JOURNAL OF EDUCATION AND RECREATION PATTERNS

2757-9344

2024

VOLUME 5
NUMBER 2

2757-9344
Journal of Education and Recreation Patterns
Volume 5 Number 2
December 2024
JERP
jerpatterns.com

Journal of Education and Recreation Patterns [JERP]
ISSN: 2757-9344

December, 2024
Volume 5, No 2
http://www.jerpatterns.com

The JERP is a refereed journal and has a double-blind review. Any manuscript submitted for consideration in publication in the JERP is reviewed by at least two international reviewers with expertise in the relevant subject area.

The JERP is published twice a year in the June and December months.

Publisher and Editor:
Dr. Yalçın TÜKEL
Necmettin Erbakan University
Konya, Türkiye
ytukel@erbakan.edu.tr

Journal of Education and Recreation Patterns [JERP] is indexed in ***SPORTDiscus with Full Text Database Coverage List, Education Full Text (H. W. Wilson) Database Coverage List, Google Scholar, İdealonline, Crossref, Road, Türk Eğitim İndeks, Proquest Exlibris, EBSCO, ASOS indeks, CAB Abstracts and Global Health Database***

Journal of Education and Recreation Patterns [JERP]
ISSN: 2757-9344

December, 2024
Volume 5, No 2
http://www.jerpatterns.com

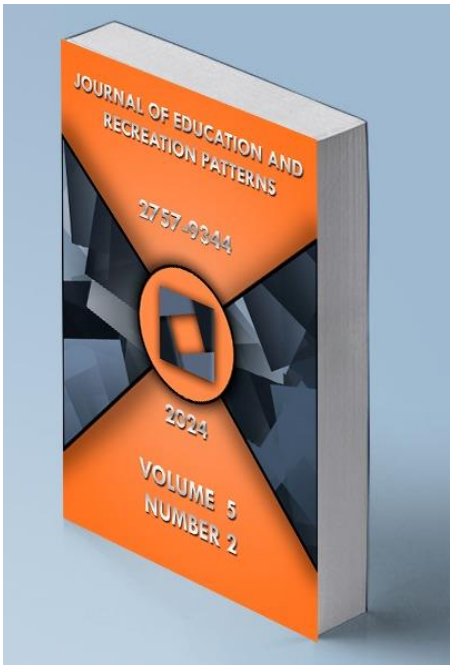
The JERP is a refereed journal and has a double-blind review. Any manuscript submitted for consideration in publication in the JERP is reviewed by at least two international reviewers with expertise in the relevant subject area.

The JERP is published twice a year in the June and December months.

Publisher and Editor:
Dr. Yalçın TÜKEL
Necmettin Erbakan University
Konya, Türkiye
ytukel@erbakan.edu.tr

Journal of Education and Recreation Patterns [JERP] is indexed in ***SPORTDiscus with Full Text Database Coverage List, Education Full Text (H. W. Wilson) Database Coverage List, Google Scholar, İdealonline, Crossref, Road, Türk Eğitim İndeks, Proquest Exlibris, EBSCO, ASOS indeks,, CAB Abstracts and Global Health Database***

Journal of Education and Recreation Patterns
Volume 5 Number 2
2757-9344
JERP
jerpatterns.com



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

The Effects of Short-Term Electromyostimulation Exercises and Different Diet Types on Body Composition in Obese Women

Muhammet Enes YASUL[1], Taner AKBULUT[2], Yavuz YASUL[3], Vedat ÇINAR[4]

To cite this article:

Yasul, M.E., Akbulut T., Yasul Y. & Çınar, V. (2024). The effects of short-term electromyostimulation exercises and different diet types on body composition in obese women. *Journal of Education and Recreation Patterns (JERP), 5* (2), 130-142. DOI: https://doi.org/10.53016/jerp.v5i2.230

[1]Başakşehir Çam ve Sakura City Hospital, Nutrition and Diet Unit, Istanbul/Türkiye, muhammetenesyasul@gmail.com, https://orcid.org/0000-0002-1423-9579

[2] Fırat University, Faculty of Sport Sciences, Elazığ/Türkiye takbulut@firat.edu.tr, https://orcid.org/0000-0003-2500-1117

[3] Ondokuz Mayıs University, Bafra Vocational School, Samsun/Türkiye, yavuz.yasul@omu.edu.tr https://orcid.org/0000-0002-9458-1664

[4] Fırat University, Faculty of Sport Sciences, Elazığ/Türkiye, vcinar@firat.edu.tr, https://orcid.org/0000-0003-4883-3995

Journal of Education and Recreation Patterns (JERP)
Volume 5, Issue 2, Year 2024 ISSN: 2757-9344

The Effects of Short-Term Electromyostimulation Exercises and Different Diet Types on Body Composition in Obese Women

Muhammet Enes Yasul[1], Taner Akbulut[2], Yavuz Yasul[3], Vedat Çınar[4]

ARTICLE INFORMATION
Original Research Paper

Received 15.04. 2024
Accepted 07.08. 2024

https://jerpatterns.com

December, 2024

Volume: 5, No: 2

Pages: 130-142

ABSTRACT

Obesity is one of the world's most risky health problems with increasing prevalence. This study aimed to investigate the effect of calorie-restricted diet and intermittent fasting diet on body composition with electromyostimulation (EMS) applications in obese females. The study was conducted with 90 obese females. Participants were randomly divided into 5 groups, EMS, EMS+intermittent fasting (EMS+IF), EMS+calorie restricted (EMS+CR), intermittent fasting (IF), and calorie restricted (CR) diet groups. EMS groups received 27min/2g/week EMS exercise protocol for 4 weeks. Furthermore, dietary interventions were conducted with all groups (except EMS). Body composition measurements of the participants were obtained with a bioelectrical impedance device. Two-way repeated measures ANOVA was used to analyze the obtained data. BMI, body mass, and body fat weight decreased significantly in the EMS+IF, and EMS+CR groups compared to the EMS group while skeletal muscle weight decreased dramatically in all four groups compared to the EMS group. In body analysis regional (right-left arm, right-left leg, and trunk) parameters, fat weight decreased significantly in EMS+IF, and EMS+CR groups compared to the other groups. Moreover, muscle mass decreased more in the EMS+CR and EMS+IF groups compared to the other groups. Dietary interventions in the form of CR or IF with EMS significantly affected body composition measurements in obese participants. EMS and IF dietary interventions may be therapeutic tools to combat obesity.

Keywords: Calorie-Restricted Diet, Electromyostimulation, Exercise, Intermittent Fasting, Obesity

INTRODUCTION

Obesity is a metabolic disease that occurs when dietary energy intake is higher than energy expenditure and is characterized by a higher-than-normal amount of fat mass in the body mass index (Kurt, 2019). Obesity is an important risk factor for metabolic syndrome, type 2 diabetes, cardiovascular diseases, and especially for females in terms of preventing healthy pregnancy process, increasing infertility rate, negatively affecting contraception methods, and delaying milk production during lactation (Zehra et al., 2018). Overall, the World Health Organization (WHO) estimates that approximately 13% of the world's adult population (11% of males and 15% of females) was obese in 2016 and that obesity has almost tripled since 1975 (WHO, 2024). There is a consensus that obesity is one of the most important public health problems of this century due to its increasing prevalence and significant impact on health and medical costs.

Obesity is mainly caused by an imbalance between reduced exercise, excessive intake of high-calorie foods, lifestyle changes, and diet composition (Marinelli et al., 2022). The management of overweight and obesity includes exercise, dietary advice, psychological interventions, pharmacotherapy when needed, and bariatric surgery in people with severe obesity (Oppert et al., 2021). The key rule in the treatment of obesity with diet is to mathematically ensure that the energy expended by the person is more than the energy intake (Baysal et al., 2002). Diet is a modifiable factor in weight gain leading to obesity and weight loss to return to (or maintain) a healthy weight. The same diets consumed by different individuals can lead to different metabolic and health effects (Elagizi et al., 2020). Exercise and low-calorie diets, together with the use of specific medications, constitute the clinical treatment of obesity by promoting a reduction in body fat, an increase in lean mass, and a reduction in comorbidities caused by excess fat (Fonseca-Junior et al., 2013).

Exercise is an integral part of obesity management and health promotion. Physical activity is widely recommended as a strategy for weight control, and exercise interventions improve body composition in both males and females (Donelly et al., 2009). In addition to potential effects on body weight through increased energy expenditure, habitual physical activity and exercise improve markers of appetite control, such as increased satiety response to food and gastric emptying (Beaulieu et al., 2016; Horner et al., 2015). One of the current approaches in the treatment of obesity with exercise is electromyostimulation (EMS) exercises (12). EMS is a technological exercise model that stimulates motor neurons and intramuscular axonal branches with electrical impulses using pads placed on the skin surface (Gobbo et al., 2014). It was reported that periodic stimulation of several muscle groups with EMS increases weight loss, improves exercise capacity, increases peripheral muscle strength, positively accelerates insulin effect, and increases glucose metabolism (André et al., 2005; Kendall et al.,2005). Kemler et al. (2021) reported in a systematic review and meta-analysis of 16 studies including 19 separate whole-body EMS exercise groups representing 897 participants that whole-body EMS exercises had a significant positive effect on muscle mass and strength parameters but had no effect on total body fat mass in non-athletic adults. Bellia et al. (2020) reported that whole-body electromyostimulation with calorie restriction in middle-aged sedentary individuals with metabolic syndrome may improve insulin resistance and lipid profile compared with diet alone. Reljic et al. (2020) reported that whole-body EMS exercise can be considered a feasible and time-efficient exercise option to improve body composition, muscle strength, and cardiometabolic health in obese females with metabolic syndrome. Willert et al. (2019) reported that the combination of whole-body EMS exercise and higher protein intake is an effective tool to positively influence body composition in overweight premenopausal females following a moderate energy deficit. However, it is not clear what the additional contributions of different diets combined with EMS exercises may be to regulate body composition in obese females. For these reasons, it is thought that intermittent fasting diet and calorie restricted diet complexes to

be applied together with EMS exercise, which will be preferred as an exercise type, may be an effective method in the treatment of obesity. The study was prepared on this hypothesis.

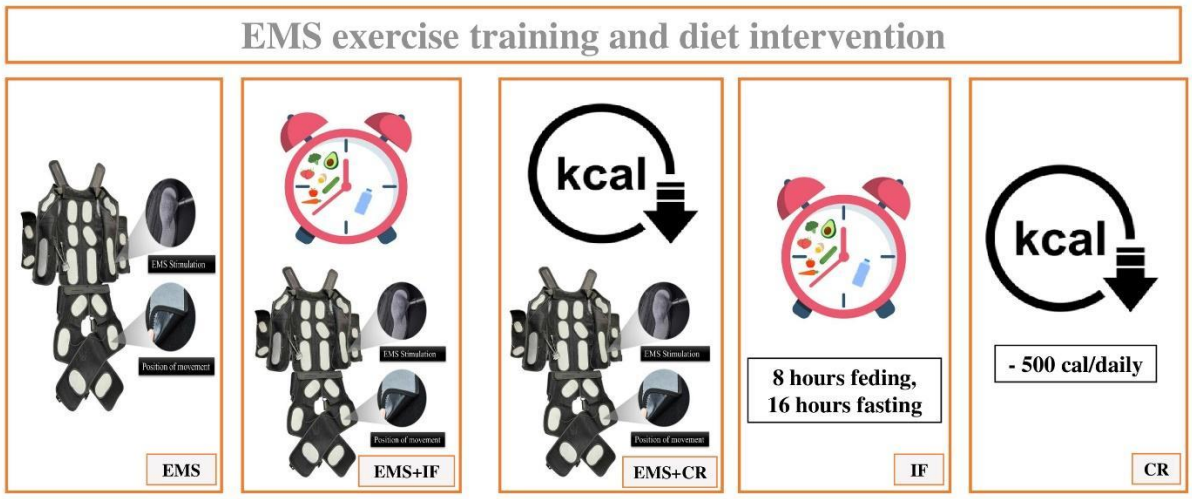
METHOD

Study Design

The ethical declaration of the study was obtained from the Fırat University Non-Interventional Research Ethics Committee with the approval of the ethics committee dated 29.12.2022, session number 2022/16-07. The study was designed voluntarily and a written consent form was obtained from all participants. Moreover, the study was conducted with an experimental research design, one of the quantitative research types, with a pretest-posttest control group design. It was determined that the minimum sample size required to find a significant difference using this test should be 14 for each group when the sample size was type I error (alpha) 0.05, the power of the test (1-beta) 0.8, the effect size 0.82 and the alternative hypothesis (H1) was two-way. However, to obtain stronger results, 20 participants were assigned to each group. Sedentary and obese females between the ages of 30-45, without any disability or disease, who did not follow any diet and exercise program, were included in the study. Participants who did not comply with the diet and exercise protocol and did not continue were excluded. For this reason, although 100 obese female participants were initially determined, 10 participants who did not meet the stated criteria were excluded from the study. The participants in the study were divided into 5 different groups control group (EMS), EMS+intermittent fasting diet group (EMS+IF), EMS+calorie restricted diet group (EMS+CR), intermittent fasting diet group (IF), calorie-restricted diet group (CR). Participants in the EMS exercise group underwent the EMS exercise protocol for 27 minutes a day, 2 days a week for 4 weeks (Figure 1). Descriptive information of the participants is shown in Table 1.

Figure 1

EMS exercise training and diet intervention demonstration



EMS Protocol: First 25 minutes stimulation frequency 65 Hz, width 360 us (4 seconds current pulse 4 seconds relaxation), last 2 minutes stimulation frequency 100 Hz, width 160 us.

EMS Exercise Training: 25 min (treadmill), 2 min (jumping rope-stretching), 1 min (double crunch, jumping jack, squat, dumbell lunch, bench step ups, dumbell curl, hammer curl, sit-ups, knees bent cruch, cross sit-ups, leg raises, plank.

Diet Protocols

Medical nutrition histories of the participants were obtained and daily energy needs were calculated for all participants using the Mifflin St-Jeor equation ((10 x Body Weight (kg) + 6.25 x Height (cm) - 4.92 x Age - 161). Intermittent fasting and calorie-restricted diet protocols were then determined (Agostoni et al., 2013).

Intermittent Fasting Diet

The time-restricted diet module of the intermittent fasting diet system was applied in the study. Participants were fasted for 16 hours of the day and fed for the remaining 8 hours (Köktürk et al., 2021). Participants consumed only calorie-free foods during the fasting hours. Feeding hours were adjusted and applied according to the life routines of the participants. As a standard, the first meal was planned to end at 12:00 noon, the snack at 4:00 pm, and the evening meal at 8:00 pm.

Calorie restricted diet

The diet program was adjusted by restricting 500 kcal from the daily energy requirement of the person calculated using the Mifflin St-Jeor equation. The diet program consisted of 45-60% carbohydrate, 25-35% fat, and 12-15% protein (Baysal et al., 2002) (Figure 1).

Table 1

Descriptive information about the participants

Group	Age (Year) Mean ± SD	Height Length (cm) Mean ± SD	Body Weight (kg) Mean ± SD
EMS	37.89±6.26	162.83±5.26	94.41±9.85
EMS+IF	35.72±6.42	164.11±7.45	89.5±12.12
EMS+CR	39.06±4.83	164.66±9.06	91.55±12.96
IF	37.39±5.89	163.66±6.69	97.05±16.09
CR	37.22±5.73	167.05±6.97	97.68±13.01

EMS; Electromyostimulation group, EMS+IF; Intermittent fasting diet group with EMS exercise, EMS+CR; Group on calorie-restricted diet combined with EMS exercise, IF; intermittent fasting diet group, CR; calorie-restricted diet group.

In Table 1, the mean ages for the research groups are as follows: the EMS group has an average age of 37.89±6.26, the EMS+IF group is 35.72±6.42, the EMS+CR group is 39.06±4.83, the IF group is 37.39±5.89, and CR group is 37.22±5.73. The mean heights (cm) for the groups are reported as follows: EMS group with a height of 162.83±5.26, EMS+IF group at 164.11±7.45, EMS+CR group at 164.66±9.06, IF group at 163.66±6.69, and CR group at 167.05±6.97. Additionally, the mean body weights (kg) are documented for each group: EMS group at 94.41±9.85, EMS+IF group at 89.5±12.12, EMS+CR group at 91.55±12.96, IF group at 97.05±16.09, and CR group at 97.68±13.01.

Body Composition Analysis

Body composition was assessed with an Inbody 120 bioelectrical impedance device using a standardized protocol. The participants were measured under controlled conditions, being barefoot and without any metal objects (watches, rings, necklaces, phones, keychains, etc.), and wearing light clothing. Measurements were taken in the morning (09:00-11:00) following a 12-hour overnight fast after participants had visited the restroom. Height was measured with a stadiometer while the subjects were standing in an upright position. Body mass index (BMI), body weight, body fat weight, skeletal muscle weight, right arm muscle weight, right arm fat weight, left arm muscle weight, left arm fat weight, right leg muscle weight, right leg fat weight, left leg muscle weight, left leg fat weight, trunk muscle weight, and trunk fat weight were obtained (Yasul et al., 2023).

Statistical analysis

IBM SPSS 22.0 package program was used to analyze the data obtained in the study. Arithmetic mean and standard deviation techniques were used as descriptive statistics. Shapiro-Wilk test, histogram, kurtosis, and skewness values were analyzed to test the normality of the distribution and it was determined that the distribution was normal. Two-way repeated measures ANOVA [5 groups (EMS, EMS+IF, EMS+CR, IF, CR) x 2 times (pretest-posttest)] was used to test the change between groups and measurements. Again, Partial eta squared values were calculated to assess effect sizes. Finally, the effect size obtained was categorized as <0.2 insignificant, 0.2-0.49 small, 0.5-0.79 medium, and >0.8 large effect (Cohen, 1988). Statistical significance was accepted as $p<0.05$.

FINDINGS

In the study, statistical analysis findings related to body composition were shown in tables.

Table 2

Body analysis parameters and ratios

Parameters	Groups	Pre-Test Mean±SD	Post-Test Mean±SD	Change (%)	Time	Time x Group	Group
Body weight (kg)	EMS	94.4±9.85	92.78±10.51	1.72	F=150.09 p=0.000* $\eta p2$=0.638	F=3.606 p=0.009* $\eta p2$=0.145	F=1.405 p=0.239 $\eta p2$=0.062
	EMS+IF	89.50±12.12	85.27±11.52	4.72			
	EMS+CR	91.55±12.96	86.76±13.02	5.23			
	IF	97.05±16.09	91.87±15.33	5.31			
	CR	97.68±13.01	93.49±12.73	4.28			
Body fat weight (kg)	EMS	42.50±8.33	41.12±8.36	3.24	F=108.615 p=0.000* $\eta p2$=0.561	F=1.900 p=0.118 $\eta p2$=0.082	F=2.029 p=0.098 $\eta p2$=0.087
	EMS+IF	38.64±8.43	35.45±7.84	8.25			
	EMS+CR	38.06±7.06	34.73±7.17	8.74			
	IF	43.97±12.11	40.61±11.33	7.64			
	CR	43.42±8.10	40.57±7.80	6.56			
Body skeletal muscle weight (kg)	EMS	28.86±2.87	28.67±2.99	0.65	F=59.235 p=0.000* $\eta p2$=0.411	F=2.331 p=0.062 $\eta p2$=0.099	F=0.383 p=0.820 $\eta p2$=0.018
	EMS+IF	28.48±4.55	27.73±4.66	2.63			
	EMS+CR	29.78±5.66	28.92±5.53	2.88			
	IF	29.48±3.73	28.43±3.62	3.56			
	CR	30.20±4.62	29.41±4.73	2.61			
BMI $(kg/m)^2$	EMS	35.70±4.40	35.06±4.47	1.79	F=186.503 p=0.000* $\eta p2$=0.687	F=4.223 p=0.004* $\eta p2$=0.166	F=1.733 p=0.150 $\eta p2$=0.075
	EMS+IF	33.37±3.81	31.72±3.45	4.94			
	EMS+CR	33.77±4.13	32.10±4.22	4.94			
	IF	36.19±5.14	34.23±4.69	5.41			
	CR	34.96±3.69	33.44±3.53	4.34			

*; p<0.01, EMS; Electromyostimulation group, EMS+IF; Intermittent fasting diet group with EMS exercise, EMS+CR; Group on calorie-restricted diet combined with EMS exercise, IF; intermittent fasting diet group, CR; calorie restricted diet group, η_p^2; Partial Eta Squared.

According to Table 2, the body weight variable was statistically significantly different in terms of pre-post test (p<0.01). There was no statistically significant difference between the groups in body weight (p>0.05). The pre-post test results of body fat weight were statistically significantly different (p<0.01). When statistical analysis was analyzed according to the groups, no significant difference was detected (p>0.05). A significant difference was found between the pre-post test averages of body skeletal muscle weight when statistical analysis was analyzed according to time (p<0.01). There was no significant difference in the statistical analysis according to the groups of this variable (p>0.05). There was a statistically significant difference between the pre-post test averages of the BMI variable (p<0.01). The BMI variable did not show a significant difference according to the groups (p>0.05).

Table 3

Fat and muscle ratios of the upper extremity

Parameters	Groups	Pre-Test Mean±SD	Post-Test Mean±SD	Change (%)	Time	Time x Group	Group
Right Arm Muscle (kg)	EMS	2.88±0.32	2.86±0.41	0.69	F=0.325 p=0.570 $\eta p2$=0.004	F=4.545 p=0.002** $\eta p2$=0.176	F=0.560 p=0.692 $\eta p2$=0.026
	EMS+IF	2.94±0.58	3.23±0.66	9.86			
	EMS+CR	3.00±0.55	2.85±0.71	5			
	IF	2.97±0.38	2.86±0.40	3.7			
	CR	3.09±0.54	2.97±0.55	3.88			
Right Arm Fat (kg)	EMS	4.04±1.41	3.85±1.32	4.7	F=33.270 p=0.000** $\eta p2$=0.281	F=1.624 p=0.176 $\eta p2$=0.071	F=2.183 p=0.078 $\eta p2$=0.093
	EMS+IF	3.14±1.32	3.02±1.11	3.82			
	EMS+CR	3.34±1.05	2.90±0.97	13.1			
	IF	4.33±2.18	3.82±1.92	11.7			
	CR	3.80±1.55	3.73±1.18	1.84			
Left Arm Muscle (kg)	EMS	2.84±0.36	2.84±0.41	0	F=0.113 p=0.738 $\eta p2$=0.001	F=3.362 p=0.013 $\eta p2$=0.137	F=0.469 p=0.759 $\eta p2$=0.022
	EMS+IF	2.90±0.57	3.17±0.74	9.3			
	EMS+CR	2.98±0.57	2.88±0.69	3.35			
	IF	2.94±0.36	2.83±0.39	3.74			
	CR	3.07±0.54	2.93±0.58	4.56			
Left arm Fat (kg)	EMS	4.07±1.40	3.90±1.34	4.17	F=28.221 p=0.000** $\eta p2$=0.249	F=1.918 p=0.115 $\eta p2$=0.083	F=2.327 p=0.063 $\eta p2$=0.099
	EMS+IF	3.12±1.31	3.05±1.08	2.24			
	EMS+CR	3.32±1.06	2.93±0.99	11.7			
	IF	4.37±2.20	3.86±1.93	11.6			
	CR	4.18±1.32	3.74±1.15	10.52			

*; p<0.01, EMS; Electromyostimulation group, EMS+IF; Intermittent fasting diet group with EMS exercise, EMS+CR; Group on calorie-restricted diet combined with EMS exercise, IF; intermittent fasting diet group, CR; calorie restricted diet group, η_p^2; Partial Eta Squared.

According to Table 3, there was no statistically significant difference between the pre-posttest means of right arm muscle analysis (p>0.05). The pre-posttest means of right arm fat analysis of body composition were statistically significantly different (p<0.01). When the left arm muscle section was analyzed, it was observed that the pre-test and post-test averages did not differ significantly (p>0.05). There was a statistically significant difference between the pre-posttest averages of the left arm fat variable according to time (p<0.01). No significant difference was found in the analysis of the same variable according to groups (p>0.05).

Table 4

Fat and muscle ratios of the lower extremity

Parameters	Groups	Pre-Test Mean±SD	Post-Test Mean±SD	Change (%)	Time	Time x Group	Group
Right Leg Muscle (kg)	EMS	7.55±1.23	7.62±0.92	0.92	F=34.910 p=0.000** $\eta p2$=0.291	F=12.050 p=0.000** $\eta p2$=0.362	F=1.834 p=0.130 $\eta p2$=0.079
	EMS+IF	7.72±1.15	7.13±1.63	7.64			
	EMS+CR	8.03±1.67	6.24±2.43	22.29			
	IF	8.22±1.49	7.89±1.21	4.01			
	CR	8.29±1.19	8.15±1.20	1.68			
Right Leg Fat (kg)	EMS	6.17±1.09	5.92±1.21	4.05	F=93.105 p=0.000** $\eta p2$=0.523	F=13.881 p=0.000** $\eta p2$=0.395	F=0.909 p=0.462 $\eta p2$=0.041
	EMS+IF	5.85±1.40	5.03±1.11	14.01			
	EMS+CR	6.81±1.13	4.95±1.04	27.31			
	IF	6.59±2.39	5.98±1.99	9.25			
	CR	5.73±0.99	5.73±0.99	0			
Left Leg Muscle (kg)	EMS	7.77±0.92	7.64±0.91	1.67	F=51.201 p=0.000** $\eta p2$=0,376	F=14.688 p=0.000** $\eta p2$=0.409	F=1.672 p=0.164 $\eta p2$=0.073
	EMS+IF	7.71±1.14	7.14±1.59	7.39			
	EMS+CR	8.05±1.62	6.23±2.44	22.6			
	IF	8.10±1.36	7.80±1.17	3.7			
	CR	8.26±1.16	8.12±1.17	1.69			

Left Leg Fat (kg)	EMS	6.10±1.06	5.87±1.20	3.77			
	EMS+IF	5.86±1.42	4.97±1.07	15.18	F=104.923	F=14.423	F=0.848
	EMS+CR	6.77±1.14	4.88±1.02	27.9	p=0.000**	p=0.000**	p=0.499
	IF	6.52±2.33	5.91±1.95	9.35	$\eta p2$=0.552	$\eta p2$=0.404	$\eta p2$=0.038
	CR	6.06±0.99	5.70±0.98	5.94			

*; p<0.01, EMS; Electromyostimulation group, EMS+IF; Intermittent fasting diet group with EMS exercise, EMS+CR; Group on calorie-restricted diet combined with EMS exercise, IF; intermittent fasting diet group, CR; calorie restricted diet group, η_p^2; Partial Eta Squared.

According to Table 4, it was determined that there was a statistical difference between the pre-posttest averages of the right leg muscle variable (p<0.01). There was no significant difference according to the groups (p>0.05). The pre-posttest means of the right leg fat variable were statistically different according to time (p<0.01). The pre-posttest means of the left leg muscle variable were statistically significantly different according to time (p<0.01). There was no significant difference according to the groups (p>0.05). When the left leg fat variable was examined, it was determined that the pre-test and post-test results showed a statistically significant difference in terms of time (p<0.01). The left leg fat variable did not show a significant difference according to the groups (p>0.05).

Table 5

Body fat and muscle ratios

Parameters	Groups	Pre-Test Mean±SD	Post-Test Mean±SD	Change (%)	Time	Time x Group	Group
Trunk Muscle (kg)	EMS	22.42±5.40	23.49±2.41	4.77			
	EMS+IF	23.95±3.44	22.60±4.02	5.63	F=11.439	F=6.137	F=1.196
	EMS+CR	24.27±3.49	20.53±5.54	15.4	p=0.001**	p=0.000**	p=0.318
	IF	24.15±2.38	23.54±2.63	2.52	$\eta p2$=0.119	$\eta p2$=0.224	$\eta p2$=0.053
	CR	25.07±3.32	24.38±3.37	2.75			
Trunk Fat (kg)	EMS	20.60±3.64	20.09±3.55	2.47			
	EMS+IF	20.51±3.49	17.97±3.65	12.38	F=92.339	F=10.745	F=0.561
	EMS+CR	21.73±2.57	17.67±3.26	18.68	P=0.000**	p=0.000**	p=0.692
	IF	20.62±3.52	19.53±3.74	5.28	$\eta p2$=0.521	$\eta p2$=0.336	$\eta p2$=0.026
	CR	21.38±3.62	20.20±3.64	5.51			

*; p<0.01, EMS; Electromyostimulation group, EMS+IF; Intermittent fasting diet group with EMS exercise, EMS+CR; Group on calorie-restricted diet combined with EMS exercise, IF; intermittent fasting diet group, CR; calorie restricted diet group, η_p^2; Partial Eta Squared.

According to Table 5, there was a significant difference between the pre-post test averages of the trunk muscle kg variable (p<0.01). There was a statistically significant difference between the pre-posttest means of the trunk fat variable (p<0.05). A significant difference was observed according to the groups (p>0.05).

DISCUSSION

This study aimed to determine the effects of 4-week EMS exercise, calorie-restricted diet, and intermittent fasting diet protocol on body composition in obese females. The main finding of the study was that, following the hypothesis, the combined application of a calorie-restricted diet and intermittent fasting diet had positive effects on the body composition of obese female individuals.

According to the findings of the study, it was determined that EMS exercise, calorie-restricted diet, and intermittent fasting diet had beneficial effects on BMI, which is one of the criteria for evaluating body composition. It can be stated that EMS exercise and diet protocols play a role in reducing BMI. It was observed that EMS exercise alone was sufficient to reduce BMI, but its effect was much higher when it was applied together with diet. In addition, it can be stated that the diet-only groups (IF and CR) were also effective in reducing BMI. In this

regard, Özdal et al. (2016) reported that the BMI levels of females who practiced EMS exercise for 8 weeks decreased significantly. Again, Akçay et al. (2022) compared the effects of EMS exercise with a specific diet program and only EMS exercise in 104 participants and reported that BMI decreased significantly in both groups.

In a study supporting the effectiveness of exercise in reducing BMI levels, Akbulut et al. (2020) reported the positive effect of 8-week resistance exercise on BMI. The findings of the current study are in parallel with previous studies. In this direction, it can be stated that EMS exercises and diet protocols may be beneficial to reduce BMI to healthy limits. In contrast to these findings, Pocari et al. (2005) reported that 8-week electrical muscle stimulation did not lead to a significant decrease in BMI levels in healthy adults. This may probably be due to the difference in the frequency of exercise applied.

When the 4-week change in the body weight parameter, which is one of the body composition parameters, was examined, it was observed that it decreased in all groups. The biggest decrease curve was observed in the intermittent fasting group. In addition, it can be stated that the diet groups may be significantly more effective than the group that only practiced EMS exercise. Previous studies have reported that EMS exercises are a type of exercise that has an effect on body weight and provides many benefits in improving physical fitness (Çetin et al., 2017; Kemmler et al., 2010). Junger et al. (2020) reported that individuals who practiced EMS exercise and had regular eating habits had a weight loss of 4.3 kg and individuals who only practiced EMS exercise had a weight loss of 2.45 kg. Similarly, in the 8-week EMS exercise study conducted by Özdal and Bostancı (2016) on female participants, the presence of a significant difference in body weight statistical results was determined. All these research results show that information parallel to the findings of the present study was obtained.

When the body fat weight variable was taken into consideration, it was noticed that there was a statistically significant difference between the pre-test and post-test results. It was observed that the post-test results were lower in all groups. It can be stated that there was a higher percentage of change in the groups in which EMS exercise and diet were applied together (EMS+IF and EMS+CR) and that the EMS group was the least effective method in reducing body fat weight. In a study conducted on this subject, the effect of EMS applications on the body composition of overweight postmenopausal females was followed for 16 weeks. According to the results of this study conducted on 90 participants between the ages of 25-50, body fat weight decreased significantly (Junger et al., 2020). The literature supports the findings of the current study and it can be stated that EMS exercises can be an effective method to reduce body fat weight.

It was determined that the amount of skeletal muscle weight, one of the variables included in the study, changed significantly. It was observed that skeletal muscle decreased in all groups, especially in the groups in which EMS was applied together with diet and in the groups in which only the diet program was applied. The last change was noticed in the EMS group. Pano-Rodriguez et al. (2020) emphasized that EMS directly affects the synthesis of skeletal muscle proteins and thus increases muscle mass. In a meta-analysis study examining the effect of whole-body EMS on body composition, 1183 participants were examined and it was concluded that EMS had a significantly positive effect on muscle mass (Rodrigues-santana et al., 2021). In a similar study, Shink et al. (2018) stated that EMS exercises with a protein-supported nutrition program can improve body composition and help increase skeletal muscle mass. The study of Gondin et al. in 2011 also pointed out similar results and stated that EMS exercise led to increases in the muscle fiber domain. When the literature is examined, it is seen that EMS applications have positive effects that can increase body muscle mass. However, different findings were obtained in the present study. The decrease in muscle mass in this study is thought to be due to the short duration of the exercise period (4 weeks) and insufficient protein intake.

In addition, Kemmler and von Stengel (2012) stated in their study that longer EMS exercise may have positive effects on muscle mass.

When the regional analyses included in the study were evaluated, it was observed that there was no significant change in right and left arm muscle weights. When the literature is examined, it is seen that research results support this finding (Kirişçioğlu, 2019; Godin et al., 2011). According to these results, it can be stated that short-term EMS and dietary intervention complexes are insignificant for muscle mass in the right and left arm. However, it is thought that different results may be obtained in longer-term studies.

A significant difference was observed in the statistical analysis of right and left arm fat masses. It can be stated that both EMS exercises and diet types are effective in reducing arm fat, especially in the IF group and EMS+CR group. In the study in which 53 female participants doing Pilates were examined, it was found that right and left arm circumference showed a significant difference in favor of the post-test (Aslan, 2019). The study conducted by Song et al. on 20 participants for 12 weeks also contains results that support the current study (Song et al.,).

In the leg region, significant changes in favor of the post-test were observed in both fat and muscle changes for both legs. Similar results were found for trunk muscle mass and trunk fat mass. It was observed that the EMS+CR group was more effective than the other groups in reducing both the amount of fat and muscle mass. Therefore, it may be recommended that EMS exercise should be practiced especially in females with hip and belly fat and the type of diet to be applied with exercise should be a calorie-restricted diet. The reason for the decrease in muscle mass in the leg region for all groups may be insufficient protein input and the fact that the study examined short-term effects. When the literature on the variable is reviewed, similar results to the study are observed (Song et al., 2012; Aslan 2019). The study conducted by Cho et al. in 2017 supports both the literature information and the current study. In the study, 31 participants were examined and it was stated that right and left arm muscle mass parameters showed significant changes (Cho et al., 2017).

Conclusion

4 weeks of EMS exercises and different diet types on obese females had positive effects on body composition, EMS exercise can be used as an alternative method in the treatment of obesity, moreover, EMS exercise will show much more effective results when applied together with IF or CR diets. In addition, although intermittent fasting and calorie-restricted diets are important in the management of obesity, we believe that these diets have a more dramatic effect when combined with EMS exercise. Therefore, it can be stated that diet programs combined with EMS exercises will show an important will to improve body composition in obese females.

Recommendation

In future studies, evaluating the metabolic and hormonal effects of the EMS system in addition to its long-term effects, and revealing its effects on different research groups will increase the depth of knowledge in this field. In addition, changing the current intensities at which EMS is applied, applying different EMS modules and diversifying exercise activities can be included in the research. In addition, further research on different dietary protocols, different gender and age groups, and different risk groups will make important contributions to the literature in this field.

Limitations

The limitations of the study were that the participants were between the ages of 30-45, their gender was female, only IF and CR were applied as diet programs, only EMS exercises

were applied as exercise types, the exercises and diets applied were limited to 4 weeks, and the weight loss module of the EMS exercise system was preferred.

REFERENCES

Agostoni C, Berni Canani R, Fairweather Tait S, et al. (2013). Scientific opinion on dietary reference values for energy: EFSA panel on dietetic products, nutrition and allergie (NDA). Efsa Journal, 11(1): 1-112. https://doi.org/10.2903/j.efsa.2013.3005

Akbulut, T. (2020). Effects of Resistance Exercises on Body Composition and Some Biochemical Parameters. Journal of Education and Learning, 9(1): 144-148. https://doi.org/10.5539/jel.v9n1p144

Akçay N, Doğan Güney H, Kaplan S, Akgül MŞ. (2022). Electromyostimulation Exercise with Diet Program is More Effective on Body Composition than its Exercise without Diet. Mediterranean Journal of Sport Science (MJSS), 5(4). https://doi.org/10.38021asbid.1153322

Amaro-Gahete FJ, De-La-O A, Sanchez-Delgado G, et al. (2018). Functional exercise training and undulating periodization enhances the effect of whole-body electromyostimulation training on running performance. Frontiers in physiology, 9: 720. https://doi.org/10.3389/fphys.2018.00720

André LD, Basso-Vanelli RP, Ricci PA, et al. (2005). Whole-body electrical stimulation as a strategy to improve functional capacity and preserver lean mass after bariatric surgery: a randomized triple-blind controlled trial. International journal of obesity 45(7): 1476–1487. https://doi.org/10.1038/s41366-021-00812-7

Aslan Ş. (2019). The Effect of Pilates on Body Composition in Women. İnönü University Journal of Physical Education and Sports Sciences, 6(1):24-35.

Baysal A, Aksoy M, Besler HT, et al. (2002). Diet Handbook, Control of Body Weight. Ankara: Hatiboğlu Publishing House.

Beaulieu, K., Hopkins, M., Blundell, J., & Finlayson, G. (2016). Does habitual physical activity increase the sensitivity of the appetite control system? A systematic review. Sports Medicine, 46, 1897-1919. https://doi.org/10.1007%2Fs40279-016-0518-9

Bellia, A., Ruscello, B., Bolognino, R., Briotti, G., Gabrielli, P. R., Silvestri, A., ... & D'Ottavio, S. (2020). Whole-body electromyostimulation plus caloric restriction in metabolic syndrome. International journal of sports medicine, 41(11), 751-758. https://doi.org/10.1055/a-1171-2003

Cho M, Kim JY. (2017). Changes in physical fitness and body composition according to the physical activities of Korean adolescents. Journal of exercise rehabilitation, 13(5):568–572. https://doi.org/10.12965/jer.1735132.566

Cohen J. (1988). Statistical Power Analysis for the Behavioral Sciences, 2nd ed. Lawrence Erlbaum Associates, Hillsdale, New Jersey.

Çetin E, Özdöl PY, Deniz S. (2017). The effect of whole body electromyostimulation application on body composition in women of different age groups.. SPORMETRE Beden Eğitimi ve Spor Bilimleri Dergisi, 15(4): 173-178. https://doi.org/10.1501/Sporm_0000000333

Donnelly, J. E., Blair, S. N., Jakicic, J. M., Manore, M. M., Rankin, J. W., & Smith, B. K. (2009). American College of Sports Medicine Position Stand. Appropriate physical activity intervention strategies for weight loss and prevention of weight regain for adults. Medicine and science in sports and exercise, 41(2), 459-471. https://doi.org/10.1249/mss.0b013e3181949333

Elagizi, A., Kachur, S., Carbone, S., Lavie, C. J., & Blair, S. N. (2020). A review of obesity, physical activity, and cardiovascular disease. Current obesity reports, 9, 571-581. https://doi.org/10.1007/s13679-020-00403-z

Fonseca-Junior, S. J., Sá, C. G. A. D. B., Rodrigues, P. A. F., Oliveira, A. J., & Fernandes-Filho, J. (2013). Physical exercise and morbid obesity: a systematic review. ABCD. Arquivos Brasileiros de Cirurgia Digestiva (São Paulo), 26, 67-73. https://doi.org/10.1590/s0102-67202013000600015

Gobbo M, Maffiuletti NA, Orizio C, Minetto MA. (2014). Muscle motor point identification is essential for optimizing neuromuscular electrical stimulation use. Journal of neuroengineering and rehabilitation, 11:17. https://doi.org/10.1186/1743-0003-11-17

Gondin J, Brocca L, Bellinzona E, et al. (2011). Neuromuscular electrical stimulation training induces atypical adaptations of the human skeletal muscle phenotype: a functional and proteomic analysis. Journal of applied physiology,110(2):433–450. https://doi.org/10.1152/japplphysiol.00914.2010

Horner, K. M., Byrne, N. M., Cleghorn, G. J., & King, N. A. (2015). Influence of habitual physical activity on gastric emptying in healthy males and relationships with body composition and energy expenditure. British Journal of Nutrition, 114(3), 489-496. https://doi.org/10.1017/s0007114515002044

Junger J, Junger A, Ostrowski P. (2020). Body composition of trainees undergoing EMS training with respect to their nutrition. Journal of Physical Education and Sport. 20(1): 97-101.

Kemmler W, Schlıffka R, Mayhew JL, Stengel SV. (2010). Effects ofwhole-body electromyostımulatıon on restıng metabolıc rate, body composıtıon, and maxımum strength ın postmenopausal women: the traınıng and electrostımulatıon trıal, Journal of Strength and Conditioning Research, 24(7): 1880-1887. https://doi.org/10.1519/jsc.0b013e3181ddaeee

Kemmler W, von Stengel S. (2012). Alternative Exercise Technologies to Fight against Sarcopenia at Old Age: A Series of Studies and Review. Journal of aging research, 109013. https://doi.org/10.1155/2012/109013

Kemmler, W., Shojaa, M., Steele, J., Berger, J., Fröhlich, M., Schoene, D., ... & Kohl, M. (2021). Efficacy of whole-body electromyostimulation (WB-EMS) on body composition and muscle strength in non-athletic adults. A systematic reviewand meta-analysis. Frontiersin physiology,95. https://doi.org/10.3389/fphys.2021.640657

Kendall FP, McCreary EK, Provance PG, et al. (2005). Muscles: testing and function with posture and pain.

Kirişçioğlu, M. (2019). The effect of electromyostimulation training on body composition. Master's Thesis, Gaziantep University Institute of Health Sciences.

Köktürk SN, Yardımcı H. (2021). Intermittent Fasting and Its Effects on Some Diseases. Turkiye Klinikleri Journal of Health Sciences, 6(4): 949-957.

Kurt AK. (2019). Obesity management in primary care. Klinik Tıp Aile Hekimliği, 11(2): 55-60.

Marinelli, S., Napoletano, G., Straccamore, M., & Basile, G. (2022). Female obesity and infertility: outcomes and regulatory guidance. Acta Bio Medica: Atenei Parmensis, 93(4). https://doi.org/10.23750%2Fabm.v93i4.13466

Mustafa Ö, Özgür B. (2016). Effects of whole-body electromyostimulation with and without voluntary muscular contractions on total and regional fat mass of women. Archives of Applied Science Research, 8(3): 75-9.

Oppert, J. M., Bellicha, A., van Baak, M. A., Battista, F., Beaulieu, K., Blundell, J. E., ... & Busetto, L. (2021). Exercise training in the management of overweight and obesity in adults: Synthesis of the evidence and recommendations from the European Association for the Study of Obesity Physical Activity Working Group. Obesity reviews, 22, e13273. https://doi.org/10.1111/obr.13273

Pano-Rodriguez A, Beltran-Garrido JV, Hernandez-Gonzalez V, Nasarre-Nacenta N, Reverter-Masia J. (2020). Impact of whole body electromyostimulation on velocity, power and body composition in postmenopausal women: a randomized controlled trial.

International Journal of Environmental Research and Public Health, 17(14): 4982. https://doi.org/10.3390%2Fijerph17144982

Porcari JP, Miller J, Cornwell K, Foster C, Gibson M, McLean K. (2005). The effects ofneuromuscular electrical stimulation training of abdominal strength, endurance, and selectedanthropometric measures. Journal of Sports Scienceand Medicine, 4(1): 66-75.

Reljic, D., Konturek, P. C., Herrmann, H. J., Neurath, M. F., & Zopf, Y. (2020). Effects of whole-body electromyostimulation exercise and caloric restriction on cardiometabolic risk profile and muscle strength in obese women with the metabolic syndrome: A pilot study. J. Physiol. Pharmacol, 71, 89-98. https://doi.org/10.26402/jpp.2020.1.08

Rodrigues-Santana L, Adsuar JC, Louro H, et al. (2021). The effects of whole-body muscle stimulation on body composition and strength parameters: A protocol for systematic review and metaanalysis. Medicine, 100(18): 1-4. https://doi.org/10.1097/md.0000000000025139

Schink K, Reljic D, Herrmann HJ, et al. (2018). Whole-body electromyostimulation combined with individualized nutritional support improves body composition in patients with hematological malignancies–A pilot study. Frontiers in physiology, 9:1808. https://doi.org/10.3389/fphys.2018.01808

Song JK, Stebbins CL, Kim T, et al. (2012). Effects of 12 weeks of aerobic exercise on body composition and vascular compliance in obese boys. The Journal of sports medicine and physical fitness, 52(5): 522–529.

WHO. Obesity and overweight. Access: https://www.who.int/news-room/fact sheets/detail/obesityand-overweight Date of access 15.02.2024

Willert S, Weissenfels A, Kohl M, et al. Effects of whole-body electromyostimulation on the energy-restriction-induced reduction of muscle mass during intended weight loss. Frontiers in physiology, 2019; 10: 1012.

Yasul, Y., Akcinar, F., Yigiter, N., & Yasul, M. E. (2023). Comprasion of physical activity levels of working women and housewives according to some variables. Journal of ROL Sport Sciences, 4(3), 1010-1023. https://doi.org/10.5281/zenodo.8385225

Zehra C, Şahin, S. (2018). Kadın sağlığında obezite. Journal of Human Rhythm, 4(2): 98-103.

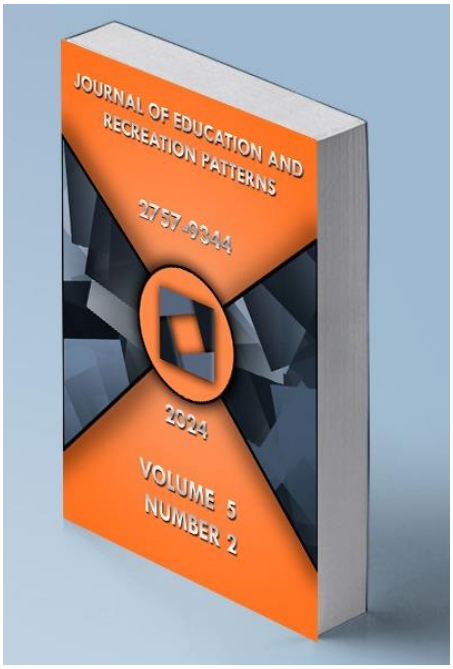
Mosek, E. (2017). *Team flow: The missing piece in performance* [Doctoral dissertation, Victoria University]. Victoria University Research Repository. http://vuir.vu.edu.au/35038/

Author(s)' statements on ethics and conflict of interest

Ethics statement: I hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. I take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the author.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Examining The Thinking Styles of Executives and Their Attitudes Toward Sports: Research on Private Sector Employees in Türkiye

Abdullah Sencer TEMEL,[1] Hakan Salim ÇAĞLAYAN[2]

To cite this article:

Temel, A.S. & Çağlayan, H.S. (2024). Examining the thinking styles of executives and their attitudes toward sports: research on private sector employees in Türkiye. *Journal of Education and Recreation Patterns (JERP), 5* (2), 143-163. DOI: https://doi.org/10.53016/jerp.v5i2.249

[*] **This study is produced from a part of PhD thesis (No: 543839) conducted by the 1st author under the supervision of the 2nd author.**

[1] Konya Şeker Industry Trade Inc.,Türkiye, sencer_temel@yahoo.com , https://orcid.org/0000-0003-0382-9466

[2] Selçuk University, Faculty of Sport Sciences, Department of Sports Management, Konya, Türkiye, hcaglayan@selcuk.edu.tr, https://orcid.org/0000-0003-4082-500X

Journal of Education and Recreation Patterns (JERP)
Volume 5, Issue 2, Year 2024 ISSN: 2757-9344

Examining The Thinking Styles of Executives and Their Attitudes Toward Sports: Research on Private Sector Employees in Türkiye

Abdullah Sencer Temel[1], Hakan Salim Çağlayan[2]

ARTICLE INFORMATION
Original Research Paper

Received 10.06. 2024
Accepted 08.08. 2024

https://jerpatterns.com

December, 2024

Volume: 5, No: 2

Pages: 143-163

ABSTRACT

Thinking style and attitude significantly influence individuals' actions and behaviors across various domains. Previous research has highlighted the challenges of integrating these thinking styles and attitudes with the complexities of real-world scenarios. This article investigates the thinking styles and attitudes of executives (n=216) towards sports, examining the relationships between these variables in the context of gender, active sports participation, frequency of sports activity, and purpose of sports engagement. The study employs causal-comparative and correlational research designs. The findings indicate that executives predominantly favor a liberal thinking style, with a conservative thinking style being the least preferred. Analysis of the sub-dimensions of the general attitude scale revealed that while executives generally place high importance on and interest in sports, their active participation in sports is moderate. A regression model assessing the specific impact of thinking styles on attitudes towards sports demonstrated that the legislative, executive, judicial, monarchic, hierarchical, oligarchic, anarchic, global, local, internal, external, liberal, and conservative thinking styles collectively have a significant relationship with general attitudes towards sports. However, only the legislative, hierarchical, and liberal thinking styles were significant predictors of overall sports attitudes. Specifically, an increase in the legislative thinking style correlated with a decrease in positive sports attitudes, whereas increases in hierarchical and liberal thinking styles were associated with enhanced positive sports attitudes. The final findings revealed low-level positive and negative correlations between all sub-dimensions of the executives' thinking styles inventory and their general attitude towards sports and its sub-dimensions.

