earn money in a shorter way, and they also see it as a means of socialization. In addition, in the same study, gambling motivation differed more for unemployed people than for unemployed people (Mark van der Maas et al., 2019). According to the results of the study, unemployed people who are not motivated to have fun or excitement while gambling due to avoidance, earning money, or socialization can be handled economically. While not having money can be seen as a problem, avoiding these and similar problems and earning money can be seen as a goal. These results do not overlap with our study in general. There was a significant difference in the loneliness levels of the students according to their working status in favor of the nonworking students. It was determined that nonworking students felt lonelier (Table 3).

In the subdimension of earning money, the mean scores of those living with their families were significantly greater than those of those living in student houses (Table 4). In the socialization subdimension, the mean scores of those living in student houses were significantly greater than those living with their families. In this context, students who live in family houses may

invest money in gambling due to lower expenses such as rent and food. We can say that students living in student houses use their budgets in a correct and less risky way because they have more responsibilities. According to another result, it is thought that the motivation for gambling among students living in a student house is socialization because, compared with students living in a student house, those living with their families interact more with their families in the home environment and do not experience socialization in the crowded family environment. In Çakici's (2012) study, living alone was identified as one of the risk factors for gambling behavior. In a study conducted by Hardoon et al. (2004), perceived family support was shown to be one of the most important psychosocial factors associated with gambling problems in adolescents (Hardoon et al., 2019). It has been determined that as the level of support perceived by parents increases, the frequency of gambling among adolescents decreases, and as supportive family attitudes increase, the frequency of adolescents' gambling habits, alcohol use, and smoking decreases (Wills et al., 2004). Table 4 shows that the places where the students lived differed according to their loneliness levels. Students living in dormitories were found to feel lonelier than were those living with their families.

There was no statistically significant difference between students' reasons for gambling and the variable of participating in sports as a licensed sport (Table 5). Satılmış et al. (2024) conducted a study with university students and found that their tendency toward gambling did not differ significantly according to the variable of actively doing sports. Although there was no significant difference, it was concluded that individuals who do not actively participate in sports have greater gambling cravings (Satılmış et al., 2024). A similar result was obtained in the study conducted by Mateo-Flor et al. (2020). According to the results obtained in this study, participation in sports does not significantly affect participation in sports betting (Mateo-Flor et al., 2020). These findings are similar to our findings. In his study, İlçin (2017) did not find a significant difference between the reasons for gambling among university students who actively engage in sports and students who do not actively engage in sports. This result does not coincide with our study.

Although both groups have interests in different fields, they have commonalities. Both groups were university students and had problems such as exams, school, social life, economic problems, and future anxiety. University students may gamble to cope with these negative problems. Both groups may prefer gambling as a way to reduce the stress they experience. In addition, no difference was detected as a result of our research because both groups gamble to overcome the economic problems they experience and as leisure time activities. There was a significant difference in the loneliness levels of the students in favor of the students who did not perform licensed sports. Students who do not perform sports as license holders feel lonelier.

Students who do not play sports under license are not part of a regular sports team or a sports hall. In this case, the social connections and friendship relationships of students who do not participate in sports may be more limited than those of students who do participate in sports. Sports are thought to strengthen social bonds by facilitating frequent group activities and team spirit. Students who do not perform sports may lack the activity and movement provided by doing sports. Exercising regularly increases endorphin secretion and improves mood in general. Students who do not play sports may feel lonelier or restless in the absence of these activities. In this research, in which we examined the effect of loneliness on gambling, which is the main purpose of our research, this situation can be prevented from becoming a problem with sports activities that will make young people feel that they are not alone.

A study aiming to examine the effect of exercise on the loneliness levels of university students concluded that there was a significant difference between the loneliness levels of students who regularly exercise and those who do not regularly exercise. This result revealed that students who exercise regularly experience less loneliness than do those who do not exercise regularly (Özçelik et al., 2015). In addition, in this study, it was recommended that students be encouraged to participate in sports to reduce feelings of loneliness.