Keywords: Attitudes, Executives, Private Sector, Sport, Thinking Styles

INTRODUCTION

Thinking is an infinite skill in human thinking. It refers to people's specific approach to processing and evaluating information, problem solving and decision-making. (Armstrong & Cools 2009; Yılmaz & Sünbül, 2004). Thinking is classified according to different types thanks to the aim to reach and the skills it contains. Thinking is the reflection of the thinking processes that occur in the human mind differently. Different personality and character structures have led to the formation of different thinking style. People's thinking styles differ from each other, and the accumulation, abilities and personal characteristics of the individual and cultural differences play an important role in the formation and shaping of the way of thinking. (Park et al., 2005). It is seen that the thinking styles of individuals are applied at a high level and sometimes at a low level in the solution of problems and decision-making stages according to the social environment, society, time and cultural structures of the community (Zabukovec & Kobal-Grum, 2004). Palut describes thinking styles ‘’It is interpreted as a different reflection of the thoughts and processes that occur in the inner world of the person’’ (Palut, 2004). In another definition, the thinking style is the tendencies and orientations revealed by the individuals as a result of the evaluation in the mental process against the problems, events and various problems they encounter. (Sünbül, 2004). Sternberg (1997) tried to define and classify thinking styles by analogy with the governing organization and mechanism of an organization or country. In this context, he characterized his theory as organizational behaviour and management in thinking. In recent years, managerial thinking style studies have increased their importance in management and organizational behaviour studies. Firms and companies are in fierce competition to take part in this global market, which is becoming increasingly complex and uncertain and where competition is at the highest level. Thus, managers and executives working in the relevant sectors must possess or exhibit creative and multi-dimensional thinking skills with intuitive and emotional evaluations as well as analytical and linear thinking. (Vance 2007, Smith et al., 2004). This study analyzes the thinking styles of managers and their attitudes toward sports by comparing them according to age, active sports status, frequency of playing sports, and purpose of playing sports

Thinking Style

The concept of thinking styles, as initially defined by Sternberg and Grigorenko (1993), refers to the manner in which individuals prefer to process information, finding certain methods more usable and suitable for themselves. Sternberg (1997) expanded on this by categorizing thirteen distinct thinking styles into five domains: forms, functions, levels, scope, and trends. This theory draws an analogy between these cognitive processes and the legislative, executive, and judicial functions found in governmental systems. Specifically, the legislative function in thinking involves the creation of rules and the production of original, creative outputs. The executive function pertains to the implementation, application, and practical conversion of ideas, while the judicial function encompasses evaluation, decision-making, judgment, criticism, and comparison (Buluş, 2005).

Recent research continues to explore and validate these dimensions of thinking styles. For example, Zhang and Sternberg (2019) have provided contemporary insights into how these styles impact educational outcomes and professional practices, emphasizing the importance of aligning educational strategies with individual cognitive preferences to enhance learning efficacy.

When we look at the literature studies on thinking, it is observed that there are many theories that open thinking styles to the discussion. All these scientific findings have been aimed at finding the way people think. One of these theories is the Theory of Mental Self-Government. The main theme in this theory, found and developed by Sternberg, is the creation of executive, authoritative, judicial, monarchical, hierarchical and oligarchic thinking styles

that have been adopted by many people and institutions around the world (Buluş, 2000). Sternberg and Grigorenko (1997), Balkıs & Işıker (2005) & Sternberg (2009); He divided his thinking styles into 13 categories considering the characteristics of the managers in particular and the profiles of all individuals in general (Table 1).

Table 1

Summary of Styles of Thinking Style

Style	Characterization
Legislative	Like to create their own management processes by creating their own rules.
Executive	They are successful in transforming framed and defined project applications.
Judicial	Actively use the elements of judgment, criticism in decision-making processes.
Monarchic	Focus on a single fact or variable want to make their own rules.
Hierarchical	Make a to-do list or activities according to its importance.
Oligarchic	Focus equally on every element that make up a task.
Anarchic	They may act out of rules while performing their tasks.
Global	Handle issues with a holistic / global approach.
Local	Concentrate on specific problems rather than general problems.
Internal	Rely on their own hunches in solving problems.
External	Exhibit more social trends than outgoing business processes.
Liberal	Innovation and entrepreneurship are at the forefront, form their own paradigm.
Traditional	Prefers to stick on tradition and the way things are always done.

The concepts of thinking and attitude are interrelated, and the fact that the thought is positive and negative directly affects the attitude to be had. Attitude are pre-learned tendencies that consist of reactions and actions that individuals develop against people and everything that is a part of the external world (Demirel, 1997). Attitude is a process that develops in the mind that differs in the individual point organized through experiences and enables to react to all distant and closely related situations (Shapiro, 1999).

Thought and attitude are closely related to it is a complex mental process that can be interpreted and includes assumptions and assumptions that are difficult to discover and solve. An individual's attitude towards an item and an object does not arise simply by analyzing one's beliefs about that subject because emotions work simultaneously with the cognitive process of the human and are difficult to detect (Agarwal & Malhotra, 2005). The concept of thinking style that guides human behavior is in direct or indirect contact with not only sports but also many social, cultural and economic issues, and still maintains its characteristic of being the main determining theme. Even though people have similar abilities and qualifications, there is individual difference in their thinking styles. In recent years, it has been observed that the studies on individual differences have shifted towards the cognitive research axis of studies on human thought (Evans, 2002). In these individual differences, while skills, abilities and character traits are effective, the social environment of the individual place lived, the cultural structure of the society and time are also important (Buluş, 2000).

Attitude includes an evaluation of an object, person and event on a continuum from negative to positive makes us prone to behave in a certain way in the face of that object, person and event (Plotnik, 2009). Our thoughts about events and objects affect our feelings and our

emotions, on the other hand, directly affect our behaviour. It is no different from the attitude developed towards a sport, activity or object by individuals developing positive or negative thoughts towards an object or person. Therefore, the thinking style of individuals in developing positive or negative attitudes is directly related to it and transforms into behaviour through emotions and feelings, resulting in a positive or negative attitude and behaviour.

There is an intense and significant relationship between individuals' thinking processes and styles and attitudes towards sports, inheritance, life and orientation. In this context, it should primarily be aimed to determine the attitudes of societies about sports or to change the existing attitudes positively. It is thanks to sports that changes that form the basis of societies and determine the inter-personal relationship, reach everyone and have a universal language (Parkhause & Bonnnie, 2001). The change can be effective and ineffective as it can be on a small or large scale, but its positive effects and repercussions on the society are important for increasing healthier individuals in the society (Kotler et al., 2002).

According to the information summarized above, there is no existing study in the literature that examines the effect of thinking styles on general attitudes towards sports. This research aims to address this gap by being the first to explore the relationship between the thinking styles of individuals working at the management level and their attitudes towards sports. This study holds significant importance as it seeks to encourage and guide individuals not only in sports-related sectors but also across various business fields.

Based on the assumption that individuals have different thinking styles, managers' attitudes and tendencies towards sports; their thinking style may be shaped by factors such as gender difference, lifestyle, professional competencies and interest in sports. Therefore, even if there are different thinking styles, the correct perception of the physical, cognitive, mental and social-cultural benefits of sports will contribute to the development of positive attitudes of individuals in the society. In this regard, the following questions have been addressed to determine the aims and objectives of the research.

- Do the thinking styles of managers differ according to their gender?
- Which thinking styles do managers have?
- What is the attitude relationship toward sports?
- Do managers' thinking styles affect their attitudes towards sports significantly?

METHOD

Research Methodology

This research was conducted by causal comparison and correlational research designs. Causal comparison design is a research method that aims to examine the subject under study by comparing at least two different scales with each other. In this research, non-probability sampling methods used, is a sampling technique where the samples are gathered in a process that does not give all the individuals in the population equal chances of being selected. Non-probability sampling involves selecting participants based on convenience or specific criteria rather than random selection. This method allows for easier and quicker data collection, making it useful in exploratory research or when access to the entire population is impractical (Etikan et. al., 2008). In this research design, the subject and event studied emerged independently from the directions and manipulations of the researcher and researcher does not have any influence or intervention in the formation of the groups to be compared (Büyüköztürk et al., 2008). In this research with the help of causal comparison design, the relationship between the thinking styles and attitudes towards sports of the individuals working as managers was compared according to different demographic variables.

Based on the relationships obtained with this research method, the opportunity to predict some results can be created. While the cause-effect relationship is emphasized in the causal comparison design, the change of variables together in the correlational research method is considered. The results obtained in the correlational research method only give an idea that there may be a cause-effect relationship (Büyüköztürk et al., 2008). In this research with the help of correlational research design; Relationships between the thinking styles of managers and their attitudes towards sports were examined and the effects of working individuals' thinking styles on attitudes towards sports were investigated

Universe and Sample

The target population for this research comprises managers at Konya Şeker company. Given the substantial time, labor, and economic resources required to reach all 380 managers, a convenience sampling method was employed. This approach ensured the participation of 216 managers from both the central and provincial enterprises of Konya Şeker.

Prior to the commencement of the study, all necessary permissions were obtained, and a questionnaire was administered to 216 selected managers. The participants were thoroughly briefed on the purpose and procedures of the study, with an emphasis on the voluntary nature of their participation. Detailed descriptive information about the participating managers from Konya Şeker is presented in the subsequent charts.

The thesis project titled "An Examination of the Relationship Between the Thinking Styles and Attitudes Towards Sports of Employees in Managerial Positions" was approved for preparation as a thesis by the Directorate of the Institute of Health Sciences at Selçuk University, based on the decision dated 02/11/2017, numbered 44, and decision number 40/10. Furthermore, the project received unanimous approval for compliance with the Ethics Committee Directive by the Ethics Committee of the Faculty of Sports Sciences at Selçuk University, as per the decision dated 13/11/2017.

Measurement Instruments

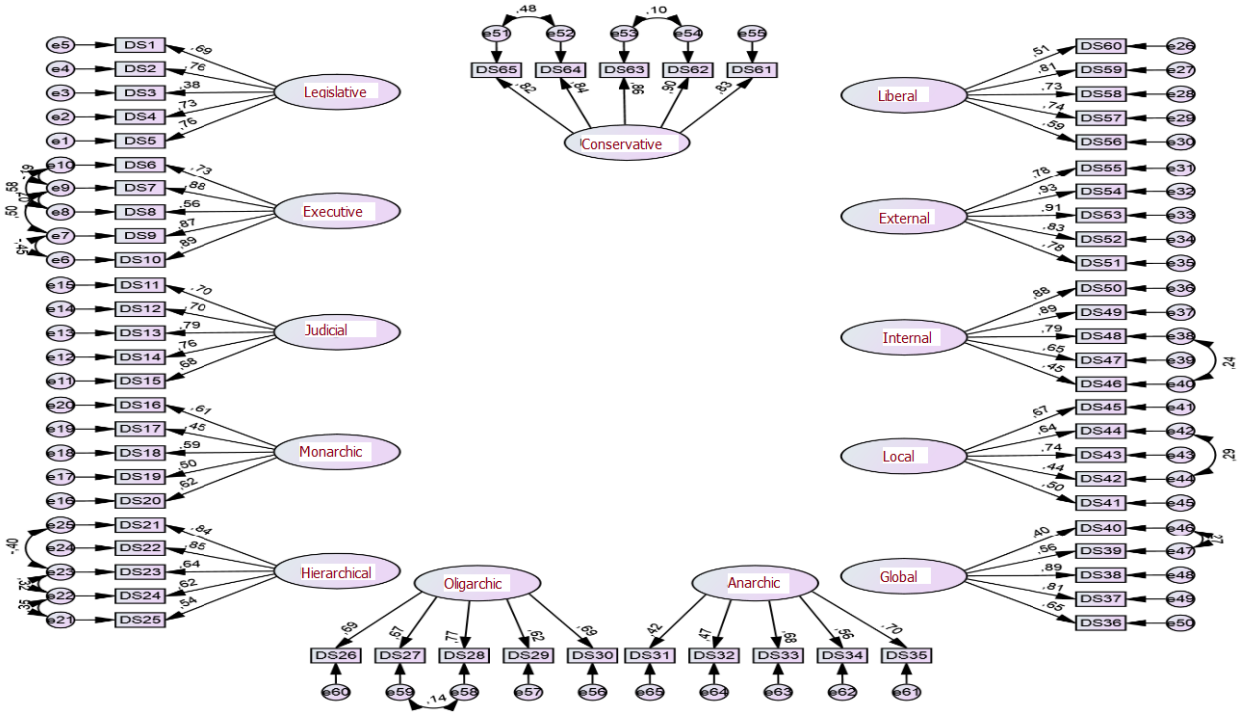
Thinking Style Scale

The Thinking Styles Scale developed by Sternberg and Wagner (1992) and adopted into Turkish by Buluş (2006). The scale consists of 13 dimensions; Legislative, Executive, Judicial, Monarchic, Hierarchical, Oligarchic, Anarchic, Global, Local, Internal, External, Liberal and Conservative. There are five items in each dimension of the scale consisting of 65 items. Thinking Styles Scale, High scores from the dimensions of Legislative, Executive, Judicial, Monarchic, Hierarchical, Oligarchic, Anarchic, Global, Local, Internal, External, Liberal and Conservative indicate that each thinking style expressed by the dimensions of the scale is adopted. For example, if an individual gets high scores in the judicial thinking style, it means that the individual adopts the judicial thinking style and that the judicial thinking style may be dominant in the individuals.

The validity of the Thinking Styles Scale was examined by confirmatory factor analysis (CFA), and the Cronbach Alpha internal consistency coefficient was calculated. CFA is commonly used in scale development and validity analyzes or to determine whether a predetermined structure has been verified (Kline, 2011). In this study, confirmatory factor analysis was found to be compatible with the three-factor model in the analysis conducted to test whether the 13-factor structure of the thinking styles scale, which is accepted in the literature, is preserved. (TLI = 0.90; CFI =0.92; RMSEA = 0.06).

Figure 1

Thinking styles scale confirmatory factor analysis diagram

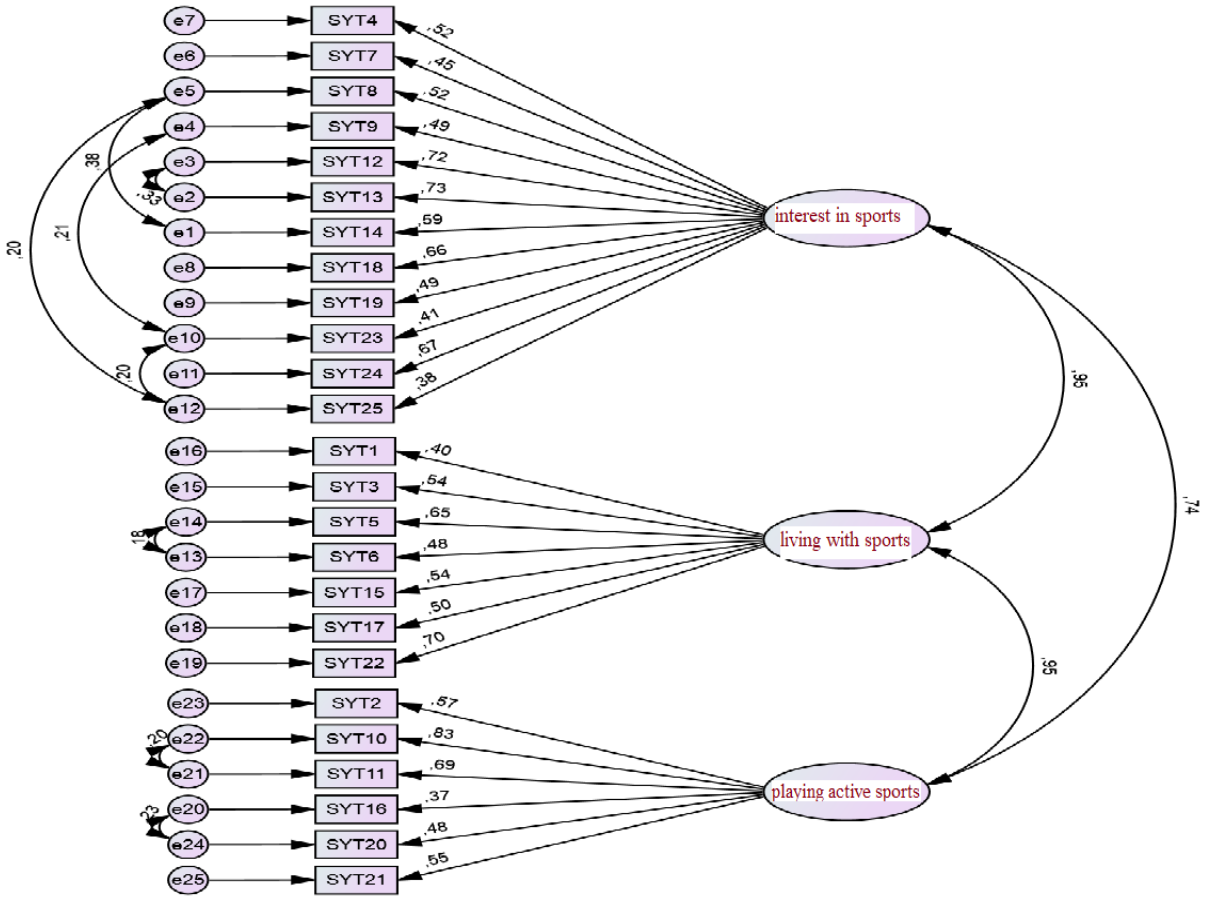


Sport Atttitude Scale

In line with the general purpose of the study, the Attitude Towards Sports Scale developed by Şentürk (2012) was used to determine the managers' attitudes towards sports. The scale consists of three sub-dimensions; interest in sports, living with sports and playing active sports. In the scale with a total of 25 statements; 12 expressions in the interest in sports dimension (4-7-8-9-12-13-14-18-19-23-24-25), 7 statements in the dimension of living with sports (1-3-5-6-15-17- 22) and 6 statements (2-10-11-16-20-21) in the playing active sports life dimension. (Sentürk, 2012). As the scores obtained from the General Attitude Scale towards Sports increase, the level of positive attitudes towards sports also increases. Similarly, the scale; as the scores obtained from the dimensions of interest in sports, living in sports and active sports increase, interest towards sports, positive attitudes towards living and active sports increase. The validity of the Attitude towards Sports Scale was examined by confirmatory factor analysis (CFA) and its reliability was calculated by calculating the Cronbach Alpha internal consistency coefficient. CFA is an analysis method that is frequently used in the development of measurement models and provides important facilities. CFA is used in scale development and validity analysis or is used to determine whether a predetermined structure has been verified (Kline, 2011). In this study, confirmatory factor analysis was used to test whether the three-factor structure of the scale of attitude towards sports, which is accepted in the literature, is preserved. Fit values obtained by testing the model of the three-factor structure. (TLI = 0.95; CFI = 0.95; RMSEA = 0.08). Accordingly, it is understood that the three-factor model generally complies with the data at an acceptable level (Browne and Cudeck 1993, Byrne 1989, Jöreskog and Sörbom 1993, MacCallum et al. 1996, McDonald and Marsh 1990, Tanaka and Huba 1985).

Figure 2

Attitude towards sports scale confirmatory factor analysis diagram.



The tested three-factor model is shown in Figure 2.4. All path coefficients shown in the model are statistically significant (P <0.001). It was understood that the 3-factor structure of the Attitude towards Sports Scale was compatible with the available data. As a result, it was determined that the 3-factor structure of the scale was preserved in this study. The reliability of the Attitude towards Sports Scale was examined by calculating the Cronbach Alpha internal consistency coefficient. According to the results, the internal consistency coefficient of the dimension of being interested in sports was 0.85; the internal consistency coefficient of living with sports dimension was 0.75, and the internal consistency coefficient of active sports dimension was calculated as 0.74. The Cronbach Alpha internal consistency coefficient should be greater than 0.70. Coefficients lower than this value indicate that the reliability of the scale is weak (Tavşancıl, 2005). The values calculated for the Attitude Scale towards Sports in this study showed that the reliability of the scale based on internal consistency was sufficient.

Statistical Analysis of Data

For the general purpose of the study, descriptive analysis techniques (mean, standard deviation, highest and lowest values) were used to determine the level of thinking styles and attitudes towards sports of the managers working in the Konya Şeker company. The scores of the managers who participated in the study from the Thinking Styles and Attitude Scale towards Sports; Parametric analysis techniques were used to compare and examine the variables of age, gender, education level, personal income level, actively doing sports, frequency of doing sports, purpose of doing sports and the type of sport / activity performed.

Parametric tests are based on some assumptions. These assumptions were checked before the analyzes were carried out. When the research data were examined, it was understood that there were no extreme values in the data set that would make normal distribution difficult. After this stage, it was investigated whether the scores obtained from the Thinking Styles and Attitudes towards Sports Scales have a normal distribution. In studies with large samples, it is considered sufficient to have the coefficients of skewness and kurtosis in the range of ± 2 to meet the assumption of the normal distribution (George & Mallery, 2010). It was determined that the skewness and kurtosis values of the distributions are in the specified range (-0.94 ≤ Skewness ≤ 1.15; -0.58 ≤ Kurtosis ≤ 1.17), and the data show a distribution quite close to normal. According to this result, it is understood that it is appropriate to use parametric tests in data analysis. The dependent and independent variables and analysis techniques used in the study are shown in Table 2.

Table 2

Dependent, Independent Variables and Analysis Techniques

Dependent Variables	Independent Variables	Analysis Techniques
Scores Obtained from Thinking Styles and Attitudes Towards Sports Scales	Gender	Independent t test sample
	Sport Status	Independent t test sample
	Frequency of playing sports	One-way analysis of variance
	Purpose of playing sports	One-way analysis of variance

By using the Pearson Correlation analysis technique, the relationships between the managers' scores from the Thinking Styles Scale and the scores they received from the Attitude towards Sports Scale were examined. Pearson Correlation Analysis requires meeting the normal distribution assumption. When this assumption is met, the direction and strength of linear relationships between variables can be reported with the help of Pearson Correlation and Multiple Linear Regression Analysis. The correlation coefficients obtained can be interpreted as follows; A low level of correlation with 0 ± 0.29, a moderate correlation of 0.30 with ± 0.69, and a high level of correlation with 0.70 with ± 1.0 (Çokluk et al., 2012).

FINDINGS

In the study, to determine the thinking styles of the managers, the mean, standard deviation, minimum, and maximum values of the data obtained from the thinking styles scale were calculated and analyzed.

Table 3

Descriptive Values of Scores Obtained from the Thinking Style Scale

Sub-scales	n	Minimum	Maksimum	$\bar{X}$	Sd	Level
Legislative	216	2,8	7,0	5,46	0,92	High
Executive	216	3,2	7,0	5,23	0,85	Medium-High
Judicial	216	3,0	7,0	5,54	0,78	High
Monarchic	216	2,0	6,8	4,51	0,94	Medium-High
Hierarchical	216	2,4	7,0	5,58	0,81	High
Oligarchic	216	2,0	6,8	4,61	1,06	Medium-High
Anarchic	216	2,2	7,0	5,23	1,00	Medium-High
Global	216	1,0	6,4	3,60	1,12	Medium-
Local	216	2,2	6,6	4,68	0,92	Medium-High
Internal	216	1,8	7,0	4,07	1,20	Medium-
External	216	1,6	7,0	5,26	1,04	Medium-High
Liberal	216	2,2	7,0	5,73	0,82	High
Conservative	216	1,0	6,8	2,79	1,23	Medium-High

When Table 3 is examined, the Legislative, Executive, Judicial, Monarchic, Hierarchical,

Oligarchic, Anarchic, Global, Local, Internal, External, Liberal and Conservative thinking style scores are respectively 2.8-7.0; 3.2-7.0; 3.0-7.0; 2.0-6.8; 2.4-7.0; 2.0-6.8; 2.2-7.0; 1.0-6.4; 2.2-6.6; 1.8-7.0; 1.6-7.0; It is understood that it takes values between 2.2-7.0 and 1.0-6.8. Legislative, Executive, Judicial, Monarchic, Hierarchical, Oligarchic, Anarchic, Global, Local, Internal, External, Liberal and Conservative thinking style mean scores are 5.46, respectively; 5.23; 5.54; 4.51; 5.58; 4.61; 5.23; 3.60; 4.68; 4.07; 5.26; It is calculated as 5.73 and 2.79. According to these values, rulers' perceptions of legislative, judicial, hierarchical and liberal thinking styles are high; middle-high perceptions of executive, monarchic, oligarchic, anarchic, local and external thinking style; global and intrinsic learning style perceptions are moderate and conservative learning style perceptions are medium-low.

The comparison of the scores obtained by the managers from the Thinking Styles Scale according to the independent variables are presented in tables below.

Table 4

Comparison of Administrators' Scores Received from the Thinking Styles Scale by Gender

Sub-scales	Gender	n	$\bar{X}$	Sd	t	P
Legislative	Female	63	5,55	0,83	0,88	0,380
	Male	153	5,43	0,95		
Executive	Female	63	5,41	0,85	2,00	0,046*
	Male	153	5,16	0,84		
Judicial	Female	63	5,42	0,77	-1,46	0,15
	Male	153	5,59	0,79		
Monarchic	Female	63	4,59	0,95	0,84	0,40
	Male	153	4,47	0,94		
Hierarchical	Female	63	5,52	0,88	-0,63	0,53
	Male	153	5,60	0,78		
Oligarchic	Female	63	4,74	1,01	1,14	0,26
	Male	153	4,56	1,08		
Anarchic	Female	63	5,03	1,04	-1,81	0,07
	Male	153	5,30	0,97		
Global	Female	63	3,69	1,12	0,81	0,42
	Male	153	3,56	1,12		
Local	Female	63	4,50	0,88	-1,83	0,07
	Male	153	4,75	0,93		
Internal	Female	63	4,30	1,18	1,84	0,07
	Male	153	3,98	1,20		
External	Female	63	5,02	1,02	-2,13	0,03*
	Male	153	5,35	1,04		
Liberal	Female	63	5,58	0,75	-1,68	0,09
	Male	153	5,79	0,85		
Conservative	Female	63	2,76	1,14	-0,25	0,80
	Male	153	2,80	1,27		

When Table 4 is examined, it is understood that the averages of the rulers' legislative, judicial, monarchic, hierarchical, oligarchic, anarchic, global, local, internal, liberal and conservative thinking style scores do not show a statistically significant difference by gender (P> 0.05). On the other hand, it was understood that the managers' executive and external thinking style mean scores showed a statistically significant difference according to gender (P <0.05). The executive thinking style mean score of women and the external thinking style score average of men were found to be significantly higher.

Tablo 5

Comparison of the Scores of the Managers' Thinking Styles Scale by Active Sports Activity

Sub-scales	Do you do Sport active Sport?	n	$\bar{X}$	Sd	t	P
Legislative	Yes	107	5,37	0,93	-1,45	0,15
	No	109	5,55	0,90		
Executive	Yes	107	5,16	0,92	-1,18	0,24
	No	109	5,30	0,77		
Judicial	Yes	107	5,67	0,73	2,47	0,01*
	No	109	5,41	0,82		
Monarchic	Yes	107	4,56	0,93	0,78	0,44
	No	109	4,46	0,96		
Hierarchical	Yes	107	5,65	0,73	1,34	0,18
	No	109	5,50	0,88		
Oligarchic	Yes	107	4,67	1,03	0,72	0,47
	No	109	4,56	1,09		
Anarchic	Yes	107	5,40	0,88	2,65	0,01*
	No	109	5,05	1,07		
Global	Yes	107	3,68	1,19	1,15	0,25
	No	109	3,51	1,05		
Local	Yes	107	4,89	0,82	3,43	0,00
	No	109	4,47	0,97		
Internal	Yes	107	4,05	1,12	-0,31	0,76
	No	109	4,10	1,28		
External	Yes	107	5,20	1,09	-0,79	0,43
	No	109	5,31	1,00		
Liberal	Yes	107	5,79	0,89	1,06	0,29
	No	109	5,67	0,75		
Conservative	Yes	107	2,56	1,12	-2,73	0,01*
	No	109	3,01	1,29		

***P<0,05**

When Table 5 is examined, managers only; It is understood that the mean scores of judicial, anarchic, local and conservative thinking styles show a statistically significant difference according to the status of active sports (P <0.05). There is a significant relationship between active sports and judicial, anarchic, local and conservative thinking styles. Managers who stated that they actively do sports; It was determined that their perceptions of judicial, anarchic and local thinking styles were significantly higher, and their perceptions towards conservative thinking styles were significantly lower.

Table 6

Comparison of the Scores of the Managers' Thinking Styles Scale by Frequency of Exercising

Sub-scales		Frequency of Exercising	n	$\bar{X}$	Sd	F	P	Significant Difference
Legislative	1.	Once a week	31	5,14	1,02	3,57	0,03*	3>1
	2.	Twice a week	46	5,30	0,80			
	3.	There are times a week and more	30	5,73	0,95			
Executive	1.	Once a week	31	4,87	0,69	4,27	0,02*	3>1
	2.	Twice a week	46	5,12	0,82			
	3.	There are times a week and more	30	5,53	1,16			
Judicial	1.	Once a week	31	5,75	0,67	2,30	0,11	-
	2.	Twice a week	46	5,77	0,61			
	3.	There are times a week and more	30	5,43	0,90			
Monarchic	1.	Once a week	31	4,59	1,03	0,53	0,59	-
	2.	Twice a week	46	4,46	0,93			
	3.	There are times a week and more	30	4,67	0,82			
Hierarchical	1.	Once a week	31	5,57	0,86	0,50	0,61	-
	2.	Twice a week	46	5,64	0,57			

	3.	There are times a week and more	30	5,75	0,80			
Oligarchic	1.	Once a week	31	4,45	1,07	1,57	0,21	-
	2.	Twice a week	46	4,86	0,84			
	3.	There are times a week and more	30	4,59	1,23			

***P<0,05**

Table 6

Comparison of the Scores of the Managers' Thinking Styles Scale by Frequency of Exercising (Continued)

Sub-scales		Frequency of Exercising	n	$\bar{X}$	Sd	F	P	Significant Difference
Anarchic	1.	Once a week	31	5,53	0,95	6,23	0,00*	1>3 2>3
	2.	Twice a week	46	5,62	0,63			
	3.	There are times a week and more	30	4,95	1,00			
Global	1.	Once a week	31	3,99	1,17	1,61	0,21	-
	2.	Twice a week	46	3,50	1,07			
	3.	There are times a week and more	30	3,66	1,35			
Local	1.	Once a week	31	4,85	0,79	1,76	0,18	-
	2.	Twice a week	46	5,05	0,75			
	3.	There are times a week and more	30	4,69	0,94			
Internal	1.	Once a week	31	3,87	1,00	1,25	0,29	-
	2.	Twice a week	46	4,00	1,11			
	3.	There are times a week and more	30	4,31	1,24			
External	1.	Once a week	31	5,37	0,95	6,59	0,00*	1>3 2>3
	2.	Twice a week	46	5,46	0,78			
	3.	There are times a week and more	30	4,62	1,41			
Liberal	1.	Once a week	31	5,75	0,73	1,87	0,16	-
	2.	Twice a week	46	5,96	0,70			
	3.	There are times a week and more	30	5,56	1,22			
Conservative	1.	Once a week	31	2,54	1,08	1,70	0,19	-
	2.	Twice a week	46	2,38	1,03			
	3.	There are times a week and more	30	2,86	1,27			

***P<0,05**

When Table 6 is examined, managers only; It is understood that the mean scores of legislative, executive, anarchic and external thinking styles show a statistically significant difference according to the frequency of doing sports (P <0.05). There is a significant relationship between the frequency of doing sports and the styles of legislative, executive, anarchic and external thinking. The perceptions of the managers who stated that they did sports

"three times a week or more" towards the legislative and executive thinking styles were found to be significantly higher than those of the managers who stated that they did sports "once a week". The perceptions of the managers who stated that they do sports "once a week" and "twice a week" towards anarchic and external thinking styles are significantly higher than those of their managers who stated that they do sports "three times a week or more".

Table 7

Comparison of the Scores of the Managers' Thinking Styles Scale with the Purpose of Exercising

Sub-scales	Purpose of Doing Sports	n	$\bar{X}$	Sd	F	P
	Health	130	5,45	0,97		
Legislative	Social activity	63	5,48	0,90	0,08	0,92
	Leisure activity	21	5,53	0,69		
	Health	130	5,15	0,84		
Executive	Social activity	63	5,25	0,89	2,57	0,08
	Leisure activity	21	5,60	0,68		
	Health	130	5,62	0,76		
Judicial	Social activity	63	5,40	0,80	1,81	0,17
	Leisure activity	21	5,47	0,86		
	Health	130	4,50	0,92		
Monarchic	Social activity	63	4,53	1,05	0,04	0,96
	Leisure activity	21	4,47	0,68		
	Health	130	5,55	0,84		
Hierarchical	Social activity	63	5,65	0,77	0,48	0,62
	Leisure activity	21	5,49	0,75		
	Health	130	4,65	1,09		
Oligarchic	Social activity	63	4,49	1,07	1,01	0,37
	Leisure activity	21	4,85	0,88		
	Health	130	5,31	0,95		
Anarchic	Social activity	63	5,05	1,03	1,42	0,24
	Leisure activity	21	5,26	1,17		
	Health	130	3,62	1,09		
Global	Social activity	63	3,63	1,11	0,55	0,58
	Leisure activity	21	3,35	1,28		
	Health	130	4,66	0,85		
Local	Social activity	63	4,77	1,07	0,64	0,53
	Leisure activity	21	4,53	0,94		
	Health	130	4,13	1,17		
Internal	Social activity	63	3,92	1,19	0,89	0,41
	Leisure activity	21	4,26	1,39		
	Health	130	5,17	1,03		
External	Social activity	63	5,46	0,93	1,78	0,17
	Leisure activity	21	5,17	1,41		
	Health	130	5,71	0,82		
Liberal	Social activity	63	5,79	0,83	0,43	0,65
	Leisure activity	21	5,61	0,85		
	Health	130	2,63	1,03		
Conservative	Social activity	63	3,10	1,58	2,67	0,07
	Leisure activity	21	2,90	1,10		

When Table 7 is examined, the managers; It is understood that the mean scores of legislative, executive, judicial, monarchic, hierarchical, oligarchic, anarchic, global, local, internal, external, liberal and conservative thinking style do not show a statistically significant difference according to the purpose of doing sports (P> 0.05). There is no meaningful relationship between the aim of doing sports and legislative, executive, judicial, monarchic, hierarchical, oligarchic, anarchic, global, local, internal, external, liberal and conservative thinking styles.

Findings Regarding the Relationship Between the Thinking Styles Scale and the Attitude towards Sports Scale

Table 8

Correlation Coefficients of the Relationships Between the Scores Obtained from the Managers' Thinking Styles Scale and the Scores Obtained from the Sports Attitude Scale

Sub-scales	Interest in Sport	Live in Sport	Active Sport	Total Point
Legislative	-0,180**	-0,152*	-0,119	-0,174*
Executive	-0,102	-0,001	0,012	-0,053
Judicial	0,137*	0,007	0,006	0,076
Monarchic	0,004	0,037	-0,002	0,011
Hierarchical	0,146*	0,141*	0,097	0,149*
Oligarchic	-0,020	-0,012	0,019	-0,017
Anarchic	0,222**	0,054	-0,005	0,127
Global	0,080	0,090	0,113	0,098
Local	0,181**	-0,008	-0,066	0,073
Internal	-0,132	-0,112	-0,026	-0,111
External	0,185**	0,007	-0,009	0,094
Liberal	0,238**	0,091	0,038	0,164*
Conservative	-0,055	0,088	0,102	0,031

****P<0,01; *P<0,05**

The relationship between the Thinking Styles Scale sub-dimension scores in Table 8 and the sub-dimension and total scores of the attitude towards sports scale was examined. As a result of this examination. Interest in sports with legislative thinking style (r = -0.180; P <0.01), living with sports (r = -0.152; P <0.05) and general attitude towards sports (r = -0.174; P <0.05) of low negative direction; Judicial (r = 0.137; P <0.05), anarchic (r = 0.222; P <0.05), local (r = 0.181; P <0.01) and extrinsic (r = 0.185; P <0.05) low level positive direction between thinking styles and interest in sports; Hierarchical thinking style and interest in sports (r = 0.146; P <0.05), living with sports (r = 0.141; P <0.05) and general attitude towards sports (r = 0.149; P <0.05) positive way; It was found that there is a low level positive relationship between liberal thinking style and interest in sports (r = 0.238; P <0.05) and general attitude towards sports (r = 0.164; P <0.05).

Table 9

Results of the Regression Analysis Performed to Determine the Effect of Thinking Styles on General Attitude towards Sports

Variable	B	Standard Error	β	t	P
Stable	2,82	0,49		5,76	0,00
Legislative	-0,11	0,06	-0,17	-2,06	0,04
Executive	0,01	0,06	0,01	0,15	0,88
Judicial	0,00	0,07	0,00	-0,04	0,97
Monarchic	-0,02	0,06	-0,04	-0,44	0,66
Hierarchical	0,13	0,06	0,17	2,13	0,03
Oligarchic	-0,09	0,05	-0,14	-1,73	0,09
Anarchic	0,04	0,06	0,07	0,75	0,45
Global	0,07	0,04	0,12	1,66	0,10
Local	0,01	0,06	0,02	0,22	0,83
Internal	-0,06	0,04	-0,11	-1,25	0,21
External	-0,02	0,05	-0,04	-0,46	0,65
Liberal	0,13	0,06	0,17	2,03	0,04
Conservative	0,05	0,04	0,10	1,23	0,22

$R=0,342$ $R^2=0,117$, $F_{(13\text{-}215)}=2,053$ $P=0,018$

When Table 9 is examined, legislative, executive, judicial, monarchic, hierarchical, oligarchic, anarchic, global, local, internal, external, liberal and conservative thinking styles together give a significant relationship with the general attitude towards sports (R = 0.342; R2 = 0.117; F = 2.053; P <0.05) These variables together explain approximately 12% of the total variance in general attitude towards sports. On the other hand, when the significance test results of the calculated coefficients are examined, it is understood that only legislative, hierarchical and liberal thinking styles are significant predictors of general attitudes towards sports. As the legislative thinking style increases, positive attitudes towards sports decrease, and as the hierarchical and liberal thinking style increases, positive attitudes towards sports increase.

DISCUSSION & CONCLUSION

In this study, the thinking styles and attitudes towards sports of 214 managers working in Konya Seker company were determined, and their thinking styles and attitudes towards sports were compared according to gender, age, active sports status, frequency of doing sports and the purpose of doing sports. In addition, the relationship between managers' thinking styles and their attitudes towards sports and the effect of thinking styles on their attitudes towards sports were also investigated. In this context, important and significant results were obtained at causal and relational levels in the study.

The managers who participated in the research had high perceptions of legislative, judicial, hierarchical and liberal thinking styles in general; middle-high perceptions of executive, monarchic, oligarchic, anarchic, local and external thinking style; It was determined that global and internal thinking style perceptions were moderate and conservative thinking style perceptions were at medium-low level.

According to the thinking style scale score averages of the administrators, it is seen that the thinking style preferred the most is liberal (x = 5.73). According to this result, it is possible to say that managers prefer to try new approaches, techniques and actions at a high level and they can adapt to the changes and developments that occur in their environment (Sternberg 1994). It is seen that the liberal thinking style is followed by hierarchical (x = 5.58), judicial (x = 5.54) and legislative (x = 5.46) thinking styles, respectively, in terms of average score (Table

3). that they can apply the order of priority and afterward in their work in a healthy way, they can establish the balance in their social and business life in a systematic way, they prefer to be systematic and organized while performing a job and making a decision, they set priorities both in daily life and in their work because they think that they cannot be efficient at the same time (hierarchical) (Balgamis, 2007); They actively use the criticism and criticism dimension in solving problems, constantly evaluate their subordinates and aim to make the best decision with different critical perspectives, but they do not like being criticized by others (judgmental) (Monthly 2006, Obeidat 2007); It is possible to say that they use their own decisions and ideas extensively in their management processes and that their own initiatives and decisions as a manager (legislature) determine their relations with their employees and stakeholders (Zang, 2003).

Zang (2003) states that legislative, judgmental, hierarchical and liberal thinking styles have a high-level cognitive structure and are named Type 1 styles in this respect, that there is a mentally complex relationship between these styles, and this thinking in individuals with cognitive and mental maturity. He stated that their styles can be seen in a versatile way. Considering that 75.5% of those participating in the study are managers, 20.4% are managers, 3.2% are directors and 0.9% are coordinators, it is seen that the result is supported by the literature. The fact that managers consist of individuals who are educated and take part in managerial processes explains the predominant determination of these four styles. Zhang and Sternberg (2000) reported that individuals with high Type I thinking styles have high self-esteem, a deep approach to learning, a high level of cognitive development and leadership characteristics. In this context, their management and professional experiences as well as their educational foundations can be explained as the reason for the high level of Type 1 thinking styles of the managers within the scope of the research.

According to the thinking style scale score averages of the managers, it is seen that the thinking style that they prefer least is conservative (x = 2.79). According to this result, it is possible to say that managers often do not use conventional methods in solving problems, and it is not important for them to employ traditional and cliché methods (Sternberg 2009). Zang (2003) reported that individuals with this thinking style express a tendency in line with the second group of norms and that this thinking style is a way of thinking that requires lower levels of cognitive complexity. He stated that these individuals prefer to stick to the general theme without going beyond the given duties. In studies with similar results, Vural (2013) stated that the top three thinking styles preferred by sports managers are hierarchical, executive and liberal, while the least preferred thinking styles are conservative, internal and local, Çağlayan (2012) stated that physical education teachers are the most preferred Balgalmış (2007) found that the thinking styles most used by school administrators were hierarchical, executive and external thinking styles, and the least preferred thinking styles were conservative, oligarchic and local thinking styles.

The gender variable of "legislative", "judicial", "monarchic", "hierarchical", "oligarchic", "anarchic", "global", "local", "internal", "liberal" and "conservative" thinking styles of the administrators participating in the study. it did not differ significantly according to; It was determined that “executive” and “external” thinking styles differ significantly according to the gender variable (Table 4). The executive thinking style score averages of women were found to be significantly higher than the male, and the external thinking style mean score of the male was found to be significantly higher than the female. According to Sternberg, individuals who frequently prefer the executive thinking style like to put things into practice and actively implement the plans or programs offered to them. In addition, these types of individuals are successful in transforming projects with a defined and defined content into practice (Invention 2005). We can say that female managers participating in the study have these characteristics at a higher level than men.

Individuals with an external thinking style are extroverted, human-centered, approachable and more social. They like working with others and dealing with problems with them. Group or collaborative learning experiences are activities they enjoy participating in (Invention 2005). Individuals using external thinking style tend to be more sensitive to social issues and be aware of social problems. They are more prone to collaboration (Duru 2004, Zhang and Sternberg 2005, Invention 2006). We can say that male managers participating in the study have these characteristics at a higher level than women.

It was found that the thinking styles of the administrators participating in the research did not differ significantly according to the variable of active sports; It was determined that "judgmental", "anarchic", "local" and "conservative" thinking styles differ significantly according to the active sports variable (Table 5). The average scores of judicial, anarchic and local thinking style of managers who do active sports were found to be higher than managers who do not do active sports, and the average of conservative thinking styles of managers who do not do active sports was found to be higher than managers who do active sports. In judgmental thinking style, the individual takes into account the consequences of other individuals' actions and focuses on evaluating them. It focuses on evaluation, judgment and comparison. He prefers to work on problems that he can analyze and evaluate (Çubukçu 2004). In anarchic thinking style, individuals like to concentrate on jobs that do not create anxiety and give comfort and flexibility. They avoid being attached to anything. They are not systematic (Çubukçu 2004). The local way of thinking is associated with an interest in details, a tendency to deal with details rather than a general and comprehensive perspective. An individual with a local thinking style prefers dealing with concrete problems over abstract issues (Duru 2004, Zhang and Sternberg 2005, Invention 2006). When we evaluate the results of the research according to the related literature, managers who do active sports have a higher level of evaluation, judgment, comparison; It is possible to say that they carry out managerial processes with a detailed approach and avoiding being tied to anything. Another result of the study is that managers who do not do active sports use conservative thinking styles at a higher level compared to managers who do active sports. Individuals with a predominantly conservative thinking style like to act in accordance with existing rules and guidelines, to resist change, and to stay away from uncertain situations as long as possible. They prefer familiarity and what is known in their lives (Invention, 2005). In short, they are the people who prefer the traditional, the tried (Fer, 2005). Again, when we evaluate the results of the research according to the relevant literature, it is possible to say that managers who do not do active sports prefer those who are known at a higher level, prefer familiarity, and who prefer the tried when performing managerial processes compared to managers who do active sports.

It was found that the thinking styles of the administrators participating in the research did not differ significantly according to the frequency of doing sports; "judicial", "monarchic", "hierarchical", "oligarchic", "global", "local", "internal", "liberal" and "conservative"; It was determined that "legislative", "executive", "anarchic" and "external" thinking styles differ significantly according to the frequency of doing sports (Table 6). Scheffe multiple comparison test was applied to determine which groups caused the significant difference observed between groups. As a result of this practice, the average scores of executive and legislative thinking styles of managers who do sports three times a week or more than managers who do sports once a week; The anarchic and external thinking style score averages of managers who do sports once or twice a week were found to be higher than managers who do sports three times a week or more. This thinking style focuses on creativity, planning, designing and shaping (Çubukçu 2004, Fer 2005). In the executive thinking style, practice and doing actions are predominant. Individuals using this style enjoy working in accordance with the procedure (Çubukçu 2004). They like to follow the instructions and do what they are told (Park et al 2005). They prefer to apply existing rules and structured problems (Duru, 2004).

In the examination of the relationship between the thinking styles scale sub-dimension scores of the managers participating in the study and the sub-dimension and total scores of the attitude towards sports scale (Table 8), the following results were obtained: There was a low level of negative direction between legislative thinking style and interest in sports, and general attitude towards sports and sports. It has been determined that there is a relationship. According to this result; managers' high level of features such as doing everything according to their own style, liking to invent and design, not sticking to a certain structure, preferring to deal with works that require creativity, liking to produce projects, innovative, creative and idea generation (legislative thinking style) We can say that it will decrease their general attitudes towards being interested, living with sports and sports. The legislative function is also called prescriptive. In other words, this thinking style includes features that are very bound to the rules, who apply the rules meticulously, and who want the rules to be followed. The fact that managers with these qualities primarily consider their responsibilities in their jobs, strictly adhere to the rules on this issue, and perhaps focus on new business-related projects even in their spare time may have caused the result to come out like this.

It was found that there is a low-level positive relationship between judicial thinking style and interest in sports. According to this result; that managers have a high level of features such as evaluating the implementation processes of rules and instructions, liking to judge objects, events and facts, preferring to evaluate and analyze existing situations and thoughts, prefer studies where they can compare two perspectives or evaluate one perspective (judicial thinking style) We can say that it will increase their interest in sports.

It was determined that there is a low-level positive relationship between hierarchical thinking style and interest in sports, living with sports and general attitude towards sports. According to this result; Considering many goals with different priorities, focusing on several tasks at once, liking to do multiple tasks at once, not dealing with more than one purpose, but being aware that not all goals can be achieved at the same rate, using time effectively, doing multiple tasks simultaneously by prioritizing and problem We can say that having a high level of characteristics such as being systematic (hierarchical thinking style) in solving approaches will increase their interest in sports, living with sports and their general attitude towards sports.

It was found that there is a low-level positive relationship between anarchic thinking style and interest in sports. According to this result; managers like to concentrate on jobs that do not create anxiety, comfort, flexibility, avoid being attached to anything, like jobs that provide flexibility about where, when and how to work, like to handle problems with a random approach, dislike systems, directions and limitations, rules, We can say that having a high level of features such as avoiding procedures and official systems (anarchic thinking style) will increase their interest in sports.

It was found that there is a low-level positive relationship between local thinking style and interest in sports. According to this result, managers' high level of attention to details, dealing with concrete problems, preferring abstract issues, generally turning towards utilitarian goals, enjoying participating in work requiring work by focusing on details (local thinking style) rather than a general and comprehensive perspective, we can say that it will increase.

It was found that there is a low-level positive relationship between extrinsic thinking style and interest in sports. According to this result; managers like working with others and dealing with problems related to them, being more sensitive to social issues and being aware of social problems, being more prone to cooperation, enjoying doing jobs that provide opportunities to improve interpersonal relationships, preferring to do group work instead of individual work (external thinking style) We can say that having such features at a high level will increase their interest in sports.

A study revealed a modest positive correlation between a liberal thinking style and both an interest in sports as well as a general positive attitude towards sports. According to this result, managers like to do things in new ways that others have not used before, and to look for alternatives to traditional ways, to engage in work that requires innovation and uncertainty, to act without considering rules and procedures, to increase change, to encounter uncertain and uncertain situations, to make changes in their lives and to challenge traditions. We can say that having a high level of characteristics such as liking to read (liberal thinking style) will increase their interest in sports and their general attitude towards sports. There is no study examining the relationship between thinking styles and attitudes towards sports in the relevant literature.

The Thinking Styles Scale sub-dimensions (legislative, executive, judicial, monarchic, hierarchical, oligarchic, anarchic, global, local, intrinsic, external, liberal and conservative) showed a significant relationship with the general attitude towards sports (Table 9). Only legislative, hierarchical and liberal thinking styles among the variables were found to be significant predictors of general attitude towards sports. In other words, as the legislative thinking style increases, positive attitudes towards sports decrease, and as the hierarchical and liberal thinking style increases, positive attitudes towards sports increase.

Recommendations

By organizing in-service training programs aimed at making managers aware of their own thinking styles, it can be ensured that they act in accordance with their thinking styles and develop their skills that will enable them to solve problems better. Managers can be informed about the positive effects of sports, both mentally, physically and emotionally, and they can be encouraged to participate in sports activities. Thinking styles have an important place in individuals' life skills and habits. It is thought that detailed studies investigating the thinking styles of managers and other factors affecting their attitudes towards sports (problem solving skills, ways of coping with stress, leadership styles, organizational commitments, management styles, etc.) will contribute to this field.

Limitations of Research

The study has some limitations. The fact that the applied sample group is limited to only managers within a company is a fundamental deficiency in the generalizability of the results. Accordingly, it may be recommended to conduct similar studies on a larger scale

REFERENCES

Agarwal, J., & Malhotra, N. K. (2005). An integrated model of attitude and affect. *Journal of Business Research, 58*(4), 483-493. https://doi.org/10.1016/S0148-2963(03)00138-3

Armstrong, S., & Cools, S. (2009). Cognitive styles and their relevance for business and management. In L. F. Zhang & R. J. Sternberg (Eds.), *Perspective on the nature of intellectual styles* (pp. 253-290). Springer.

Balgalmış, E. (2007). *Eğitim yöneticilerinin düşünme stilleri ile başa çıkma davranışları arasındaki ilişki* [Yüksek lisans tezi, Gazi Osman Paşa Üniversitesi]. YÖK Tez Merkezi.

Balkıs, M., & Işıker, G. B. (2005). Relationship between thinking styles and personality types. *Social Behavior and Personality: An International Journal, 33*(3), 283-294. https://doi.org/10.2224/sbp.2005.33.3.283

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. *Sage Focus Editions, 154*, 136-136.

Buluş, M. (2000). *Examination of attributional complexity, thinking styles and cognitive consistency preferences in terms of some psychological features and academic success* [Doctoral dissertation, Dokuz Eylül University]. YÖK Tez Merkezi.

Buluş, M. (2005). Reliability and validity of the thinking styles scale, academic success and teacher candidates characteristics. *Ege Eğitim Dergisi, 1*(6), 1-24.

Buluş, M. (2006). Reliability and validity of thinking styles scale, academic achievement and teacher candidates characteristics. *Eğitim ve Bilim, 31*(139), 35-48.

Büyüköztürk, Ş., Kılıç Ç., Akgün, E., Karadeniz, Ö. E., & Demirel, F. (2008). *Bilimsel araştırma yöntemleri* (3. baskı). Pegem Akademi.

Byrne, B. (1989). *A primer of LISREL: Basic assumptions and programming for confirmatory factor analysis models*. Springer.

Çağlayan, H. S. (2012). The investigation of thinking styles of physical education teachers in Turkey. *Energy Education Science and Technology Part B: Social and Educational Studies*, 1639-1648.

Çokluk, Ö., & Büyüköztürk, Ş. (2012). *Sosyal bilimler için çok değişkenli istatistik: SPSS ve LISREL uygulamaları* (2. baskı). Pegem Akademi Yayıncılık.

Çubukçu, Z. (2004). Determining the thinking styles of teacher candidates. *Trakya Üniversitesi Sosyal Bilimler Dergisi, 5*(2), 87-106.

Demirel, Ö., & Ün, K. (1997). *Eğitim terimleri sözlüğü* (2. baskı). Şafak Matbaası.

Duru, E. (2004). Düşünme stilleri kavramsal ve kuramsal çerçeve. *Eğitim Araştırmaları Dergisi, 18*, 171-186.

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics, 5*(1), 1-4. https://doi.org/10.11648/j.ajtas.20160501.11

Evans, J. (2002). Logic and human reasoning: An assessment of the deduction paradigm. *Psychological Bulletin, 128*(6), 978-996. https://doi.org/10.1037//0033-2909.128.6.978

Fer, S. (2005). Düşünme stilleri envanterinin geçerlik ve güvenirlik çalışması. *Kuram ve Uygulamada Eğitim Bilimleri Dergisi, 5*, 31-68.

George, D., & Mallery, M. (2010). *SPSS for Windows step by step: A simple guide and reference, 17.0 update* (10a ed.). Pearson.

Jöreskog, K. G., & Sörbom, D. (1993). *Structural equation modeling with the SIMPLIS command language*. Scientific Software International, Inc.

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). The Guilford Press.

Kotler, P., Roberto, N., & Nancy, L. (2002). *Social marketing: Improving the quality of life* (2nd ed.). Sage Publication.

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods, 1*(2), 130-149. https://doi.org/10.1037/1082-989X.1.2.130

McDonald, R. P., & Marsh, H. W. (1990). Choosing a multivariate model: Noncentrality and goodness of fit. *Psychological Bulletin, 107*(2), 247-255. https://doi.org/10.1037/0033-2909.107.2.247

Monthly, H. R. (2006). Ways of thinking among students and students at the university of initial and final good in the city illuminator. *King Saud University Journal of Science, Educational and Islamic Studies, 2*(19), 833-888.

Obeidat, T., & Abu Assameed, S. (2007). *The brain, learning and thinking*. Dar Al-Fikr.

Palut, B. (2004). Düşünme stilleri ölçeğinin Türkçeye uyarlanma ve geçerlik güvenirlik çalışması [Sözel bildiri]. XIII Ulusal Eğitim Bilimleri Kurultayı, Malatya.

Park, K., & Choe, H. (2005). The relationship between thinking styles and scientific giftedness in Korea. *Journal of Secondary Gifted Education, 16*, 87-97. https://doi.org/10.4219/jsge-2005-475

Parkhouse, B. L. (2001). *The management of sport* (3rd ed.). National Association for Sport & Physical Education.

Shapiro, L. E. (1999). *Yüksek EQ'lu bir çocuk yetiştirme* (E. Özlem Güngör, Trans.). Varlık Yayınları.

Smith, D. K. (2004). *On value and values: Thinking differently about we in an age of me*. Rodale.

Sternberg, R. J. (1994). Allowing for thinking styles. *Educational Leadership, 52*(3), 36-40.

Sternberg, R. J., & Grigorenko, E. L. (1997). Are cognitive styles still in style? *American Psychologist, 52*(7), 700-712. https://doi.org/10.1037//0003-066X.52.7.700

Sternberg, R. J. (2009). *Düşünme stilleri* (E. Güngör, Trans.). SEV Yayıncılık.

Sternberg, R. J., & Wagner, R. K. (1992). *Thinking styles inventory* [Unpublished test]. Yale University. https://doi.org/10.1037/t14063-000

Sünbül, A. M. (2004). Düşünme stilleri ölçeğinin geçerlik ve güvenirliği. *Eğitim ve Bilim Dergisi, 132*, 25-42.

Tanaka, J. S., & Huba, G. J. (1985). A fit index for covariance structure models under arbitrary GLS estimation. *British Journal of Mathematical and Statistical Psychology, 38*, 197-201. https://doi.org/10.1111/j.2044-8317.1985.tb00834.x

Tavşancı, E. (2005). *Tutumların ölçülmesi ve SPSS ile veri analizi*. Nobel Yayıncılık.

Vance, C., Groves, K., Paik, Y., & Kindler, H. (2007). Understanding and measuring linear and nonlinear thinking style for enhanced management education and professional practice. *Academy of Management Learning & Education, 6*(2), 167-171. https://doi.org/10.5465/amle.2007.25223457

Vural, H. (2013). Use of literature to enhance motivation in ELT classes. *Mevlana International Journal of Education (MIJE), 3*(4), 15-23. https://doi.org/10.13054/mije.13.44.3.4

Yılmaz, H., & Sünbül, A. M. (2004). *Öğretimde planlama ve değerlendirme*. Mikro Yayınları.

Zabukovec, V., & Kobal, G. D. (2004). Relationship between student thinking styles and social skills. *Psychology Science, 46*, 156-166.

Zhang, L. F. (2003). Contributions of thinking styles to critical thinking dispositions. *The Journal of Psychology: Interdisciplinary and Applied, 137*(6), 517-544. https://doi.org/10.1080/00223980309600633

Zhang, L. F., & Sternberg, R. J. (2000). Are learning approaches and thinking styles related? A study in two Chinese populations. *The Journal of Psychology: Interdisciplinary and Applied, 134*(5), 469-489. https://doi.org/10.1080/00223980009598230

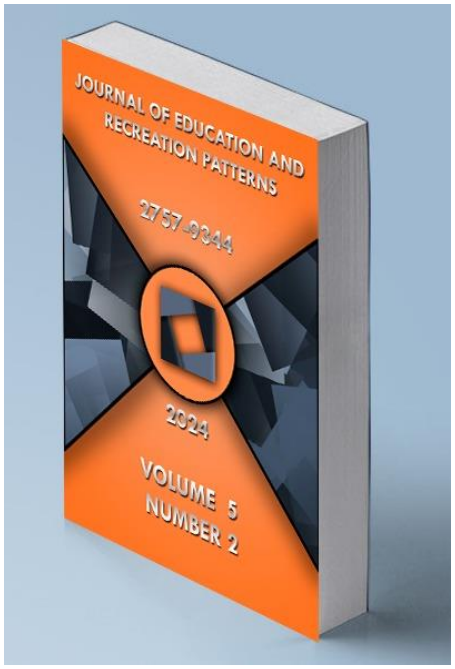
Zhang, L. F., & Sternberg, R. J. (2005). A threefold model of intellectual styles. *Educational Psychology Review, 17*(1), 1-53. https://doi.org/10.1007/s10648-005-1635-4

Author(s)' statements on ethics and conflict of interest

Ethics statement: I hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. I take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the author.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Web Weavers or Leisure Seekers? Attitudes toward Leisure from the Perspective of Social Media Addiction, Fear of Missing Out and Sense of Belonging*

Andaç AKÇAKESE[1], Mehmet DEMİREL[2]

To cite this article:

Akçakese, A., & Demirel, M. (2024). Web weavers or leisure seekers? Attitudes toward leisure from the perspective of social media addiction, fear of missing out and sense of belonging. *Journal of Education and Recreation Patterns (JERP), 5* (2), 164-177. DOI: https://doi.org/10.53016/jerp.v5i2.250

* This study was produced from the master's thesis published by Necmettin Erbakan University Institute of Social Sciences titled "The Effect of Social Media Addiction on Leisure Attitude: The Mediating Role of The Fear of Missing Out (FoMO) and The Moderating Role of The Need to Belong".

[1] Faculty of Tourism, Necmettin Erbakan University, akcakese.10@gmail.com, https://orcid.org/0000-0002-2954-5632

[2] Faculty of Tourism, Necmettin Erbakan University, mehmetdemirel78@gmail.com, https://orcid.org/0000-0003-1454-022X

Journal of Education and Recreation Patterns (JERP)
Volume 5, Issue 2, Year 2024 ISSN: 2757-9344

Web Weavers or Leisure Seekers? Attitudes Toward Leisure from the Perspective of Social Media Addiction, Fear of Missing Out and Sense of Belonging

Andaç Akçakese[1], Mehmet Demirel[2]

ARTICLE INFORMATION

Original Research Paper

Received 11.06. 2024
Accepted 01.09. 2024

https://jerpatterns.com

December, 2024

Volume: 5, No: 2

Pages: 164-177

ABSTRACT

The pervasive use of social media has become a defining characteristic of contemporary society, particularly among young adults. This widespread adoption has introduced new challenges, including the potential for social media addiction, which can disrupt traditional leisure activities and adversely impact mental well-being. The phenomenon of social media addiction is closely linked with the fear of missing out (FoMO) and a heightened need for social connection, both of which can significantly alter individuals' perceptions and engagement with leisure. Recognizing these complex dynamics, this study explores the intricate relationship between social media addiction, FoMO, and the sense of belonging, focusing on their impact on attitudes toward leisure among university students. It employs a cross-sectional survey design, collecting data from university students (N = 220). The data were analyzed through frequency analysis, normality distribution analysis, and regression analysis. The findings reveal that social media addiction significantly predicts FoMO and the need to belong, highlighting the importance of addressing these psychological needs to promote healthier leisure engagement. By understanding these dynamics, this study aims to provide insights into fostering balanced social media use and developing strategies to mitigate its adverse effects on leisure activities.

Keywords: Interactionist Perspective, Leisure Behavior, Need to Belong, Social Connectedness, Social Networking

INTRODUCTION

The pervasive use of social media has been accompanied by significant changes in how individuals perceive and engage in leisure activities. With over 4.8 billion social media users globally as of 2023 (Statista, 2024), this digital landscape has become deeply integrated into daily life, shaping behaviors and attitudes toward leisure. Leisure, traditionally viewed as a time for relaxation and personal growth (Shaw, 1985), is increasingly influenced by the compulsive nature of social media use (Albrechtslund & Albrechtslund, 2014). This shift is largely attributed to the phenomenon of social media addiction, which is characterized by an uncontrollable urge to engage with social media platforms excessively (Kuss & Griffiths, 2017). Concurrently, FoMO, a pervasive apprehension that one might miss rewarding experiences others are having, has emerged as a critical factor affecting social media behavior and leisure perceptions (Przybylski et al., 2013). As social media platforms like Facebook, Instagram, and Snapchat continue to gain popularity, understanding the psychological impacts of their use becomes increasingly important. The intricate relationship between social media addiction, FoMO, and individuals' sense of belonging highlights a complex dynamic that is yet to be fully understood. This study aims to explore these interconnections and examine how they influence attitudes towards leisure activities.

This study is essential due to the increasing prevalence of social media use and its profound impact on individuals' daily lives and well-being. The compulsive nature of social media usage often leads to addiction, negatively affecting leisure time quality and mental health (Alonzo et al., 2021; Huang, 2022). Social media addiction is known to disrupt everyday life, leading to decreased productivity and social withdrawal, particularly among young adults and adolescents (Rozgonjuk et al., 2020). Moreover, FoMO exacerbates this issue by fostering anxiety and stress related to potentially missing out on social interactions or events, thus disrupting leisure activities (Uram & Skalski, 2022). The sense of belonging, another crucial psychological factor, is intricately linked with social media usage patterns, where individuals often seek validation and community online (Fabris et al., 2020). By investigating these elements, this research addresses a significant gap in understanding how these variables interact and affect leisure perceptions, thus offering insights into fostering healthier social media habits.

The study is pertinent given the current trends indicating a rise in social media addiction and its correlation with FoMO and the need for belonging. Multiple studies have shown that FoMO is a substantial predictor of social media addiction, as it compels individuals to stay constantly connected, fearing they might miss significant social interactions or events (Franchina et al., 2018; Varchetta et al., 2020). This trend is particularly pronounced among adolescents and young adults, for whom social media serves as a primary means of communication and social validation (Yin et al., 2021). Moreover, the role of social media as a tool for meeting belongingness needs has been increasingly recognized, with research indicating that it significantly influences FoMO levels and addiction tendencies (Malouf, 2022). Multiple studies have found that individuals with higher levels of FoMO tend to exhibit greater social media addiction symptoms, leading to impaired well-being and disrupted daily life (Dorani, 2021; Rozgonjuk et al., 2020). These trends underscore the urgency of addressing the psychological impacts of social media use, as these influences continue to grow alongside technological advancements.

The variables of social media addiction, FoMO, and sense of belonging are of interest because they provide a comprehensive framework for understanding the psychological impacts of social media on leisure activities. Social media addiction often disrupts healthy leisure activities, leading to negative outcomes such as reduced productivity and increased stress (Keleş et al., 2020). FoMO, in particular, serves as a mediator that exacerbates these negative outcomes by increasing users' dependency on social media to satisfy their social needs (Buglass

et al., 2017). Multiple studies suggest that individuals experiencing FoMO are more likely to engage in maladaptive social media behaviors, such as excessive checking and constant engagement, which disrupt leisure activities (Duman & Özkara, 2021; McKee et al., 2022). The sense of belonging influences these dynamics by affecting how individuals interact with and perceive their online communities (Liu et al., 2018). A strong need for belonging can drive individuals to seek validation through social media, exacerbating FoMO and addiction tendencies (Yin et al., 2021). This research aims to address the specific problem of how these intertwined factors alter attitudes towards leisure, providing valuable insights for developing strategies to mitigate social media's adverse effects on leisure activities. The problem statement is thus defined as: "How do social media addiction, FoMO, and sense of belonging collectively influence attitudes toward leisure activities?" This investigation seeks to contribute to a deeper understanding of these dynamics and promote healthier, more balanced interactions with social media platforms.

LITERATURE REVIEW

The current literature reveals significant gaps in understanding the comprehensive interplay between social media addiction, FoMO, and the sense of belonging, especially concerning attitudes toward leisure. While numerous studies have explored these phenomena individually (Alabri, 2022; Yin et al., 2021), the interconnected effects of these variables on leisure activities remain underexplored. Existing research has primarily focused on the impact of FoMO and social media addiction on psychological well-being and daily functioning (Fabris et al., 2020; Harzman, 2022). However, little attention has been given to how these factors jointly influence leisure perceptions and behaviors (Argan et al., 2024; Tomczyk & Selmanagic-Lizde, 2018). Moreover, the role of the need to belong as a mediator in these relationships has been often overlooked, despite its potential to offer deeper insights into individuals' social media use and its effects on leisure (Duman & Özkara, 2021). Thus, this study aims to fill these gaps by examining the interactive effects of these variables on attitudes toward leisure.

The theoretical framework for this study is grounded in the interactionist perspective, which suggests that individuals' behaviors and attitudes result from the interaction between personal dispositions and environmental influences (Conger & Donnellan, 2007). Social media addiction, FoMO, and the need to belong are conceptualized as interacting forces that shape individuals' engagement with leisure activities. Social media addiction is considered a compulsive behavior driven by an unmet need for social connection and belonging (Tandon et al., 2021). FoMO is viewed as a motivational factor that exacerbates the compulsive use of social media, leading individuals to prioritize digital interactions over traditional leisure activities (Blackwell et al., 2017). It is hypothesised that the need to belong is correlated with these constructs and leisure attitudes, providing a framework for understanding how social needs influence leisure engagement. These theoretical considerations form the basis for the study's hypotheses.

Social media platforms are designed to keep users engaged (Veale et al., 2015), and individuals who experience high levels of FoMO are more likely to develop addictive behaviors towards these platforms (Blackwell et al., 2017). The desire to remain constantly updated and connected with others is a key characteristic of FoMO, which reinforces social media addiction as individuals attempt to avoid feelings of exclusion or missing out on social experiences (Hetz et al., 2015). For instance, studies have indicated that FoMO significantly predicts the level of social media engagement, suggesting that users driven by FoMO are more prone to addictive behaviors (Beyens et al., 2016). This compulsive need to stay connected drives users to engage excessively with social media, creating a cycle that perpetuates both FoMO and addiction.

Thus, the following hypothesis is proposed: *H1. There is a positive relationship between social media addiction and FoMO.*

Individuals who have a strong desire for social connection and acceptance are more likely to use social media excessively as a means to fulfill these needs (Andreassen et al., 2017). Social media platforms offer a sense of community and belonging (Lyu & Kim, 2020), making them attractive to those seeking social validation and connection (Ellison et al., 2011). Research has demonstrated that individuals with a higher need to belong are more susceptible to developing addictive behaviors related to social media use, as these platforms provide a space for fulfilling social needs (Yin et al., 2021). The addictive nature of social media can be partly attributed to its ability to meet these social needs, encouraging continuous use and dependency. This relationship highlights the psychological mechanisms underlying social media addiction and emphasizes the role of belongingness needs in driving online behavior. Thus, the following hypothesis is proposed: *H2. There is a positive relationship between social media addiction and the need to belong.*

Individuals with a strong need to belong are more susceptible to experiencing FoMO, as they are highly motivated to stay connected and involved in social activities (Malouf, 2022). FoMO acts as a psychological response to unmet belongingness needs, prompting individuals to engage with social media to maintain social connections and avoid feelings of isolation (Hetz et al., 2015). Furthermore, studies have shown that the need to belong enhances the experience of FoMO, which in turn leads to increased social media use and addiction (Alabri, 2022), highlighting the interconnectedness of these variables. Thus, the following hypothesis is proposed: *H3. There is a positive relationship between FoMO and the need to belong.*

Individuals experiencing FoMO may perceive leisure activities as less fulfilling, as they are preoccupied with digital interactions and FoMO on online experiences (Rozgonjuk et al., 2020). This shift in focus from physical to digital leisure activities can impact how individuals perceive and engage with leisure, leading to a preference for activities that allow for social media engagement (Bloemen & De Coninck, 2020). The impact of FoMO on leisure attitudes is particularly pronounced among adolescents and young adults, who often prioritize online interactions over traditional leisure pursuits (Argan et al., 2024; Wu-Ouyang, 2023). This phenomenon underscores the need to understand how FoMO influences leisure perceptions and the broader implications for well-being. Thus, the following hypothesis is proposed: *H4. There is a positive relationship between FoMO and attitudes towards leisure.*

Social media platforms provide opportunities for individuals to connect with others and fulfill their belongingness needs, leading to a preference for leisure activities that incorporate social media use (Albrechtslund & Albrechtslund, 2014). Multiple studies have indicated that individuals with a high need to belong are more likely to engage in leisure activities that allow for social interaction and validation, as these experiences fulfill their desire for connection and acceptance (Alt, 2018; Tewari et al., 2024). This preference for socially oriented leisure activities highlights the role of belongingness needs in shaping leisure perceptions and behaviors (Demirel et al., 2023). Understanding this relationship can provide insights into how social needs influence leisure engagement and the potential for social media to impact traditional leisure pursuits. Thus, the following hypothesis is proposed: *H5. There is a positive relationship between the need to belong and attitudes towards leisure.*

The review of the literature suggests several unexplored areas and highlights the need for more comprehensive research. Firstly, the specific mechanisms through which FoMO and the need to belong influence social media addiction and leisure attitudes require further exploration. Although previous studies have established associations between these variables, the underlying processes that drive these relationships remain unclear. There is a need to examine how cognitive and emotional factors, such as self-esteem and perceived social support,

mediate these interactions. Moreover, while FoMO has been identified as a significant factor in social media use, its role in shaping attitudes toward leisure activities remains underexplored. Few studies have investigated how FoMO impacts leisure engagement and the potential for social media to disrupt traditional leisure pursuits. Addressing these gaps will enhance the understanding of the psychological dynamics involved and contribute to the development of more effective interventions for promoting balanced social media use and healthier leisure practices.

METHOD

Research Design

This study employs a cross-sectional survey design, which is well-suited for examining the current state of social media addiction, FoMO, and the sense of belonging among university students. The survey method allows for the collection of data at a single point in time, enabling the analysis of relationships between these psychological constructs and their impact on leisure attitudes. The cross-sectional nature of the study provides a snapshot of the population, allowing researchers to identify prevalent trends and associations without inferring causation. The research aims to explore how these factors collectively influence students' perceptions and engagement with leisure activities, providing insights that could inform interventions aimed at promoting healthier social media habits and leisure practices.

Sampling and Data Collection

The study population comprises university students in Turkey, with the sample drawn from 220 students enrolled at the Necmettin Erbakan University in Konya. Convenience sampling was employed to select participants, given its practicality and efficiency in accessing a specific subset of the student population. Data collection was conducted through structured questionnaires distributed to students during class sessions and campus activities. The questionnaire included validated scales to measure social media addiction, FoMO, and the need to belong, alongside questions assessing attitudes toward leisure. The data collection process ensured participant anonymity and voluntary participation, adhering to ethical research standards.

Measurement Instruments

Measurement of Attitudes Toward Leisure: The Leisure Attitude Scale (LAS) was employed for the purpose of measuring attitudes toward leisure. The LAS is a scale developed by Ragheb and Beard (1982), and consists of three sub-dimensions (cognitive, affective, behavioural) and a total of 36 statements. The LAS is based on a five-point Likert-type scale ranging from (1) strongly disagree to (5) strongly agree. As a result of the reliability analysis conducted, the overall internal consistency coefficient of the scale was $\alpha = 0.94$, $\alpha = 0.93$ in the affective sub-dimension, $\alpha = 0.91$ and $\alpha = 0.89$ in the cognitive and behavioural sub-dimensions respectively. The short form of the LAS was developed by Teixeira and Freire (2013) and its Turkish validity and reliability was conducted by Önal and Bedir (2023). The short form of the LAS consists of three sub-dimensions (cognitive, affective, behavioural) and a total of 18 statements. Teixeira and Freire (2013) first performed confirmatory factor analysis (CFA) to ensure validity, and as a result of this analysis, it was seen that the short form model provided good fit (RMR = 0.03; RMSEA = 0.05; GFI = 0.93; AGFI = 0.93; CFI = 0.98; NFI = 0.97; NNFI = 0.98; $\chi 2/df = 2.19$). In addition, the internal consistency coefficients obtained from the scale (cognitive subscale $\alpha = 0.81$, affective subscale $\alpha = 0.85$, behavioural subscale $\alpha = 0.76$, total scale $\alpha = 0.88$) revealed that the scale was reliable. As a result of the analyses conducted by Önal and Bedir (2023), it was seen that the CFA fit values of the scale consisting of 18 statements in the three-subfactor

distribution were at a sufficient level. It was concluded that the reliability data in the sub-dimensions of the scale were reliable as cognitive attitude α = 0.91, affective attitude α = 0.94 and behavioural attitude α = 0.89.

Measurement of Social Media Addiction: The Bergen Social Media Addiction Scale (BSMAS) was employed for the purpose of measuring social media addiction. The BSMAS is a one-dimensional scale consisting of a total of 6 statements developed by Andreassen et al. (2016), and its Turkish validity and reliability was conducted by Demirci (2019). The BSMAS is answered according to a five-point Likert-type scale ranging from (1) very rarely to (5) very often. The total score of the BSMAS varies between 6-30. The internal consistency coefficient was found to be α= 0.88. Each statement in the BSMAS meets six basic addiction criteria: mental labour, mood change, tolerance, withdrawal, conflict and unsuccessful quit attempt. Within the scope of the study conducted to determine the Turkish validity of the BSMAS, the CFA revealed that the model provided a good fit (RMSEA = 0.04; CFI = 0.99; TLI = 0.98; $\chi 2/df = 11.98$). As a result of the reliability analysis, the internal consistency coefficient of the scale was found to be .83.

Measurement of Fear of Missing Out: The Fear of Missing Out Scale (FoMOS) was employed for the purpose of measuring FoMO. The FoMOS is a one-dimensional scale consisting of a total of 10 statements developed by Przybylski et al. (2013), and its Turkish validity and reliability was conducted by Gökler et al. (2016). The FoMOS is answered on a five-point Likert-type scale ranging from (1) not true at all to (5) extremely true. As a result of the reliability analysis conducted by Przybylski et al. (2013), the overall internal consistency coefficient of the scale was found to be α= 0.90. In the Turkish validity analysis of FoMOS, a unidimensional structure was revealed in exploratory factor analysis (EFA), and it was determined that the unidimensional structure of the scale explained 39.4% of the total variance in EFA. As a result of the reliability analysis, the internal consistency coefficient of the scale was found to be α = 0.81.

Measurement of Sense of Belonging: The Need to Belong Scale (NTBS) was employed for the purpose of measuring sense of belonging. The NTBS is a one-dimensional scale developed by Leary et al. (2013) and consists of a total of 10 statements. The NTBS is answered on a five-point Likert-type scale ranging from (1) not at all appropriate to (5) completely appropriate. In the NTBS, statements 1, 3, and 7 are reverse scored. Scores that can be obtained from the scale range from 1 to 50, with higher values emphasising a high level of need for belonging. As a result of the reliability analysis, the internal consistency coefficient of the scale was found to be α= 0.87. In the Turkish validity analysis of the NTBS by Akın et al. (2014), the CFA results showed that the unidimensional model with 10 statements provided a good fit ($\chi 2 = 52.67$, df = 33, RMSEA = 0.04, GFI = 0.96, CFI = 0.93, AGFI = 0.94, IFI = 0.94 and SRMR = 0.05). The internal consistency reliability coefficient of the scale was found to be α = 0.63.

Data Analysis

The data collected in this study were analysed using IBM SPSS software, which is widely used for statistical analyses. SPSS was used for complex data manipulation and analysis. Our analysis process consisted of three main steps: frequency analysis, normality disribution analysis, and regression analysis.

FINDINGS

Characteristics of the Sample

The sample (Table 1) consisted of 220 students from Necmettin Erbakan University, with a gender distribution of 56.8% female and 43.2% male. Daily social media usage varied, with 30.4% of participants using social media for 1 to 2 hours, 46.8% for 3 to 4 hours, and 22.7% for 5 hours or more. These findings suggest a significant portion of the sample engages with social media for moderate to extensive periods, indicating potential for social media addiction. The gender distribution is slightly skewed towards female participants, but the overall sample provides a balanced view of university students' social media habits in this setting.

Table 1
Descriptive Results for the Sample

Variable	Frequency	Percentage
Gender		
Female	125	56.8
Male	95	43.2
Daily Social Media Usage		
1 or 2 hours	67	30.4
3 or 4 hours	103	46.8
5 hours or more	50	22.7
Total	220	100.0

Normality Distribution

The analysis of skewness and kurtosis for the study (Table 2) variables indicates acceptable normality for most measures, based on Kline's (2023) guidelines, where skewness values should ideally be within ±3 and kurtosis values within ±10. The cognitive attitudes toward leisure variable showed a skewness of -1.23 and kurtosis of 2.17, suggesting a slight negative skew, indicating that respondents generally had positive cognitive attitudes towards leisure. Affective attitudes had a skewness of -1.12 and kurtosis of 1.64, also showing a mild negative skew, reflecting positive emotional responses towards leisure activities. Behavioral attitudes showed near-normal distribution with skewness at -0.09 and kurtosis at -0.28. Social media addiction (skewness = 0.11, kurtosis = -0.49), FoMO (skewness = 0.29, kurtosis = -0.45), and sense of belonging (skewness = -0.08, kurtosis = -0.50) were all within acceptable limits, indicating normal distribution. These distributions suggest the data is appropriate for parametric statistical analyses.

Hypotheses Testing

The regression analysis (Table 3) reveals several significant relationships among the study variables, providing insights into the complex interplay between social media addiction, FoMO, sense of belonging, and attitudes toward leisure. Social media addiction was found to positively predict FoMO, indicating that higher levels of social media use are associated with increased FoMO. Similarly, social media addiction significantly predicted the sense of belonging, suggesting that individuals with higher social media addiction scores perceive a stronger need to belong. FoMO was significantly related to behavioral attitudes toward leisure, highlighting that higher FoMO is associated with changes in how individuals engage in leisure activities. Additionally, the sense of belonging was a strong predictor of FoMO and attitudes toward leisure. These results underscore the significant role of psychological needs and

compulsive social media use in shaping leisure perceptions and emphasize the importance of addressing these factors to promote healthier leisure engagement.

Table 2
Skewness-Kurtosis Distribution Results

Variables	$\bar{X}$	*SD*	Skewness	Std. Error	Kurtosis	Std. Error
Cognitive attitudes toward leisure	4.10	.78	-1.23	.16	2.17	.33
Affective attitudes toward leisure	4.02	.82	-1.12	.16	1.64	.33
Behavioural attitudes toward leisure	3.45	.82	-.09	.16	-.28	.33
Social media addiction	2.82	.92	.11	.16	-.49	.33
FoMO	2.46	.83	.29	.16	-.45	.33
Sense of belonging	2.87	.88	-.08	.16	-.50	.33

Table 3
Regression Results

Independent Variable	Dependent Variable	*β*	*SE*	*t*	*p*	LLCI	ULCI
Social media addiction	FoMO	.25	.05	4.24	< .00	.13	.37
Social media addiction	Sense of belonging	.20	.06	3.65	< .00	.10	.35
FoMO	Attitudes toward leisure	.05	.05	1.00	.31	-.05	.17
FoMO	Behavioral ATL	.17	.06	2.64	< .00	.04	.30
Sense of belonging	FoMO	.50	.05	9.35	< .00	.40	.61
Sense of belonging	Attitudes toward leisure	.15	.05	2.37	< .00	.02	.23

Note. ATL: Attitudes toward leisure

DISCUSSION

In addressing the significant findings of the current study, it's essential to contextualize them within the existing literature, particularly focusing on the established relationships between social media addiction, FoMO, sense of belonging, and attitudes toward leisure. The discovery of a significant relationship between social media addiction and FoMO corroborates findings from previous studies, such as those by Tomczyk and Selmanagic-Lizde (2018), Tandon et al. (2021), and Bakioğlu et al. (2022), which highlighted the direct correlation between excessive social media use driven by FoMO and the development of addictive behaviors. This alignment supports the notion that FoMO is a critical factor in understanding social media addiction's psychological mechanisms. Furthermore, our study's findings resonate with the insights from Chang et al. (2023) and Mao and Zhang (2023), who emphasized the mediating role of FoMO between various psychological traits and social media addiction. These parallels not only validate our results but also reinforce the argument that interventions targeting FoMO could significantly mitigate social media addiction's adverse effects.

Regarding the relationship between social media addiction and the sense of belonging, the present study's outcomes are in line with the theoretical framework proposed by Baumeister & Leary (1995) and empirical findings by Savci et al. (2021) and Wang (2021). These studies underscore the intrinsic human motivation for interpersonal attachments as a pivotal driver behind the compulsive use of social media platforms. The current research contributes to the existing literature by quantitatively examining the relationship between the sense of belonging and social media addiction. While previous studies have explored this relationship (Miranda et

al., 2023; Pang, 2020), this study further clarifies the extent to which the sense of belonging influences social media addiction. By providing robust quantitative evidence, the research offers a more comprehensive understanding of this connection, laying the groundwork for future studies to explore targeted interventions that address this underlying motivational factor.

Our study uniquely contributes to the recreation canon by establishing a nuanced relationship between FoMO, sense of belonging, and attitudes toward leisure, especially when considering the behavioral aspect of attitudes toward leisure. This differentiation advances the discourse beyond the findings of Argan et al. (2024) and Dursun et al. (2023), who explored the broader impacts of social media use habits and FoMO on leisure activities without distinguishing between the cognitive and behavioral dimensions of attitudes toward leisure. By identifying that behavioral leisure attitude are significantly associated with FoMO, this research offers a more detailed lens through which recreation practitioners can develop interventions. Such insights are invaluable for professionals aiming to design recreational activities or digital wellness programs that specifically counteract the negative impacts of FoMO and social media addiction on leisure engagement, promoting healthier leisure behaviors among individuals prone to these issues.

Conclusion

This study fills a critical gap in the existing literature by integrating the relationship between need to belong, FoMO, and attitudes toward leisure into a cohesive framework. Previous research has often explored these elements in isolation or in less comprehensive pairings. By demonstrating significant relationships across these variables, our study not only provides empirical evidence to support theoretical models proposed by scholars like Bui et al. (2021) and Shodiq et al. (2020) but also extends these models by incorporating attitudes toward leisure into the equation. This holistic approach enables a deeper understanding of the complex interplay between social media addiction, FoMO, need to belong, and attitudes toward leisure. It underscores the necessity for multidimensional strategies in addressing the psychological impacts of social media use, offering a broader perspective for both academics and practitioners focused on enhancing well-being through recreational activities. This contribution is vital for the recreation field, as it equips providers with a nuanced understanding of the factors influencing attitudes toward leisure and behaviors in the digital age, enabling the development of more targeted and effective recreational programs.

Recommendations

Future research should aim to address the limitations of the current study by expanding the sample to include a broader demographic and geographic range, thereby enhancing the generalizability of the findings. Additionally, longitudinal studies could provide deeper insights into the causal relationships between social media addiction, FoMO, the need to belong, and attitudes toward leisure. Exploring the role of emerging social media platforms and technologies in shaping these relationships would also be valuable. Moreover, there is a need for intervention-based studies that examine the effectiveness of strategies aimed at reducing social media addiction and improving leisure satisfaction, contributing to a healthier and more balanced lifestyle for individuals.

Limitations

This study, while offering valuable insights, is not without its limitations. The research was conducted among undergraduate students in Konya, Turkey, using a simple random sampling method. The specific demographic and geographic context of the sample may limit the generalizability of the findings to other populations and regions. Furthermore, the reliance on survey measurements may affect the accuracy of the data collected. Future studies could

benefit from a more diverse sample that includes different age groups and cultural backgrounds, as well as the use of objective measures to assess social media addiction and leisure activities.

REFERENCES

Akın, A., Kaya, M., Akın, Ü., Bilgin, O., & Uğur, E. (2014, April 24). The Need to Belong Scale Turkish form. *5th International Conference on New Trends in Education and Their Implications (ICONTE-2014)*.

Alabri, A. (2022). Fear of missing out (FOMO): The effects of the need to belong, perceived centrality, and fear of social exclusion. *Human Behavior and Emerging Technologies, 2022*(1), 4824256. https://doi.org/10.1155/2022/4824256

Albrechtslund, A. M. B., & Albrechtslund, A. (2014). Social media as leisure culture. *First Monday, 19*. https://doi.org/10.5210/fm.v19i4.4877

Alonzo, R., Hussain, J., Stranges, S., & Anderson, K. K. (2021). Interplay between social media use, sleep quality, and mental health in youth: A systematic review. *Sleep Medicine Reviews, 56*, 101414. https://doi.org/10.1016/j.smrv.2020.101414

Alt, D. (2018). Students' wellbeing, fear of missing out, and social media engagement for leisure in higher education learning environments. *Current Psychology, 37*(1), 128–138. https://doi.org/10.1007/s12144-016-9496-1

Andreassen, C. S., Billieux, J., Griffiths, M. D., Kuss, D. J., Demetrovics, Z., Mazzoni, E., & Pallesen, S. (2016). The relationship between addictive use of social media and video games and symptoms of psychiatric disorders: A large-scale cross-sectional study. *Psychology of Addictive Behaviors, 30*(2), 252–262. https://doi.org/10.1037/adb0000160

Andreassen, C. S., Pallesen, S., & Griffiths, M. D. (2017). The relationship between addictive use of social media, narcissism, and self-esteem: Findings from a large national survey. *Addictive Behaviors, 64*, 287–293. https://doi.org/10.1016/j.addbeh.2016.03.006

Argan, M. T., Koçak, F., Gürbüz, B., Argan, M., & Dinç, H. (2024). Exploring the relationships among fear of missing out (FoMO), sensation seeking, and leisure activity participation. *World Leisure Journal, 66*(2), 165–187. https://doi.org/10.1080/16078055.2023.2244452

Bakioğlu, F., Deniz, M., Griffiths, M. D., & Pakpour, A. H. (2022). Adaptation and validation of the Online-Fear of Missing Out Inventory into Turkish and the association with social media addiction, smartphone addiction, and life satisfaction. *BMC Psychology, 10*(1), 154. https://doi.org/10.1186/s40359-022-00856-y

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*(3), 497–529. https://doi.org/10.1037/0033-2909.117.3.497

Beyens, I., Frison, E., & Eggermont, S. (2016). "I don't want to miss a thing": Adolescents' fear of missing out and its relationship to adolescents' social needs, Facebook use, and Facebook related stress. *Computers in Human Behavior, 64*, 1–8. https://doi.org/10.1016/j.chb.2016.05.083

Blackwell, D., Leaman, C., Tramposch, R., Osborne, C., & Liss, M. (2017). Extraversion, neuroticism, attachment style, and fear of missing out as predictors of social media use and addiction. *Personality and Individual Differences, 116*, 69–72. https://doi.org/10.1016/j.paid.2017.04.039

Bloemen, N., & De Coninck, D. (2020). Social media and fear of missing out in adolescents: The role of family characteristics. *Social Media + Society, 6*(4), 205630512096551. https://doi.org/10.1177/2056305120965517

Buglass, S. L., Binder, J. F., Betts, L. R., & Underwood, J. D. M. (2017). Motivators of online vulnerability: The impact of social network site use and FOMO. *Computers in Human Behavior, 66*, 248–255. https://doi.org/10.1016/j.chb.2016.09.055

Chang, H., Meng, X., Li, Y., Liu, J., Yuan, W., Ni, J., & Li, C. (2023). The effect of mindfulness on social media addiction among Chinese college students: A serial mediation model. *Frontiers in Psychiatry, 14*. https://doi.org/10.3389/fpsyt.2023.1087909

Conger, R. D., & Donnellan, M. B. (2007). An interactionist perspective on the socioeconomic context of human development. *Annual Review of Psychology, 58*(1), 175–199. https://doi.org/10.1146/annurev.psych.58.110405.085551

Demirci, İ. (2019). The adaptation of the Bergen Social Media Addiction Scale to Turkish and the evaluation of its relationships with depression and anxiety symptoms. *Anatolian Journal of Psychiatry, 20*(Sup1), 15–22. https://doi.org/10.5455/apd.41585

Demirel, M., Er, Y., Çuhadar, A., & Aksu, H. S. (2023). An evaluation of leisure involvement and social connectedness from the perspective of undergraduate students. *Spor Bilimleri Araştırmaları Dergisi, 8*(1), 29–42. https://doi.org/10.25307/jssr.1140359

Dorani, D. N. (2021). The effect of the fear of missing out phenomenon in the relationship between well-being and social media addiction. *Journal of Experiential Psychotherapy, 24*(3), 40–53.

Duman, H., & Özkara, B. Y. (2021). The impact of social identity on online game addiction: The mediating role of the fear of missing out (FoMO) and the moderating role of the need to belong. *Current Psychology, 40*(9), 4571–4580. https://doi.org/10.1007/s12144-019-00392-w

Dursun, M. T., Argan, M., Tokay Argan, M., & Dinç, H. (2023). Sensation seeking and conspicuous consumption in event-based activities: The mediation role of fear of missing out (FoMO). *International Journal of Event and Festival Management, 14*(4), 488–502. https://doi.org/10.1108/IJEFM-02-2023-0020

Ellison, N. B., Steinfield, C., & Lampe, C. (2011). Connection strategies: Social capital implications of Facebook-enabled communication practices. *New Media & Society, 13*(6), 873–892. https://doi.org/10.1177/1461444810385389

Fabris, M. A., Marengo, D., Longobardi, C., & Settanni, M. (2020). Investigating the links between fear of missing out, social media addiction, and emotional symptoms in adolescence: The role of stress associated with neglect and negative reactions on social media. *Addictive Behaviors, 106*, 106364. https://doi.org/10.1016/j.addbeh.2020.106364

Franchina, V., Vanden Abeele, M., Van Rooij, A. J., Lo Coco, G., & De Marez, L. (2018). Fear of missing out as a predictor of problematic social media use and phubbing behavior among Flemish adolescents. *International Journal of Environmental Research and Public Health, 15*(10), 2319. https://doi.org/10.3390/ijerph15102319

Gökler, M., Aydın, R., Ünal, E., & Metintaş, S. (2016). Determining validity and reliability of Turkish version of Fear of Missing out Scale. *Anatolian Journal of Psychiatry, 17*(1), 53–60. https://doi.org/10.5455/apd.195843

Harzman, L. (2022). The impact of social media and FoMO on mental health. *John Heinrichs Scholarly & Creative Activities Day, 2022*, 41. https://doi.org/10.58809/WSBI8741

Hetz, P. R., Dawson, C. L., & Cullen, T. A. (2015). Social media use and the fear of missing out (FoMO) while studying abroad. *Journal of Research on Technology in Education, 47*(4), 259–272. https://doi.org/10.1080/15391523.2015.1080585

Huang, C. (2022). A meta-analysis of problematic social media use and mental health. *International Journal of Social Psychiatry, 68*(1), 12–33. https://doi.org/10.1177/0020764020978434

Keleş, B., McCrae, N., & Grealish, A. (2020). A systematic review: The influence of social media on depression, anxiety, and psychological distress in adolescents. *International Journal of Adolescence and Youth, 25*(1), 79–93. https://doi.org/10.1080/02673843.2019.1590851

Kline, R. B. (2023). *Principles and practice of structural equation modeling*. Guilford Publications.