According to a study conducted by Gencel (2019) on sports department students, there was no significant difference in the loneliness levels of students who were active in sports and students who were not active in sports. This result does not coincide with our research. Since there were only recreation department students in this study and the number of subjects was limited, it is thought that there was no difference in the loneliness levels of the students. In line with the main purpose of the study, loneliness had a statistically significant and positive effect on the reasons for gambling (Table 6). In this regard, loneliness experienced by university students significantly and positively predicted gambling (Table 7).

Gambling is also used to alleviate negative emotional states such as loneliness. In the social dimensions of gambling, for example, playing in casinos or participating in online gambling communities, and participating in games in coffeehouses can provide opportunities for social interaction and a sense of belonging. Participation in gambling activities is also under the control of negative reinforcers in this context due to the ability of these individuals to establish social bonds and reduce feelings of loneliness (Thomas & Moore, 2003). Similarly, in this study, students who exhibited gambling behavior to socialize with the aim of earning fast and easy money are consistent with the literature. This is because playing poker with others or participating in online gambling communities contributes to the social aspects of gambling to function as positive reinforcement (Hing et al., 2014). Gill and McQuade (2012) examined the role of loneliness and self-control in predicting problematic gambling behavior and reported a positive relationship between loneliness and gambling (Gill, & McQuade, 2012). The finding that loneliness triggers gambling behavior supports our study. Similarly, Clarke et al. (2006) concluded that loneliness was a risk factor for starting gambling for many participants who participated in their research from ethnic minority groups in New Zealand.

Karaıbrahimoglu et al. (2023) examined the relationship between loneliness and online gambling addiction in young adults and found that loneliness is a predictor of online gambling addiction. The high scores for gambling to make money observed for all participants can be interpreted as gambling in the hope of making quick and easy money or gambling to solve financial difficulties, as university students face financial difficulties.

The fact that gambling habits, which are considered leisure-time activities, become problematic when individuals are experiencing loneliness creates addiction, and increases the tendency toward other negative behaviors points to an important issue that needs to be examined in terms of leisure time. For some students, gambling may be seen as a fun social activity. In this case, gambling may be perceived as a way to spend time with friends or to relieve stress. Additionally, young people are in a period of risk taking and seeking new experiences. Some students seek excitement through gambling, and gambling is considered to be a popular activity among young people.

Recommendations

Although gambling is prohibited for individuals under the age of 18 in many countries, online gambling is a major problem for young people due to factors such as easy access and the ability to access these platforms in private in their own rooms. Although the prevalence rate of online betting or gambling in Turkey is not known, reports indicate that this rate may be higher than estimated. It is often difficult to collect data on gambling addiction among children and adolescents. This is because these age groups are hesitant to admit to such behavior. Nevertheless, research shows that there has been an increase in online gambling among young people in recent years.

The first priority in treating addictions is to take preventive measures before the addiction occurs.

Before the gambling habits of university youth become pathological, measures can be taken by raising the awareness of families during childhood. In addition, family communication should be strengthened, parents should be able to set appropriate limits on the use of technology starting at an early age, children should be informed about possible risks, and children's use of technology should be under the supervision of their parents. Having good social support for the child, spending their free time with alternative entertainment and social activities such as sports and courses that will positively affect their mental development reduce their tendency toward such addictions.

As a result of our research, to address students' motivation for gambling, first, university administrations should provide students with basic needs such as nutrition, accommodations, books and transport free of charge. It is thought that students who are provided with these expenses will avoid habits such as gambling.

Our research revealed that students gamble because they feel lonely and loneliness triggers gambling. To solve this problem, it is necessary to provide environments and activities where students will not feel lonely and where they can socialize.

University campuses are areas where students can spend their extracurricular time in a useful way, and these areas should be made available to students free of charge.

University clubs should be active and financially supported by the university.

It is thought that sports clubs providing discounts on match tickets to sports science students and attracting students to halls and stadiums will keep students away from harmful habits. In addition, it is thought that sports clubs providing job opportunities for sports science students will support the budget of the students and eliminate the motivation to earn money as a reason for gambling for students who do not work, which is the result of our research.

Universities can offer counseling services to provide psychological support to students. These services can help them cope with emotional difficulties such as feelings of loneliness.

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