Kuss, D., & Griffiths, M. (2017). Social networking sites and addiction: Ten lessons learned. *International Journal of Environmental Research and Public Health, 14*(3), 311. https://doi.org/10.3390/ijerph14030311

Leary, M. R., Kelly, K. M., Cottrell, C. A., & Schreindorfer, L. S. (2013). Construct validity of the need to belong scale: Mapping the nomological network. *Journal of Personality Assessment, 95*(6), 610–624. https://doi.org/10.1080/00223891.2013.819511

Liu, Q., Shao, Z., & Fan, W. (2018). The impact of users' sense of belonging on social media habit formation: Empirical evidence from social networking and microblogging websites in China. *International Journal of Information Management, 43*, 209–223. https://doi.org/10.1016/j.ijinfomgt.2018.08.005

Lyu, J., & Kim, J. (2020). Antecedents of social media–induced retail commerce activities: Impact of brand–consumer relationships and psychological sense of community. *Journal of Interactive Advertising, 20*(2), 119–132. https://doi.org/10.1080/15252019.2020.1769513

Malouf, K. (2022). Does meeting belongingness needs through social media impact one's fear of missing out and self-esteem? *Psi Beta Research Journal, 2*(1), 23–28. https://doi.org/10.54581/XODO5493

Mao, J., & Zhang, B. (2023). Differential effects of active social media use on general trait and online-specific state-FoMO: Moderating effects of passive social media use. *Psychology Research and Behavior Management, 16*, 1391–1402. https://doi.org/10.2147/PRBM.S404063

McKee, P. C., Budnick, C. J., Walters, K. S., & Antonios, I. (2022). College student fear of missing out (FoMO) and maladaptive behavior: Traditional statistical modeling and predictive analysis using machine learning. *PLOS ONE, 17*(10), e0274698. https://doi.org/10.1371/journal.pone.0274698

Miranda, S., Trigo, I., Rodrigues, R., & Duarte, M. (2023). Addiction to social networking sites: Motivations, flow, and sense of belonging at the root of addiction. *Technological Forecasting and Social Change, 188*, 122280. https://doi.org/10.1016/j.techfore.2022.122280

Önal, L., & Bedir, F. (2023). Leisure Attitude Scale Short Form (LAS-SF): Turkish Validity and Reliability Study. *Journal of Sports and Science, 1*(1), 27–39.

Pang, H. (2020). Examining associations between university students' mobile social media use, online self-presentation, social support, and sense of belonging. *Aslib Journal of Information Management, 72*(3), 321–338. https://doi.org/10.1108/AJIM-08-2019-0202

Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in Human Behavior, 29*(4), 1841–1848. https://doi.org/10.1016/j.chb.2013.02.014

Ragheb, M. G., & Beard, J. G. (1982). Measuring leisure attitude. *Journal of Leisure Research, 14*(2), 155–167. https://doi.org/10.1080/00222216.1982.11969512

Rozgonjuk, D., Sindermann, C., Elhai, J. D., & Montag, C. (2020). Fear of missing out (FoMO) and social media's impact on daily-life and productivity at work: Do WhatsApp, Facebook, Instagram, and Snapchat use disorders mediate that association? *Addictive Behaviors, 110*, 106487. https://doi.org/10.1016/j.addbeh.2020.106487

Savcı, M., Turan, M. E., Griffiths, M. D., & Ercengiz, M. (2021). Histrionic personality, narcissistic personality, and problematic social media use: Testing of a new hypothetical model. *International Journal of Mental Health and Addiction, 19*(4), 986–1004. https://doi.org/10.1007/s11469-019-00139-5

Shaw, S. M. (1985). The meaning of leisure in everyday life. *Leisure Sciences, 7*(1), 1–24. https://doi.org/10.1080/01490408509512105

Statista. (2024, August 25). Number of social media users worldwide from 2017 to 2028. *How Many People Use Social Media?*

Tandon, A., Dhir, A., Almugren, I., AlNemer, G. N., & Mäntymäki, M. (2021). Fear of missing out (FoMO) among social media users: A systematic literature review, synthesis, and framework for future research. *Internet Research, 31*(3), 782–821. https://doi.org/10.1108/INTR-11-2019-0455

Teixeira, A., & Freire, T. (2013). The Leisure Attitude Scale: Psychometric properties of a short version for adolescents and young adults. *Leisure/Loisir, 37*(1), 57–67. https://doi.org/10.1080/14927713.2013.776748

Tewari, K., Lundin, E., Cho, S. J., Du, X., Oliveira, J. R., & Fernandez, M. (2024). International graduate students' perspectives on sense of belonging in leisure. *Journal of Hospitality, Leisure, Sport & Tourism Education, 35*, 100505. https://doi.org/10.1016/j.jhlste.2024.100505

Tomczyk, Ł., & Selmanagic-Lizde, E. (2018). Fear of missing out (FoMO) among youth in Bosnia and Herzegovina — Scale and selected mechanisms. *Children and Youth Services Review, 88*, 541–549. https://doi.org/10.1016/j.childyouth.2018.03.048

Uram, P., & Skalski, S. (2022). Still logged in? The link between Facebook addiction, FoMO, self-esteem, life satisfaction, and loneliness in social media users. *Psychological Reports, 125*(1), 218–231. https://doi.org/10.1177/0033294120980970

Varchetta, M., Fraschetti, A., Mari, E., & Giannini, A. M. (2020). Adicción a redes sociales, miedo a perderse experiencias (FoMO) y vulnerabilidad en línea en estudiantes universitarios. *Revista Digital de Investigación en Docencia Universitaria, 14*(1), e1187. https://doi.org/10.19083/ridu.2020.1187

Veale, H. J., Sacks-Davis, R., Weaver, E. R., Pedrana, A. E., Stoové, M. A., & Hellard, M. E. (2015). The use of social networking platforms for sexual health promotion: Identifying key strategies for successful user engagement. *BMC Public Health, 15*(1), 85. https://doi.org/10.1186/s12889-015-1396-z

Wang, X. (2021, December 24). Positive emotions' role on social media addiction among Chinese young adults. *4th International Conference on Humanities Education and Social Sciences (ICHESS)*. https://doi.org/10.2991/assehr.k.211220.382

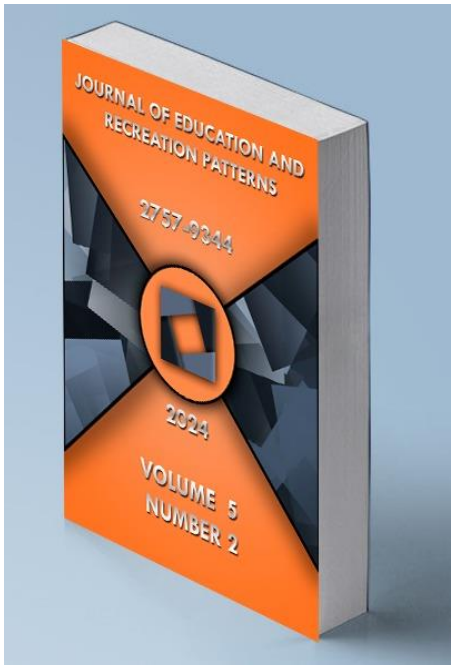
Wu-Ouyang, B. (2023). More mobile connectedness, less well-being? *Journal of Media Psychology, 35*(5), 291–302. https://doi.org/10.1027/1864-1105/a000388

Yin, L., Wang, P., Nie, J., Guo, J., Feng, J., & Lei, L. (2021). Social networking sites addiction and FoMO: The mediating role of envy and the moderating role of need to belong. *Current Psychology, 40*(8), 3879–3887. https://doi.org/10.1007/s12144-019-00344-4

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Relationship Between the Mental Toughness, Self-Efficacy and Decision Making in Wrestling Referees

İsmail KOÇ[1], Cengizhan PAKYARDIM[2]

To cite this article:

Koç, İ., & Pakyardım, C. (2024). Relationship between the mental toughness, self-efficacy and decision making in wrestling referees. *Journal of Education and Recreation Patterns (JERP), 5* (2), 178-195. DOI: https://doi.org/10.53016/jerp.v5i2.253

[1] Kırşehir Ahi Evran University Faculty of Sport Sciences, ismail.koc@ahievran.edu.tr, https://orcid.org/0000-0002-1047-7959

[2] Kahramanmaraş Sütçü İmam University, Faculty of Sport Sciences, cengizhanpakyardim@hotmail.com, https://orcid.org/0000-0001-6126-8164

Journal of Education and Recreation Patterns (JERP)
Volume 5, Issue 2, Year 2024 ISSN: 2757-9344

Relationship Between the Mental Toughness, Self-Efficacy and Decision Making in Wrestling Referees

İsmail Koç[1], Cengizhan Pakyardım[2]

ARTICLE INFORMATION
Original Research Paper

Received 10.08. 2024
Accepted 03.10. 2024

https://jerpatterns.com

December, 2024
Volume: 5, No: 2
Pages: 178-195

ABSTRACT
The aim of this study is to examine the relationship between mental toughness, self-efficacy and decision making in wrestling referees. The research is a descriptive and relational design research conducted with survey method. The sample group of the study consisted of a total of 130 wrestling referees, 109 of whom were male and 21 of whom were female, with an average age of 36.22±10.05, who were actively working in the Turkish Wrestling Federation. The data in the study were obtained by using Sports Mental Toughness Questionnaire-SMTQ, Melbourne Decision-Making Inventory-II (MDMSI-II) and Referee Self-Efficacy Scale (REFS). The datas were analyzed using t test and ANOVA test and Pearson correlation analysis from parametric test methods. As a result of the research, it was found that there were positive significant relationships between SMTQ and REFS, positive significant relationships between SMTQ and careful decision-making among the sub-dimensions of MDMSI, negative significant relationships between REFS and careful decision-making style among the sub-dimensions of MDMSI, positive significant relationships between Buck-passing decision-making style, procrastinatory decision-making style and Hypervigilance decision-making style. It was found that there was a significant positive relationship between the refereeing year variable and the total scores of the SMTQ, a positive relationship between the game knowledge sub-dimension of the REFS sub-dimensions, and a negative relationship between all sub-dimensions of the MDMSI. According to the refereeing category variable, it was determined that there was no statistically significant difference in the overall averages of SMTQ and REFS, while there was a statistically significant difference in MDMSI; Buck-passing, Procrastination and Hypervigilance decision-making styles. This study can reveal which strategies can be applied to improve referees' decision-making processes or to improve their training programmes.

Keywords: Decision Making, Mental Toughness, Self-Efficacy, Wrestling Referees

INTRODUCTION

The completion of sports competitions according to specific rules and impartial decisions is undoubtedly closely linked to the referees, who are responsible for the correct management of the matches in all aspects. In this sense, referees, whose duty it is to manage the competition within the existing rules with accurate, quick and effective decisions, are considered one of the most critical determinants of individual or team success (Guillén & Feltz, 2011; Kırtepe & Çetinkaya, 2018). Referees have some challenging criteria for making fair and impartial decisions (Aktaş et al., 2011). In order for referees to successfully navigate the challenging criteria inherent to their role and conclude competitions in accordance with the established rules and based on objective decisions, it is essential that they possess not only domain-specific knowledge, physical fitness, and competence, but also sufficient psychological preparedness (Dönmez & Özgül, 2020; Ekmekci et al., 2011). Indeed, research demonstrates that in sporting contexts, psychological factors are as significant as physical capacity in achieving high performance (Crust, 2008; Jones et al., 2007; Liew et al., 2019; Sheard, 2012). One of the most crucial competencies is mental toughness (Gould et al., 2002). Although different conceptualizations of mental toughness have been proposed (Clough et al., 2002), there is a general consensus that it is a multidimensional construct (Hardy et al., 2014). In this context, the various proposed constructs have resulted in disparate definitions of the concept of mental toughness. Some researchers define mental toughness as an individual's belief in their ability to succeed, the determination, decision-making, and perseverance despite challenges and setbacks, the ability to exert control over actions and outcomes, and the capability to manage cognitive and emotional experiences (Coulter et al., 2016; Guillén & Laborde, 2014; Jones et al., 2007). Sheard and colleagues (2009) adopted a positive psychology perspective in their investigation of mental toughness, introducing a novel approach. This approach posits that mentally resilient athletes tend to approach and respond to challenges and adversities in a manner that is adaptive (through control, confidence, and perseverance), thereby facilitating positive outcomes.

The concept of self-efficacy refers to an individual's belief in their capacity to successfully complete a specific situation or task, taking into account the demands of the given context. This belief has been demonstrated to influence a range of individual behaviors, including motivation, cognitive processes and emotional responses (Bandura, 1977, 1986). This concept is viewed as one of the most significant psychological factors influencing individual performance. The conceptual model of referee self-efficacy, as proposed by Guillén and Feltz (2011), was developed with the objective of understanding the self-efficacy beliefs of sports referees in their decision-making processes and the manner in which these beliefs are shaped. This model examines the relationship between referees' self-confidence and a range of external factors. The evidence suggests that referees with high self-efficacy are more accurate in their decisions, more effective in their performance, more committed to their profession, more respected by coaches, administrators and other organizations, and experience less stress than referees with low self-efficacy. The aforementioned information suggests that referees who possess high levels of mental toughness and self-confidence, and who are confronted with challenging and stressful circumstances during and following the competition, will demonstrate a reduced incidence of errors and exhibit greater stability and consistency in their decision-making processes. It is therefore crucial for referees to possess the requisite mental toughness and self-efficacy in order to perform at the optimal level throughout the competition. In the context of competitive wrestling, the responsibility of the referee is to make prompt and accurate decisions in order to manage the competition between the two athletes. Therefore, wrestling referees must have a number of qualities such as knowledge of the game, fitness, mental toughness, self-confidence, determination, attention to detail and quick but firm reactions.

Wrestling is a complex sport that requires not only physical abilities but also strategic thinking and instant decision-making skills. In this context, wrestling referees play a critical role in maintaining a fair and organized competition. The ability of referees to make correct decisions under high pressure is directly related to the influence of psychological factors such as mental toughness and self-efficacy. Although existing research provides some findings on the psychological factors of sport referees, there is limited information on this subject, especially in the context of wrestling referees. Most of the studies focus more on the technical and theoretical aspects of referees' decision-making processes and do not focus enough on important variables such as psychological resilience. This situation suggests that the psychological factors affecting the performance of wrestling referees should be analyzed in more depth. Mental toughness describes the ability of athletes and referees to cope with stressful situations, while self-efficacy refers to individuals' belief in their own abilities. These two factors can significantly influence referees' decision-making processes and thus the course of the match. For example, being able to make quick and correct decisions under pressure is a reflection of a referee's mental toughness. At the same time, referees' self-confidence allows them to make more effective decisions at critical moments.

The aim of the study is to investigate the relationship between mental toughness, self-efficacy, and decision-making styles among wrestling referees affiliated with the Turkish Wrestling Federation. Furthermore, the study will examine the relationship between these variables and other factors. Furthermore, the study aims to provide recommendations for practitioners in the field based on the findings obtained.

METHOD

Research Model

The study was conducted using a survey method and was designed in a descriptive and correlational pattern (Büyüköztürk et al., 2015).

Universe and Sample

The universe of research consists of 1909 active wrestling referees from the Turkish Wrestling Federation. The sample group consists of 130 volunteer wrestling referees, selected through random sampling from the population in question. For the power analysis, a= 0,05, sampling error was taken as +0,03 (Yazıcıoğlu & Erdoğan, 2004) and the number of people to be sampled was calculated as 130 people. The referees have completed the Sport Mental Toughness Inventory (SMTQ), the Referee Self-Efficacy Scale (REFS), and the Melbourne Decision-Making Styles Inventory II (MDMSI-II) in a precise and accurate manner, without any errors. The sample includes referees aged between 19 and 61 years (mean age = 36.22 ± 10.05) and with refereeing experience ranging from 1 to 38 years (mean experience = 12.32 ± 8.92). Of the sample, 83.8% (n=109) were male and 16.2% (n=21) were female, 55.4% (72) had an undergraduate degree, while 45.4% (59) were national referees, 88.5% (115) were actively involved in sports in the branch they had previously refereed. Demographic information pertaining to the research group is presented in Table 1.

Table 1

Demographic Information of the Referees in the Research Group

Gender			Education			Referee Category			Athlete Status		
	N	%		N	%		N	%		N	%
Male	109	83.8	High School	11	8.5	Candidate	11	8.5	Yes	115	88.5
Female	21	16.2	Associate Degree	6	4.6	Provincial	33	25.4	No	15	11.5
			Licence	72	55.4	National	59	45.4			
			Master's Degree	41	31.5	International	27	20.8			
Total										130	100

Data Collection Tools

The research was approved by the Ethics Committee for Scientific Research and Publication of Kırşehir Ahi Evran University (Decision No. 2023/01/21, dated 02.02.2023). The data collection instruments used in the research include the Sport Mental Toughness Questionnaire (SMTQ), the Referee Self-Efficacy Scale (REFS), the Melbourne Decision-Making Styles Inventory II (MDMSI-II) and data obtained from a personal information form.

Personal İnformation Form: The personal information form prepared by the researchers consists of questions designed to determine the demographic characteristics of the participating wrestling referees, including age, gender, educational status, sports history in wrestling, refereeing category, and refereeing backgrounds.

Sports Mental Toughness Questionnaire (SMTQ): The questionnaire developed by Sheard et al. (2009) was adapted into Turkish by Altıntaş and Bayar Koruç (2016). The scale consists of 14 items and 3 subdimensions: confidence, constancy and control. It is answered using a 4-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree). Items 2, 4, 7, 8, 9 and 10 are reverse scored. The reliability of the scale was tested in the study by Altıntaş and Bayar Koruç (2016) and the Cronbach's alpha values for the subdimensions of the inventory were found to be: confidence: 0.84; constancy: 0.51; control; 0.79.

Referee Self-Efficacy Scale (REFS): The scale was developed by Myers et al. (2012). It was adapted into Turkish by Karaçam and Pulur (2017) with the addition of a physical competence subdimensions, and validity and reliability studies were conducted. The scale consists of five subdimensions: physical competence, knowledge of the game, decision making, pressure and communication. There are no reverse-scored items in the scale. Higher scores on the subdimensions indicate higher self-efficacy (Karaçam & Pulur, 2017). The reported reliability coefficients (Cronbach's Alpha) are as follows Physical competence: 0.88; game knowledge: 0.71; decision making: 0.85; pressure: 0.88; communication: 0.81; Overall REFS: 0.90

Melbourne Decision-Making Styles Inventory II (MDMSI-II): The scale, developed by Mann et al. (1997) and adapted into Turkish by Deniz (2004) with validity and reliability studies. The scale consists of 22 items and four subdimensions: Vigilance decision-making style, Buck-passing decision-making style, Procrastination decision-making style, and Hypervigilance decision-making style. There are no reverse-scored items in the scale. Responses are scored as follows: "true" = 2 points, "sometimes true" = 1 point, and "not true" = 0 points. Higher scores indicate greater use of each decision style. The Cronbach's alpha coefficients for the adapted scale are Vigilance decision making: 0.80; Buck-passing decision making: 0.78; Procrastination decision making: 0.65; Hypervigilance decision making: 0.71.

The study re-evaluated the reliability of the inventories and scales. The Cronbach's alpha values for internal consistency were as follows: Sport Mental Toughness Questionnaire (SMTQ): Confidence: 0.81; Consistency: 0.65; Control: 0.75; Total SMTQ: 0.83. Referee Self-Efficacy Scale (REFS) Physical Efficiency: 0.88; Pressure: 0.91; Decision-Making: 0.76; Knowledge of the Game: 0.84; Communication: 0.87 and total REFS: 0.94. Melbourne Decision Making Styles Scale (MDMSI-II) Cautious decision making style: 0.71; Buck-passing Decision Making Style: 0.73; Procrastinator Decision Making Style: 0.73; Hypervigilance decision making style: 0.72 and MDMSI-II total: 0.85.

The results indicate that the Sport Mental Toughness Questionnaire (SMTQ), the Referee Self-Efficacy Scale (REFS) and the Melbourne Decision-Making Styles Inventory II (MDMSI-II) are reliable measurement tools (Kalaycı, 2010). Data were collected from participants both in person and online at the gymnasiums where the Turkish Wrestling Championships were held as part of the 2023-2024 activity programme of the Turkish Wrestling Federation. During the

data collection phase, the content and purpose of the research were explained to the volunteers and their consent to participate was obtained.

Among the scales used in the study, Referee Self-Efficacy Scale is a free scale for referees. However, mental toughness and decision-making scales are not scales specific to referees. The development of scales specific to wrestling referees will both increase the validity and reliability of the research and will be an important step towards improving the performance of referees. This may allow the results of the research to be used more effectively in both academic and practical fields.

Analysis of the Data

The data were analysed using percentage (%), frequency (f), standard deviation (±), mean ($\bar{x}$) and inferential (correlation (r), one-way analysis of variance (ANOVA). In addition, the Scheffe test was used to determine the parameters of the significant difference that emerged as a result of the one-way ANOVA. Data were tested at a significance level of α=.05.

FINDINGS

The results of the research group are presented in the tables below, together with the necessary explanations.

Table 2

Findings on the Normality Distribution of Scales and Sub-Dimensions

Scales	N	Median	Mod	Minimum	Maximum	$\bar{x}$	Ss.(±)	Skewness	Kurtosis
Confidence	130	3.33	3.00	1.67	4.00	3.29	0.47	-0.674	0.912
Constancy	130	3.50	3.00	1.75	4.00	3.39	0.48	-0.446	-0.304
Control	130	2.75	3.00	1.00	4.00	2.63	0.72	-0.104	-0.281
SMTQ Total	130	3.14	3.21	2.07	4.00	3.13	0.43	0.094	-0.586
Physical Competence	130	4.80	5.00	3.20	5.00	4.63	0.45	-0.93	-0.214
Pressure	130	5.00	5.00	3.00	5.00	4.63	0.53	-1.141	0.356
Decision Making	130	4.67	5.00	3.67	5.00	4.55	0.45	-0.325	-1.464
Game Knowledge	130	5.00	5.00	3.67	5.00	4.74	0.39	-1.269	0.114
Communication	130	4.75	5.00	3.00	5.00	4.55	0.47	-0.644	-0.449
REFS Total	130	4.67	5.00	3.56	5.00	4.61	0.36	-0.744	-0.336
Vigilance	130	1.67	1.83	0.33	2.00	1.55	0.41	-1.317	1.125
Buck-passing	130	0.33	0.17	0.00	1.67	0.43	0.39	1.176	1.219
Procrastination	130	0.20	0.00	0.00	1.60	0.38	0.42	1.11	0.684
Hypervigilance	130	0.20	0.00	0.00	1.80	0.36	0.40	1.343	1.393
MDMSI-II Total	130	0.57	0.53	0.10	1.71	0.67	0.29	1.068	1.643

From Table 2 it can be seen that the means, modes and medians of the Sport Mental Toughness Questionnaire (SMTQ), the Referee Self-Efficacy Scale (REFS), the Melbourne Decision-Making Styles Inventory II (MDMSI-II) and their sub-dimensions are close to each other. The skewness values range from -1.317 to 1.343 and the kurtosis values from -1.464 to 1.643. According to Kalaycı (2010), a normal distribution is symmetric with the same arithmetic mean, mode and median. The data from the study also show that the mean, mode and median are close to each other. Additionally, while there are varying ranges for skewness and kurtosis values in the literature, skewness-kurtosis values between +2.0 and -2.0 are generally considered acceptable for normal distribution (George & Mallery, 2019). The skewness and kurtosis values in this study fall within these ranges. Based on these findings, the research data exhibit a normal distribution.

Table 3

Correlation Analysis Results Showing the Relationships Between SMTQ, REFS, and MDMSI-II

Scales		2	3	4	5	6
[1]SMTQ	r	.432***	.315***	-.278**	-.220*	-.327***
[2]REFS	r	-	.303***	-.369***	-.288***	-.312***
[3]Vigilance	r		-	-0.023	0.086	0.047
[4]Buck-passing	r			-	.618***	.711***
[5]Procrastination	r				-	.665***

Note: *p< 0.05, **p< 0.01, ***p< 0.001, [1]SMTQ, [2]REFS, [3]Vigilance Decision-Making Style, [4]Buck-passing Decision-Making Style, [5]Procrastination Decision-Making Style, [6]Hypervigilance Decision-Making Style

When examining Table 3, the following relationships are observed: There is a significant positive relationship between the total SMTQ and the total REFS (r = 0.432; p <0.05). A positive significant relationship is found between the total SMTQ and the Vigilance Decision-Making sub-dimension of the MDMSI-II (r = 0.315; p <0.05). Negative significant relationships are found between the total SMTQ and the Buck-passing Decision-Making (r = -0.278; p < 0.05), Procrastination Decision-Making (r = -0.220; p < 0.05) and Hypervigilance Decision-Making (r = -0.327; p < 0.05) sub-dimensions of the MDMSI-II. A positive significant relationship is found between total REFS and the Vigilance Decision-Making sub-dimension of the MDMSI-II (r = 0.303; p <0.05). Negative significant relationships are found between total REFS and the Buck-passing Decision-Making (r = -0.369; p < 0.05), Procrastination Decision-Making (r = -0.288; p < 0.05) and Hypervigilance Decision-Making (r = -0.312; p < 0.05) sub-dimensions of the MDMSI-II.

Table 4

Correlation analysis results (refereeing backgrounds, SMTQ, REFS, MDMSI)

Variables		2	3	4	5	6	7	8	9	10	11	12	13
[1]Refereeing Backgrounds(year)	r	.216*	0.099	.220*	0.102	0.131	0.135	.182*	0.045	-.192*	-.224**	-.229**	-.229**
[2]Confidence	r	-	.608***	.172*	.198*	.225**	.392***	.182*	.377***	0.118	-.195*	-0.158	-.191*
[3]Constancy	r		-	.546***	.355***	.312***	.398***	.357***	.401***	.393***	-.232**	-.200*	-.275**
[4]Control	r			-	0.108	.225*	.230**	.189*	.179*	.282***	-.207*	-0.146	-.279***
[5]Physical Competence	r				-	.451***	.404***	.634***	.374***	.264**	-.299***	-.199*	-.177*
[6]Pressure	r					-	.482***	.567***	.459***	0.152	-.295***	-.204*	-.286***
[7]Decision Making	r						-	.444***	.599***	.293***	-.250**	-.187*	-.248**
[8]Game Knowledge	r							-	.394***	.234**	-.396***	-.346***	-.326***
[9]Communication	r								-	.265**	-0.166	-.200*	-.224*
[10]Vigilance	r									-	-0.023	0.086	0.047
[11]Buck-passing	r										-	.618***	.711***
[12]Procrastination	r											-	.665***
[13]Hypervigilance	r												-

Note: *p< 0.05, **p< 0.01, ***p< 0.001, [1] Refereeing Backgrounds(year), [2]Confidence, [3]Contancy, [4]Control, [5]Physical Competence, [6]Pressure, [7]Decision Making, [8]Game Knowledge, [9]Communication, [10]Vigilance, [11]Buck-passing, [12]Procrastination, [13]Hypervigilance

Looking at Table 4, positive significant relationships are found between refereeing backgrounds and the Confidence (r = 0.216; p < 0.05) and Control (r = 0.608; p < 0.05) subdimensions of the Sport Mental Toughness Questionnaire (SMTQ), as well as with the Game Knowledge subdimension (r = 0. 182; p < 0.05) of the Referee Self-Efficacy Scale (REFS), whereas no significant relationships were observed with the constancy (r = 0.099; p > 0.05), physical competence (r = 0.102; p > 0.05), pressure (r = 0.131; p > 0.05), decision making (r = 0.135; p > 0.05) and communication (r = 0.045; p > 0.05) subdimensions; in addition, negative significant relationships are found between refereeing backgrounds and Vigilance decision making (r = -0.192; p < 0.05), Buck-passing Decision-Making (r = -0.224; p < 0.05),

Procrastination Decision-Making (r = -0.229; p < 0.05) and Hypervigilance Decision-Making (r = -0.229; p < 0.05) styles of the MDMSI.

Tablo 5

One-Way ANOVA Results for SMTQ, REFS, and MDMSI Sub-Dimensions by Refereeing Category

Sub-Dimension		Sum of Squares	Mean Squares	F	p	Difference
Confidence	Between Groups	0.943	0.314	1.444	0.233	-
	Within Groups	27.420	0.218			
	Total	28.363				
Constancy	Between Groups	0.259	0.086	0.375	0.771	-
	Within Groups	28.999	0.230			
	Total	29.258				
Control	Between Groups	1.549	0.516	0.998	0.396	-
	Within Groups	65.220	0.518			
	Total	66.769				
Physical competence	Between Groups	0.339	0.113	0.561	0.641	-
	Within Groups	25.352	0.201			
	Total	25.691				
Pressure	Between Groups	0.843	0.281	1.009	0.391	-
	Within Groups	35.076	0.278			
	Total	35.919				
Decision making	Between Groups	1.160	0.387	1.985	0.120	-
	Within Groups	24.548	0.195			
	Total	25.708				
Game knowledge	Between Groups	0.488	0.163	1.057	0.370	-
	Within Groups	19.409	0.154			
	Total	19.897				
Communication	Between Groups	0.238	0.079	0.347	0.791	-
	Within Groups	28.735	0.228			
	Total	28.973				
Vigilance	Between Groups	0.699	0.233	1.394	0.248	-
	Within Groups	21.070	0.167			
	Total	21.769				
Buck-passing	Between Groups	2.380	0.793	5.882	0.001*	3<1,2
	Within Groups	16.992	0.135			
	Total	19.372				
Procrastination	Between Groups	2.212	0.737	4.631	0.004*	3,4<1
	Within Groups	20.063	0.159			
	Total	22.276				
Hypervigilance	Between Groups	3.343	1.114	8.115	0.001*	3,4<1
	Within Groups	17.304	0.137			
	Total	20.648				

*p<0.05, [1]Candidate Referee, [2]Provincial Referee, [3]National Referee, [4]International Referee

Looking at Table 5, it can be seen that there are no statistically significant differences in the mean scores of the Sport Mental Toughness Questionnaire (SMTQ) subdimensions Confidence (F = 1.444; p > 0.05), Constancy (F = 0.375; p > 0.05) and Control (F = 0.998; p > 0. 05), as well as in the Referee Self-Efficacy Scale (REFS) subdimensions Physical Competence (F = 0.561; p > 0.05), Pressure (F = 1.009; p > 0.05), Decision Making (F = 1.985; p > 0.05), Game knowledge (F = 1.057; p > 0.05) and Communication (F = 0.347; p > 0.05) based on the referee category variable.

Based on the referee category variable, there are statistically significant differences in the mean scores of the Referee Self-Efficacy Scale (REFS) subdimensions Buck-passing Decision-Making Style ($F = 5.882$; $p < 0.05$), Procrastination Decision-Making Style ($F = 4.631$; $p < 0.05$) and Hypervigilance Decision-Making Style ($F = 8.115$; $p < 0.05$), whereas no significant differences are found for the Vigilance Decision-Making Style ($F = 1.394$; $p > 0.05$).

To determine which groups showed significant differences on the Melbourne Decision-Making Styles Inventory II (MDMSI-II) sub-dimensions, Scheffe's test revealed the following significant differences: for the Buck-passing Decision-Making Style ($\bar{x}_{candidate} = 0.76$; $\bar{x}_{provincial} = 0.55$; $\bar{x}_{national} = 0.32$), the differences were found between national referees and both candidate and provincial referees; for the Procrastination decision-making style ($\bar{x}_{candidate} = 0.73$; $\bar{x}_{national} = 0.31$; $\bar{x}_{international} = 0.28$) and Hypervigilance decision making style ($\bar{x}_{candidate} = 0.82$; $\bar{x}_{national} = 0.27$; $\bar{x}_{international} = 0.26$), differences were found between international and national referees compared to candidate referees. This indicates that national referees have lower scores in the Buck-passing decision-making style compared to candidate and provincial referees, and international and national referees have lower scores in the Procrastination and Hypervigilance decision-making styles compared to candidate referees.

DISCUSSION

The purpose of this study is to examine the relationship between mental toughness, self-efficacy levels and decision-making styles among wrestling referees. This section discusses the findings related to the relationships between participants' mental toughness, self-efficacy levels, and decision-making styles, as well as the variables of refereeing backgrounds and referee classification, in the context of the existing literature.

The findings of the study indicated a significant positive relationship between Sports Mental Toughness Questionnaire and Referee Self-Efficacy Scales. Specifically, the research demonstrated a positive correlation between the levels of mental toughness and refereeing self-efficacy among the wrestling referees who participated in the study. These findings are supported by various studies conducted across different disciplines in the literature, which have also demonstrated a positive correlation between mental toughness and self-efficacy among participants (Brace, 2020; Cowden, 2016; Ghazarians, 2012; Gucciardi et al., 2015; Koçyiğit, 2022; Middleton et al., 2004; Thom et al., 2020; Yıldız, 2022). Mental toughness in sports is defined as the capacity to maintain unwavering determination and belief while pursuing a goal in the face of stress, pressure, and the various challenges encountered in sports environments. This concept inherently includes the construct of self-efficacy, which is defined as the belief in one's ability to effectively manage expected situations. There is a strong and positive correlation between mental toughness and self-efficacy (Ghazarians, 2012; Middleton et al., 2004). Furthermore, the literature suggests that mental toughness and the perception of self-efficacy are concepts that are closely associated with performance and success in sports (Koç et al., 2022; Yıldız, 2022). The inclusion of the concepts of mental toughness and self-efficacy under the 'person' factor in social cognitive theory provides evidence for this relationship. Both concepts encompass personal characteristics that involve beliefs in one's ability to succeed as long as one remains physically active in daily life (Ghazarians, 2012). The positive relationship between mental toughness and self-efficacy is often highlighted in the literature, and this finding is supported in the present study. The process of achieving professionalism in refereeing involves gaining more experience, both physically and mentally. The situations encountered during this process provide referees with opportunities to develop their mental toughness and self-efficacy. Based on this relationship, it is assumed that a positive relationship between mental toughness and self-efficacy will develop in referees.

The study found a significant positive relationship between the Mental Toughness Questionnaire (SMTQ) and the Vigilance Decision-Making subscale of the Decision-Making Styles Inventaroy (MDMSI), while there was a significant negative relationship between the SMTQ and the Buck-passing, Procrastination, and Hypervigilance Decision-Making styles. Thus, as the mental toughness of the wrestling referees in the study increases, their tendency to make Vigilance decisions increases, while their tendency to make Buck-passing, Procrastination and Hypervigilance decisions decreases. This may be because more mentally controlled referees, who have higher levels of concentration and self-confidence, are less likely to adopt Buck-passing, Procrastination or Hypervigilance decision-making styles. The positive relationship between the SMTQ and a Vigilance decision-making style is thought to be due to the fact that referees with high levels of mental toughness and confidence in their own decisions are more Vigilance with certain decisions in order to avoid making mistakes. It is considered extremely important for referees to be both mentally resilient and physically competent when officiating matches. This is because referees' physical and mental capacities have a significant impact on the decisions they make, which in turn have a major influence on the outcome of the match. In line with the findings of the current study, Selvi (2018) found that mental toughness was associated with decision-making styles in a study conducted on football referees. Güvendi et al (2020) found that athletes who believe they are better than their competitors and have confidence in their athletic abilities make more Vigilance decisions and exhibit greater self-confidence. Conversely, athletes with less confidence in their abilities tend to Hypervigilance, procrastinate or avoid in their decision-making processes.

The study found a significant positive relationship between self-efficacy and the Vigilance decision making style, while there were significant negative relationships between self-efficacy and the Buck-passing, Procrastination and Hypervigilance decision making styles. Accordingly, as the level of self-efficacy of the wrestling referees in the study increases, their tendency towards Vigilance decision making increases, while their tendency towards Buck-passing, Procrastination and Hypervigilance decision making styles decreases. This finding suggests that the level of self-efficacy influences the decision-making process of referees. An individual with underdeveloped self-efficacy tends to avoid any problem they encounter (Bandura, 1995). Individuals with low self-efficacy may tend to avoid facing challenges beyond their current situation. In contrast, under conditions of high self-efficacy, individuals are reported to adopt a more courageous attitude when analysing situations and to engage more robustly in challenges (Yıldırım & Kocaekşi, 2020). Similarly, it is likely that referees with low self-efficacy may Hypervigilance and make incorrect decisions under challenging match conditions, resulting in ineffective decision-making and negatively influencing the outcome. They may avoid making critical decisions out of fear or hesitation. On the other hand, referees with high self-efficacy are expected to be more courageous and perform at a high level in the decision-making process under all match conditions. In addition, referees with high self-efficacy are trusted by athletes, coaches and spectators in match management. The literature supports these findings and is consistent with the research (Baştuğ et al., 2016; Kılıç & Öner, 2019; Sarıdede, 2018). For example, a study of basketball referees found that as referees' self-efficacy increased, their decision-making confidence and tendency to make Vigilance decisions increased, while their tendency to make sceptical and Hypervigilanceky decisions decreased (Kılıç & Öner, 2019). In the study conducted by Çağın et al. (2024), the relationship between self-efficacy and decision-making styles of wrestling referees was investigated. According to the research findings, there is a significant positive relationship between referees' self-efficacy scores and their Vigilance decision making scores, while there is a significant negative relationship between self-efficacy scores and their Procrastination and Hypervigilance decision making scores. The results of this study are consistent with and support the findings of the current research, given the similarity in the sample group and dependent variables.

The study found a significant positive relationship between the refereeing backgrounds and total scores on the Mental Toughness Questionnaire (SMTQ). This suggests that as the refereeing backgrounds (years) increases, so does the level of mental toughness. The number of years officiating reflects the level of refereeing backgrounds. Professional referees continuously develop and gain experience by progressing through different levels. Referees, who are faced with a variety of challenges in this process, also need to develop mentally. Marchant et al. (2009) emphasise that it is important to recognise that mental toughness can increase with experience. A review of the literature reveals that a study conducted by Miçooğulları et al. (2017) examined the level of mental toughness among football referees. The study revealed a notable difference in mental toughness among referees in accordance with their refereeing backgrounds. In particular, referees with a minimum of 14 years of experience exhibited elevated levels of mental toughness in comparison to those with 0–5 and 6–10 years of experience. This finding lends support to existing research indicating a positive relationship between experience and mental toughness in refereeing.

The study revealed a statistically significant positive relationship between refereeing experience and the "Game Knowledge" sub-dimension of the Referee Self-Efficacy Scale (REFS). This indicates that as the quantity of professional experience in refereeing increases, so does the level of self-efficacy experienced by referees. It is hypothesised that the accumulation of professional experience and an enhanced understanding of the interconnections between the techniques, tactics and rules of the game will positively influence referees' self-efficacy. The results of the study are thought to stem from the strong relationship between professional experience in refereeing and game knowledge, which enhances self-efficacy. Additionally, increasing game knowledge with greater professional experience may also contribute to the development of referees' self-efficacy. It is noted that experience is a fundamental factor influencing self-efficacy perceptions, with individuals who have more experience and knowledge typically exhibiting higher levels of self-efficacy (Akkoyunlu & Kurbanoğlu, 2003). In the relevant literature, the study titled "Examining the Self-Efficacy Levels of Wrestling Referees" revealed that referees with 1-5 years of professional experience exhibited lower levels of self-efficacy and game knowledge self-efficacy than those with 6-10 years and 11 or more years of refereeing experience (Arı & Erdem, 2022). Similarly, in a different study, it was found that referees with 1-5 years of professional experience had lower levels of self-efficacy and game knowledge self-efficacy than those with 6-10 years and 16 or more years of refereeing experience (Sarıdede, 2018). Karaçam and Pulur (2017) revealed a significant positive difference between referees of football, basketball, and handball in terms of their game knowledge, decision-making abilities, ability to handle pressure, communication skills, total scores, and refereeing backgrounds. As a result of a study conducted by López Aguilar et al. (2021) on Spanish referees, it was found that referees in the national category with 8 or more years of experience had higher levels of self-efficacy. Other studies reviewed in the literature have also identified a positive relationship between refereeing backgrounds and referee self-efficacy (Dereceli et al., 2019; Diotaiuti et al., 2017; Guillén & Feltz, 2011; Nazarudin et al., 2014). These findings support the results of the current research.

As a result of the research, a significant negative correlation was found between the refereeing backgrounds and all sub-dimensions of MDMSI. Accordingly, as refereeing experience increases, the tendency towards Vigilance, Buck-passing, procrastination, and Hypervigilance decision-making styles decreases. As refereeing experience increases, it is believed that correct and effective decision-making behavior develops, and there is a move away from Buck-passing, procrastination, or Hypervigilance decision-making styles. This can be considered a positive development observed with increased refereeing experience. More precisely, a tendency towards Buck-passing, procrastination, or Hypervigilance decision-making styles may arise due to a lack of experience. However, the research findings indicate a negative relationship between refereeing experience and Vigilance decision-making. In other

words, as refereeing experience increases, the tendency towards Vigilance decision-making decreases. This situation is thought to stem from the fact that as the years of experience among the wrestling referees participating in the study increase, they prefer to rely on their experience rather than obtaining the necessary information or seeking alternatives during the decision-making process. As a result, it appears that they may overlook Vigilance decision-making and proceed with their decisions without careful consideration. This finding highlights the necessity for greater attention and emphasis on Vigilance decision-making as refereeing experience increases. In the literature, it is noted that as volleyball referees gain more experience, there is a positive development in their decision-making processes (Arslan, 2022; Sarıdede, 2018). Similarly, a positive development is observed in the decision-making process of football referees as their refereeing experience increases (Aksu, 2016; Baydemir, 2023; Göksel et al., 2016). In a study conducted by Çağın et al. (2024) on wrestling referees, it was found that referees with less than 10 years of experience had a higher tendency towards Hypervigilance, Buck-passing, and procrastination decision-making styles. Conversely, referees with more than 15 years of experience exhibited less inclination towards these decision-making styles. These findings support the results of the current research.

The study found that when examining the total mean scores of SMTQ (Sport Mental Toughness Questionnaire) and REFS (Referee Self-Efficacy Scale) based on refereeing categories, no statistically significant differences were observed. This suggests that referees in different categories within the research group have similar levels of mental toughness and referee self-efficacy. However, literature reviews reveal studies that have found significant differences in mental toughness and self-efficacy levels based on refereeing categories, contrary to the results of this research (Çağın et al., 2024; Ekmekçi & Miçooğulları, 2017; Sarıdede, 2018). For example, a study conducted by Çağın et al. (2024) on wrestling referees found that referees in the international category had higher levels of self-efficacy. The observed discrepancy between the current research results and those reported in the literature is thought to be due to differences in participants' experience levels and personal characteristics.

The research results revealed that there are statistically significant differences in MDMSI (Multiple Decision-Making Styles Inventory) among refereeing categories in terms of Buck-passing, procrastination, and Hypervigilance decision-making styles, while no significant differences were found in the Vigilance decision-making style subdimension. Specifically, it was determined that candidate and provincial referees prefer the Buck-passing decision-making style more than national referees, and that candidate referees favor procrastination and Hypervigilance decision-making styles more than national and international referees. These findings suggest that refereeing category is an effective factor in the decision-making process among referees. It is thought that the Buck-passing, procrastination, and Hypervigilance attitudes observed in lower categories are due to less match experience and professional inexperience. According to the literature, a study conducted by Sarıdede (2018) found that candidate and provincial referees have a higher tendency towards Buck-passing decision-making compared to national and international referees. Additionally, candidate referees exhibit a higher level of Hypervigilance decision-making compared to provincial, national, and international referees. In a study conducted by Çağın et al. (2024) on wrestling referees, referees in the national and international categories were included in the research, while candidate and provincial referees were not included. The study found that national referees had higher mean scores for Hypervigilance, procrastination, and Buck-passing decision-making styles. Accordingly, it was concluded that national referees preferred Hypervigilance, procrastination, and Buck-passing decision-making styles more than international referees. No significant differences were observed in the Vigilance decision-making style based on refereeing category. These findings, which indicate that refereeing category influences the decision-making process, support the results of the current research.

In this study, examining the self-efficacy and mental toughness levels of wrestling referees in decision-making processes provided important findings on referee performance. The data obtained emphasise the influence of psychological factors on the decision-making abilities of referees and contribute to the literature in this field. Existing research generally focuses on technical and theoretical aspects; therefore, the effect of psychological factors is not sufficiently analysed. This study fills the existing knowledge gap by clearly demonstrating the role of psychological factors on the decision-making processes of wrestling referees. The findings show that self-efficacy and mental resilience have critical importance in improving the performance of referees. It is understood that referees' belief in their own abilities in decision-making processes and their capacity to cope with stressful situations can directly affect the course of the match. This has important practical implications for sport organisations and referee training programmes. In particular, taking these psychological factors into account in the development of training curricula may contribute to the professional development of referees. In light of these findings, future research should provide more information on how referees can improve their performance through psychological training and support programmes. For example, stress management techniques to increase mental resilience or decision-making skills workshops that enhance self-efficacy may be among the strategies that could be implemented to improve referees' performance. Furthermore, this study has some limitations. The sample size and selection used may limit the generalisability of the findings. The use of a larger and more diverse sample structure in future studies will allow the findings to be evaluated in a broader context. In particular, conducting similar studies on referees in different sport branches may develop a more comprehensive understanding of how psychological factors affect referee performance in general. In conclusion, this research has taken an important step forward in examining the psychological factors of wrestling referees and has provided information for psychological training interventions aimed at improving referee performance. The findings have both theoretical and practical implications and provide valuable contributions to the sport psychology literature.

Conclusion

The study found a significant positive relationship between SMTQ and REFS. This indicates that there is a positive relationship between the mental toughness levels and referee self-efficacy of the wrestling referees participating in the study.

A significant negative relationship was found between SMTQ and the sub-dimensions of MDMSI, namely Vigilance, Buck-passing, procrastination, and Hypervigilance decision-making styles. This suggests that as mental toughness increases among wrestling referees, the tendency towards Vigilance decision-making increases while the tendencies towards Buck-passing, procrastination, and Hypervigilance decision-making styles decrease.

A positive significant relationship was found between REFS and the Vigilance decision-making style sub-dimension of MDMSI, while negative significant relationships were observed with the Buck-passing, procrastination, and Hypervigilance decision-making styles. This indicates that as the self-efficacy level of wrestling referees increases, the tendency towards Vigilance decision-making increases, and the tendency towards Buck-passing, procrastination, and Hypervigilance decision-making styles decreases.

A positive significant relationship was observed between refereeing backgrounds and SMTQ total scores. This suggests that as the duration of refereeing experience increases, there is a positive development in mental toughness levels.

A positive and statistically significant relationship was found between refereeing backgrounds and the Game Knowledge sub-dimension of REFS. This indicates that professional experience in refereeing leads to an increase in referee self-efficacy as experience grows.

A negative significant relationship was identified between refereeing backgrounds and all sub-dimensions of MDMSI. This implies that as refereeing experience increases, the tendency towards Vigilance, Buck-passing, procrastination, and Hypervigilance decision-making styles decreases.

When examining the general mean scores of SMTQ and REFS based on refereeing categories, no statistically significant differences were found. This suggests that referees in different categories within the research group have similar levels of mental toughness and self-efficacy.

Regarding MDMSI, there were statistically significant differences in Buck-passing, procrastination, and Hypervigilance decision-making styles based on refereeing categories, while no significant differences were observed in the Vigilance decision-making style sub-dimension. It was determined that candidate and provincial referees prefer the Buck-passing decision-making style more compared to national referees, and candidate referees prefer procrastination and Hypervigilance decision-making styles more compared to national and international referees.

In this study, examining the self-efficacy and mental toughness levels of wrestling referees in decision-making processes revealed important psychological factors affecting referee performance. The findings show that the difficulties faced by wrestling referees are directly related to their self-efficacy perceptions and mental toughness. This situation both contributes to the academic literature and provides important clues for the development of practical applications.

• Targeted Training Programmes: Training programmes specifically designed for wrestling referees should be developed. These programmes should include strategies to increase mental resilience (e.g. stress management techniques, mental imaging) and practices to improve self-efficacy (e.g. decision-making simulations).

• Mentoring and Ongoing Support: More experienced referees should be encouraged to mentor and work with new referees. This can increase new referees' sense of self-efficacy and provide better support in their decision-making process.

• Evaluation and Feedback Mechanisms: Regular feedback mechanisms should be established to evaluate the performance of arbitrators. In particular, forums and discussion groups where referees can share their difficulties in decision-making processes can improve their mental resilience.

• Mental Training Workshops: Referees should be encouraged to regularly attend mental training workshops to increase their mental resilience and self-efficacy. These workshops could focus on developing decision-making skills under pressure.

• Confidence Building Programmes: In order to increase the perception of self-efficacy, activities and studies should be organised to reinforce referees' feelings of self-confidence. In particular, sharing past successes and experiences can increase referees' belief in themselves.

Recommendation

Based on the findings of the study, the following recommendations for practitioners and researchers can be proposed:

- It is suggested that wrestling federations increase activities and training aimed at enhancing referees' self-efficacy, as this is considered crucial for referee performance.
- Various regulations and improvements should be made, starting from training and extending to fieldwork, to enhance referees' professional self-efficacy. Environments should be created to allow referees to develop themselves, and equal opportunities should be provided in assignments.

- A performance tracking and guidance system should be established to provide performance-based direction and assignments. This can help referees improve their self-efficacy, which in turn can enhance their decision-making skills and mental toughness.
- Successful referees should be rewarded both financially and morally. Coaches should support referees in their successful performances and avoid unjust criticism, as maintaining mental toughness is crucial for referees during stressful and high-pressure matches.
- Seminars should emphasize how referees can address issues encountered both on and off the field. Training programs should include lessons on mental toughness, self-efficacy development, and effective decision-making.
- It is recommended to conduct broader research on factors affecting the tendency towards Hypervigilance, procrastination, or Buck-passing decision-making styles in referees.
- Improving referees' communication skills to maintain positive relationships with coaches, athletes, and officials can be effective in making fair and accurate decisions during matches.
- Referees who demonstrate high mental toughness, self-efficacy, and make appropriate and effective decisions are likely to gain greater trust from coaches, athletes, and spectators.
- Referees should undergo regular physical and psychological testing to maintain their performance levels.
- Various social and cultural events should be organized to help wrestling referees relieve stress and get rid of fatigue in busy competition schedules. In this way, the morale and motivation of wrestling referees can be increased.
- Areas designated for referees in playing fields should be improved. Fatigue can negatively impact referees' performance, so providing rest opportunities is crucial, especially in tournaments with many matches.
- This study investigated the relationships between mental toughness, self-efficacy, and decision-making levels of wrestling referees, and evaluated differences based on refereeing years and categories. Future research could explore additional variables affecting mental toughness, self-efficacy, and decision-making processes, and assess the mediating roles of these variables.
- Research can be conducted to test mental training methods aimed at enhancing mental toughness and self-efficacy in referees.

Limitations

The results of the research are limited to wrestling referees. Therefore, the results obtained can only be generalized within this framework. Addressing the relationship between mental toughness, referee self-efficacy and decision making on referees of other branches may contribute to the validity and generalizability of the findings.

Acknowledgements or Notes

Acknowledgments of people, grants, and funds should be placed in a separate section before the References. If the study has been previously presented at a conference or a scholarly meeting, it should be mentioned here.

REFERENCES

Akkoyunlu, B., & Kurbanoglu, S. (2003). A study on teacher candidates' perceived information literacy self-efficacy and perceived computer self-efficacy. *Hacettepe University Journal of Education*, *24*(24).

Aksu, A. (2016). *Investigation of decision making styles and self confidence levels of football referees in different classifications*. [Master Thesis]. Fırat University.

Aktaş, Z., Zekioglu, A., Yazıcılar, İ., & Nihal, E. (2011). Perceive analysis of contributing factors to the decision making process of basketball referees. *International Refereed Academic Social Sciences Journal*, *1*(2).

Altıntaş, A., & Koruç, P. B. (2016). Examining psychometric properties of the Sport Mental Toughness Questionnaire-SMTQ. *Hacettepe Journal of Sport Sciences, 27*(4), 163-171.

Arı, A., & Erdem, T. (2022). Examining the Self-Efficacy Levels of Wrestling Referees. *Turkish Journal of Sport and Exercise*, *24*(3), 264-270.

Arslan, F. (2022). *Investigation of volleyball referees' self-esteem and decision making levels.* [Master thesis, Atatürk University]. Graduate School of Winter Sports And Sport Sciences].

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological review*, *84*(2), 191.

Bandura, A. (1986). Social foundations of thought and action. *Englewood Cliffs, NJ*, *1986*(23-28), 2.

Bandura, A. (1995). Exercise of personal and collective efficacy in changing societies. *Self-efficacy in changing societies*, *15*, 334.

Baştuğ, G., Duman, S., Akçakoyun, F., & Karadeniz, F. (2016). Football referees; stress, self-confidence, decision making. *Journal of Human Sciences*, *13*(3), 5399-5406.

Baydemir, U. (2023). *Investigation of decision making styles and self confidence levels of football referees in different classifications.* [Master Thesis]. Fırat University, Institute of Medical Sciences.

Brace, A. W., George, K, ve Lovell, G. P. (2020). Mental toughness and self-efficacy of elite ultra-marathonrunners. *PLoS One*, *15*(11), 1-11. doi.org/10.1371/journal.pone.0241284

Büyüköztürk, Ş., Akgün, Ö. E., Demirel, F., Karadeniz, Ş., & Çakmak, E. K. (2015). Scientific research methods. Ankara:Pegem.

Clough, P., Earle, K., & Sewell, D. (2002). Mental toughness: The concept and its measurement. *Solutions in sport psychology*, *1*, 32-45.

Coulter, T. J., Mallett, C. J., & Singer, J. A. (2016). A subculture of mental toughness in an Australian Football League club. *Psychology of Sport and Exercise*, *22*, 98-113.

Cowden, R. G. (2016). Mental toughness, emotional intelligence, and coping effectiveness: An analysis of construct interrelatedness among high-performing adolescent male athletes. *Perceptual and Motor Skills*, *123*(3), 737-753. doi.org/10.1177/0031512516666027

Crust, L. (2008). A review and conceptual re-examination of mental toughness: Implications for future researchers. *Personality and individual differences*, *45*(7), 576-583.

Çağın, M., Çimen Polat, S., Aslan, S., & Cicioğlu, H. İ. (2024). Examination of the relationship between the self-efficacy and decision-making styles of wrestling referees. *Journal of ROL Sport Sciences*, *5*(9), 99-111.

Deniz, M. (2004). Investigation of the relation between decision making self-esteem, decision making style and problem solving skills of uiıversity students. *Eurasian Journal of Educational Research (EJER)*(15).

Dereceli, Ç., Ünlü, H., & Erbaş, M. K. (2019). Investigation of self-efficacy levels of football referees. *Sakarya Unıversıty Journal Of Educatıon*, *9*(1), 70-82.

Diotaiuti, P., Falese, L., Mancone, S., & Purromuto, F. (2017). A structural Model of Self-efficacy in Handball Referees. *Frontiers in psychology*, *8*, 8-11.

Dönmez, K., & Özgül, F. (2020). Investigation of Handball Referees' Decision-Making Styles according to some variables. *International Journal of Contemporary Educational Studies (IntJCES)*, *6*(1), 30-47.

Ekmekci, R., Weınberg, R. S., Rıchardson, P. A., & Ekmekçi, R. (2011). Characteristics of a good referee. *Pamukkale Journal of Sport Sciences*, *2*(1), 1-5.

Ekmekçi, R., & Miçooğulları, B. O. (2017). Mental endurance analysis in sport: The case of Football referees. 15th Sports Sciences Congress, Antalya, Türkiye.

George, D., & Mallery, P. (2019). *IBM SPSS statistics 26 step by step: A simple guide and reference*. Routledge.

Ghazarians, M. (2012). *Evaluating the mebactive-youth as a measure of mental toughness.* Doctoral dissertation, University of Massachusetts Amherst.].

Gould, D., Dieffenbach, K., & Moffett, A. (2002). Psychological characteristics and their development in Olympic champions. *Journal of applied sport psychology*, *14*(3), 172-204.

Göksel, A. G., Pala, A., & Caz, Ç. (2016). Investigation of the relationship between leisure time evaluation preferences and communication skills of football referees. *International Peer-Revıewed Journal of Communıcation And Humanities Research*, *11*(7), 15-28.

Gucciardi, D. F., Hanton, S., Gordon, S., Mallett, C. J., & Temby, P. (2015). The concept of mental toughness: tests of dimensionality, Nomological Network, and Traitness. *Journal of personality*, *83*(1), 26-44. doi.org/10.1111/jopy.12079

Guillén, F., & Feltz, D. L. (2011). A conceptual model of referee efficacy. *Frontiers in psychology*, *2*, 25.

Guillén, F., & Laborde, S. (2014). Higher-order structure of mental toughness and the analysis of latent mean differences between athletes from 34 disciplines and non-athletes. *Personality and individual differences*, *60*, 30-35.

Güvendi, B., Can, H. C., & Türksoy Işım, A. (2020). Examination of the relationship between Mental Toughness and Decision-Making Styles in triathletes. *International Journal of Contemporary Educational Studies (IntJCES)*, *6*(1), 146-160.

Hardy, L., Bell, J., & Beattie, S. (2014). A neuropsychological model of mentally tough behavior. *Journal of personality*, *82*(1), 69-81.

Jones, G., Hanton, S., & Connaughton, D. (2007). A framework of mental toughness in the world's best performers. *The sport psychologist*, *21*(2), 243-264.

Kalaycı, Ş. (2010). SPSS applied multivariate statistical techniques. (Vol. 5). Asil Publishing and Distribution Ankara, Türkiye.

Karaçam, A., & Pulur, A. (2017a). Examining the Relationship between Referee Self efficacy and General Self-efficacy Levels of Football, Basketball and Handball Referees. *Universal Journal of Educational Research*, *5*(9), 1571-1579.

Karaçam, A., & Pulur, A. (2017b). The study of adaptation of referee self-efficacy scale refs ınto Turkish. *Journal of Physical Education and Sports Sciences*, *11*(1), 118-128.

Kılıç, A., & Öner, Ç. (2019). Examining the self-efficacy and decision-making styles of basketball referees. 4. International EMI Entrepreneurship and Social Sciences Congress.

Kırtepe, A., & Çetinkaya, T. (2018). Examination of Decision Making Styles of referees in different branches in terms of some variables. *Electronic Turkish Studies*, *13*(10).

Koç, İ., Ergin, R., Gencer, E., & Marangoz, İ. (2022). A relational research on mental toughness and track performance. *Mediterranean Journal of Sport Science*, *5*(4), 858-870.

Koçyiğit, B. (2022). The relationship between mental resilience and self-efficacy. *Mediterranean Journal of Sport Science*, *5*(4), 871-881. doi.org/10.38021/asbid.1166423

Liew, G. C., Kuan, G., Chin, N. S., & Hashim, H. A. (2019). Mental toughness in sport: Systematic review and future. *German Journal of Exercise and Sport Research*, *49*(4), 381-394.

López Aguilar, J., Castillo-Rodriguez, A., Chinchilla-Minguet, J., & Onetti-Onetti, W. (2021). Relationship between age, category and experience with the soccer referee's self-efficacy. *PeerJ 9:e11472*. doi.org/10.7717/peerj.11472

Mann, L., Burnett, P., Radford, M., & Ford, S. (1997). The Melbourne Decision Making Questionnaire: An instrument for measuring patterns for coping with decisional conflict. *Journal of behavioral decision making*, *10*(1), 1-19.

Marchant, D. C., Polman, R. C., Clough, P. J., Jackson, J. G., Levy, A. R., & Nicholls, A. R. (2009). Mental toughness: Managerial and age differences. *Journal of Managerial Psychology*, *24*(5), 428-437.

Miçoogulları, B. O., Gümüşdag, H., Ödek, U., & Beyaz, Ö. (2017). Comparative Study of Sport Mental Toughness between Soccer Officals. *Universal Journal of Educational Research*, *5*(11), 1970-1976.

Middleton, S. C., Marsh, H. W., Martin, A. J., Richards, G. E., Savis, J., Perry Jr, C., & Brown, R. (2004). The psychological performance ınventory: Is the mental toughness test tough enough? *International Journal of Sport Psychology*, *35*(2), 91-108.

Myers, N. D., Feltz, D. L., Guillén, F., & Dithurbide, L. (2012). Development of, and initial validity evidence for, the Referee Self-Efficacy Scale: A multistudy report. *Journal of sport and Exercise Psychology*, *34*(6), 737-765.

Nazarudin, M. N., Noordin, H., Suppiah, P. K., Abdullah, M. R., Fauzee, M. S. O., & Abdullah, N. M. (2014). Psychological skills assessment and referee rugby sevens performance. *Jurnal Pemikir Pendidikan*, *5*, 165-184.

Sarıdede, Ç. (2018). *Analysing self sufficiency level and decision making ability of volleyball referees.* (Master Thesis). İstanbul Gelişim University, Institute of Medical Sciences, İstanbul].

Selvi, S. (2018). *Tendency to violence for referees from different divisions, psychological durability and levels of decision making: A study in Türkiye.* (Master Thesis). Kocaeli University, Institute of Medical Sciences, Kocaeli].

Sheard, M. (2012). *Mental toughness: The mindset behind sporting achievement*. Routledge.

Sheard, M., Golby, J., & Van Wersch, A. (2009). Progress toward construct validation of the Sports Mental Toughness Questionnaire (SMTQ). *European Journal of Psychological Assessment*, *25*(3), 186-193.

Thom, B. T., Guay, F., & Trottier, C. (2020). Mental toughness in sport: The Goal-Expectancy-Self-Control (GES) model. *Journal of applied sport psychology*, *33*(6), 627-643. doi.org/10.1080/10413200.2020.1808736

Yazıcıoğlu Y, Erdoğan S. (2004). SPSS applied scientific research methods. Detay, Ankara.

Yıldırım, I. Ö., & Kocaekşi, S. (2020). Examination of Mental Endurance, Self-efficacy Belief and Sports Selfconfidence levels in wrestlers. *International Journal of Contemporary Educational Studies*, *6*(2), 392-406. doi.org/10.1080/10413200.2020.1808736

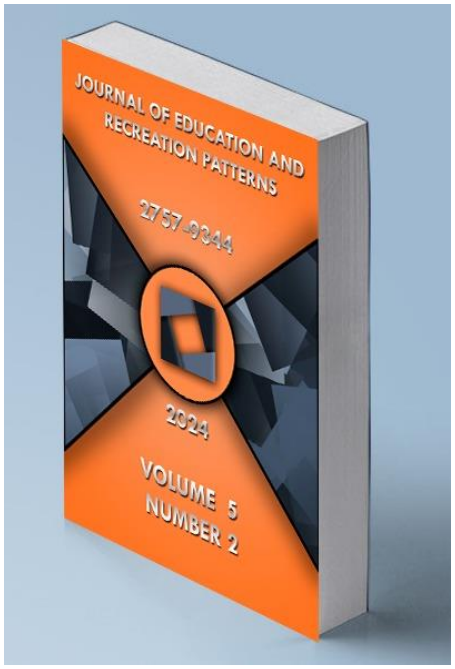
Yıldız, A. B. (2022). *Mental Toughness and Self-Efficacy in Athletes.* (B. Yılmaz, Ed.). Gazi Bookstore.

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Comprehensive Development and Validation of the Autism Spectrum Disorder-Therapeutic Recreation Scale (ASD-TR): A Specialized Tool for Assessing Behavioral and Developmental Outcomes in Recreational Contexts

İbrahim RESULOĞLU[1], Ezgi ERTÜZÜN[2]

To cite this article:

Resuloğlu, İ. & Ertüzün, E. (2024). Comprehensive development and validation of the autism spectrum disorder-therapeutic recreation scale (ASD-TR): A specialized tool for assessing behavioral and developmental outcomes in recreational contexts. *Journal of Education and Recreation Patterns (JERP), 5* (2), 196-207. DOI: https://doi.org/10.53016/jerp.v5i2.208

[1]Selçuklu Belediyesi Secondary School, ibrahimresuloglu@gmail.com,
https://orcid.org/0000-0002-5225-3005

[2]Selçuk University, Faculty of Sport Sciences, Department of Recreation. ezgiertuzun@gmail.com,
https://orcid.org/0000-000 2-6986-0143

Journal of Education and Recreation Patterns (JERP)
Volume 5, Issue 2, Year 2024 ISSN: 2757-9344

Comprehensive Development and Validation of the Autism Spectrum Disorder-Therapeutic Recreation Scale (ASD-TR): A Specialized Tool for Assessing Behavioral and Developmental Outcomes in Recreational Contexts

İbrahim Resuloğlu[1], Ezgi Ertüzün[2]

ARTICLE INFORMATION
Original Research Paper

Received 04.01. 2024
Accepted 03.12. 2024

https://jerpatterns.com

December, 2024

Volume: 5, No: 2

Pages: 196-207

ABSTRACT
Scientific studies indicate that recreational activities positively influence children with mild Autism Spectrum Disorder (ASD). Enhancing the participation of children with ASD in therapeutic recreation necessitates strategic planning for entertainment. This study aims to develop a measurement tool to evaluate the impact of recreational activities within therapeutic contexts on the behaviors of children with mild ASD. The scale development process involved a comprehensive literature review, leading to the creation of an item pool based on the Autism Behavior Checklist and the Health Protection/Health Promotion Model within therapeutic recreation. Content validity of the item pool was assessed by experts in the field. Data collected from parents of children with mild autism underwent KMO and Bartlett's tests, followed by Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The findings resulted in the development of a valid and reliable Autism Spectrum Disorder-Therapeutic Recreation Scale (ASD-TR).

Keywords: Autism Spectrum Disorder, Recreational Therapy, Scale Development, Therapeutic Recreation

INTRODUCTION

Therapeutic recreation is based on development and entertainment for disadvantaged groups. The fun of an event or activity is decisive in maintaining participation and continuity. When planning activities children with ASD and their families need to have a perspective based on entertainment focus in terms of participation and continuity in activities (Eversole et al., 2016).

It is essential in many respects to determine the behavior of children with ASD towards fun activities within the scope of therapeutic recreation. Therapeutic recreation programs (TRP) are a practical approach to address problems in many areas such as autism-related social behavior (Pan, 2010), communication skills (Hameury, 2010), and sensory and social skills (Bass, 2009). This study aims to develop the Autism Spectrum Disorder-Therapeutic Recreation Scale (ASD-TR) to learn the behaviors of children with autism spectrum disorder regarding fun activities.

Since ASD-TR measures the autism-specific behaviors of children with ASD within the scope of therapeutic recreation within the scope of their cognitive, physical, and emotional tendencies, the evaluation of the diagnosis of ASD and the health protection function of therapeutic recreation should be well understood. For this reason, Health Protection/Health Promotion and Autism Behavior Checklist (ABC) models were used when developing the measurement tool.

Autism Behavior Checklist (ABC)

One of the scales developed in recent years to evaluate and screen autism is the Autism Behavior Checklist (ABC). The scale, which was developed by Krug et al. (1993) and called ABC for short, is among the frequently used scales for the evaluation of screening and education in autism in many countries (Bildt et al., 2005; Eaves et al., 2000; Sevin et al., 1991). This measurement tool was taken as a basis for creating the framework of the current measurement tool and determining its sub-dimensions.

Health Protection/Health Promotion Model

Therapeutic recreation advocates helping individuals recover from health threats (health preservation) and achieve as high a level of health as possible (health promotion) (Austin, 1997). According to this model, the mission of therapeutic recreation is to help people cope with health barriers and reach their highest levels of health and wellness using activity, recreation, and leisure time.

To summarize, in the sample of children with ASD, this model explains the effect of fun activities on improving behaviors specific to the ASD diagnosis.

METHOD

Research Model

This study used the descriptive survey model (Fraenkel et al., 2012). Ethics Commission approval (E-40990478-050.99-766596) and consent forms from all participants were obtained from Selcuk University for this research, which was conducted in the 2023-2024 academic year.

Participants

In this study, the guideline that at least 10 participants are needed for each item in scale development (Akgül, 2005; Alpar, 2016) was adhered to when forming the research group. Consequently, the sample size for the Exploratory Factor Analysis (EFA) was set at 343

participants. For the Confirmatory Factor Analysis (CFA), the research group comprised 397 parents of children with autism spectrum disorders who had not participated in the EFA. The inclusion criterion specified that only responses from parents of children aged 7-11 with a mild diagnosis of autism spectrum disorder were considered.

Table 1

Information on Demographic Characteristics of Parents Participating in the Exlamantory Factor Analysis study

Variable	Group	Frequency (f)	Percent (%)
Person who answered the form	Mother	223	65.0
	Father	117	34.1
	Stepfather	3	0.9
Age	26-35	77	22.4
	36-45	202	55.4
	46-55	46	13.5
	56+	18	5.2
Mother's Education Level	Primary school	35	10.2
	Secondary school	64	18.7
	High school	101	29.5
	University	109	31.8
	Master's degree	24	7.0
	Illiterate	10	2.9
Father's Education Level	Primary school	34	10.0
	Secondary school	77	22.4
	High school	91	26.5
	University	104	30.3
	Master's degree	31	9.0
	Illiterate	6	1.8
Income Status	Below minimum wage	14	4.1
	Minimum wage	24	7.0
	8,506-10,000	37	10.8
	10,001-15,000	58	16.9
	15,001-20,000	74	21.6
	20,001 and more	136	39.7
Number of Children	1	55	16.0
	2	170	49.5
	3	86	25.0
	4	27	7.9
	5 and more	5	1.5

Table 2

Demographic Characteristics of Parents Participating in the Confirmatory Factor Analysis Study

Variable	Group	Frequency (f)	Percent (%)
Person who answered the form	Mother	229	57.6
	Father	166	41.8
	Stepfather	2	0.8
Age	26-35	89	22.4
	36-45	220	55.4
	46-55	78	19.6
	56+	10	2.5
Mother's Education Level	Primary school	55	13.9
	Secondary school	77	19.4
	High school	109	27.5
	University	114	28.7
	Master's degree	36	9.1
	Illiterate	6	1.5
Father's Education Level	Primary school	55	13.9
	Secondary school	77	19.4
	High school	109	27.5
	University	114	28.7
	Master's degree	36	9.1
	Illiterate	6	1.5
Income Status	Below minimum wage	15	3.8
	Minimum wage	55	13.9
	8,506-10,000	50	12.6
	10,001-15,000	78	19.6
	15,001-20,000	73	18.4
	20,001 and more	126	31.7
Number of Children	1	55	13.9
	2	190	47.9
	3	106	26.7
	4	37	9.3
	5 and more	9	2.3

Table 3

Number and Percentage of Demographic Characteristics of Participating Parents' Children (n=343)

Variable	Group	Frequency (f)	Percent (%)
Gender	Female	93	27.1
	Male	250	72.9
General Education Level	Primary school	73	21.3
	Secondary school	239	69.7
	High school	31	9.0

Variable	Group	Frequency (f)	Percent (%)
Level of Autism	Mild	208	60.7
	Moderate	81	23.6
	Severe	54	15.7
Type of Autism	Atypical	151	44.0
	Pervasive developmental disorder	103	30.0
	Asperger	80	23.3
	Rett	9	2.6

- **Average Age of Children with Autism:** 9.55±1.25 years
- **Average Age of Parents:** 39.06±7.20 years
- **Parents' Budget Average:** 20,000±8,500 TL

Table 4

Number and Percentage of Demographic Characteristics of Children of Participating Parents (n=397)

Variable	Group	Frequency (f)	Percent (%)
Gender	Female	98	24.7
	Male	299	75.3
General Education Level	Primary school	52	13.1
	Secondary school	282	71.0
	High school	63	15.9
Level of Autism	Mild	259	65.3
	Moderate	100	25.2
	Severe	38	9.5
Type of Autism	Atypical	164	41.3
	Pervasive developmental disorder	116	29.2
	Asperger	97	24.5
	Rett	20	5.0

- **Average Age of Children with Autism:** 10.35±1.25 years
- **Average Age of Parents:** 43.54±7.20 years
- **Parents' Budget Average:** 20,000±8,500 TL

Data Collection Tools

The data were collected from the mothers of children with autism spectrum disorder through Google Form, Personal Information Form, and Draft ASD-TR Scale. The process step suggested by Creswell (2017) was followed while developing the Autism Spectrum Disorder-Therapeutic Recreation Scale (ASD-TR) for children with autism spectrum disorder.

Item Pool

In the first step, the scope of the scale is defined. At the point of defining the scope using the literature studies, one of the appropriate social science theories should be preferred to explain the subject in detail and clearly (DeVellis, 2003). In this direction, an item pool was created within the health protection/health promotion model framework and the autism behavior checklist. The pool consisted of 34 items, with five removed in line with expert opinions.

The content validity

The content validity of the measurement tool (Yeşilyurt & Cross, 2018) and the relevance of the items were assessed by professionals and academicians working in the fields of Recreation, Sports Sciences, and Special Education, who have experience in social work with disabled individuals. Additionally, the preliminary version of the measurement tool was evaluated by ten mothers of children with ASD to ensure its practicality and comprehensibility.

Factor Analysis (EFA-DFA)

In order to evaluate the suitability of the data set for factor analysis, The authors assessed the Kaiser-Meyer-Olkin (KMO) value to evaluate the suitability of the data set for factor analysis. The Bartlett test was conducted and found to be statistically significant, confirming the data set's appropriateness for Exploratory Factor Analysis (EFA). Using the principal component technique, the explanatory factor analysis was applied to all factors. Factors were identified based on the distribution percentage, considering only those with an eigenvalue above 1.

This study calculated the Cronbach's Alpha coefficient for internal consistency analyses. The authors conducted a confirmatory factor analysis to test the suitability of factors obtained from EFA, and factor structure that were determined by hypothesis testing (Auerbach & Beckerman, 2011; Aytaç & Öngen, 2012).

FINDINGS

In evaluating the factor structures within the data set, factors with eigenvalues greater than one were deemed significant. To ensure the robustness of the factor analysis, the correlation matrix was examined, and items were required to have a minimum correlation value of 0.40. Consequently, 18 items that did not meet this threshold were excluded from the analysis.

Table 5

Exploratory Factor Analysis of Autism Spectrum Disorder-Therapeutic Recreation Attitude Scale

Factor	Item	Factor Load	Cronbach's Alpha Value	Explained Variance (%)
Sensory	**Overall**	**.925**	**30.93**	
	Decrease in motor stereotypic behaviours (e.g., clapping, rocking) after fun activities	.85		
	Decrease in visual stereotypic behaviours (e.g., looking at light, finger movements) after fun activities	.82		
	Decrease in auditory stereotypic behaviours (e.g., plugging ears) after fun activities	.80		
	Decrease in tactile stereotypic behaviours (e.g., rubbing, scratching) after fun activities	.79		
	Decrease in vocal stereotypic behaviours (e.g., singing, mumbling) after playful activities	.76		

Factor	Item	Factor Load	Cronbach's Alpha Value	Explained Variance (%)
	Decrease in object twisting and bumping behaviours after fun activities	.71		
	Decrease in tantrums during the day after fun activities	.60		
Social	**Overall**	**.903**	**22.22**	
	Increased eagerness to socialise in new environments after fun activities	.87		
	Increased eagerness to socialise with new people after fun activities	.85		
	Increased use of expressive language skills after fun activities	.82		
	Use of appropriate gestures and facial expressions in communication after fun activities	.70		
Language and Communication	**Overall**	**.791**	**15.24**	
	Waiting 3-5 seconds for needs to be met during fun activities	.82		
	Reduced reaction to unrelated sounds during fun activities	.66		
	Reduced contact with unrelated objects during fun activities	.59		
	Fulfillment of simple instructions once told after fun activities	.56		
	No problem behaviour around new people during fun activities	.43		
TOTAL		**.93**	**68.4**	

Notes: N=343, KMO=0.932, Bartlett's Test of Sphericity p<0.001. The items and sub-dimensions determined by exploratory factor analysis were subsequently tested by confirmatory factor analysis.

Table 6

Findings on Reference Fit Indices and Measurement Tool

Fit Indexes	Acceptable Range	Findings	Source
χ^2/df	$0 \leq \chi^2/df \leq 5$	2.958	Tabachnick & Fidell (2007)
RMSEA	$0 \leq RMSEA \leq 0.07$	0.070	Steiger (2007)
RMR	$0 \leq RMR \leq 0.10$	0.040	Hu & Bentler (1999), Kline (2011)
AGFI	$0.85 \leq AGFI \leq 0.90$	0.883	Hu & Bentler (1999), Kline (2011)
NFI	$0.90 \leq NFI \leq 1.00$	0.941	Steiger (2007)
CFI	$0.90 \leq CFI \leq 1.00$	0.960	Raykov & Marcoulides (2000)
GFI	$0.90 \leq GFI \leq 1.00$	0.917	Hooper, Coughlan, & Mullen (2008)

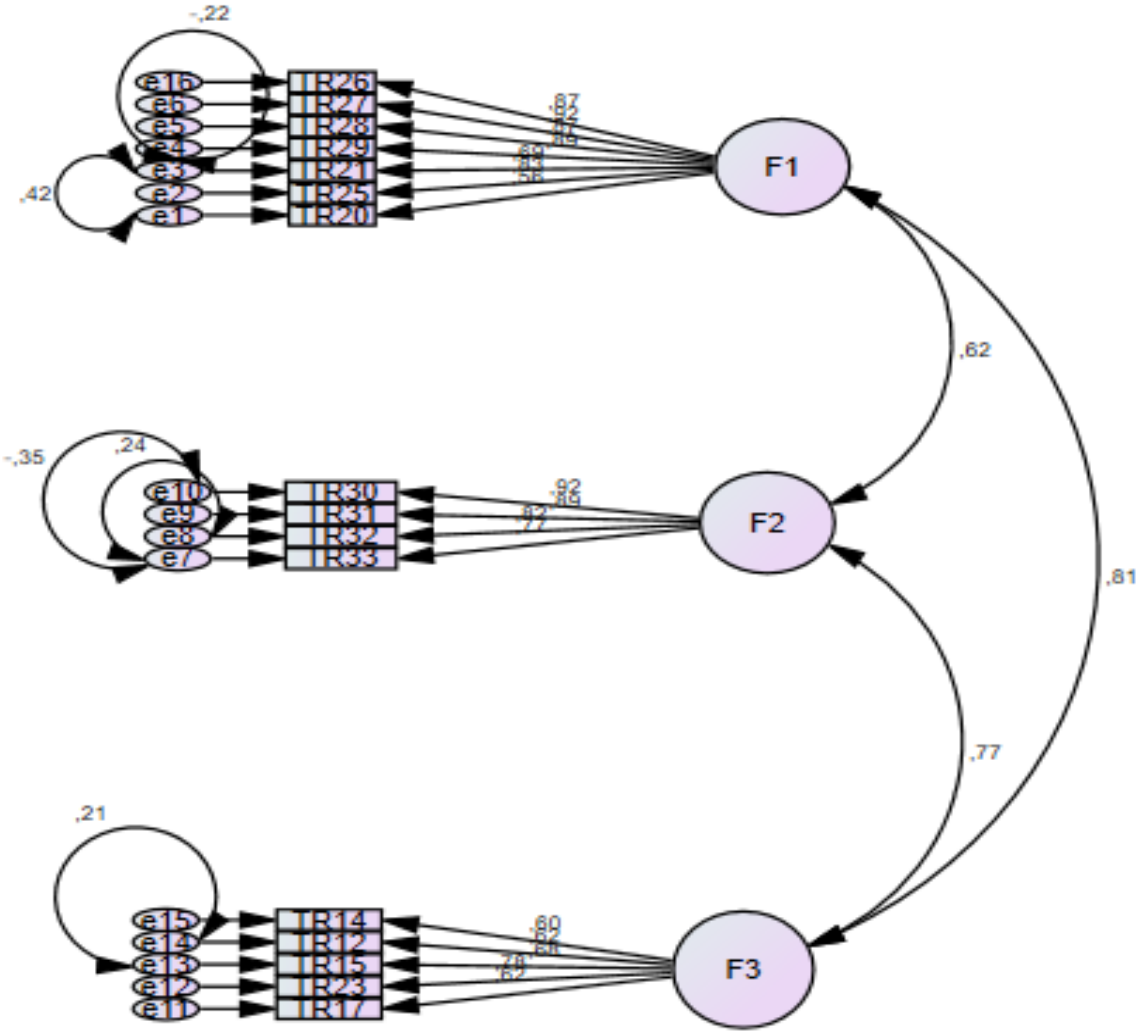
All relationships between the scale sub-dimensions are positive. Kline (2011) stated that the correlation coefficient should not exceed 0.85 to ensure discriminant validity of the correlations between sub-dimensions.

Table 7
Correlations Between Sub-Dimensions

Sub-Dimensions	Sensory	Social	Language and Communication
Sensory	1	.549	.434
Social	.549	1	.028
Language and Communication	.434	.028	1

This table displays the correlation coefficients between the sub-dimensions Sensory, Social, and Language and Communication. Values close to 1 indicate a strong positive correlation, whereas values close to 0 indicate a lack of correlation.

Figure 1
Diagram of the three-factor measurement model



Findings Regarding the Reliability Study

The reliability values of the sub-dimensions calculated according to the Cronbach Alpha coefficient were determined as .93 for the Sensory Sub-Dimension, .90 for the Social Sub-Dimension, .79 for the Language and Communication Sub-Dimension, and generally .94.

DISCUSSION

This work aimed to develop the Autism Spectrum Disorder-Therapeutic Recreation Scale (ASD-TR) to determine the behaviors of children with autism spectrum disorder (ASD) regarding recreational activities. In preparing the scale items and determining the content and face validity, opinions were solicited from faculty members and special education teachers who are experts in autism spectrum disorder special education and recreation. Exploratory and confirmatory factor analyses were conducted to determine the construct validity of the measurement tool, which was finalized following pilot testing for comprehensibility. The three-factor structure, with an eigenvalue above one, consisting of 16 items, explained 68.4% of the total variance, a sufficient level according to the literature (Scherer, 1988). Item factor loadings ranged between 0.43 and 0.87, meeting the criterion of greater than 0.40 (Field, 2009). The resulting sub-dimensions were named Sensory (7 items), Social (4 items), and Language and Communication (5 items). The comparative and absolute fit indices met the reference values found in the literature, confirming the construct validity of the ASD-TR. The reliability values, calculated with the internal consistency coefficient, were sufficient for each sub-dimension. As a result of these analyses, a valid and reliable Autism Spectrum Disorder-Therapeutic Recreation Scale, containing 16 items and three sub-dimensions, was created.

A critical component of leisure activity participation is assessing a child's recreational and leisure interests (King et al., 2007). Assessment tools are essential for observing and evaluating the development of children with ASD (Burtner et al., 2002). Evaluations made with valid and reliable measurement tools will provide essential data in determining the interests and needs of disadvantaged groups and indirectly supporting participation in fun activities (Pollock et al., 2017; Chein & Brown, 2017). These measurement tools are also crucial for researchers in determining the direction of the experimental studies and the impact value.

Brown and Thyer (2020) found that entertainment is essential in evaluating children's leisure time. The Children's Assessment of Participation and Enjoyment Questionnaire (CAPE) is a measurement tool developed by Swedish researchers that evaluates the enjoyment children get while participating in activities and the socialcontext created by participation in activities. Adaptation studies in different cultures of the CAPE measurement tool also evaluate enjoyment and participation. The uniqueness of this measurement tool lies in its ability to evaluate participation and enjoyment among disadvantaged individuals, considering the importance of entertainment and participation emphasized in the literature. This measurement tool is thought to contribute to the field by evaluating the development of children with ASD, specific to their diagnosis regarding recreational activities, on a global scale through experimental studies. While the CAPE-PAC scale was used to determine enjoyable activities, no measurement tool was found to evaluate the development of children with ASD, specific to their diagnosis, regarding fun activities. In this sense, the ASD-TR will serve as a global measurement tool, addressing this critical gap in the field.

Conclusion

Based on the validity and reliability values obtained, the Autism Spectrum Disorder-Therapeutic Recreation Scale (ASD-TR) can be used validly and reliably, particularly in intervention studies, to observe the development of Sensory, Social, and Communication sub-dimensions in children aged 7-11 diagnosed with mild autism spectrum disorder.

The methodological limitations of this study, in which the Autism Spectrum Disorder Therapeutic Recreation scale was developed, should be considered. However, it is essential to consider the methodological limitations of this study. For instance, examining the reliability value using different techniques, such as the test-retest method, may yield more robust results. Future studies should evaluate the effects of intervention programs adapted to sports branches

of recreational activities on children with autism spectrum disorder to provide further validation and application of the ASD-TR.

REFERENCES

Akarçay Ulutaş, D., Akın, E., & Ayhan, D. (2016). *Adaptation of the Mattison Affluenza Scale into Turkish*. *Electronic Turkish Studies, 11*(21). https://doi.org/10.7827/TurkishStudies.11197

Akgül, A. (2005). *Statistical analysis techniques in medical research: SPSS applications*. Ankara: Emek Ofset.

Alpar, R. (2016). *Applied statistics and validity-reliability with examples from sports, health, and educational sciences*. Detay Yayıncılık.

Auerbach, C., & Beckerman, N. L. (2011). What social workers in health care should know about lupus: A structural equation model. *Health & Social Work, 36*(4), 269–278. https://doi.org/10.1093/hsw/36.4.269

Austin, D. R. (1997). *Therapeutic recreation processes and techniques* (3rd ed.). Champaign, IL: Sagamore Publishing.

Austin, D. R. (1998). The health protection/health promotion model. *Therapeutic Recreation Journal*, *32*, 109–117.

Aytaç, M., & Öngen, B. (2012). Examining the construct validity of the New Environmental Paradigm Scale with confirmatory factor analysis. *Journal of Statisticians: Statistics and Actuarial Sciences*, *5*(1), 14–22.

Bass, M. M., Duchowny, C. A., & Llabre, M. M. (2009). The effect of therapeutic horseback riding on social functioning in children with autism. *Journal of Autism and Developmental Disorders*, *39*, 1261–1267. https://doi.org/10.1007/s10803-009-0734-3

Bildt, C., Nordström, L., & Holm, A. (2005). Construct and convergent validity of the Autism Behavior Checklist in a sample of Swedish children. *Autism, 9*(5), 409–423.

Burtner, P. A., Qualls, C., Ortega, C., Morris, C., & Scott, K. (2002). Test-retest reliability of the Pediatric Evaluation of Disability Inventory (PEDI). *American Journal of Occupational Therapy, 56*(1), 61–65.

Brown, T., & Thyer, L. (2020). The convergent validity of the Children's Leisure Assessment Scale (CLASS) and Children's Assessment of Participation and Enjoyment and Preferences for Activities of Children (CAPE/PAC). *Scandinavian Journal of Occupational Therapy*, *27*(5), 349–363. https://doi.org/10.1080/11038128.2019.1672784

Chien, C.-W., & Brown, T. (2017). Assessing children's occupations and participation. In S. Rodger & A. Kennedy-Behr (Eds.), *Occupation-centred practice with children: A practical guide for occupational therapists* (pp. 133–164). Wiley Blackwell. https://doi.org/10.1002/9781394323449.ch7

Creswell, J. W. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage Publications.

DeVellis, R. F. (2003). *Scale development: Theory and applications* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Eaves, L. C., Wingert, H. D., & Ho, H. H. (2000). Screening for autism with the Social Communication Questionnaire (SCQ). *Journal of Developmental and Behavioral Pediatrics, 21*(5), 390–396.

Eriksson, L., Welander, J., & Granlund, M. (2007). Participation in everyday school activities for children with and without disabilities. *Journal of Developmental and Physical Disabilities, 19*, 485–502. https://doi.org/10.1007/s10882-007-9065-5

Eversole, M., Collins, D. M., Karmarkar, A., Colton, L., Quinn, J. P., Karsbaek, R., … Hilton, C. L. (2016). Leisure activity enjoyment of children with autism spectrum disorders.

Journal of Autism and Developmental Disorders, 46, 10–20. https://doi.org/10.1007/s10803-015-2529-z

Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). Sage Publications.

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education* (8th ed.). McGraw-Hill.

Hameury, L., Delavous, P., Teste, B., Leroy, C., Gaboriau, J.-C., & Berthier, A. (2010). Equine assisted therapy and autism. *Annales Médico-Psychologiques, 168*, 655–659. https://doi.org/10.1016/j.amp.2009.12.019

Irmak, T. Y., Sütçü, S. T., Aydın, A., & Sorias, O. (2007). *The validity and reliability of the Autism Behavior Checklist (ABC)*.

King, G. A., Law, M., King, S., Hurley, P., Hanna, S., Kertoy, M., & Rosenbaum, P. (2007). Measuring children's participation in recreation and leisure activities: Construct validation of the CAPE and PAC. *Child: Care, Health and Development, 33*(1), 28–39. https://doi.org/10.1111/j.1365-2214.2006.00613.x

King, G., Petrenchik, T., Law, M., & Hurley, P. (2009). The enjoyment of formal and informal recreation and leisure activities. *International Journal of Disability, Development and Education, 56*(2), 109–130. https://doi.org/10.1080/10349120902868558

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). Guilford Press.

Krug, D. A., Arick, J., & Almond, P. (1993). *Autism Screening Instrument for Educational Planning*. Austin, TX: Pro-Ed.

Pajares, M. F. (1992). Teachers' beliefs and educational research. *Review of Educational Research, 62*(3), 307–322. https://doi.org/10.2307/1170741

Pan, C. Y. (2010). Effects of a water exercise swimming program on aquatic skills and social behaviors. *Autism, 14*(1), 9–28. https://doi.org/10.1177/1362361309339496

Pollock, N., Missiuna, C., & Jones, J. (2017). Occupational goal setting with children and families. In S. Rodger & A. Kennedy-Behr (Eds.), *Occupation-centred practice with children* (pp. 91–110). https://doi.org/10.1002/9781394323449.ch5

Sanches-Ferreira, M., Alves, S., Silveira-Maia, M., Gomes, M., & Santos, B. (2019). *Participation in leisure activities as an indicator of inclusion*. *European Journal of Educational Research, 8*(1), 221–232. https://doi.org/10.12973/eu-jer.8.1.221

Scherer, K. R. (1988). *Criteria for emotion-antecedent appraisal*. In *Cognitive perspectives on emotion and motivation* (pp. 89–126). Springer. https://doi.org/10.1007/978-94-009-2792-6_4

Sevin, J. A., Matson, J. L., Coe, D. A., Fee, V. E., & Sevin, B. M. (1991). A comparison and evaluation of three autism scales. *Journal of Autism and Developmental Disorders, 21*, 417–432. https://doi.org/10.1007/BF02206868

Ullenhag, A., Almqvist, L., Granlund, M., & Krumlinde-Sundholm, L. (2012). Cultural validity of the CAPE/PAC. *Scandinavian Journal of Occupational Therapy, 19*(5), 428–438. https://doi.org/10.3109/11038128.2011.631218

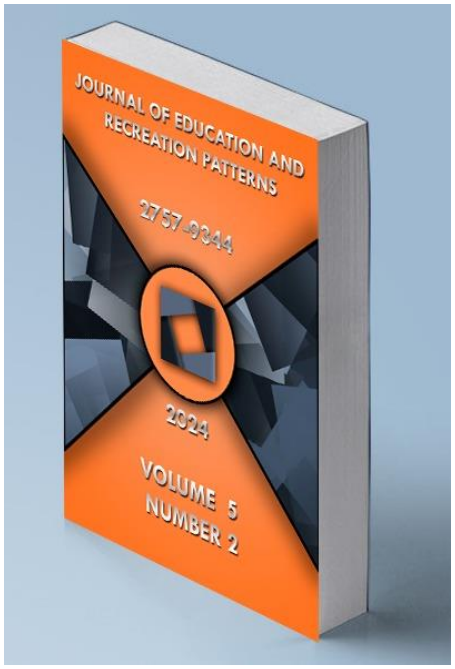
Yeşilyurt, S., & Çapraz, C. (2018). A roadmap for content validity. *Erzincan University Journal of Education Faculty, 20*(1), 251–264. https://doi.org/10.17556/erziefd.297741

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Self-Esteem and Body Image of Gifted University Students

Havva DEMİREL[1], Bekir Furkan TÜZER[2], Mehmet ALTIN[3]

To cite this article:

Demirel, H, Tüzer, B.F., Altın, M. (2024). Self-Esteem and body image of gifted university students. *Journal of Education and Recreation Patterns (JERP), 5* (2), 208-219. DOI: https://doi.org/10.53016/jerp.v5i2.221

[1] Selçuk University, havvademirel@selcuk.edu.tr, https://orcid.org/0000-0003-2805-4281
[2] Selçuk University, bekir.tuzer@selcuk.edu.tr, https://orcid.org/0000-0002-1665-7205
[3] Selçuk University, mealtin@selcuk.edu.tr, https://orcid.org/0000-0002-6439-7997

Journal of Education and Recreation Patterns (JERP)
Volume 5, Issue 2, Year 2024 ISSN: 2757-9344

Self-Esteem and Body Image of Gifted University Students

Havva Demirel[1], Bekir Furkan Tüzer[2], Mehmet Altın[3]

ARTICLE INFORMATION
Original Research Paper

Received 13.02. 2024
Accepted 24.11. 2024

https://jerpatterns.com

December, 2024

Volume: 5, No: 2

Pages: 208-219

ABSTRACT

Aim: This study aimed to examine the self-esteem and body image of gifted university students. The population consisted of students admitted through a special talent exam, with a sample of 421 students (247 female, 174 male).

Mateiral and Method: Scale applications were carried out with scale forms created manually and via Google. The self-esteem scale developed by Rosenberg (1965) and validity and reliability study conducted by Çuhadaroğlu (1986) was used to measure self-esteem levels, and the body image scale developed by Secord and Jourard and adapted into Turkish by Hovardaoğlu (1993) was used to determine body perceptions.

Results: While no statistical change was observed in self-esteem and body image scores related to age, daily sports practice and time allocated to art, statistical differences were found depending on gender and faculty of study. In addition, it was noteworthy that the body perception values of the students of the Faculty of Sports Sciences and the Faculty of Fine Arts were higher than the Conservatory students.

Conclusion: As a result, the fact that male participants have higher self-esteem than female participants can be associated with social norms, women's place in society and status differences. In general terms, a person feels as valuable as the value he/she sees, so this environmental attitude or perspective can be seen as a factor affecting women's self-esteem in Anatolian societies, and it can be said that the value that men see both physically and as a social dynamic imposed on them at work, at home and in social life makes their self-esteem higher than women. The reason why the body perception values expected at a high level in the students of the Faculty of Sports Sciences were significantly lower than the students of the other two faculties can be seen as that their body perception values may be perceived differently by the people around them.

Keywords: Body Perception, Self-Esteem, Sports, Talented University Students

INTRODUCTION

The study, in which self-esteem and body perception were addressed together, was conducted on gifted university students. The indirect but close relationship between body image (body perception) and self-esteem, especially the common features that can be observed from the outside such as physical appearance, traceable success and special talent, brought together the students of the Faculty of Sports Sciences, Faculty of Fine Arts and Conservatory in our study.

"Self-esteem," a concept dating back to the 1890s, has been particularly addressed in some areas of clinical psychology. However, the fact that the faculty students within the scope of our sample have some special talents related to their fields and that they perform sports, music or art is seen as their common point. For this reason, self-esteem and body images were handled separately from other faculty students. Therefore, no research on this subject has been found. In addition, it is a prejudice that we often encounter that the social popularity of the faculty students we have chosen is high, and there are also prejudices that those with low self-esteem may have unsuccessful social relationships or vice versa. Social psychology research argues that interpersonal relationships are related to self-esteem (Doğan et al., 2009). Rosenberg (1965) explains that self-esteem is the sum of the value individuals place on themselves and their own opinions and feelings. According to Coopersmith (1967), self-esteem determines individuals' beliefs about their abilities, achievements and values. In the literature, there are studies showing that there is a strong link between mental well-being and self-esteem (Tian et al., 2018). There is also a distinction between high self-esteem (positive) and low self-esteem (negative). While high self-esteem is associated with all kinds of success, low self-esteem is associated with depression and anxiety (Woods & Scott, 2016; Zhou et al., 2020). Chung (2017) and Alessandri (2019) think that self-esteem has a very complex structure in four different dimensions. These four dimensions, namely body ego, emotional evaluation, cognitive and social dimensions, play an active role in maximizing potential and success on the one hand and minimizing personal weaknesses and deficiencies on the other (Butler & Gasson, 2005). Self-esteem has a much more comprehensive meaning than a simple word meaning and in the literature, the term is also referred to as self-worth, self-belief, self-concept, self-awareness and self-image (Sagat et al. 2021).

It has been the subject of many studies that any kind of regular and adequate physical activity is good for both physical and mental health (WHO, 2018). Especially in sports activities, if the final result is victory, the athlete's sense of ownership of success is also quite strong and it is assumed that this feeling is accompanied by feelings such as self-concept, self-belief and self-awareness. However, we would like to verify whether the interaction that occurs in the field of sport is also manifested in the performance of other artistic talents. The affinity of artists in any field of fine arts with self-esteem in the presentation process is often recognized by experts in both art and other fields (Franklin, 1992). In different studies on self-esteem, Shavelson et al. (1976) and Vispoel (1995) evaluated art and self-esteem together and saw that a distinction that can be characterized as "artistic self-esteem" would be correct. According to the researchers, respect is positively correlated with self-esteem in the global or familiar sense (Vispoel, 1995). As a result, Vispoel developed the Artistic Self-Perception Inventory (ASPI), which examines how people perceive themselves in different artistic fields to confirm the thesis he advocated, and his thesis has been accepted by many researchers (Marsh & Roche, 1996; Sanders & Browne, 1998; Vispoel, 2003; Zimmerman, 2005; Draugelis et al., 2014). In their research, they stated that the better people perceive themselves in an artistic field, the higher their general self-esteem will be. Their explanation supports Vispoel's (1995) assumptions.

Body image can be explained as individuals' feelings, thoughts, perceptions and attitudes about their physical appearance and the way they present themselves. Physical appearance has a very important place in modern societies. Individuals who are appreciated for their

appearance are considered more positive, more attractive, more intelligent and more honorable than others (Brennan et al., 2010; Saylan & Soyyiğit, 2022). The distinction between accepted and ideal body image among young generations is strongly influenced by family, environment and cultural factors. The impositions of mass media and popular culture likewise encourage the standardization of beauty and attractiveness criteria. (Holmqvist et al., 2013). Therefore, especially in recent years, body image dissatisfaction has emerged as a major psychological problem due to the media's emphasis on beauty and thinness. At the same time, mental disorders such as low self-esteem, depression, social anxiety, eating disorders, sexual disorders and other illnesses are also common (Nye & Cash 2006).

When the research on body image in athletes and non-athletes is examined, Varnes et al. (2013) argue that participation in sports distracts people from body image anxiety, but this distancing is not very intense in women and high-level athletes. We witness steroid use quite frequently in sports, especially among bodybuilders. This is a typical behavior related to the perception of body image. However, since anabolic steroids can cause negative effects, this can also make bodybuilders who use steroids vulnerable to body image perception while pushing them to unhealthy diets (Mish, 2008). Similar results were obtained by Kong and Harris (2015). However, female athletes engaged in sports that require thinness (such as dancers and gymnasts) were found to have higher levels of body dissatisfaction than other athletes. In addition, elite athletes reported higher levels of body dissatisfaction than recreational and non-competitive individuals. According to the results of this research, body image disorders are more common in sports where aesthetics, thinness and elegance are emphasized. Similarly, Ferrand et al. (2007) reported that synchronized swimmers had a higher level of dissatisfaction than the general population. Therefore, individuals who are dissatisfied with their physical appearance may be ashamed of their bodies, which leads to low self-esteem (Ritan et al., 2018). A study conducted in Indonesia showed that students with low body image also have low self-acceptance (Maryam, 2019).

Negative body image, which leads to self-confidence, depression and difficulties in interpersonal relationships, destroys the perception of a fit physique, especially in athletes. Students who are interested in sports are often expected to be healthy, fit and have an ideal body shape, and therefore they are forced to look fit and have an ideal body shape all the time. In fact, what matters is how athletes feel rather than how they look physically in order to be successful. Only with this feeling can athletes be successful in their social and sports lives. In studies on the relationship between body image and physical activity, researchers state that those who engage in aesthetic sports are more concerned with their weight and have a higher body image perception than those who do not engage in sports (Petrie, 1996; Hellín et al., 2006). In studies conducted in the field of art, especially in dancers, the importance of the body has been reported as a factor affecting the success in performing the figures. Therefore, it has been stated that dance students are paired with low weight and fat percentage and have great concerns about nutrition, so they experience eating disorders and are health risk groups. According to Buckroyd (2000), dance, which creates so much psychological and physical tension on student dancers, is seen as more worrying, especially in professional groups and in highly competitive branches such as ballet, and emphasized that it is important to analyze the relationship between dance and body image (Buckroyd, 2000). Assuming that dance combines emotional, psychological and physical aspects, a student who is able to develop a harmonious image of himself/herself will strengthen his/her self-esteem and self-concept by becoming aware of the determinants of academic and achievement motivation (Weiner, 1985) that influence performance (Lozano, 2000). On the contrary, dancers who are dissatisfied with their figures may develop low self-esteem and inadequacy. According to Megías (2009), low self-confidence and inadequacy in people can lead to poor performance and loss of motivation to learn (González & Tourón 1992). Factors such as sleep, general health, body image and self-esteem are interconnected in everyday life and affect well-being and human relationships

(Beiter et al., 2015). Therefore, since it is not possible to consider athletes and artists away from human beings, the concepts of self-esteem and body image are of great importance for both groups.

METHOD

Research Model

The aim of this study, which used the comparison method, one of the quantitative research methods, is to examine the self-esteem and body image perceptions of gifted university students according to various factors such as gender, age, time allocated to daily sports and arts, and faculty of study. The population comprises students from universities that admit students through a special talent exam, while the sample group consists of 421 students studying at Selçuk University Faculty of Fine Arts, Faculty of Sports Sciences and Conservatory.

Data Collection Tools

Demographic questions regarding the participants' gender, age, time allocated to daily sports and arts, and faculty of study were prepared by the researchers and directed to the participants. The data were obtained electronically and face-to-face by random sampling method. The obtained data were organized according to kurtosis skewness values and outlier data were not used.

Rosenberg Self-Esteem Scale (RBSS): In the study, "Rosenberg Self-Esteem Scale" developed by Rosenberg (1965) and validity and reliability studies conducted by Çuhadaroğlu (1986) was used to measure self-esteem. The Cronbach's Alpha value of the scale was 0.91 for positive items and 0.87 for negative items. In the Turkish validity and reliability study of the RBSS, 0-1 points were scored as high self-esteem, 2-4 points as moderate self-esteem, and 5-6 points as low self-esteem. The RBSS consists of twelve sub-dimensions and the first ten items measure self-esteem. Items 1, 2, 4, 6, 7 are positive and items 3, 5, 8, 9, 10 are negative.

Body Image Scale: Data on body image were obtained with the Body Perception Scale. This scale, whose original name is Bady Cathexis Scale (BCS), was developed by Secord and Jourard in 1953. It was adapted into Turkish by Hovardaoğlu (1993). In order to evaluate the reliability of the scale, the internal consistency coefficient was calculated, and Cronbach's Alpha coefficient was determined as α=.91. It is a scale that determines a person's satisfaction with 40 different body parts or functions. The form of the scale used in our country is a five-point Likert-type measurement tool consisting of 40 items. The most positive statement receives 1 point and the most negative statement receives 5 points. Accordingly, the lowest total score is 40 and the highest total score is 200. An increase in the total score indicates a decrease in satisfaction with body parts or functions, while a decrease in the total score indicates an increase in satisfaction (Kundakçı, 2005).

Data Analysis

"SPSS" Statistical Package For Social Science version 22. Statistical program was used in the statistical analysis of the data obtained from the study. In the analysis of the normality test, parametric tests were applied since the kurtosis skewness values were in the range of ± 2 (George & Mallery 2010). Significance was accepted as $p<0.05$. The Independent T test was used to compare the differences between two independent groups and the One-Way Anova test was used to compare more than two independent groups.

This research was approved by the Ethics Committee of Selçuk University Faculty of Sports Sciences with the ethics committee report number 144 and the date 09.11.2022.

FINDINGS

In this part of the study, the results of the analysis of self-esteem and body image levels of the participants regarding gender, age, time allocated to daily sports and arts, and faculties of study are given.

Table 1
Self-Esteem and Body Image Results by Gender Factor

	Gender	n	M	Sd	t	p
Self-Esteem	Female	247	14,81	2,33	-2,47	,014*
	Male	174	15,44	2,71		
Body Image Perception	Female	247	101,08	12,35	1,93	,055
	Male	174	98,68	12,91		

p<0.05

Table 1 shows that men's self-esteem scores were statistically higher than women's (p<0.05), while there was no statistical change in body perception values depending on gender.

Table 2
Results of Self-Esteem and Body Image of Participants According to Age Factor

	Age	n	M	Sd	F	p
Self-Esteem	18-20	295	15,04	2,45	,055	,946
	21-23	99	15,14	2,79		
	24-26	27	15,07	2,13		
Body Image Perception	18-20	295	99,78	12,54	,807	,447
	21-23	99	101,40	13,23		
	24-26	27	98,63	11,22		

As can be understood from Table 2, no statistical change was observed in self-esteem and body perception values depending on age groups.

Table 3
Results of Self-Esteem and Body Image Related to Time Allocated to Sports and Arts Daily

	Daily Time Allocated to Sports and Arts	n	M	Sd	F	p
Self-Esteem	0-1 hour	186	15,27	2,52	,967	,408
	2-3 hour	121	14,86	2,42		
	4-5 hour	50	15,16	2,82		
	6 and above	64	14,80	2,39		
Body Image Perception	0-1 hour	186	99,63	12,92	1,349	,258
	2-3 hour	121	99,05	11,78		
	4-5 hour	50	100,94	12,95		
	6 and above	64	102,70	12,93		

As can be seen in Table 3, no statistical change was observed in self-esteem and body perception values depending on the time allocated to sports on a daily basis.

Table 4

Results of Self-Esteem and Body Image According to the Department of Study of the Participants

	Faculty of Education	n	M	Sd	F	p
Self-Esteem	Faculty of Sport Sciences	139	15,29	2,77[a]	3,223	,041*
	Faculty of Fine Arts	130	15,32	2,52 [a]		
	Conservatory	152	14,66	2,19 [b]		
Body Image Perception	Faculty of Sport Sciences	139	101,80	13,29 [a]	3,121	,045 *
	Faculty of Fine Arts	130	97,99	12,33 [b]		
	Conservatory	152	100,31	12,06		

Statistical difference between groups p<0.05. a,b= source of difference

As can be understood from Table 4, it was determined that the self-esteem value of the conservatory students was statistically lower than the value of the students of the faculties of sport sciences and fine arts (p<0.05), and the value of the students of the faculty of sport sciences was statistically higher than the value of the students of the faculty of fine arts in body perception values (p<0.05).

DISCUSSION

Self-esteem and body image were compared in the study conducted with the students of Selcuk University Faculty of Sports Sciences, Faculty of Fine Arts and Conservatory who have special talents and who started their undergraduate education in the relevant universities and faculties by making their preferences to plan their future in this field. As a result of statistical analysis, self-esteem values of males were higher than females in terms of gender. Looking at the differences between faculties, it is seen that the self-esteem of the students of the Faculty of Sports Sciences and the Faculty of Fine Arts has higher values than the Conservatory students, while the body image perceptions of the students of the Faculty of Sports Sciences are higher than the other two faculties. As in the comparisons between ages, it was seen that there was no difference in self-esteem and body image perceptions in terms of the time allocated to sports and arts.

The fact that the self-esteem of male participants was higher than that of female participants is not surprising in the Turkish social structure. In Turkish culture, children are raised with distinct gender roles. Environmental pressures often lead to lower self-esteem in girls due to societal expectations and norms. As a matter of fact, the impositions in our culture that women should be more controlled cause them to behave more dependent and far from common sense (Kuzgun, 1993). In a thesis study on decision-making and self-esteem of university students, the self-esteem values of male students were higher than female students, and the difference between gender variable and self-esteem values was found to be significant (Taşgit, 2012). In studies on the relationship between self-esteem and gender, it is generally seen that boys have higher self-esteem than girls (Knox et al., 1998). Another study examining self-esteem and self-confidence in men (Klein et al., 2017) states that there is a relationship between being physically active and self-esteem, psychological self-confidence and decision-making (Luciano & Orth 2017). A man's perception of his physical body image is an important complement to his self-esteem, and exercise is not only good for physiological health but also for psychological health. Lubans et al. (2016) proved that there are strong links between the self-esteem of physically remarkable and talented people and their ability to be social, communicate and develop personally. It is argued that men who systematically engage in sports or physical activities are emotionally calmer, better able to cope with their internal problems and more successful in their emotional self-control (Zamani Sani et al., 2016).

Wrzesinska et al. (2018) emphasize that physical activity contributes to the creation of self-confidence, positive decision-making and a socially successful life in men. Men's physical

performance is associated with their athletic abilities and this perception contributes to the development of the self-esteem concept of physical attractiveness and self-confidence (Poobalan et al., 2012). Studies investigating the relationship between participation in sports activities and physical self-efficacy have observed that the self-esteem of men who exercise regularly is significantly higher than men who exercise intermittently (Evans et al., 2017; Holt et al., 2020). The research was supported by Kim and James (2019), who stated that the self-esteem perceptions of men who experience social exclusion for various reasons can be gained through sports activities. There was no significant difference between men and women in body image perceptions. However, many studies have been conducted to compare body image across cultures. This relationship is especially important in body image comparisons between countries and continents (Gupta et al., 2001; Jung & Lee 2006). According to the National Weather Service (NWS, 2013), the climate of the southern and northern regions varies. In the south, temperatures are reported to be about 14 degrees warmer and more humid. Therefore, women living in the Southeast try to lower the perceived temperature by dressing thinner, lighter and lighter. Wearing clothes that make the body more visible may be an explanation for women investing more in their appearance than women in the Northwest (Paulk et al., 2014). As a matter of fact, it is thought that the fact that body image results did not differ in male and female individuals in our study may be due to the fact that our sample was selected among students living in the same climatic conditions. In our study, there was no significant difference in self-esteem and body image values depending on the age variable. It is thought that the results are due to the fact that the average age of the individuals in the sample group is close to each other. In terms of the time allocated to sports and arts, no significant difference was found in self-esteem and body image values.

The self-esteem of the students who participated in the study was higher in Conservatory students, and the body image values were higher in the students of the Faculty of Sports Sciences. In our general observations, it is seen that those who do sports expect to have a physical appearance specific to the sports branch they are interested in or to be aware of the physical reflection of their interest in sports. The reason why the body perception values expected at a high level in the students of the Faculty of Sports Sciences were significantly lower than the students of the other two faculties can be seen as that their body perception values may be perceived differently by those around them.

Conclusion

As a result, in the literature review related to the research, it is seen that the perceptions and negative impositions created through social media and advertisements about body image create negative and wrong perceptions on young people and even people of all ages, lead to wrong eating habits, and threaten people's health with additives taken from outside in unnatural ways. It was also supported that self-esteem has a very complex structure and affects personal development in every sense. It is recommended that talented young people should invest in their fields and receive psychological support with affirmations away from existing beliefs and impositions that are not true in their self-esteem and body image perceptions in order to progress successfully on their path.

Limitations and Recommendations

The sample group of this study consists of individuals who have been admitted to university through the special aptitude exam. As a result, reaching gifted individuals and applying the scales constitute a limitation for this research.

Acknowledgment or Notes:

We would like to thank the valuable students who fully supported us during the research phase.

REFERENCES

Alessandri, G. (2019). Self-esteem in adolescents. In S. Hupp & J. Jewell (Eds.), *The encyclopedia of child and adolescent development*. Wiley. https://doi.org/10.1002/9781119171492.wecad460

Beiter, R., Nash, R., McCrady, M., Rhoades, D., Linscomb, M., & Clarahan, M. (2015). The prevalence and correlates of depression, anxiety, and stress in a sample of college students. *Journal of Affective Disorders, 173*, 90–96. https://doi.org/10.1016/j.jad.2014.10.054

Brennan, M. A., Lalonde, C. E., & Bain, J. L. (2010). Body image perceptions: Do gender differences exist? *Psi Chi Journal of Undergraduate Research, 15*(Fall), 1089–4136. https://doi.org/10.24839/1089-4136.JN15.3.130

Buckroyd, P. (2000). *The student dancer: Emotional aspects of the teaching and learning of dance*. Dance Books.

Butler, R. J., & Gasson, S. L. (2005). Self-esteem/self-concept scales for children and adolescents: A review. *Child and Adolescent Mental Health, 10*(4), 190–201. https://doi.org/10.1111/j.1475-3588.2005.00368.x

Chung, J. L. (2017). *Korean women, self-esteem, and practical theology: Transformative care*. Palgrave Pivot. https://doi.org/10.1007/978-3-319-69508-2_4

Coopersmith, S. (1967). *The antecedents of self-esteem.* W. H. Freeman.

Çuhadaroğlu, F. (1986). *Adolescents and self-esteem* (Specialist thesis). Hacettepe University Faculty of Medicine, Ankara, Turkey.

Doğan, T., Totan, T., & Sapmaz, F. (2009). Self-esteem and social intelligence among university students. *Sakarya University Faculty of Education Journal, 17*, 236–248.

Draugelis, S., Martin, J., & Garn, A. (2014). Psychosocial predictors of well-being in collegiate dancers. *The Sport Psychologist, 28*(1), 1–9. https://doi.org/10.1123/tsp.2012-0093

Evans, M. B., Allan, V., Erickson, K., Martin, L. J., Budziszewski, R., & Côté, J. (2017). Are all sport activities equal? A systematic review of how youth psychosocial experiences vary across differing sport activities. *British Journal of Sports Medicine, 51*(3), 169–176. https://doi.org/10.1136/bjsports-2016-096725

Ferrand, C., Magnan, C., Rouveix, M., & Filaire, E. (2007). Disordered eating, perfectionism and body-esteem of elite synchronized swimmers. *European Journal of Sport Science, 7*(4), 223–230. https://doi.org/10.1080/17461390701722168

Franklin, M. (1992). Art therapy and self-esteem. *Art Therapy, 9*(2), 78–84. https://doi.org/10.1080/07421656.1992.10758941

George, D., & Mallery, M. (2010). *SPSS for Windows step by step: A simple guide and reference.* Pearson.

González, M. C. Y., & Tourón, J. (1992). *Self-concept and academic performance: Implications for motivation and self-regulated learning*. EUNSA.

Gupta, M. A., Chaturvedi, S. K., Chandarana, P. C., & Johnson, A. M. (2001). Weight-related body image concerns among 18–24-year-old women in Canada and India: An empirical comparative study. *Journal of Psychosomatic Research, 50*, 193–198. https://doi.org/10.1016/S0022-3999(00)00221-X

Hellín, P. H., Moreno, J. A., & Rodríguez, P. L. (2006). Relationship of perceived motor competence with physical-sport practice. *Revista de Psicología del Deporte, 15*(2), 219–231.

Holmqvist, K., Frisén, A., & Anderson-Fye, E. (2013). Body image and child well-being. In *Handbook of child well-being: Theories, methods, and policies in global perspective*. Springer. https://doi.org/10.1007/978-90-481-9063-8

Holt, N. L., Deal, C. J., & Pankow, K. (2020). Positive youth development through sport. In Tenenbaum, G. & Eklund, R. C. (Eds.), *Handbook of sport psychology* (4th ed.). John Wiley & Sons. https://doi.org/10.1002/9781119568124.ch20

Hovardaoğlu, S. (1993). Body perception scale. *3P Journal (Special Issue on Tests), 1*(1), 26–29.

Jung, J., & Lee, S. H. (2006). Cross-cultural comparisons of appearance self-schema, body image, self-esteem, and dieting behavior between Korean and U.S. women. *Family and Consumer Sciences Research Journal, 34*, 350–365. https://doi.org/10.1177/1077727X06286419

Kim, J., & James, J. D. (2019). Sport and happiness: Understanding the relations among sport consumption activities, long- and short-term subjective well-being, and psychological need fulfillment. *Journal of Sport Management, 33*(2), 119–132. https://doi.org/10.1123/jsm.2018-0071

Klein, M., Fröhlich, M., & Emrich, E. (2017). Self-concept in adolescents—Relationship between sport participation, motor performance, and personality traits. *Sports, 5*(22). https://doi.org/10.3390/sports5020022

Knox, M., Funk, J., Elliott, R., & Bush, E. G. (1998). Adolescents' possible selves and their relationship to global self-esteem. *Sex Roles, 39*(1–2), 61–80. https://doi.org/10.1023/A:1018877716225

Kong, P., & Harris, L. M. (2015). The sporting body: Body image and eating disorder symptomatology among female athletes from leanness-focused and non-leanness-focused sports. *The Journal of Psychology: Interdisciplinary and Applied, 149*(2), 141–160. https://doi.org/10.1080/00223980.2013.846291

Kundakçı, A. H. (2005). Comparison of eating attitudes, self-perception, body perception, and stress symptoms in university students. (Master's thesis). Ankara University, Social Sciences Institute, Ankara, Turkey.

Kuzgun, Y. (1983). *Psychological counseling and psychology theories.* Unpublished lecture notes. Ankara University, Faculty of Educational Sciences, Ankara, Turkey

Lozano, L. M. (2000). Relationship between motivation and learning. *Psicothema, 12*(2), 344–347.

Lubans, D., Richards, J., Hillman, C., Faulkner, G., Beauchamp, M., Nilsson, M., Kelly, P., Smith, J., Raine, L., & Biddle, S. (2016). Physical activity for cognitive and mental health in youth: A systematic review of mechanisms. *Pediatrics, 138*(3), e20161642. https://doi.org/10.1542/peds.2016-1642

Luciano, E. C., & Orth, U. (2017). Transitions in romantic relationships and development of self-esteem. *Journal of Personality and Social Psychology, 112*(2), 307–328. https://doi.org/10.1037/pspp0000109

Marsh, H. W., & Roche, L. A. (1996). Structure of artistic self-concepts for performing arts and non-performing arts students in a performing arts high school: "Setting the stage" with multigroup confirmatory factor analysis. *Journal of Educational Psychology, 88*(3), 461–477. https://doi.org/10.1037//0022-0663.88.3.461

Maryam, S. I. (2019). Relationship between body image and self-acceptance of female students. *Jurnal Aplikasi IPTEK Indonesia, 3*(3), 129–136. https://doi.org/10.24036/4.23280

Megías, M. I. (2009). *Optimization in cognitive processes and its impact on dance learning.* University of Valencia, Department of Evolutionary and Educational Psychology.

Mish, S. J. (2008). *Activational effects of exogenous steroid hormones on cognitive performance: A study of anabolic-androgenic steroids in men* (Doctoral dissertation).

National Weather Service. (2013). *National climate forecasts [Data file]*. Retrieved from http://www.nws.noaa.gov/climate/

Nye, S., & Cash, T. F. (2006). Outcomes of manualized cognitive-behavioral body image therapy with eating disordered women treated in a private clinical practice. *Eating Disorders, 14*(1), 31–40. https://doi.org/10.1080/10640260500403840

Paulk, A., Dowd, D. A., Zayac, R., Eklund, A., & Kildare, C. (2014). The relationship between culture, geographic region, and gender on body image: A comparison of college

students in the Southeast and Pacific Northwest regions of the United States. *Sociological Spectrum, 34*(5), 442–452. https://doi.org/10.1080/02732173.2014.937653

Petrie, T. A. (1996). Differences between male and female college lean sport athletes, nonlean sport athletes, and nonathletes on behavioral and psychological indices of eating disorders. *Journal of Applied Sport Psychology, 8*(2), 218–230. https://doi.org/10.1080/10413209608406478

Poobalan, A. S., Aucott, L. S., Clarke, A., & Smith, W. C. S. (2012). Physical activity attitudes, intentions, and behavior among 18–25 year-olds: A mixed method study. *BMC Public Health, 12*, 640. https://doi.org/10.1186/1471-2458-12-640

Ritan, A. F. G., Murdhiono, W. R., & Syafitri, E. N. (2018). The relationship between body image, eating patterns, and physical activity in obese students at the Faculty of Health Sciences, Respati University Yogyakarta. *Ilmu Gizi Indonesia, 2*(1), 25–32. https://doi.org/10.35842/ilgi.v2i1.85

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton University Press. https://doi.org/10.1515/9781400876136

Šagát, P., Bartik, P., Lazić, A., Tohănean, D. I., Koronas, V., Turcu, I., Knjaz, D., Alexe, C. I., & Curițianu, I. M. (2021). Self-esteem: Individual versus team sports. *International Journal of Environmental Research and Public Health, 18*(24), 12915. https://doi.org/10.3390/ijerph182412915

Sanders, P., & Browne, L. (1998). Music self-concept of non-music majors. *Contributions to Music Education, 25*(1), 74–86.

Saylan, E., & Soyyiğit, V. (2022). Dimensions of body image: Body image scale. *Turkish Psychological Counseling and Guidance Journal, 12*(65), 229–247. https://doi.org/10.17066/tpdrd.1138273

Secord, P. F., & Jourard, S. M. (1953). The appraisal of body-cathexis: Body-cathexis and the self. *Journal of Consulting Psychology, 17*(5), 343–347. https://doi.org/10.1037/h0060689

Shavelson, R. J., Hubner, J. J., & Stanton, G. C. (1976). Self-concept: Validation of construct interpretations. *Review of Educational Research, 46*, 407–441. https://doi.org/10.3102/00346543046003407

Taşgit, M. S. (2012). *Investigation of university students' self-esteem and decision-making levels* (Master's thesis). Karamanoğlu Mehmetbey University, Karaman, Turkey.

Tian, L., Liu, L., & Shan, N. (2018). Parent-child relationships and resilience among Chinese adolescents: The mediating role of self-esteem. *Frontiers in Psychology, 9*, 1030. https://doi.org/10.3389/fpsyg.2018.01030

Varnes, J. R., Stellefson, M. L., Janelle, C. M., Dorman, S. M., Dodd, V., & Miller, M. D. (2013). A systematic review of studies comparing body image concerns among female college athletes and non-athletes, 1997–2012. *Body Image, 10*(4), 421–432. https://doi.org/10.1016/j.bodyim.2013.06.001

Vispoel, W. P. (1995). Self-concept in artistic domains: An extension of the Shavelson, Hubner, and Stanton (1976) model. *Journal of Educational Psychology, 87*(1), 134–153. https://doi.org/10.1037/0022-0663.87.1.134

Vispoel, W. P. (2003). Measuring and understanding self-perceptions of musical ability. In H. Marsh, R. G. Craven, & D. M. McInerney (Eds.), *International advances in self-research* (pp. 151–179). Information Age Publishing.

Weiner, B. (1985). An attributional theory of motivation and emotion. *Psychological Review, 92*(4), 548–573. https://doi.org/10.1037/0033-295X.92.4.548

Woods, H. C., & Scott, H. (2016). Sleepyteens: Social media use in adolescence is associated with poor sleep quality, anxiety, depression, and low self-esteem. *Journal of Adolescence, 51*, 41–49. https://doi.org/10.1016/j.adolescence.2016.05.008

World Health Organization. (2018). *Global action plan on physical activity 2018–2030: More active people for a healthier world.* World Health Organization.

Wrzesińska, M., Lipert, A., Urzędowicz, B., & Pawlicki, L. (2018). Self-reported physical activity using the International Physical Activity Questionnaire in adolescents and young adults with visual impairment. *Disability and Health Journal, 11*(1), 20–30. https://doi.org/10.1016/j.dhjo.2017.05.001

Zamani Sani, S. H., Fathirezaie, Z., Brand, S., Pühse, U., Holsboer-Trachsler, E., Gerber, M., & Talepasand, S. (2016). Physical activity and self-esteem: Testing direct and indirect relationships associated with psychological and physical mechanisms. *Neuropsychiatric Disease and Treatment, 12*, 2617–2625. https://doi.org/10.2147/NDT.S116811

Zhou, J., Li, X., Tian, L., & Huebner, E. S. (2020). Longitudinal association between low self-esteem and depression in early adolescents: The role of rejection sensitivity and loneliness. *Psychology and Psychotherapy: Theory, Research and Practice, 93*, 54–71. https://doi.org/10.1111/papt.12207

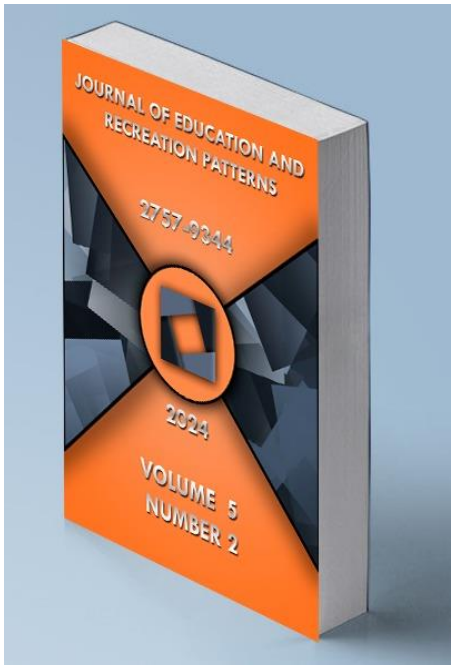
Zimmerman, J. R. (2005). *The effects of periodic self-recording, self-listening, and self-evaluation on the motivation and music self-concept of high school instrumentalists* (Unpublished doctoral thesis). University of Minnesota.

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Sleep Hygiene in Recreational Fitness Individuals

Semih KARAMAN[1], Abdullah KAYHAN[2], Yavuz SELVİ[3]

To cite this article:

Karaman, S., Kayhan, A. & Selvi, Y. (2024). Sleep hygiene in recreational fitness individuals. *Journal of Education and Recreation Patterns (JERP), 5 (2),* 220-234. DOI: https://doi.org/10.53016/jerp.v5i2.248

This study was presented as an oral presentation at the 15th National Sports Sciences Student Congress, Gazi University Faculty of Sport Sciences, Ankara.

[1] Abant Izzet Baysal University, Faculty of Sport Sciences, Department of Psychosocial Fields in Sports, Bolu, Turkey, s.karamantur@gmail.com, https://orcid.org/0000-0001-9038-9432

[2] Akdeniz University, Faculty of Sport Sciences, Department of Recreation, Antalya, Turkey, abdullah.kayhan.5@gmail.com, https://orcid.org/0000-0002-6762-979X

[3] Selçuk University, Faculty of Medicine, Department of Mental Health and Diseases, Konya, Turkey, dryavuzselvi@selcuk.edu.tr, https://orcid.org/0000-0003-0218-6796

Journal of Education and Recreation Patterns (JERP)
Volume 5, Issue 2, Year 2024 ISSN: 2757-9344

Sleep Hygiene in Recreational Fitness Individuals

Semih Karaman[1], Abdullah Kayhan[2], Yavuz Selvi[3]

ARTICLE INFORMATION
Original Research Paper

Received 31.07. 2024
Accepted 12.08. 2024

https://jerpatterns.com

December, 2024
Volume: 5, No: 2
Pages: 220-234

ABSTRACT
Sleep hygiene plays a significant role in individuals' overall health and quality of life. In this context, the study aims to examine the sleep hygiene of individuals engaging in recreational fitness in fitness centers from various socio-demographic perspectives. The research encompasses 534 individuals registered at fitness centers in the city of Konya. Participants' levels of sleep hygiene were measured using the "Sleep Hygiene Index," which is widely used and validated in the literature. The collected data were analyzed using Spearman and Pearson Correlation Tests and One-Way ANOVA tests. Additionally, partial eta squared (η^2_p) values were calculated to examine the effect sizes of all variables. The study's findings indicate that participants generally have poor sleep hygiene. It was found that demographic variables such as gender and education level did not significantly affect sleep hygiene. However, factors such as fitness history, daily sleep duration, and the preferred time of day for fitness had noticeable impacts on sleep hygiene. Specifically, participants with longer daily sleep durations had better sleep hygiene, and those with a longer fitness history similarly had better sleep hygiene. Participants who preferred to exercise in the evening had higher sleep hygiene scores compared to other groups. These results suggest that not only individuals attending fitness centers but also trainers and coaches should receive training to improve sleep hygiene, potentially enhancing individuals' physical and mental well-being.

Keywords: Fitness Centers, Recreational Fitness, Sleep, Sleep Hygiene

INTRODUCTION

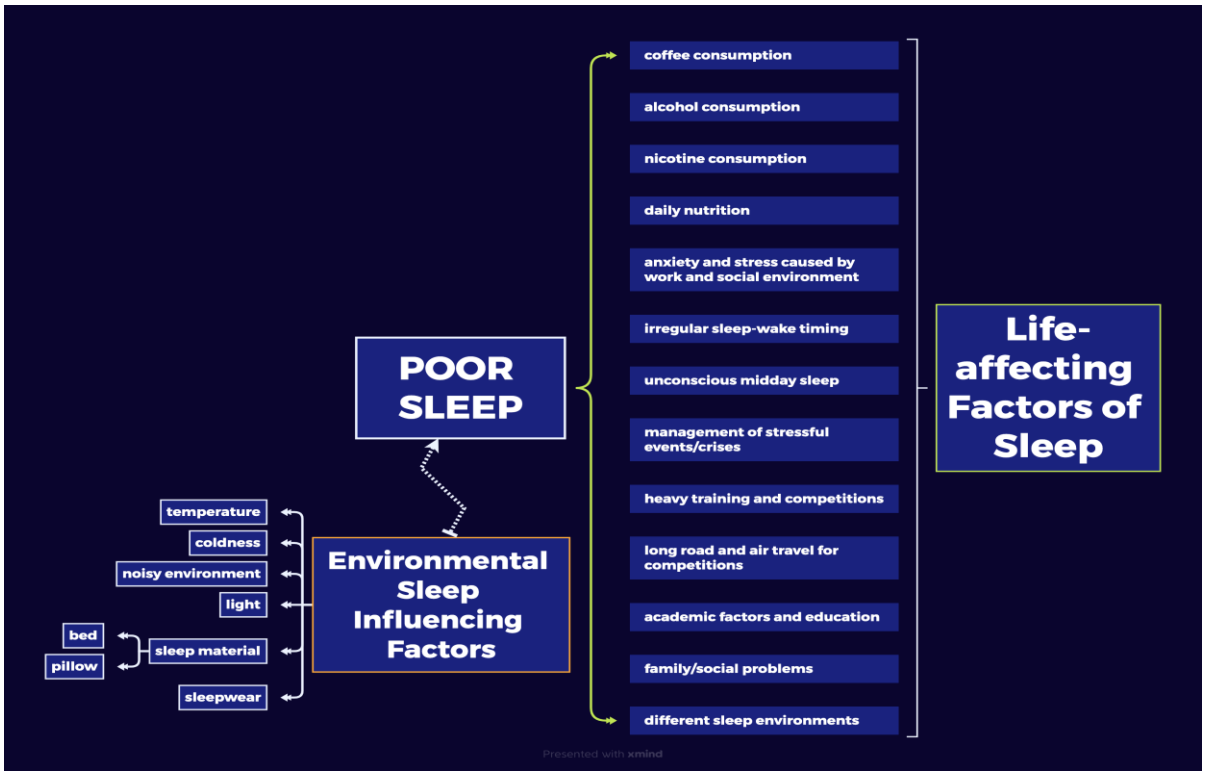
Many methods are employed to maintain and improve healthy living, such as balanced and regular nutrition, sufficient and quality sleep, and physical activity. Physical activity, one of these methods, supports individuals' physiological, psychological, and social development (Guyton & Hall, 2006). Individuals participate in fitness centers for various reasons, including coping with diseases, ensuring a quality aging process, developing motor skills (strength, speed, agility, coordination, endurance), improving physical and psychological health, socializing, self-actualization, managing stress, controlling weight, increasing muscle mass, and enhancing overall health (Klaber, 2010; Güdül & Yücel, 2022). To achieve these goals, fitness centers offer their participants regular and well-equipped exercise opportunities (Eberle et al., 2004).

It is known that individuals who participate in sports centers during their leisure time exhibit positive attitudes toward leisure activities and have high levels of life satisfaction (Kayhan et al.,2024; Doğan & Ünal, 2024). Their strong motivation for physical activity and healthy living habits also shapes their behaviors and preferences in recreational sports centers. Individuals attending sports centers for recreational purposes often focus on fitness and nutrition programs and may seek ergogenic aids and dietary supplements (Wierzejska, 2021). However, it is known that sleep, which has a direct impact on improving and maintaining physical health and fitness, is often neglected (Buysse, 2014; Karaman, 2023; Simpson et al., 2017; Lim et al., 2023). This neglect can hinder individuals from fully achieving their goals in attending sports centers. Lack of sleep can cause problems in energy metabolism, tissue and muscle cell regeneration, immune cell function, and delay repair processes, leading to imbalances in body homeostasis, mental fatigue, increased risk of injuries and inflammation, and weakened chemical responses to inflammation (Milewski et al., 2014; Chennaoui et al., 2021; Chow, 2022; Karaman, 2023). In another study of ours, we identified that poor sleep quality, especially in women, could negatively impact body image and lead individuals to develop a more negative attitude toward themselves (Karaman et al., 2024). The restorative theory of sleep, from a theoretical perspective, posits that sleep is necessary for repairing and renewing the components required for biological functions consumed by the body during wakefulness (Brinkman et al., 2018). This theory is supported by literature stating that many functions, such as exercise-induced muscle repair, tissue development, protein synthesis, and the release of hormones essential for growth, primarily occur during sleep (Colten & Altevogt, 2006; Siegel, 2005; Zambotti et al., 2019; Pace-Schott & Spencer, 2015).

Given its impact on health, sleep is one of the most critical factors in meeting the expectations of individuals who choose sports centers to maintain physical health and cope with stress (Simpson et al., 2017; Chennaoui et al., 2021; Karaman, 2023). Due to the physical and psychological stress experienced throughout the day, individuals attending sports centers to alleviate this stress also need to pay attention to their sleep. However, the fact that individuals do not make enough self-assessments in assessing their sleep quality shows that there is insufficient research evaluating the possible consequences of sleep deprivation in sports centers (Simpson et al., 2017). Conversely, individuals can improve their sleep quality independently of personal evaluations by adhering to sleep hygiene rules (Polat & Karasu, 2022; Turgay & Polat, 2019; Muz et al., 2021; Barati & Amini, 2020; Driller et al., 2019; Vitale et al., 2019). Identifying and addressing deficiencies in sleep hygiene behavior or pre-sleep environment can help correct poor and inadequate sleep (Caddick et al., 2018).

Figure 1

Factors contributing to poor sleep (Chow, 2022)



Sleep hygiene is a phenomenon that includes multiple behaviors and environmental regulations that may affect the quality of sleep. It has been reported that daytime sleepiness decreases and sleep quality and duration increase with increased awareness of sleep hygiene (Chow, 2022). Regular exercise, which is a particularly important sleep hygiene condition, is known to significantly reduce the delay in falling asleep, increase sleep efficiency, and have positive effects such as neurotransmitter regulation and body temperature control (Seol et al., 2021; Ghiasvand & Irandoust, 2024). Creating an exercise routine for the effectiveness of the effects, outdoor and indoor exercises can also prevent the occurrence of sleep problems (Roveda et al., 2017). Individuals generally prefer sports centers, especially for recreational activities and maintaining a healthy state. However, previous studies in sports centers have generally focused on themes such as leisure attitude (Kayhan et al., 2024), life satisfaction (Doğan & Ünal, 2024), mental health, self-concept and well-being (Doğan, 2015; Khair et al., 2021; Hall & Noonan, 2023). Other studies related to sleep hygiene have typically been conducted with samples such as university students (Gümüştakım et al., 2020; Molu et al., 2021), older adults (Üzer & Yücens, 2022), and cancer patients (Çayköylü et al., 2021). Despite the significant impact of sleep and attention to sleep hygiene on overall health (Baranwal et al., 2023), the lack of studies on sleep hygiene among individuals who prefer gyms for fitness is noteworthy. Therefore, this study aims to conduct a survey on the level of sleep hygiene among individuals attending sports centers for recreational purposes, considering different variables. The findings of this study are expected to contribute to raising awareness about sleep hygiene in the fields of fitness and recreation. Additionally, it is anticipated that the results will pave the way for future research exploring the potential relationships between sleep hygiene and individuals' physical performance, motivation, and overall quality of life. The emphasis on the importance of sleep hygiene for recreational fitness center users could form a basis for the development of awareness programs and personalized counseling services in these settings. In this way, the study aims to address a significant gap in academic literature while supporting health-oriented interventions for gym users.

METHOD

Research Design

This research was designed using quantitative research methods, which are systematic approaches for investigating phenomena through numerical data and statistical analysis to determine patterns, relationships, or causalities (Büyüköztürk et al., 2008). Quantitative research allows for objective measurement and analysis, making it particularly suitable for exploring the relationships between variables in a structured and replicable manner. Additionally, the study employed a correlational survey model, a specific approach within quantitative research that aims to determine the presence and strength of relationships between two or more variables without manipulating them (Fraenkel et al., 2012). This model is widely used in social sciences to explore associations and make predictions based on existing patterns. In this context, the correlational design provided a framework to examine the interplay between the variables under investigation systematically and comprehensively.

Population and Sample

The population of the research consists of all individuals who engage in fitness at fitness centers. The sample group representing the population includes 534 individuals registered at fitness centers in Konya who regularly engage in fitness activities. The convenience sampling method was used for sample selection, which includes sample groups that the researcher can easily access (Yener & Abdulkadir, 2007). 63.5% of the participants were male and 36.5% female. Their level of education was high school (27.5%), associate degree (15.4%), bachelor's degree (continuing) (39.1%), bachelor's degree (graduate) (9.2%) and postgraduate degree (8.8%). Fitness history was expressed as less than 6 months (35.2%), 1-2 years (28.7%), 3-4 years (14.4%) and 5 years or more (21.5%). Daily sleep duration mostly varied between 6-7 hours (53.4%) and 7-9 hours (30.3%). The frequency of weekly exercise was usually 2-3 times (37.1%) and 4-5 times (41.6%). The preferred time to exercise was in the evening (41.2%) and in the afternoon (28.3%). Sleep quality scores were mostly in the range of 51-75 (51.5%). The mean age was 27.42 years for men and 27.34 years for women (Table 1).

Data Collection Tools

During the data collection phase, voluntary participants were informed about the study, and data was collected 1:1. Participants were administered a socio-demographic data form determined through a literature review suitable for the purpose of the research and the "Sleep Hygiene Index" consisting of 13 items.

Sleep Hygiene Index: To determine the sleep hygiene of the participants, the "Sleep Hygiene Index," validated and reliable by Mastin et al. (2006) and adapted into Turkish by Özdemir et al. (2015), was used. The index consists of 13 questions in a 5-point Likert scale format. The index aims to evaluate the presence of sleep hygiene. The scores range from 13 to 65, with higher scores indicating poorer sleep hygiene. The internal consistency coefficient (Cronbach's Alpha value) of the index was determined to be 0.70. In this study's sample group, the Cronbach's Alpha value of the index was found to be 0.81. Values of 0.70 and above are considered acceptable, while values of 0.80 and above are considered good. In this case, a value of 0.81 indicates that the measurement tool used in the study has a high internal consistency. Additionally, partial eta squared (ŋ2p) was calculated to examine the effect sizes. The ŋ2p values of our study variables were found to be as follows: Gender = 0.09, Education Level = 0.08, Fitness History = 0.08, Daily Sleep Duration = 0.09, Weekly Fitness Frequency = 0.08 (low effect size), Preferred Time of Day for Fitness = 0.13, and Subjective Sleep Quality Score = 0.17 (medium effect size) (Hopkins et al., 2009).

Data Analysis

Two researchers worked together during data analysis to minimize the margin of error in preparing the data draft. Skewness and kurtosis values (+1,5) were referenced for the distribution of the obtained data (Tabachnick et al., 2013). It was found that the age variable did not show a normal distribution, while gender, education level, fitness duration, daily sleep duration, weekly fitness frequency, preferred time of day for training, and subjective sleep quality scores were parametric, and variances were homogeneous. Accordingly, Spearman and Pearson Correlation Tests, Independent Samples T-Test, and One-Way ANOVA tests were used on the data. For data reliability, 10 incorrectly and incompletely filled data entries were excluded from the study. Analyses were performed without including missing data for each variable. The significance value of the study was accepted as $p<0.05$.

Ethical Procedures

This research was conducted with ethical approval number 2023/11 obtained from the Bolu Abant Izzet Baysal University Social Sciences Human Research Ethics Committee. During the data collection phase, a voluntary consent form was obtained from the participants, and detailed information was provided about the purpose of the study and how to fill out the data collection tool. The anonymity of the obtained data was ensured by recording the data in an online storage application accessible only by the researchers.

FINDINGS

Table 1

Distribution of Descriptive Variables of the Participants

Variables	Categories	N	%
Gender	Male	339	63,5
	Female	195	36,5
Education Level	High School	147	27,5
	Associate degree	82	15,4
	Bachelor's (Currently)	209	39,1
	Bachelor's (Graduate)	49	9,2
	Postgraduate	47	8,8
Fitness History	Less than 6 months	188	35,2
	1-2 Years	153	28,7
	3-4 Years	77	14,4
	5 Years and Above	115	21,5
Subjective Daily Sleep Duration	Less than 5 hours	66	12,4
	6-7 hours	285	53,4
	7-9 hours	162	30,3
	More than 9 hours	21	3,9
Weekly Fitness Frequency	Once a week	49	9,2
	2-3 times a week	198	37,1
	4-5 times a week	222	41,6
	6-7 times a week	65	12,2
Preferred Time of Day for Fitness	Morning	85	15,9
	Noon	78	14,6
	Afternoon	151	28,3
	Evening	220	41,2
Subjective Sleep Quality Score	0-25 points	31	5,8
	26-50 points	88	16,5

	51-75 points	275	51,5
	76-100 points	139	26,0
		X	**SD.**
Age	Male	27,42	7,64
	Female	27,34	7,99

When examining the descriptive characteristics of the participants, it is observed that 63.5% are male, the majority (39.1%) have a bachelor's degree, 35.2% have less than 6 months of fitness history, 53.4% report subjective daily sleep durations of 6-7 hours, 41.6% engage in fitness 4-5 days a week, 41.2% prefer to do fitness in the evening, and 51.5% have subjective sleep quality scores between 51-75. The ages of male participants were 27.42+7.64, while the ages of female participants were 27.34+7.99.

Table 2

Independent T-Test and Spearman Correlation Test Results of Sleep Hygiene Index Scores by Gender

Gender	**n**	$\overline{x}$	**Sd**	**t**	**p**	**d**	**Variable**	**r**	**p**
Male	339	32,65	9,42	1,360	,174	0.012	Age*Total Index Score	-,273**	,000
Female	195	31,53	8,59					-,299**	,000

n=Sample Size, $\overline{x}$*=Mean, Sd=Standard Deviation, t= t value, p= Significance Value (p<0,05), d= Cohen's d value, r= Correlation Value*

The sample comprised 339 male participants, who achieved a mean score of 32.6549 (SD = 9.42372), and 195 female participants, with a mean score of 31.5385 (SD = 8.59467). The t-test result (t = 1.360, p = .174) indicates no statistically significant difference between the gender groups (p > .05), with a minimal effect size (d = 0.012). Furthermore, the correlation analysis reveals a significant negative relationship between age and total index score for both genders: r = -.273** for males and r = -.299** for females, both with p = .000, suggesting a statistically significant inverse correlation for each group (p < .01).

Table 3

Pearson Correlation Test Results of Subjective Sleep Quality, Subjective Daily Sleep Durations, and Sleep Hygiene Index Scores

		Total Index Score	**Subjective Sleep Quality Score**	**Education Level**	**Fitness History**	**Subjective Daily Sleep Duration**	**Weekly Fitness Frequency**	**Preferred Time of Day for Fitness**
Total	r	-	-,258**	-,016	-,066	-,097*	-,048	-,169**
Index	p	-	,000	,719	,131	,025	,271	,000
Score	n	-	533	534	533	534	534	534
Subjective Sleep	r	-,258**	-	,053	,102*	,263**	,164**	,005
Quality	p	,000	-	,221	,019	,000	,000	,904
Score	n	533	533	533	532	533	533	533
Subjective	r	-,097*	,263**	,017	,055	-	,021	,063
Daily	p	,025	,000	,688	,204	-	,624	,149
Sleep Duration	n	534	533	534	533	-	534	534

n= Sample Size, p= Significance Value (p<0,05), r= Correlation Value

A negative and statistically significant relationship was found between total index score and subjective sleep quality score (r = -0.258**, p < 0.001, n = 533). There was no significant relationship between education level and total index score (r = -0.016, p = 0.719, n = 534). Similarly, no significant relationship was found between fitness history and total index score (r = -0.066, p = 0.131, n = 533). However, a negative and significant relationship was observed between subjective daily sleep duration and total index score (r = -0.097*, p = 0.025, n = 534). No significant relationship was found between weekly fitness frequency and total index score (r = -0.048, p = 0.271, n = 534). However, a negative and statistically significant relationship was found between preferred time of day for fitness and total index score (r = -0.169**, p < 0.001, n = 534).

When examining the correlation results between subjective sleep quality score and other variables, no significant relationship was found between education level and subjective sleep quality score (r = 0.053, p = 0.221, n = 533). However, a positive and significant relationship was found between fitness history and subjective sleep quality score (r = 0.102*, p = 0.019, n = 532). A positive and statistically significant relationship was found between subjective daily sleep duration and subjective sleep quality score (r = 0.263**, p < 0.001, n = 533). A positive and statistically significant relationship was also found between weekly fitness frequency and subjective sleep quality score (r = 0.164**, p < 0.001, n = 533). No significant relationship was found between preferred time of day for fitness and subjective sleep quality score (r = 0.005, p = 0.904, n = 533).

When examining the correlation results between subjective daily sleep duration and other variables, no significant relationship was found between education level and subjective daily sleep duration (r = 0.017, p = 0.688, n = 534). No significant relationship was found between fitness history and subjective daily sleep duration (r = 0.055, p = 0.204, n = 533). No significant relationship was found between weekly fitness frequency and subjective daily sleep duration (r = 0.021, p = 0.624, n = 534). Additionally, no significant relationship was found between preferred time of day for fitness and subjective daily sleep duration (r = 0.063, p = 0.149, n = 534).

Table 4

One-Way ANOVA Results of Descriptive Variables and Sleep Hygiene Index Scores

Variables	Categories	n	$\overline{x}$	Sd		SS	MS	f	p	η²
Education Level	*High School*	147	31,52	8,12	B.G.	527,44	131,86	1,586	,177	,012
	Associate Degree	82	34,30	10,01						
	Bachelor's (Currently)	209	32,27	9,66	W.G.	43973,92	83,12			
	Bachelor's (Graduate)	49	32,28	8,64						
	Postgraduate	47	30,76	8,33						
Fitness History	*(A) Less Than 6 Months*	188	31,46	8,18	B.G.	1764,15	588,05	7,279	,000 a-b* b-d**	,040
	(B) 1-2 Years	153	34,69	9,59						
	(C) 3-4 Years	77	32,93	9,94	W.G.	42736,64	80,78			
	(D) 5 Years And Above	115	29,79	8,73						
Subjective Daily Sleep Duration	*(A) Less Than 5 Hours*	66	35,86	10,01	B.G.	1166,80	388,93	4,757	,003 a-b* a-c*	,026
	(B) 6-7 Hours	285	31,90	9,010						
	(C) 7-9 Hours	162	31,14	8,78	W.G.	43334,56	81,76			
	(D) More Than 9 Hours	21	34,09	8,11						

Weekly Fitness Frequency	*(A) Once*	49	32,51	8,52	B.G.	139,55	46,51	,556	,644	,003
	(B) 2-3 Times	198	32,84	9,40						
	(C) 4-5 Times	222	31,8694	9,21	W.G.	44361,81	83,70			
	(D) 6-7 Times	65	31,52	8,57						
Preferred Time of Day for	*(A)Morning*	85	33,57	11,91	B.G.	1824,11	608,03	7,551	,000 a-d* b-d**	,041
	(B)Noon	78	35,67	8,71						
	(C)Afternoon	151	32,41	8,51	W.G.	42677,25	80,52			
	(D)Evening	220	30,40	8,00						
Subjective Sleep Quality Score	*(A)0-25*	31	36,96	6,69	B.G.	3637,55	1212,51	15,698	,000 a-d** b-d** c-d**	,082
	(B)26-50	88	33,94	7,71						
	(C)51-75	275	33,26	9,33	W.G.	40860,73	77,24			
	(D)76-100	139	28,08	8,71						

No significant difference was found in subjective sleep quality scores among participants' education levels ($f(4, 526) = 1.586$, $p = 0.177$), indicating that education level does not have a statistically significant impact on sleep quality. However, a significant difference was observed among fitness history groups ($f(3, 530) = 7.279$, $p = 0.000$), indicating that fitness history affects subjective sleep quality and that this group obtained higher scores. A significant difference was also found in subjective daily sleep durations ($f(3, 510) = 4.757$, $p = 0.003$), showing that longer daily sleep durations are associated with higher sleep quality. Weekly fitness frequency was found to have no significant impact on subjective sleep quality ($f(3, 532) = 0.556$, $p = 0.644$). However, a significant difference was found among preferred times of day for fitness ($f(3, 532) = 7.551$, $p = 0.000$), with those who prefer to train in the evening having lower sleep quality scores. Significant differences were also found in subjective sleep quality scores ($f(3, 530) = 15.698$, $p = 0.000$), with individuals having lower sleep quality scores statistically lower sleep quality scores. The analysis of variance (ANOVA) results revealed the following effect sizes calculated using eta squared (η^2): Education Level showed a small effect ($\eta^2 = 0.012$), while Fitness History and Preferred Time of Day for Fitness indicated moderate effects ($\eta^2 = 0.040$ and $\eta^2 = 0.041$, respectively). Daily Sleep Duration demonstrated a small to moderate effect ($\eta^2 = 0.026$), Weekly Fitness Frequency had a negligible effect ($\eta^2 = 0.003$), and Subjective Sleep Quality Score exhibited a substantial effect ($\eta^2 = 0.082$) (Cohen, 2013).

DISCUSSION

In this study, the sleep hygiene of individuals engaging in fitness for recreational purposes in fitness centers was examined in terms of various socio-demographic variables. It was generally found that participants had insufficient levels of sleep hygiene.

Sleep quality can be evaluated using both objective and subjective methods. Objective methods such as polysomnography (PSG) and actigraphy show high reliability in obtaining information about sleep parameters (Krystal & Edinger, 2008). However, these objective methods, like PSG (for evaluating daytime sleepiness, see the Multiple Sleep Latency Test or MSLT), are not easily accessible for most clinicians in their daily routines, as they are expensive and time-consuming (American Academy of Sleep Medicine, 2005). Even though actigraphy has economic advantages, the recorded activity is only a representation of sleep and not sleep itself (Fabbri et al., 2021). In this study, the Sleep Hygiene Index, whose scientific validity and reliability have been rigorously tested, was used to collect individuals' sleep data. The fact that this index exhibited a very high Cronbach's alpha value in this study ensured the internal consistency and reliability of the data. Therefore, the targeted outcomes of the sample

group were predicted with high accuracy. This suggests that the findings are robust and reliable and that assessments of sleep hygiene are supported by reliable data.

Gender, which is among the predictors of sleep quality and hygiene, plays an influential role in relevant situations from a young age. Sleep hygiene, which varies with gender during elementary school, identified boys as a riskier group in bedtime routines, an important sleep hygiene process, highlighting the significance of parental attitudes in this process (Uebergang et al., 2017). Similarly, studies conducted during and after adolescence also indicate that gender affects sleep hygiene (Galland et al., 2017; Peach et al., 2016; Krishnan & Collop, 2006). However, in adults, the effect of gender on sleep and sleep hygiene awareness may be more related to exercise status and overall awareness. Instead of the gender factor, adherence to physical activity processes may positively impact sleep hygiene and falling asleep (Glavin et al., 2022). Additionally, it is known that sleep hygiene generally improves as individuals age, thought to be due to past sleep experiences (Ruggiero et al., 2019; Voinescu & Szentagotai-Tatar, 2015). When examining the study's findings, the insignificant difference detected between male and female participants indicates that gender is not a determinant in this study. However, placing gender as a central variable and examining age and total index score, a negative correlation was seen with increasing age in both genders (see Table 2). This suggests that the sample group lacks adequate awareness and does not develop awareness of sleep or sleep hygiene behavior with advancing age. The poor relationship with sleep hygiene behaviors among individuals who want to support and improve their physical and mental well-being suggests that personal trainers and responsible coaches in the gym environment also lack sufficient awareness of these issues, leading to low sleep awareness among individuals attending the gym for recreational purposes. In addition, since the continuity of exercise (Ali et al., 2020) and intensity are important for good sleep, it is thought that sleep quality can be improved by increasing the active participation of individuals in training. However, a study of 4800 people reported that excessive physical activity caused difficulty falling asleep when sleep, sex and age were controlled for, while the relationship with sleep characteristics was insignificant in more recreational activities (Dubinina et al., 2021). The study, with similar results to our study, suggests that if exercise does not cause excessive physical and mental fatigue, the magnitude of the effect on sleep quality is insignificant.

It is known that individuals who pay attention to sleep hygiene patterns complete their sleep duration and reduce daytime sleepiness (Rujnan et al., 2019; Chow, 2022; Lim et al., 2023). Normally neglected sleep hygiene patterns affect individuals' sleep quality and consequently their psychological well-being (Vitale et al., 2019). According to the findings of this study, it was found that participants with the least total sleep duration had higher sleep hygiene scores than others. This suggests that individuals who report sleeping less than 5 hours pay more attention to sleep hygiene to maximize the benefit from their sleep during this limited time. Because the lack of total daily sleep duration indicates that individuals pay more attention to all sleep hygiene patterns that could affect their sleep. In addition, the available evidence is still controversial in the literature on this topic; in particular, there are studies that have found poorer sleep quality and sleep hygiene in athletes compared to age-matched sedentary groups (Cameron et al., 2021).

When examining the study findings, no significant relationship was found between the participants' weekly fitness frequency and sleep hygiene scores. In the literature, increasing physiological load is known to increase the recovery time, suggesting that increasing fitness frequency brings along a need for rest and sleep (Simpson et al., 2017; Vitale et al., 2019; Ali et al., 2020). Additionally, it is recommended for athletes to extend their sleep duration due to increased load (Silva et al., 2021; Coel et al., 2023). Furthermore, examining the findings related to the preferred time of day for fitness, it was seen that participants who chose to exercise in the evening, followed by those who chose the morning, had the highest sleep

hygiene scores. This may be because evening exercisers pay more attention to sleep hygiene to avoid a negative impact on their sleep process, and morning exercisers pay attention to sleep hygiene to avoid daytime sleepiness, not wake up tired, and feel rested.

It is known that subjective evaluations of sleep durations and quality by individuals often yield different results from objective outcomes (Jackowska et al., 2011; Qin et al., 2023; Walsh et al., 2021; Cunha et al., 2023). Parallel to this, in our study, the negative relationship between the subjective sleep quality evaluation reported by participants and sleep hygiene (see Table 4) suggests that individuals lack sufficient knowledge and awareness in evaluating sleep hygiene. Thus, despite evaluating their subjective sleep quality as good, their sleep hygiene showed a negative relationship. This situation has also been observed in different sample groups in the literature (Qin et al., 2023; Walsh et al., 2021; Cunha et al., 2023), and our conclusions are in parallel with the known literature.

Conclusion

In conclusion, it was found that the sleep hygiene of individuals engaging in recreational fitness in fitness centers is generally inadequate. Demographic variables such as gender and education level did not create significant differences in sleep hygiene. However, variables such as fitness history, daily sleep duration, and the preferred time of day for fitness were found to have an impact on sleep hygiene. Specifically, participants with longer daily sleep durations were found to have better sleep hygiene. Similarly, participants with a longer fitness history reported better sleep hygiene. Participants who preferred to exercise in the evening had higher sleep hygiene scores compared to other groups. As a precursor to sleep quality, increasing individuals' sleep hygiene behaviors and awareness is thought to have positive effects on their psychological, mental, and physiological health. These findings suggest that the scheduling of exercise programs in fitness centers should be planned to enhance sleep hygiene and that community-level interventions aimed at increasing awareness of sleep hygiene could contribute to improving individuals' overall health and quality of life.

Recommendation

Based on the results of this study, several recommendations can be made to improve the sleep hygiene of individuals engaging in recreational fitness in sports centers. Firstly, informative seminars and training programs on sleep hygiene can be organized in sports centers. These programs can provide participants with information about the importance of sleep hygiene, creating an appropriate sleep environment, limiting the use of electronic devices, and healthy sleep habits. Second, sports centers can offer counseling services aimed at improving individuals' sleep quality, helping them assess and improve their personal sleep habits. Future research should use longitudinal designs to evaluate the long-term effects of sleep hygiene education and conduct studies on different demographic groups. Furthermore, the use of objective sleep measurement techniques (e.g., actigraphy or polysomnography) can provide a more accurate assessment of sleep hygiene and quality. Finally, incorporating a mixed-methods approach to capture both quantitative and qualitative insights is encouraged to achieve a deeper understanding of personal sleep hygiene practices. More research is needed to determine how effective such interventions are in improving exercise performance and overall health.

Limitations:

This study has certain limitations. The research was conducted in more than ten fitness centers located exclusively in the province of Konya, which may limit the generalizability of the findings due to geographical constraints. The data collection instrument used, the 'Sleep Hygiene Index,' relies on participants' self-reported evaluations, and objective sleep measurement methods (e.g., polysomnography or actigraphy) were not employed in the study.

This may pose a limitation to the accuracy of the findings. Although the study design is suitable for collecting quick and valuable data from a large participant group, it was conducted using a cross-sectional method, which prevents the establishment of causal relationships. Moreover, participants may tend to report their sleep hygiene and habits more positively than they actually are due to social desirability bias. This could lead to a deviation in the results from the actual circumstances.

REFERENCES

Ali, A., Azam, M., & Mehmood, F. (2020). Prevalence of poor sleep and relationship of physical exercise with sleep among male adult exercisers. *Journal of Accounting and Finance in Emerging Economies*, *6*(2), 539-545. https://doi.org/10.26710/jafee.v6i2.1233

American Academy of Sleep Medicine. (2005). *International classification of sleep disorders: Diagnostic and coding manual* (pp. 148-152).

Baranwal, N., Phoebe, K. Y., & Siegel, N. S. (2023). Sleep physiology, pathophysiology, and sleep hygiene. *Progress in Cardiovascular Diseases, 77*, 59-69. https://doi.org/10.1016/j.pcad.2023.02.005

Barati, N., & Amini, Z. (2020). The effect of multicomponent sleep hygiene education on sleep quality and mental health in patients suffering from substance abuse. *Current Psychology, 1-7.* https://doi.org/10.1007/s12144-020-01145-w

Brinkman, J. E., Reddy, V., & Sharma, S. (2018). Physiology of sleep.

Buysse, D. J. (2014). Sleep health: Can we define it? Does it matter? *Sleep,* 37(1), 9-17. https://doi.org/10.5665/sleep.3298

Büyüköztürk, Ş., Kılıç-Çakmak, E., Akgün, Ö., Karadeniz, Ş., & Demirel, F. (2008). *Bilimsel araştırma yöntemleri* (13. baskı). Pegem Akademi.

Caddick, Z. A., Gregory, K., Arsintescu, L., & Flynn-Evans, E. E. (2018). A review of the environmental parameters necessary for an optimal sleep environment. *Building and Environment, 132*, 11-20. https://doi.org/10.1016/j.buildenv.2018.01.020

Cameron, A. F., Perera, N., & Fulcher, M. (2021). Professional athletes have poorer sleep quality and sleep hygiene compared with an age-matched cohort. *Clinical Journal of Sport Medicine*, 31(6), 488-493. 10.1097/JSM.0000000000000795

Chennaoui, M., Vanneau, T., Trignol, A., et al. (2021). How does sleep help recovery from exercise-induced muscle injuries? *Journal of Science and Medicine in Sport, 24*(10), 982-987. 10.1016/j.jsams.2021.05.007

Chow, C. M. (2022). Sleep hygiene practices: Where to now? *Hygiene, 2*(3), 146-151. https://doi.org/10.3390/hygiene2030013

Coel, R. A., Pujalte, G. G., Applewhite, A. I., Zaslow, T., Cooper, G., Ton, A. N., & Benjamin, H. J. (2023). Sleep and the young athlete. *Sports Health, 15*(4), 537-546. https://doi.org/10.1177/19417381221108732

Cohen, J. (2013). *Statistical power analysis for the behavioral sciences* (2nd ed.). Routledge. https://doi.org/10.4324/9780203771587

Colten, H. R., & Altevogt, B. M. (2006). Committee on sleep medicine and research. *Sleep disorders and sleep deprivation: An unmet public health problem.* https://doi.org/10.17226/11617

Cunha, L. A., Costa, J. A., Marques, E. A., Brito, J., Lastella, M., & Figueiredo, P. (2023). The impact of sleep interventions on athletic performance: A systematic review. *Sports Medicine-Open, 9*(1), 58. https://doi.org/10.1186/s40798-023-00599-z

Çayköylü, A., Uğurlu, G. K., Uğurlu, M., Akıncı, M. B., Gaygusuz, D. I., Erol, S., ... & Haydanlı, A. M. (2021). Kanser hastalarında yaşam kalitesinin iyileştirilmesi ve uyku bozukluklarının tedavisinde uyku hijyeni ve psikopatolojinin yeri. https://doi.org/10.54005/geneltip.1036518

De Zambotti, M., Cellini, N., Goldstone, A., Colrain, I. M., & Baker, F. C. (2019). Wearable sleep technology in clinical and research settings. *Medicine and Science in Sports and Exercise, 51*(7), 1538. 10.1249/MSS.0000000000001947

Doğan, C. (2015). Training at the gym, training for life: Creating better versions of the self through exercise. *Europe's Journal of Psychology, 11*(3), 442. https://doi.org/10.5964/ejop.v11i3.951

Doğan, M., & Ünal, Y. B. (2024). The relationship between leisure involvement, flow experience, and life satisfaction levels of fitness center members. *Journal of Education and Recreation Patterns, 5*(1), 85-99. https://doi.org/10.53016/jerp.v5i1.229

Driller, M. W., Lastella, M., & Sharp, A. P. (2019). Individualized sleep education improves subjective and objective sleep indices in elite cricket athletes: A pilot study. *Journal of Sports Sciences*, 37(17), 2021-2025. https://doi.org/10.1080/02640414.2019.1616900

Dubinina, E., Korostovtseva, L. S., Rotar, O., Amelina, V., Boyarinova, M., Bochkarev, M., ... & Shlyakhto, E. (2021). Physical activity is associated with sleep quality: Results of the ESSE-RF epidemiological study. *Frontiers in Psychology*, 12, 705212. https://doi.org/10.3389/fpsyg.2021.705212

Eberle, U., Fritsche, U. R., Hayn, D., Empacher, C., Simshäuser, U., Rehaag, R., & Waskow, F. (2004). Umwelt-ernährung-gesundheit: Beschreibung der dynamiken des gesellschaftlichen handlungsfeldes. *Diskussionspapier des BMBF-Projektes Ernährungswende*, 1.

Fabbri, M., Beracci, A., Martoni, M., Meneo, D., Tonetti, L., & Natale, V. (2021). Measuring subjective sleep quality: A review. *International Journal of Environmental Research and Public Health, 18*(3), 1082. https://doi.org/10.3390/ijerph18031082

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education* (Vol. 7, p. 429). McGraw-Hill.

Galland, B. C., Gray, A. R., Penno, J., Smith, C., Lobb, C., & Taylor, R. W. (2017). Gender differences in sleep hygiene practices and sleep quality in New Zealand adolescents aged 15 to 17 years. *Sleep Health, 3*(2), 77-83. 10.1016/j.sleh.2017.02.001

Ghiasvand, P., & Irandoust, K. (2024). Moving for better sleep: A narrative review of exercise and sleep quality. *International Journal of Sport Studies for Health, 7*(3), 25-32. https://doi.org/10.61838/kman.intjssh.7.3.4

Glavin, E. E., Matthew, J., & Spaeth, A. M. (2022). Gender differences in the relationship between exercise, sleep, and mood in young adults. *Health Education & Behavior, 49*(1), 128-140. 10.1177/1090198120986782

Güdül, N., & Yücel, O. (2022). Bireylerin fitness salonlarına gitme nedenleri ve beklentileri. *Beden Eğitimi ve Spor Bilimleri Dergisi, 24*(1), 23-28. doi.org/10.54614/JPESS.2022.1053356

Gümüştakım, R. Ş., Kuş, C., & Uzkar, M. (2020). Tıp fakültesi öğrencilerinde gündüz uykululuğunun ve uyku hijyeninin değerlendirilmesi. *Journal of Turkish Sleep Medicine, 7*. 10.4274/jtsm.galenos.2020.94940

Hall, F. C., & Noonan, R. J. (2023). A qualitative study of how and why gym-based resistance training may benefit women's mental health and wellbeing. *Performance Enhancement & Health, 11*(3), 100254. doi.org/10.1016/j.peh.2023.100254

Hopkins, W. G., Marshall, S. W., Batterham, A. M., & Hanin, J. (2009). Progressive statistics for studies in sports medicine and exercise science. *Medicine & Science in Sports & Exercise, 41*(1), 3-12. 10.1249/MSS.0b013e31818cb278

Jackowska, M., Dockray, S., Hendrickx, H., & Steptoe, A. (2011). Psychosocial factors and sleep efficiency: Discrepancies between subjective and objective evaluations of sleep. *Psychosomatic Medicine, 73*(9), 810-816. 10.1097/PSY.0b013e3182359e77

Karaman, S. (2023). Sporcu sağlığında uyku. İçinde F. F. Çolakoğlu, D. Aras, ve G. Ünver (Ed.), *Sporcu sağlığı* (s. 259-264). Efe Akademi Yayınları.

Karaman, S., Kayhan, A., Can, Ü., & Kara, İ. (2024). Investigation of the relationship between body appreciation and sleep quality. *Turkish Journal of Sport and Exercise, 26*(1), 100-106. https://doi.org/10.15314/tsed.1391864

Kayhan, B., Demirel, M., & Kayhan, A. (2024). Leisure Attitudes of Individuals Engaging in Exercise: An Examination in Fitness Centers . *Sportive*, 7(2), 382-396. doi.org/10.53025/sportive.1524715

Khair, K., Holland, M., Dodgson, S., McLaughlin, P., Fletcher, S., & Christie, D. (2021). Fitness enhances psychosocial well-being and self-confidence in young men with hemophilia: Results from Project GYM. *Research and Practice in Thrombosis and Haemostasis, 5*(8), e12622. 10.1002/rth2.12622

Klaber, M. (2010). *Doping im Fitness-Studio: Die Sucht nach dem perfekten Körper.* Transcript Verlag.

Krishnan, V., & Collop, N. A. (2006). Gender differences in sleep disorders. *Current Opinion in Pulmonary Medicine, 12*(6), 383-389. 10.1097/01.mcp.0000245705.69440.6a

Krystal, A. D., & Edinger, J. D. (2008). Measuring sleep quality. *Sleep Medicine, 9*(S1), S10-S17. 10.1016/S1389-9457(08)70011-X

Lim, D. C., Najafi, A., Afifi, L., Bassetti, C. L., Buysse, D. J., Han, F., ... & Jackson, C. L. (2023). The need to promote sleep health in public health agendas across the globe. *The Lancet Public Health, 8*(10), e820-e826. 10.1016/S2468-2667(23)00182-2

Milewski, M. D., Skaggs, D. L., Bishop, G. A., Pace, J. L., Ibrahim, D. A., Wren, T. A., & Barzdukas, A. (2014). Chronic lack of sleep is associated with increased sports injuries in adolescent athletes. *Journal of Pediatric Orthopaedics, 34*(2), 129-133. 10.1097/BPO.0000000000000151

Molu, B., Keskin, A. Y., & Baş, M. T. (2021). Hemşirelik öğrencilerinin kronotipine göre uyku hijyeninin incelenmesi. *Journal of Turkish Sleep Medicine*, 8(2), 105-111. https://doi.org/10.4274/jtsm.galenos.2021.06025

Muz, G., Erdoğan Yüce, G., Yıldırım, C., & Dağdelen, M. (2021). The effect of sleep hygiene training applied to hemodialysis patients on sleep quality and quality of life: Randomized controlled trial. *Sleep and Biological Rhythms, 19*, 227-236. https://doi.org/10.1007/s41105-020-00293-7

Pace-Schott, E. F., & Spencer, R. M. (2015). Sleep-dependent memory consolidation in healthy aging and mild cognitive impairment. In *Sleep, neuronal plasticity and brain function* (pp. 307-330). 10.1007/7854_2014_300

Peach, H., Gaultney, J. F., & Gray, D. D. (2016). Sleep hygiene and sleep quality as predictors of positive and negative dimensions of mental health in college students. *Cogent Psychology, 3*(1), 1168768. doi.org/10.1080/23311908.2016.1168768

Polat, F., & Karasu, F. (2022). Effect of sleep hygiene training given to elderly individuals on daytime sleepiness and fatigue: A randomized controlled trial. *Perspectives in Psychiatric Care, 58*(4), 2161-2169. 10.1111/ppc.13043

Qin, S., Leong, R. L., Ong, J. L., & Chee, M. W. (2023). Associations between objectively measured sleep parameters and cognition in healthy older adults: A meta-analysis. Sleep Medicine Reviews, 67, 101734. https://doi.org/10.1016/j.smrv.2022.101734

Roveda, E., Vitale, J. A., Bruno, E., Montaruli, A., Pasanisi, P., Villarini, A., ... & Carandente, F. (2017). Protective effect of aerobic physical activity on sleep behavior in breast cancer survivors. Integrative Cancer Therapies, 16(1), 21-31. https://doi.org/10.1177/1534735416651719

Ruggiero, A. R., Peach, H. D., & Gaultney, J. F. (2019). Association of sleep attitudes with sleep hygiene, duration, and quality: A survey exploration of the moderating effect of age, gender, race, and perceived socioeconomic status. *Health Psychology and Behavioral Medicine, 7*(1), 19-44. https://doi.org/10.1080/21642850.2019.1567343

Rujnan, T., Çaykara, B., Sağlam, Z., & Pençe, H. H. (2019). Sigara bağımlılarında depresyon, anksiyete, uykululuk ve uyku kalitesi düzeyleri arasındaki ilişkinin belirlenmesi.

Acıbadem Üniversitesi Sağlık Bilimleri Dergisi, 4, 609-615. https://doi.org/10.31067/0.2019.212

Seol, J., Fujii, Y., Inoue, T., Kitano, N., Tsunoda, K., & Okura, T. (2021). Effects of morning versus evening home-based exercise on subjective and objective sleep parameters in older adults: A randomized controlled trial. *Journal of Geriatric Psychiatry and Neurology, 34*(3), 232-242. https://doi.org/10.1177/0891988720924709

Siegel, J. M. (2005). Clues to the functions of mammalian sleep. *Nature, 437*(7063), 1264-1271. https://doi.org/10.1038/nature04285

Silva, A. C., Silva, A., Edwards, B. J., Tod, D., Amaral, A. S., de Alcântara Borba, D., ... & de Mello, M. T. (2021). Sleep extension in athletes: What we know so far–A systematic review. *Sleep Medicine, 77*, 128-135. https://doi.org/10.1016/j.sleep.2020.11.028

Simpson, N. S., Gibbs, E. L., & Matheson, G. O. (2017). Optimizing sleep to maximize performance: Implications and recommendations for elite athletes. *Scandinavian Journal of Medicine & Science in Sports, 27*(3), 266-274. https://doi.org/10.1111/sms.12703

Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2013). *Using multivariate statistics* (6th ed., pp. 497-516). Pearson.

Uebergang, L. K., Arnup, S. J., Hiscock, H., Care, E., & Quach, J. (2017). Sleep problems in the first year of elementary school: The role of sleep hygiene, gender, and socioeconomic status. *Sleep Health, 3*(3), 142-147. 10.1016/j.sleh.2017.02.006

Üzer, A., & Yücens, B. (2022). Sleeping pills in the treatment of insomnia in older adults with depression: The role of sleep hygiene. *Anatolian Clinic the Journal of Medical Sciences, 27*(3), 302-309. doi.org/10.21673/anadoluklin.1126165

Vitale, J. A., La Torre, A., Banfi, G., & Bonato, M. (2019). Acute sleep hygiene strategy improves objective sleep latency following a late-evening soccer-specific training session: A randomized controlled trial. *Journal of Sports Sciences, 37*(23), 2711-2719. https://doi.org/10.1080/02640414.2019.1661938

Vitale, K. C., Owens, R., Hopkins, S. R., & Malhotra, A. (2019). Sleep hygiene for optimizing recovery in athletes: Review and recommendations. *International Journal of Sports Medicine, 40*(8), 535-543. 10.1055/a-0905-3103

Voinescu, B. I., & Szentagotai-Tatar, A. (2015). Sleep hygiene awareness: Its relation to sleep quality and diurnal preference. *Journal of Molecular Psychiatry, 3*(1), 1-7. doi: 10.1186/s40303-015-0008-2

Walsh, N. P., Halson, S. L., Sargent, C., Roach, G. D., Nédélec, M., Gupta, L., ... & Samuels, C. H. (2021). Sleep and the athlete: Narrative review and 2021 expert consensus recommendations. *British Journal of Sports Medicine, 55*(7), 356-368. doi.org/10.1136/bjsports-2020-102025

Wierzejska, R. E. (2021). Dietary supplements—for whom? The current state of knowledge about the health effects of selected supplement use. *International Journal of Environmental Research and Public Health, 18*(17), 8897. 10.3390/ijerph18178897

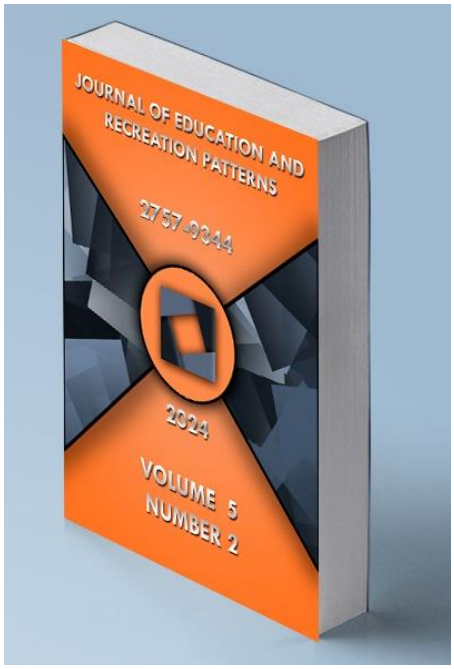
Yener, Ö., & Abdulkadir, G. (2007). Population-Sampling issue on social and educational research studies. *Atatürk Üniversitesi Kazım Karabekir Eğitim Fakültesi Dergisi, 15*, 394-422.

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

The Role of Mental Training on Mental Toughness of Individual and Team Athletes

Ersin ATEŞ[1], Varol TUTAL[2]

To cite this article:

Ateş, E. & Tutal, V. (2024). The role of mental training on mental toughness of individual and team athletes. *Journal of Education and Recreation Patterns (JERP), 5 (2),* 235-249. DOI: https://doi.org/10.53016/jerp.v5i2.260

[1] Directorate of National Education, Dazkın Anatolian Imam Hatip High School, Dazkın/Afyonkarahisar/Turkey, ersinates1551@gmail.com, https://orcid.org/0000-0001-6696-5698

[2] Department of Exercise and Sports Science, Faculty of Health Sciences, Malatya Turgut Özal University, Malatya, Turkey, v.tutal@ozal.edu.tr, https://orcid.org/0000-0001-5647-9370

Journal of Education and Recreation Patterns (JERP)
Volume 5, Issue 2, Year 2024 ISSN: 2757-9344

The Role of Mental Training on Mental Toughness of Individual and Team Athletes

Ersin Ateş[1], Varol Tutal[2]

ARTICLE INFORMATION
Original Research Paper

Received 04.10. 2024
Accepted 16.12. 2024

https://jerpatterns.com

December, 2024
Volume: 5, No: 2
Pages: 235-249

ABSTRACT
This research was carried out to examine the effect of mental training applied on individuals who do individual and team sports on mental resilience. The research consists of a total of 365 athletes, 113 of who mare women (31%) and 252 of whom are men (69%), who activelyeng age in individual and team sports. During the data collection phase, the Mental Training Inventory in Sports was developed by Behnke et al (2019), validity and reliability studies were carried out by Yarayan and İlhan (2018) and adapted to Turkish, and the validity and reliability study was conducted by Sheard et al (2009). The Mental Endurance Inventory in Sports, which was adapted into Turkish by Altıntaş and Koruç (2016), was used. Pearson-Correlation analysis was used to determine the relationships between the variables included in the study in the analysis of the data, T-Test analysis method was used to determine whether there was a difference between the groups. In the research findings, it was determined that the sub-dimensions of mental training, mental basic skills and talking to yourself differed significantly according to gender. According to the international athlete variable, a significant difference was found in the mental training mental basic skills sub-dimension and mental training total score. A significant difference was found in the sub-dimensions of international athlete variable, mental toughness, trust and control. It is thought that the study has the potential to use mental skills in sports whose effectiveness has been proven and to give an idea to the athletes and coaches about the changes that occur in the athletes as a result.

Keywords: Individual Sport, Mental Toughness, Mental Training, Team Sport

INTRODUCTION

Sports, which have many definitions due to encompassing various dimensions, can be engaged in for purposes such as maintaining a healthy life style, competing and improving performance, passingleisure time, developing strong social ties, and enjoy in gone self (Kat, 2009). At the same time, it is thought to provide physiological and psychological support, influence behavior sociologically, and help maintain or improve one's motor and mental state (Özdenk, 2015).

When looking at recent achievements, performances, and records in the sports world, it becomes clear that the human body is being utilized to its physical limits. As athletes reach their physical peaks, various methods to improve performance have been explored. Among these, mental and psychological processes, which have established a significant place in sports literature, are considered crucial, alongside physical conditioning. Today, individuals involved in performance sports prepare mentally and psychologically for both training and competitions, in addition to physical training, using various methods and techniques. Indeed, studies in the field of sports psychology are rapidly continuing (Akgül et al., 2024; Arı et al., 2020; Dursun et al., 2021; Yarayan et al., 2024; Yarayan et al., 2023; Yarayan &Gulsen, 2023; Yarayan et al., 2022). The concept of mental training, which is regarded as one of the coreelements of a successful training program, refers to the intense mental visualization of a movement with out physically performing it (Hecker & Kaczor, 1988). Additionally, it is believed that mental training processes can be utilized to develop and optimize motor skills (Cocks et al., 2014).

Studies indicate that combining physical training with mental training yields the highest performance gains (Lutz et al., 2009; Unestahl, 1982; Xiong, 2012). Training plans should take in to account individual differences to appropriately balance mental and physical preparation. Mental training is not only a use ful performance enhancement tool during competitions but can also be applied during injury recovery and pre-season periods (Altıntaş & Akalan, 2008). Another psychological factor frequently employed by athletes and coaches to boost performance is mental toughness. Mental endurance, which positively affects the performance of athletes and whose importance increases day by day with the number of studies carried out, can be expressed as positive psychological support in order to recover as soon as possible and to show the real performance in the event of failure, the concept of responsibility that puts pressure on the individual and adverse events that may affect the individual negatively (Luthans 2002). Athletes often face various emotional challenges, such as stress, anxiety, and excessive excitement, which can negatively impact their performance. In both competitions and preparation periods, athletes need to maintain high levels of mental toughness to cope with these adverse emotional states (Crust, 2007; Sheard, 2012). Individuals actively involved in performance sports must maintain a certain level of mental endurance. To achieve this, they must be capable of handling emotions like success, failure, anxiety, and stress. This mental resilience enables athletes to make efforts toward achieving success while acknowledging the negative aspects that may arise (Tekkurşun& Türkeli, 2019). While physical capacity is fundamental to success in performance sports, mental factors help sustain and elevate that success.

When the studies in the literature are examined, the positive effect of mental factors on the performance of athletes has been accepted (Cocks et al. 2014, İkizler 1997, Mamassis & Doganis 2004, Neff, 2006, Weinberg & Gould 2015, Xiong 2012). While physical competence is seen as the most fundamental element for success in performance sports, mental factors are thought to help athletes make this success permanent and take it to a higher level.

In this context, the aim of this study is to examine the effects of mental training processes on the mental endurance levels of individual sengaged in individual and team sports, across different types and disciplines.

METHOD

Research Model

In this research, the "Descriptive, Relational Survey" model was used. According to Büyüköztürk (2002), descriptive statistics is defined as statistical operations performed to collect, describe and defend numerical values of a certain variable.

Research Group

The sample of the study consists of 252 men and 113 women who are actively engaged in individual and team sports in the Eastern and South eastern Anatolia regions. In this study, the random sampling method was employed. According to Metin (2015), the chosen method to represent the population is to randomly select individuals for the sample, based on chance.

Data Collection Tools

In the study, the "Mental Training Inventory in Sports" (MTIS) developed by Behnke et al. (2019), with validity and reliability studies conducted by Yarayan and İlhan (2018) and adapted intoTurkish, and the "Mental Endurance Inventory in Sports" (MIS) developed by Sheard et al. (2009), with validity and reliability studies conducted by Altıntaş and Koruç (2016) and adapted into Turkish, were used.

The Mental Training in Sports Scale consists of 5 sub-dimensions and 20 items in total, namely basic mental skills (4 items) α=0.82), mental functioning skills (6 items) (α=0.82), personal communication skills (4 items) (α=0.85), self-talk (3 items) (α=0.91), mental visualization (3 items) (α=0.82). The inventory is a 5-point Likert-type scale.

Mental Toughness Scale in Sports consists of 3 sub-dimensions and 14 items in total, namely control (4 items) (α=0.84), confidence (6 items) (α=0.79) and continuity (4 items) (α=0.51). The inventory is a 4-point Likert-type scale.

Data Analysis

In the data analysis, missing data were evaluated to check the appropriateness of the primary analysis and the assumptions. It was determined that there were no missing data. The normality assumptions were checked using the Kolmogorov-Smirnov test, and it was observed that the data did not meet the normality assumptions. However, a review of the relevant literatüre revealed that there is growing support for the notion that normality test salone are insufficient for Likert-type scales (Tabachnick&Fidell, 2013; Hair et al., 2013). The refore, skewness and kurtosis values, which are critical for assessing normality, were examined. It was concluded that the distribution was normal, based on the skewness and kurtosis values of -2,+7 as recommended by Hong et al. (2003). Pearson- Correlation analysis was used to determine the relationships between the variables included in the study in the analysis of the data, T-Test analysis method was used to determine whether there was a difference between the groups.

Ethics of the Research

Ethical approval for this research was obtained from the Siirt University Ethics Committee on 23.06.2021 (approval number 159), after which there search commenced. The application was carried out with the voluntary consent of the participants.

FINDINGS

In the findings section of the research, information regarding the findings obtained as a result of the analysis of the data obtained in line with the purpose is included.

Table 1

Frequency and Percentage Values of the Athletes Participating in the Study

	Variable	N	%
Gender	Female	113	31.0
	Male	252	69.0
	Total	365	100.0
Age	20 and below	126	34.5
	21-25	83	22.7
	26-30	77	21.1
	31-35	28	7.7
	36 andabove	51	14.0
	Total	365	100.0
Sports Type	Individual Sports	205	56.2
	Team Sports	160	43.8
	Total	365	100.0
Nationaly athlete	Yes	84	23.00
	No	281	77.00
	Total	365	100.0

Table 1 displays the frequency and percentage distribution of athletes participating in the study based on gender, age, sports type, and national athlete status. The sample comprised 365 athletes, with 31.0% identifying as female and 69.0% as male. Regarding age, 34.5% were 20 years old or younger, 22.7% were between 21-25 years, 21.1% were between 26-30 years, 7.7% were between 31-35 years, and 14.0% were 36 years or older. In terms of sports type, 56.2% engaged in individual sports while 43.8% participated in team sports. Additionally, 23.0% of the athletes were national athletes, whereas 77.0% were not.

Table 2

The Comparison of Mental Training Levels Between Male and Female Athletes

Sub-Dimension	Variable	N	M	t	df	p
Mental Basic Skills	Female	113	17,33	2,69	363	,471
	Male	252	17,11	2,64	363	
Mental Performance Skills	Female	113	23,45	3,88	363	,007*
	Male	252	24,61	3,80	363	
Interpersonal Skills	Female	113	18,25	2,36	363	,595
	Male	252	18,11	2,43	363	

Self-Talk	Female	113	12,67	2,58	363	,002**
	Male	252	11,64	3,14	363	
Mental Visualization	Female	113	12,84	2,30	363	,951
	Male	252	12,86	2,19	363	
Total	Female	113	10,77	10,77	363	,866
	Male	252	11,06	11,06	363	

Note. $p < .050$*; $p < .001$**

Table 2 presents the t-test results examining the differences in mental training levels between female and male athletes across various sub-dimensions. For Mental Basic Skills, no significant difference was found between female (M = 17.33) and male athletes (M = 17.11), $t(363) = 2.69$, $p = .471$. In contrast, significant differences emerged in Mental Performance Skills ($p = .007$) and Self-Talk ($p = .002$), with male athletes scoring higher (M = 24.61 and M = 11.64, respectively) compared to female athletes (M = 23.45 and M = 12.67, respectively). No significant differences were observed in Interpersonal Skills ($p = .595$) and Mental Visualization ($p = .951$) between genders. The overall total scores did not significantly differ between female (M = 10.77) and male athletes (M = 11.06), $t(363) = 10.77$, $p = .866$.

Table 3

T-Test Results for Mental Toughness Levels of Athletes by Gender

Sub-Dimension	Variable	N	M	t	df	p
Trust	Female	113	19,75	3,24	363	,181
	Male	252	20,21	2,98	363	
Consistency	Female	113	10,77	1,87	363	,835
	Male	252	10,73	1,64	363	
Control	Female	113	8,61	3,15	363	,087
	Male	252	9,19	2,90	363	
MTS Total Score	Female	113	41,76	5,44	363	,786
	Male	252	41,92	4,83	363	

Table 3 presents the independent samples t-test results comparing the mental toughness levels of female and male athletes across various sub-dimensions. The analysis included a total of 365 athletes (Female N = 113; Male N = 252). There was no significant difference in trust scores between female (M = 19.75) and male athletes (M = 20.21), $t(363) = 3.24$, $p = .181$. No significant difference was found in consistency scores between female (M = 10.77) and male athletes (M = 10.73), $t(363) = 1.87$, $p = .835$. Female athletes (M = 8.61) and male athletes (M = 9.19) did not differ significantly in control scores, $t(363) = 3.15$, $p = .087$. The overall mental toughness scores did not significantly differ between female (M = 41.76) and male athletes (M = 41.92), $t(363) = 5.44$, $p = .786$.

Table 4

T-Test Results for Mental Training Levels of Athletes by Type of Sport

Sub-Dimension	Variable	N	M	t	df	p
Mental Basic Skills	Individual Sports	160	17,15	2,43	363	,849
	Team Sports	205	17,20	2,82	363	
Mental Performance Skills	Individual Sports	160	24,13	3,52	363	,600
	Team Sports	205	24,35	4,11	363	
Interpersonal Skills	Individual Sports	160	18,29	2,28	363	,337
	Team Sports	205	18,04	2,51	363	
Self-Talk	Individual Sports	160	11,85	2,84	363	,556
	Team Sports	205	12,04	3,15	363	
Mental Visualization	Individual Sports	160	12,85	2,10	363	,938
	Team Sports	205	12,86	2,31	363	
Total	Individual Sports	160	84,29	10,01	363	,844
	Team Sports	205	84,52	11,67	363	

Table 4 presents the independent samples t-test results comparing the mental training levels of athletes based on the type of sport they practice (individual vs. team sports). The analysis included a total of 365 athletes (Individual Sports N = 160; Team Sports N = 205).

There was no significant difference in mental basic skills between athletes participating in individual sports (M = 17.15) and team sports (M = 17.20), t(363) = 2.43, p = .849. No significant difference was found in mental performance skills between individual sports athletes (M = 24.13) and team sports athletes (M = 24.35), t(363) = 3.52, p = .600. Athletes in individual sports (M = 18.29) and team sports (M = 18.04) did not differ significantly in interpersonal skills, t(363) = 2.28, p = .337. There was no significant difference in self-talk between athletes participating in individual sports (M = 11.85) and team sports (M = 12.04), t(363) = 2.84, p = .556. Athletes in individual sports (M = 12.85) and team sports (M = 12.86) did not show significant differences in mental visualization skills, t(363) = 2.10, p = .938. The overall mental training scores did not significantly differ between individual sports athletes (M = 84.29) and team sports athletes (M = 84.52), t(363) = 10.01, p = .844.

Table 5

T-Test Results for Mental Toughness Levels of Athletes by Type of Sport

Sub-Dimension	Variable	N	M	t	df	P
Trust	Individual Sports	160	19,99	2,88	363	,660
	Team Sports	205	20,13	3,21	363	
Consistency	Individual Sports	160	10,62	1,65	363	,217
	Team Sports	205	10,84	1,75	363	
Control	Individual Sports	160	8,93	2,91	363	,654
	Team Sports	205	9,07	3,05	363	
MTS Total Score	Individual Sports	160	41,68	4,55	363	,672
	Team Sports	205	41,91	5,36	363	

Table 5 presents the independent samples t-test results comparing the mental toughness levels of athletes based on the type of sport they practice (individual vs. team sports). The analysis included a total of 365 athletes (Individual Sports N = 160; Team Sports N = 205).

There was no significant difference in trust scores between athletes participating in individual sports (M = 19.99) and team sports (M = 20.13), t(363) = 2.88, p = .660. No significant difference was found in consistency scores between individual sports athletes (M = 10.62) and team sports athletes (M = 10.84), t(363) = 1.65, p = .217. Athletes in individual sports (M = 8.93) and team sports (M = 9.07) did not differ significantly in control scores, t(363) = 2.91, p = .654. The overall mental toughness scores did not significantly differ between individual sports athletes (M = 41.68) and team sports athletes (M = 41.91), t(363) = 4.55, p = .672.

Table 6

T-Test Results for Mental Training Levels of Participants by National Athlete Status

Sub-Dimension	Variable	N	M	t	df	p
Mental Basic Skills	Yes	84	17,79	2,69	363	,016**
	No	281	17,00	2,62	363	
Mental Performance Skills	Yes	84	24,82	4,01	363	,127
	No	281	24,08	3,80	363	
Interpersonal Skills	Yes	84	18,48	2,49	363	,151
	No	281	18,05	2,38	363	
Talking to Yourself	Yes	84	12,21	2,96	363	,383
	No	281	11,88	3,03	363	
Mental Visualization	Yes	84	13,20	2,40	363	,109
	No	281	12,75	2,16	363	
MTIS Total Score	Yes	84	86,52	11,95	363	,045*
	No	281	83,79	10,59	363	

Note. $p < .050$*; $p < .001$**

When Table 6 is examined, there is a statistically significant difference in the total scores of mental basic skills and mental training from the sub-dimensions of the Mental Training Scale according to the nationality of the participants ($p<0.05$). There is no statistically significant difference in the sub-dimensions of mental performance skills, interpersonal skills, self-talk and mental visualization ($p>0.05$). When the average scores are examined, it is seen that national athletes (M=17.79) have higher mental endurance than non-national athletes (M=17.00) in the mental basic skills sub-dimension. In the total mental training score, it was determined that the mental training levels of national athletes (M=86.52) were higher than those of non-national athletes (M=83.79).

Table 7

T-Test Results for Mental Toughness Levels of Participants by International Athlete Status

Sub-Dimension	Variable	N	M	t	df	p
Trust	Yes	84	20,67	2,71	363	,040*
	No	281	19,89	3,15	363	
Consistency	Yes	84	10,51	1,59	363	,146

	No	281	10,82	1,74	363	
Control	Yes	84	9,97	3,29	363	,001**
	No	281	8,72	2,83	363	
MTS Total Score	Yes	84	41,21	4,90	363	,213
	No	281	41,99	5,05	363	

Note. $p < .050$*; $p < .001$**

When Table 7 is examined, there is a statistically significant difference in the trust and control sub-dimensions of the Mental Toughness Scale according to the nationality status of the participants ($p<0.05$). There is no statistically significant difference in the total scores of continuities and mental endurance, which are sub-dimensions of the Mental Training Scale ($p>0.05$). When the average scores were examined, it was determined that national athletes (M=20.67) had higher mental endurance levels than non-national athletes (M=19.89) in the confidence sub-dimension. In the control sub-dimension, which showed a significant difference, it was seen that national athletes (M=9.97) had higher levels of mental toughness than non-national athletes (M=8.72).

Table 7

T-Test Results for Mental Toughness Levels of Participants by International Athlete Status

Correlation Test Results	**Mental Basic Skills**	**Mental Performance Skills**	**Interpersonal Skills**	**Talking to Yourself**	**Mental Visualization**	**MTIS Total Score**	**Trust**	**Continuity**	**Control**	**MIS Total Score**
Mental Basic Skills	—									
Mental Performance Skills	,682**	—								
Interpersonal Skills	,679**	,594**	—							
Talking to Yourself	,331**	,324**	,241**	—						
Mental Visualization	,569**	,567**	,579**	,408**	—					
MTIS Total Score	,839**	,853**	,778**	,606**	,780**	—				
Trust	,664**	,624**	,469**	,229**	,489**	,646**	—			
Continuity	,058	-,014	,003	,064	,043	,037	,142**	—		
Control	,183**	,229**	,123*	,040	,055	,174**	,085	-,387**	—	
MIS Total Score	,317**	,240**	,215**	,138**	,281**	,304**	,609**	,659**	-,676**	—

Table 8 presents the Pearson correlation coefficients among various sub-dimensions of the Mental Training Inventory (MTI) and Mental Toughness Inventory (MTIS) scores among participants. The analysis included multiple variables: Mental Basic Skills, Mental Performance Skills, Interpersonal Skills, Talking to Yourself, Mental Visualization, MTIS Total Score, Trust, Continuity, Control, and MIS Total Score.

Mental Basic Skills showed strong positive correlations with all other sub-dimensions and total scores. Notably, it had the highest correlation with MTIS Total Score (r = .839**, p < .001), indicating that higher mental basic skills are strongly associated with overall mental toughness. Mental Performance Skills were also strongly correlated with all other sub-dimensions, especially with MTIS Total Score (r = .853**, p < .001), suggesting that enhanced performance skills contribute significantly to overall mental toughness. Interpersonal Skills

demonstrated strong positive correlations with most variables, including a substantial correlation with MTIS Total Score (r = .778**, p < .001). Talking to Yourself was moderately correlated with other variables, particularly with Mental Visualization (r = .408**, p < .001) and MTIS Total Score (r = .606**, p < .001), indicating that self-talk practices are associated with both visualization skills and overall mental toughness. Mental Visualization exhibited strong positive correlations across most variables, with the highest correlation being with MTIS Total Score (r = .780**, p < .001). Trust was positively correlated with several sub-dimensions, including a strong relationship with MTIS Total Score (r = .646**, p < .001). Continuity showed minimal to no significant correlations with most variables, except for a weak positive correlation with Trust (r = .142**, p < .001). Control had weak positive correlations with most variables and a significant negative correlation with MIS Total Score (r = −.676**, p < .001), indicating that higher control is associated with lower MIS Total Scores.

MIS Total Score was positively correlated with most variables, except for a significant negative correlation with Control (r = −.676**, p < .001).

DISCUSSION & CONCLUSION

When the findings of the study are examined according to the gender variable, it is seen that there is a significant difference in the subdimensions of the mental training scale, namely mental performance skills and self-talk (p<0.05). No significant difference was found in the other sub-dimensions of the MTIS, includingbasicmentalskills, interpersonal skills, mental imagery, and the total MTIS score (p>0.05).

Inparallel with th epresent study, Cankurtaran (2020) found a significant difference in the mental performance skill ssub-dimension of the MTIS in his study on archers, and he stated that male participants achieved higher shooting scores than female participants based on their total MTIS scores. Another study in parallel with this research is the oneby Çelik and Güngör (2020), where they found a significant difference in the mental performance skills sub-dimension according to the gender variable. However, Erdoğan and Gülşen (2020) did not find a significant difference according to the gender variable in their study on university students. In contrastto the present study, Karaca and Gündüz (2021) did not find a significant difference in the sub-dimensions of mental performance skills and self-talk in their study on orienteering athletes.

No significant difference was found in the MTS sub-dimensions of trust, perseverance, control, andthe total MTS score when the gender variable was taken in to account (p>0.05).

Inline with this study, Sarı et al. (2020) did not find a significant difference in the total MTS scores according to gender in their research. Similarly, Demir and Çelebi (2019) found no significant difference in the perseverance and controlsub-dimensions of the MTS and in the total score in their study on combat athletes. Additionally, Yarayan et al. (2018) did not find a significant difference in the MTS sub-dimensions of trust, perseverance, control, or total mental toughness scores according to gender, which is consistent with this study. The studies conducted by Yalçın (2013), Gökmen (2014), Bektaş and Özben (2016), and Kalkavan et al. (2017) also support the findings of the present study. In contrast, Yazıcı (2016), in his study on basketball players, reported that female participants had higher mental toughness averages compared to males. Similarly, Masum (2014), in his study on Pakistani tennis players, found that male participants had higher mental toughness levels compared to females. Juan and Lopez (2015) stated that men had higher mental toughness than women, and similarly, Crust and Keegan (2010) found that men were mentally tougher than women.

When the above-mentioned studies and the current research are evaluated, it can be seen that various results have been obtained regarding the gender variable in different athlete groups.

There asons for this variety can be attributed to the diversity of sports branches and the differing characteristics of these sports branches.

No significant difference wasf ound in the sub-dimensions of the MTIS (Mental Training QuestionnaireforAthletes), including basic mental skills, mental performance skills, interpersonal skills, self-talk, mental imagery, or the total MTIS score, according to the type of sport practiced ($p>0.05$).

In line with the results of this study, Karaağaç and Şahan (2021) found no significant difference in any of the sub-dimensions or in the total MTIS score according to the type of sport in their research. Similarly, Altunkalem (2020), in his study on athletics athletes, found no significant differences in any of the MTIS sub-dimensionsor in the total mental toughness score, results which align with this study. Kara and Ustaoğlu Hoşver (2019) also stated that they did not find a significant difference according to the position variable in their study on volleyball players.

Vural (2021), in his study, did not find significant differences in the sub-dimensions of mental performance skills, basic mental skills, self-talk, and mental imagery according to the type of sport practiced, aligning with there sults of this study. However, he found a significant difference in the interpersonal sub-dimension, which contradicts this research. He also stated that team athletes had higher scores than individual athletes. In contrast, Güler (2015) found significant differences between mental fitness and the type of sport practiced.

No significant difference was found in thesub-dimensions of trust, perseverance, control, orthe total MTS score according to the type of sport practiced ($p>0.05$).

In line with this study, Demir and Çelebi (2019) also did not find significant differences in the sub-dimensions of trust, perseverance, or the total MTS score according to the athletes' branches. However, the significant difference found in the control sub-dimension in their study contradicts this research. In a scientific study conducted on taekwondo athletes, it was observed that the control sub-dimension of the MTS increased with the differentiation of weight categories (Aydın, 2020). In contrast to this research, Yarayan et al. (2018) found significant differences in the sub-dimensions of perseverance, control, andthe total MTS score according to the sport branch variable. However, they did not find a significant difference in the trust sub-dimension, which aligns with this research. Narimani and Ghaffari (2007) stated that team athletes had higher levels of mental toughness compared to individual athletes.

There is a statistically significant difference in the MTIS mental basic skills sub-dimension and MTIS total score according to the participants' status as national athletes ($p<0.05$). There is no statistically significant difference in the other sub-dimensions of the scale, namely mental performance skills, interpersonal skills, self-talk and mental visualization. ($p>0,05$).

Contrary to our research, Erdoğan and Gülşen (2020) found significant differences in the mental visualization and interpersonal skills sub-dimensions according to the nationality variable in their study on university students.

There is a statistically significant difference in the confidence and control sub-dimensions of the MTS according to the status of being a national athlete ($p<0.05$). There is no statistically significant difference in the continuity sub-dimension and MTS total scores ($p>0.05$).

While Sarı et al (2020) stated in their study that there was no significant change according to the nationality variable, in contradiction with our study, Güvendi et al (2018) found a significant difference in the MTS continuity sub-dimension according to the nationality variable in their study. In another study conducted on disabled athletes using the MTS, no significant difference was found according to whether they were national athletes or not, and

this indicated that they had the belief that they would not lose control in times of threat, would be determined towards the goal, and would remain calm (Şar 2021).

In their study, Wiser and Thiel (2014) stated that athletes who experienced a sense of nationality had higher levels of mental endurance than athletes who did not experience national feeling. These results indicate that athletes know that they need to be among the best in their sport in order to take part in national teams, and that being physically ready is not enough, but also mentally ready.

Recommendation

Based on these results, it can be recommended that mental processes should be included as a subject in sports science faculties and coaching courses, that the concepts of mental training and mental toughness should be up date dannually during coach certification and development seminars to streng then their place in the sports world, and that athletes in Olympic training centers should be provided with mental training to monitör their progress. It is also suggested that sports psychologists under the Ministry of Yout hand Sports should be more actively involved in integrating mental processesinto amateur sports.

REFERENCES

Akgül, A., Solmaz, S., Uzun, A., & Yarayan, Y. E. (2024). Mental toughness: The role of imagery and emotional intelligence. *The Online Journal of Recreation and Sports, 13*(3), 334–340. https://doi.org/10.22282/tojras.1465496

Altıntaş, A., & Akalan, C. (2008). Mental training and high performance. *Spormetre Beden Eğitimi ve Spor Bilimleri Dergisi, 6*(1), 39–43. https://doi.org/10.1501/Sporm_0000000131

Altıntaş, A., & Koruç, P. B. (2016). Examining psychometric properties of the Sport Mental Toughness Questionnaire-SMTQ. *Spor Bilimleri Dergisi, 27*(4), 163–171. https://doi.org/10.17644/sbd.311985

Altunkalem, S. (2020). *Investigation of the effects of mental training to mental resistance on the elite athletes* (Master's thesis, İstanbul Gelişim Üniversitesi Lisansüstü Eğitim Enstitüsü, İstanbul).

Arı, Ç., Ulun, C., Yarayan, Y. E., Dursun, M., Mutlu, T., & Üstün, Ü. D. (2020). Mindfulness, healthy life skills and life satisfaction in varsity athletes and university students. *Progress in Nutrition, 22*(2), 1–8. https://doi.org/10.23751/pn.v22i2-S.10561

Aydın, F. A. (2020). *Taekwondo'da zihinsel dayanıklılık ve kendinle konuşmanın şişmanlık hakkındaki konuşma düzeyine etkisi* (Master's thesis, Akdeniz Üniversitesi Sosyal Bilimler Enstitüsü, Antalya).

Behnke, M., Tomczak, M., Kaczmarek, L. D., Komar, M., & Gracz, J. (2019). The sport mental training questionnaire: Development and validation. *Current Psychology, 38*, 504–516. https://doi.org/10.1007/s12144-017-9629-1

Bektaş, M., & Özben, Ş. (2016). An investigation of the psychological resilience levels of married individuals in terms of some socio-demographic variables. *Celal Bayar Üniversitesi Sosyal Bilimler Dergisi, 14*(1), 216–240. https://doi.org/10.18026/cbusos.16929

Büyüköztürk, Ş. (2002). *Sosyal bilimler için veri analizi el kitabı* (1st ed., pp. 149–156). Pegem Yayıncılık.

Cankurtaran, Z. (2020). The effect of the mental training skills used by the archers in the competition environment on the ranking shot scores. *International Journal of Contemporary Educational Studies (IntJCES), 6*(1), 13–29.

Cocks, M., Moulton, C. A., Luu, S., & Cil, T. (2014). What surgeons can learn from athletes: Mental practice in sports and surgery. *Journal of Surgical Education, 71*(2), 262–269. https://doi.org/10.1016/j.jsurg.2013.07.002

Crust, L. (2007). Mental toughness in sport: A review. *International Journal of Sport and Exercise Psychology, 5*(3), 270–290. https://doi.org/10.1080/1612197X.2007.9671836

Crust, L., & Keegan, R. (2010). Mental toughness and attitudes to risk-taking. *Personality and Individual Differences, 49*(3), 164–168. https://doi.org/10.1016/j.paid.2010.03.026

Çelik, O. B., & Güngör, N. B. (2020). The effects of the mental training skills on the prediction of the sports sciences faculty students' anxiety levels. *International Journal of Eurasian Education and Culture, 9*, 888–929.

Demir, P., & Çelebi, M. (2019). Investigation of mental resistance of combat sports athletes at the Faculty of Sport Sciences. *International Journal of Contemporary Educational Studies (IntJCES), 5*(2), 188–199.

Dursun, M., Yarayan, Y. E., Arı, Ç., Ulun, C., & Adaş, S. K. (2021). COVID-19 in Turkey: Leisure boredom, psychological resilience, physical activity and emotional state. *IJERI: International Journal of Educational Research and Innovation, (15),* 460–486. https://doi.org/10.46661/ijeri.5588

Erdoğan, B. S., & Gülşen, D. B. A. (2020). Determination of mental training levels of athletes studying in the Faculty of Sport Sciences. *Mediterranean Journal of Sport Science, 3*(1), 219–228. https://doi.org/10.38021/asbid.753967

Gökmen, B. (2014). *Özel eğitim okulu yöneticilerinin psikolojik dayanıklılık ve iş doyumları arasındaki ilişkinin incelenmesi (İstanbul örneği)* (Unpublished master's thesis, İstanbul Aydın Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul).

Güler, M. Ş. (2015). *Farklı branşlarda spor yapan bireylerin mental yeteneklerinin değerlendirilmesi* (Master's thesis, Atatürk Üniversitesi Sosyal Bilimler Enstitüsü, Erzurum).

Güvendi, B., Türksoy, A., Güçlü, M., & Konter, E. (2018). Profesyonel güreşçilerin cesaret düzeyleri ve zihinsel dayanıklılıklarının incelenmesi. *International Journal of Sports Exercise & Training Sciences, 4*(2), 70–78.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long Range Planning, 46*(1-2), 1–12. http://dx.doi.org/10.1016/j.lrp.2013.01.001

Hecker, J. E., & Kaczor, L. M. (1988). Application of imagery in sport psychology. *Journal of Sport and Exercise Psychology, 10*, 363–373. http://doi.org/10.1123/jisep.10.4.363

Hong, S., Malik, M. L., & Lee, M. K. (2003). Testing configural, metric, scalar, and latent mean invariance across genders in sociotropy and autonomy using a non-Western sample. *Educational and Psychological Measurement, 63*(4), 636–654. https://doi.org/10.1177/0013164403251332

İkizler, C. (1997). *Sporda başarının psikolojisi*. Alfa Basın Yayın Dağıtım.

Juan, M. V. T., & Lopez, A. (2015). Mental toughness of scholar athletes. *Researchers World, 6*(3), 22.

Kalkavan, A., Acet, M., & Çakır, G. (2017). Investigation of the mental endurance levels of the athletes participating in the table tennis championship of universities in Turkey. *International Journal of Science Culture and Sport, 5*(4), 356–363. https://doi.org/10.14486/IntJSCS699

Kara, Ö., & Ustaoğlu Hoşver, P. (2019). Investigation of the mental training level of women volleyball players who take place in play-off competition in terms of some variables. *International Sport Science Student Studies, 1*(1), 35–42.

Karaağaç, S., & Şahan, H. (2021). Examine the relationship between optimal flow state and mental training in individual and team sports. *International Journal of Turkish Sport and Exercise Psychology, 1*(1), 30–43.

Karaca, R., & Gündüz, N. (2021). Examining the relationship between mental training and performance in orienteering athletes. *Spormetre: The Journal of Physical Education and Sport Sciences, 19*(1), 99–115. https://doi.org/10.33689/spormetre.719991

Kat, H. (2009). *The comparison of the individual sports athletes and team sports athletes?*

Skills to solve the problems and the stress levels (Unpublished master's thesis, Erciyes Üniversitesi Sağlık Bilimleri Enstitüsü, Kayseri).

Luthans, F. (2002). Positive organizational behavior: Developing and managing psychological strengths. *Academy of Management Perspectives, 16*(1), 57–72.

Lutz, A., Slagter, H. A., Rawlings, N. B., Francis, A. D., Greischar, L. L., & Davidson, R. J. (2009). Mental training enhances attentional stability: Neural and behavioral evidence. *Journal of Neuroscience, 29*, 13418–13427. https://doi.org/10.1523/JNEUROSCI.1614-09.2009

Mamassis, G., & Doganis, G. (2004). The effects of a mental training program on juniors' precompetitive anxiety, self-confidence, and tennis performance. *Journal of Applied Sport Psychology, 16*, 118–137.

Masum, R. (2014). A mixed method analysis of mental toughness in elite and sub-elite male and female Ennis players in Pakistan. *Advances in Social Sciences Research Journal, 1*(6), 110–122.

Metin, M. (Ed.). (2015). *Kuramdan uygulamaya eğitimde bilimsel araştırma yöntemleri*. Pegem Akademi.

Narimani, M., & Ghaffari, G. (2007). The comparison of aggression and mental toughness between martial athletes: Football players and non-athletes. 6th International Congress on Physical Education and Sport Sciences.

Neff, R. (2006). *Mental training for athletes and other performers*. http://www.mentaltraininginc.com

Özdenk, S. (2015). *Bireysel ve takım sporuyla uğraşan sporcular ile spor yapmayan bireylerin duygusal zeka ve liderlik özelliklerinin incelenmesi* (Doctoral dissertation, Gazi Üniversitesi Beden Eğitimi ve Spor Öğretmenliği Ana Bilim Dalı, Ankara).

Sarı, İ., Sağ, S., & Pınar Demir, A. (2020). Mental toughness in sport: An examination in Taekwondo Athletes. *Journal of Physical Education and Sport Sciences, 22*(4), 131–147.

Sheard, M. (2012). *Mental toughness: The mind set behind sporting achievement* (2nd ed.). Routledge. https://doi.org/10.4324/9780203103548

Sheard, M., Golby, J., & Wersch, A. V. (2009). Progress toward construct validation of the Sports Mental Toughness Questionnaire (SMTQ). *European Journal of Psychological Assessment, 25*(3), 186–193. https://doi.org/10.1027/1015-5759.25.3.186

Şar, M. (2021). *Sporcuların zihinsel dayanıklılık düzeyleri ile sporda mücadele ve tehdit algı düzeylerinin engelli-engelli olmayan sporcularda karşılaştırılması* (Master's thesis, Bahçeşehir Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul).

Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2013). *Using multivariate statistics* (6th ed., pp. 497–516). Pearson.

Tekkurşun, D. G., & Türkeli, A. (2019). Examination of exercise addiction and mental strength levels of students of sport sciences faculty. *Journal of Sport Sciences Researches, 4*(1), 10–24. https://doi.org/10.25307/jssr.505941

Unestahl, L. E. (1982). Inner mental training: A systematic self-instructional program for self-hypnosis. *International Journal of Clinical and Experimental Hypnosis, 30*(2), 209.

Vural, C. (2021). *Bireysel ve takım sporcularının zihinsel antrenman bileşenlerinin incelenmesi* (Master's thesis, Gazi Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara).

Xiong, J. (2012). The functions and methods of mental training on competitive sports. *Physics Procedia, 33*, 2011–2014. https://doi.org/10.1016/j.phpro.2012.05.316

Yalçın, S. (2013). *İlköğretim okulu öğretmenlerinin mesleki tükenmişlik düzeyleri ile stres, psikolojik dayanıklılık ve akademik iyimserlik arasındaki ilişki* (Master's thesis, Gazi Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara).

Yarayan, Y.E, & İlhan, E.L. (2018). The Sport Mental Training Questionnaire (SMTQ) Adaptation Study. Gazi *Journal of Physical Education and SportSciences* 23(4), 205-218.

Yarayan, Y. E., & Gulsen, D. B. A. (2023). A stepwise regression analysis on the effects of imagery and emotion regulation on courage level in athletes. *Journal of ROL Sport Sciences*, 896–910.

Yarayan, Y. E., Yıldız, A. B., & Gülşen, D. B. A. (2018). Examination of mental toughness levels of individual and team sports players at elite level according to various variables. *The Journal of International Social Research, 11*(50), 992–999. http://dx.doi.org/10.17719/jisr.2018.2509

Yarayan, Y. E., Güngör, N. B., Çelik, O. B., & Gülşen, D. B. A. (2022). Path analysis: Predicting psychological performance strategies in the context of athlete identity. *Akdeniz Spor Bilimleri Dergisi, 5*(3), 699–712. https://doi.org/10.38021/asbid.1164718

Yarayan, Y. E., İlhan, E. L., Esentürk, O. K., Arı, Ç., & Gülşen, D. B. A. (2023). Does emotional intelligence affect mental toughness in physically disabled athletes? *Spor Bilimleri Araştırmaları Dergisi, 8*(2), 231–242. https://doi.org/10.25307/jssr.1228541

Yarayan, Y. E., Solmaz, S., Aslan, M., Batrakoulis, A., Al-Mhanna, S. B., & Keskin, K. (2024). Sex differences in athletic performance responses to the imagery and mental toughness of elite middle-and long-distance runners. *Sports, 12*(6), 141. https://doi.org/10.3390/sports12060141

Yazıcı, A. (2016). *Profesyonel basketbol oyuncularında zihinsel dayanıklılık ve duygusal zekanın çeşitli değişkenler açısından incelenmesi* (Unpublished master's thesis, Gazi Üniversitesi Sağlık Bilimleri Enstitüsü, Ankara).

Weinberg, S., & Gould, D. (2015). *Introduction to psychological skills training*. In *Foundations of Sport and Exercise Psychology* (pp. 247–271). Human Kinetics.

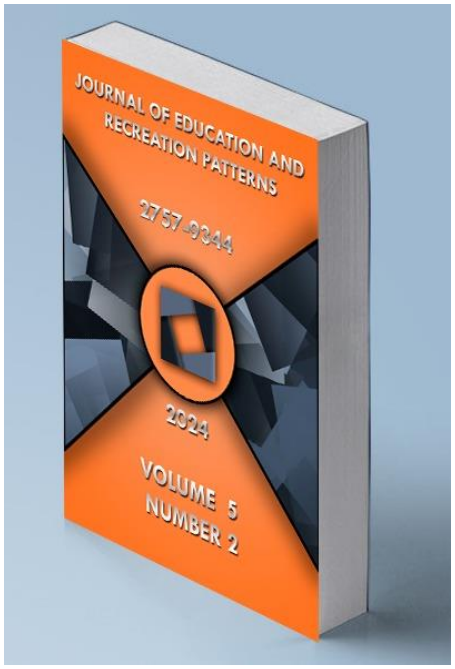
Wieser, R., & Thiel, H. (2014). A survey of mental hardiness and mental toughness in professional male football players. *Wieser and Thiel Chiropractic and Manual Therapies, 22*(17).

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Examining the Personal Development Orientations and Problem-Solving Competencies of Physical Education and Sports Teachers Along with Other Branch Teachers

Mehmet Vakıf DURMUŞOĞLU[1], Davut ATILGAN [2]

To cite this article:

Durmuşoğlu, M.V. & Atılgan, D. (2024). Examining the personal development orientations and problem-solving competencies of physical education and sports teachers along with other branch teachers. *Journal of Education and Recreation Patterns (JERP), 5 (2),* 250-264. DOI: https://doi.org/10.53016/jerp.v5i2.246

[1] Ministry of National Education, m.vakifdurmusoglu@gmail.com, https://orcid.org/0000-0002-4781-324X

[2] Kahramanmaraş Sütçü İmam University Faculty of Sport Sciences, Department of Sports Management, davutatilgan@ksu.edu.tr, https://orcid.org/0000-0002-8475-4488

Journal of Education and Recreation Patterns (JERP)
Volume 5, Issue 2, Year 2024 ISSN: 2757-9344

Examining the Personal Development Orientations and Problem-Solving Competencies of Physical Education and Sports Teachers Along with Other Branch Teachers

Mehmet Vakıf Durmuşoğlu[1], Davut Atılgan[2]

ARTICLE INFORMATION
Original Research Paper

Received 22.07. 2024
Accepted 16.12. 2024

https://jerpatterns.com

December, 2024

Volume: 5, No: 2

Pages: 250-264

ABSTRACT

This study aims to examine the personal development orientations and problem-solving competencies of physical education and sports teachers compared to teachers of other subjects, and to determine if there are significant differences based on demographic variables. In the study, "Adaptation of Personal Growth Initiative Scale-II (PGIS) " and "Teacher Problem Solving Skill Acquisition Competence Scale" were used. The research is a quantitative study and was carried out in the relational survey model. The sample of the study consisted of 367 participants from different branches of teachers working in schools selected by random sampling method in Kahramanmaraş city center. As a result of the research, it was determined that the mean scores of the participants' personal growth initiative and teacher problem solving skills were at a high level. Significant differences were found in terms of the variables of teaching field/branch, receiving personal development training, choosing the profession willingly and suitability for teaching profession. As a result of the correlation analysis, positive and moderately significant relationships were found between the Personal Growth Initiative of the participants and their competencies to gain problem solving skills. According to the path analysis, it was seen that the sub-dimension of adopting the right approach of the "Teacher Problem Solving Competence Scale" predicted the sub-dimensions of readiness for change, painfulness, using resources and purposeful behavior of the "Adaptation of Personal Growth Initiative Scale-II (PGIS " at a significant level ($p<.05$). It was determined that the sub-dimension of applying the relevant method predicted the sub-dimensions of being planned and using resources at a significant level ($p<.05$). In the context of the originality value of the study, when the literature is examined, it is seen that personal growth and problem solving skills have been studied separately with similar scales in previous studies. The originality of this study is to shed light on the subject by examining the connection between personal development initiative and the competence to acquire problem-solving skills. It is anticipated that the potential application of the results in teacher education or education policy will contribute significantly.

Keywords: Personal Development Orientations, Physical Education Teachers, Problem Solving Skills.

INTRODUCTION

It is an undeniable fact that the factor of personal development plays a decisive role in determining the success or failure of a person's life journey. The more an individual equips themselves and adapts to changing conditions due to life circumstances, the more they contribute to their personal development and advance themselves. The regression of the individual who does not progress is inevitable. While everything changes and develops over time, neglecting to support the personal development of the individual indicates regression. Teachers' personal development initiatives are usually associated with the desire to get better at their own work and to continuously learn and develop. In order to maximize their effectiveness, acquire new skills, and improve their professional abilities, teachers put a high value on their personal development.

Personal development is the process that covers the person's efforts to adapt to the changes that occur in the near and distant life sphere. It is the person's continuous process of reviewing, analysing, and assessing himself in an effort to transform himself positively and continuously view life from a new perspective (Fındıkçı, 1996). According to Çoruk (2012), personal development is the process of moving from what people consider to be inadequate conditions to what they perceive to be more favourable conditions. However, this change is a positive development that the individual brings about by taking responsibility for self-education and development and tries to maintain it continuously. Personal development, which involves finding and developing oneself, is based on people's innate curiosity about self (Chaya, Daniel & friends, 2015). To put it another way, personal development is the process of change that a person starts to become sufficient in areas where they are not sufficient (Balaban & Çakmak, 2016).

Problems have emerged with the existence of humanity. Problem is the phenomenon that contributes the most to the development of the individual. As much as success and even more importantly, learning lessons from failure is the building blocks of the individual's development and the process of analysing life. There is no success without failure. In light of this, how will the person handle these difficulties and failures? The answer to these questions and the self-development of the individual is directly proportional to problem solving skills. Particularly in the current environment, the more advanced your problem-solving abilities are in the classroom, in the workplace, and in social situations, the more advanced your development, life adaption, happiness, and success are. It is inevitable that education, the raw material of which is human, will encounter problems. Displaying the right behaviour to students, each of whom come from different families and grow up in different growing environments, and bringing solutions to problems are directly related to the teacher's personal development and problem-solving skills.

The Ministry of National Education attaches great importance to providing students with the problem solving skills needed by the people of the age (Yiğit, 2018). One of the basic principles of the education process is to provide individuals with a systematic of thought that will help them solve the problems they may encounter in life (Alkan, 2011). Problem solving is defined as a cognitive-behavioural process that includes efforts to identify, discover and produce ways to effectively and appropriately overcome the problems encountered by the individual in daily flow. Social problem solving is also seen as a general coping strategy to contribute to the facilitation and maintenance of general social competence. According to this view, social problem solving can also be considered as a conscious, rational, effortful and purposeful coping process that increases the person's ability to cope effectively with stressful situations (Ergin, 2009). Problem solving skills can be defined as cognitive and emotional behaviours that individuals exhibit in order to adapt to the changes that occur in their social lives (Shewchuck, Johnson, & Elliott, 2000). It is believed that the ability to solve problems is

a life ability beneficial to people of all ages and can be applied to both simple and complex tasks (Karabulut ve Kuru, 2009). The concept of problem solving is a term that requires the individual to receive and process information and put this information into practice (Kantek & Yeşilbaş, 2019).

The study is considered important in terms of revealing teachers' personal development and problem-solving skills and providing information about their educational performance. This study aims to examine the personal development orientations and problem-solving competencies of physical education and sports teachers compared to teachers of other subjects, and to determine if there are significant differences based on demographic variables. In this study, answers to the following questions were sought in order to examine the relationship between the personal development orientations of physical education teachers and other branch teachers and their competencies to gain problem solving skills and to determine whether there are significant differences in terms of demographic variables.

- At what levels are the participants' personal development orientations and their competences to gain problem solving skills?
- Are there significant differences in the variables of branch and personal development training status in terms of the participants' personal development orientations and their competences to gain problem-solving skills?
- Is there a significant difference in the participants' willingness to choose the profession and suitability for the teaching profession in terms of personal development orientations and competences of providing problem-solving skills?
- What is the relationship's level in terms of sub-dimensions between the participants' personal development orientations and their ability to gain problem-solving skills?
- Is there a correlation between the sub-dimensions of the participants' personal development orientations and their ability to acquire problem-solving skills?

METHOD

Research Model

This study was conducted using the relational screening methodology and is quantitative in design. All participants in this study provided their informed consent through a "Informed Voluntary Consent Form." Ethics committee approval was obtained from Kahramanmaras Sutcu İmam University Medical Research Ethics Committee on 01.07.2024 with decision number 09.

Research Group

The population of the study consisted of all teachers working in secondary and high schools in Kahramanmaras city centre. The sample of the study consisted of 367 participants from different branches of teachers working in schools selected by random sampling method in Kahramanmaras city centre. While sampling, branches were categorized and a random method was selected.

Table 1

Information About Participants that is Part of the Research Sample

According to Demographic Variables		n	%
Teaching Field/Branch	Physical Education and Sports	122	33.2
	Numerical Courses	76	20.7
	Oral Courses	103	28.1
	Vocational Courses	33	9
	Foreign Language Courses	33	9
Receiving Personal Development Training	Yes	212	57.8
	No	155	42.2
Selecting the Career Willingly	Yes	325	88.6
	No	42	11.4
Adequacy of the Teaching Profession	Suitable	303	82.6
	Partly Suitable / Not Suitable	64	17.4

Data Collection Tools

There are two components to the study's data collection technique. The researchers' form with the independent variables and demographic data is in the first section, and the scales relevant to the study's scope are in the second.

Adaptation of Personal Growth Initiative Scale-II (PGIS): Adaptation of Personal Growth Initiative Scale-II (PGIS was developed by Robitschek et al. (2012). Adaptation of Personal Growth Initiative Scale-II (PGIS is a scale consisting of 16 items developed to enable the individual to make a more detailed evaluation of the personal development process. This scale has six points, from strongly disagree to strongly agree, on a Likert-type scale. Yalçın and Malkoç (2013) translated it into Turkish, and validity and reliability tests were carried out. Confirmatory factor analysis revealed that the original four-factor structure of the scale was also valid for the Turkish sample group. Internal consistency coefficients were calculated as. 83 for the dimension of readiness for change, .87 for the planfulness. 61 for the dimension of using resources, .84 for the dimension of intentional behaviour and Cronbach Alpha coefficient for the whole scale was calculated as. 91. In this study, the internal consistency coefficients were. 84 for the dimension of readiness for change, .88 for the dimension of planfulness. 73 for the dimension of using resources, .91 for the dimension of intentional behaviour and. 95 for the whole scale.

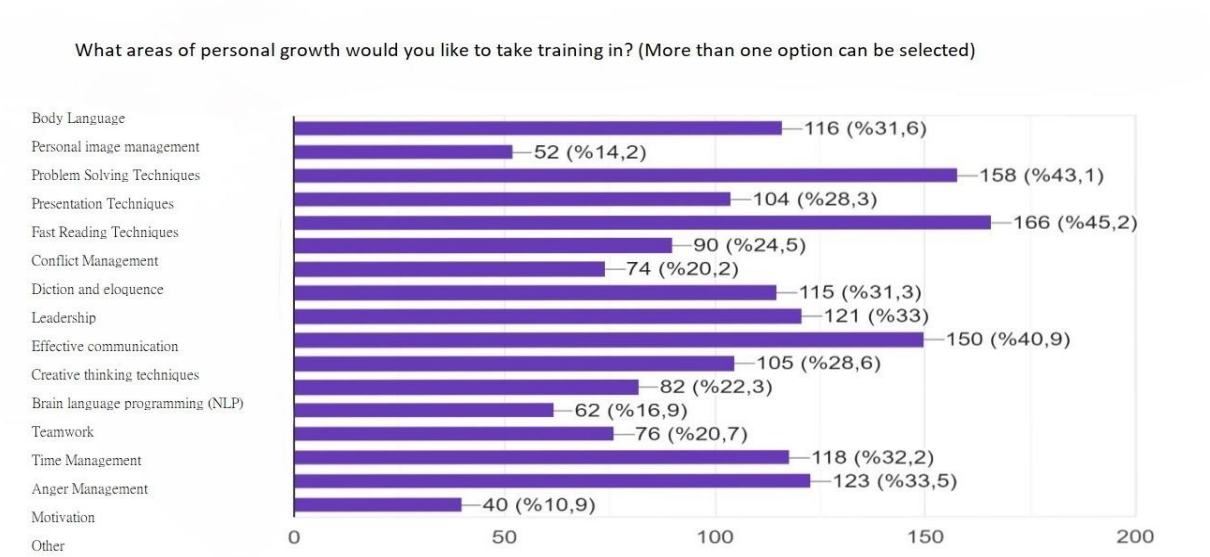
***Teacher Problem Solving Skill Acquisition Competence Scale (TPSSAC*)**: It is a 5-point Likert scale developed by Yiğit (2018), consisting of 17 items and three dimensions (Adopting the Right Approach, Applying the Related Method, Motivating). As a result of the reliability analyses of the scale, Cronbach's alpha internal consistency coefficient was calculated as .887 for the first sub-dimension, .82 for the second sub-dimension and .787 for the third sub-dimension. The internal reliability coefficient (Cronbach's alpha) calculated for all items was found to be 918. In this study, Cronbach's alpha coefficient was calculated as .95 for the overall scale,.92 for adopting the right approach,.90 for applying the relevant method,.90 for motivating.

Data Collection and Statistical Analysis

The information was gathered in April and June of 2024. A total of 367 people completed the online scale forms, and useful input was collected from them. The statistical software packages SPSS 21.0 and JAMOVI 2.3.16.0 were used to analyse the data. Arithmetic mean and standard deviation values were calculated for data analysis, and since the distribution was normal (Hair et al., 2013), parametric tests such as t-test and One-Way Analysis of Variance (ANOVA) were used to differentiate the scores obtained for the variables. Post-Hoc Scheffe/LSD tests were then used to identify which groups had a significant difference in the F value, with a significance level of ($p<0.05$) being applied. The path analysis method was used to analyse the relationships between the variables. Unlike regression analysis, path analysis is a type of analysis that allows more than one dependent variable to be used together (Şen, 2020). In the path analysis, the dimensions of the adaptation of personal growth initiative scale-II " were considered as exogenous variables, and the sub-dimensions of the "Teacher Problem Solving Competence Scale" were considered as endogenous variables. The "Maximum Likelihood (ML)" method, the most commonly used method for estimating parameters in path analysis, was preferred (Şen, 2020).

FINDINGS

In this section of the study, the data collected for the investigation were statistically evaluated, and the evaluation's findings were displayed in tables and graphs.



***Graphic 1**. Graphic on which subjects the participants would like to receive personal development training.*

Above graph shows that participants, who were allowed to select multiple options in response to the question "In which areas would you like to receive personal development training?" most frequently chose stress management as the area in which they would like to receive personal development training. Following stress management, the participants indicated a desire for training in problem-solving techniques, effective communication, motivation, leadership, anger management, body language, diction and elocution, and other areas of personal development, as illustrated in the graph.

Table 2

Arithmatic Mean and Standard Deviation Values of Participants' Personal Development Initiative Scale-II and Teacher Problem Solving Skill Acquisition Competence Scale

Scales	n	$\bar{x}$	SD	Min-Max
PGIS Scales	367	3.71	.74	0-5
TPSSAC Scales	367	4.04	.53	1-5

An analysis of Table 2 shows that the mean scores of the participants on the scales measuring personal growth initiative and teacher problem-solving skills competence are significantly high.

Table 3

Presents the Results of the Unrelated Samples t-Test, Examining the Differentiation in Participants' Scores on the Adaptation of Personal Growth Initiative Scale-II and Teacher Problem Solving Skill Acquisition Competence Scale based on Their Personal Development Training Status

Scales	Personal Development Training Status	$\bar{x}$	SD	*t*	*p*
PGIS Scales	Yes	3.86	.63	4.50	0.001
	No	3.51	.83		
TPSSAC Scales	Yes	4.11	.48	3.00	.003
	No	3.95	.57		

*(p<0,05)

An examination of table 3 reveals that the analyses indicate statistically significant differences in both the Adaptation of Personal Growth Initiative Scale [t(365) = 4.50, p < .05] and the Teacher Problem-Solving Skill Acquisition Competence Scale [t(365) = 3.00, p < .05] based on the participants' personal development training status. The table indicates that participants who received personal development training scored significantly higher on both scales compared to those who did not receive such training.

Table 4

Presents the Unrelated Samples t-Test Results for the Adaptation of Personal Growth Initiative Scale and the Teacher Problem-Solving Skill Acquisition Competence Scale, Based on the Variable of Participants' Willingness in Choosing Their Profession

Scales	Choosing the Profession Willingly	$\bar{x}$	SD	*t*	*p*
PGIS Scales	Yes	3.75	.70	2.86	.004*
	No	3.40	.98		
TPSSAC Scales	Yes	4.06	.50	1.88	.060
	No	3.90	.71		

*(p<0,05)

Table 4 shows no statistically significant difference in the participants' willingness to choose the profession according to the Teacher Problem-Solving Skill Acquisition Competence Scale assessments. On the adaptation of personal growth initiative scale, however, a statistically significant difference was discovered [t(365) = 2.86, p <.05]. As can be seen from the table, individuals who voluntarily chose their career had far higher adaptation of personal growth initiative scale scores than those who did not.

Table 5

Unrelated Samples t-Test Findings of the Participants' Adaptation of Personal Growth Initiative Scale-II and Teacher Problem Solving Skill Acquisition Competence Scale According to the Variable of Suitability for Teaching Profession

Scales	Suitability for Teaching Profession	$\bar{x}$	**SD**	***t***	***p***
PGIS Scales	Suitable	3.77	.69	3.28	.001*
	Partially suitable/ Not suitable	3.44	.91		
TPSSAC Scales	Suitable	4.06	.49	1.29	.195
	Partially suitable/ Not suitable	3.97	.69		

*(*p*<0,05)

An examination of table 5 reveals that the analyses did not find a statistically significant difference in the Teacher Problem-Solving Skill Acquisition Competence Scale regarding the participants' perceived suitability for the teaching profession. However, a statistically significant difference was identified in the Adaptation of Personal Growth Initiative Scale-II [t(365) = 3.28, p < .05]. The table indicates that participants who affirmed their suitability for the teaching profession scored significantly higher on the adaptation of personal growth ınitiative scale scores compared to those who did not affirm their suitability.

Table 6

Results of One-Way Analysis of Variance (ANOVA) on Factor Dimensions of Participants' Personal Development Orientation Scale-II and Teacher Problem Solving Skill Acquisition Competence Scale Scores According to Branch Variable

Scales	**Field/Branch**	$\bar{x}$	**SS**	***F***	***p***	**Groups with differences (Scheffe/LSD Test)**
PGIS Scales	Physical Education and Sports(a)	3.80	.73	1.30	.267	–
	Numerical Courses(b)	3.59	.84			
	Oral Courses(c)	3.72	.66			
	Vocational Courses (d)	3.78	.80			
	Foreign Language Courses (e)	3.56	.68			
TPSSAC Scales	Physical Education and Sports(a)	4.11	.47	4.02	.003*	a, b, c. d – e
	Numerical Courses (b)	4.03	.60			
	Oral Courses (c)	4.05	.47			
	Vocational Courses (d)	4.13	.50			
	Foreign Language Courses (e)	3.72	.62			

*(*p*<0.05)

Based on the data presented in table 6, there was not a statistically significant difference seen in the branch variable of the adaptation of personal growth ınitiative scale-II. However, there was a statistically significant difference ($p<0.05$) observed in the teacher problem solving competence scale scores. Compared to other branch teachers, the participant teachers whose branch specializes in foreign language instruction ($\overline{X}$Language=3.72) have considerably lower problem-solving skill acquisition competency scores.

The pearson product moment correlation coefficient technique was employed to determine the relationship between the sub-dimensions of participants' adaptation of personal growth ınitiative scale-II scores and their teacher problem-solving competence scale scores and the results are presented in table 7.

Table 7

Pearson Product Moment Correlation Results between the Scores of Participants' Adaptation of Personal Growth Initiative Scale-II and Teacher Problem Solving Competence Scale

Variables	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1. PGIS Scales General	-	.924*	.950*	.771*	-918*	.619*	.596*	.525*	.555*
2. Readiness for change		-	.869*	.632*	.787*	.609*	.600*	.484*	.571*
3. Planfulness			-	.624*	.844*	.581*	.559*	.484*	.537*
4. Dimension of using resources				-	.608*	.429*	.413*	.398*	.325*
5. Intentional behaviour					-	.580*	547*	.505*	.523*
6. TPSSAC Scales General						-	.946*	.885*	.869*
7. Adopting the right approach							-	.714*	.794*
8. Apply the relevant method								-	.674*
9. Motivating the student									-

N=367 *$p<0.05$

Upon analyzing table 8, significant positive moderate correlations were observed between participants' Adaptation of Personal Growth Initiative scores and variables such as adopting the right approach (r = -0.60), applying the relevant method (r = -0.53), and motivating the student (r = -0.56). Similarly, positive moderate correlations were found between participants' scores on the Teacher Problem-Solving Competence scale and variables including readiness for change (r = -0.61), planfulness (r = -0.58), using resources (r = -0.43), and intentional behavior (r = -0.58). The table indicates highly significant relationships between the scales and their respective sub-dimensions.

The Results of the path analysis concerning the relationships among the variables

The path analysis, which employed the Maximum Likelihood approach, revealed a significant ($p<.05$) chi-square value for the model. The estimated model fit values ($x^2/sd=2.83$, TLI=.90, RMSEA=.71, SRMR=.43, and CFI=.91) were found to be within acceptable limits and to be a satisfactory fit. Figure 1 displays the diagram model that includes the standardised path coefficients associated with path analysis. To make sense, only relevant path coefficients were added to the model.

Figure 1

Diagram model for path analysis diagram model for path analysis (QAQM Scale)

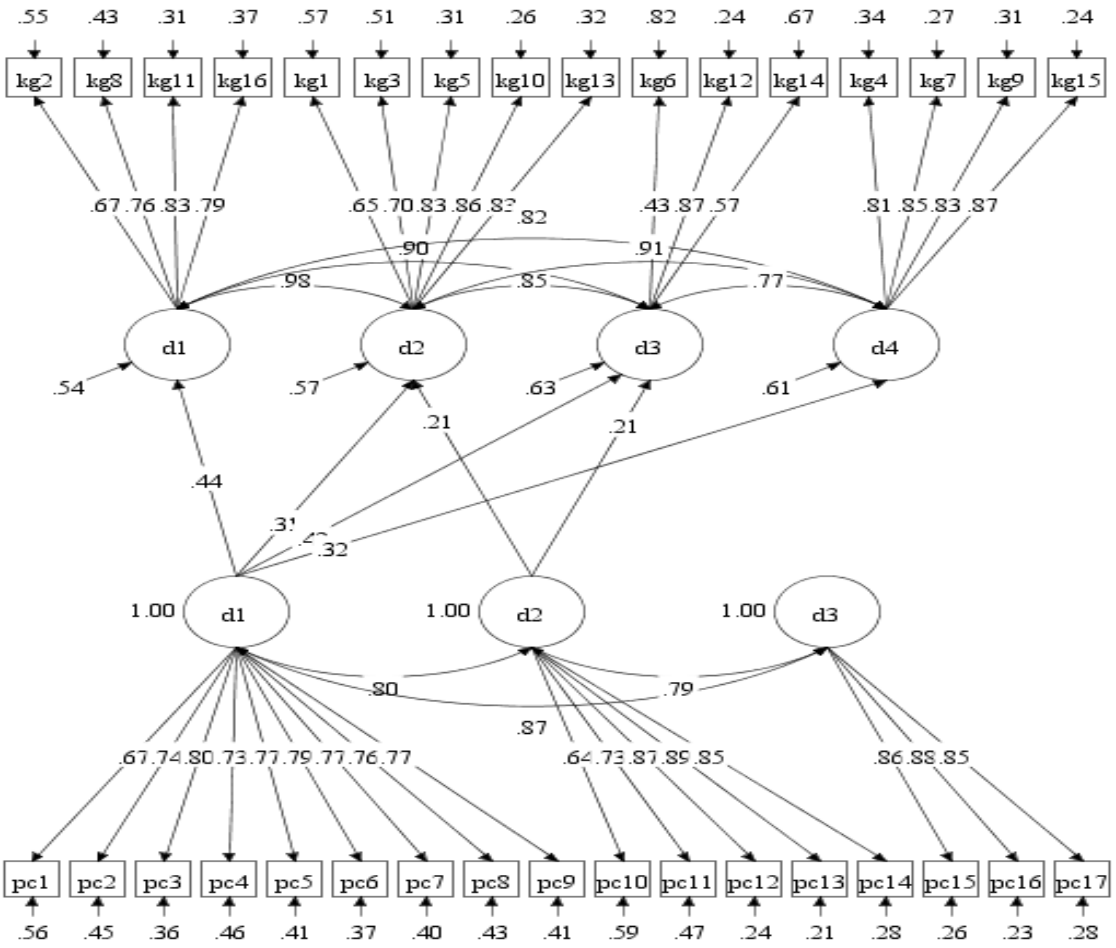


Diagram model for path analysis diagram model for path analysis (QAQM Scale= d1: Readiness for change, d2: Planfulness, d3: Using resources, d4: Intentional behaviour). (SLPWBKM Scale= d1: Adopting the right approach, d2: Applying the relevant method, d3: Motivating the student).

When the standardised coefficients of path analysis were examined, it was seen that the sub-dimension of adopting the right approach of the ‘’Teacher Problem Solving Competence Scale’’ predicted the sub-dimensions of readiness for change, being planned, using resources and purposeful behaviour of the ‘’Adaptation of Personal Growth Initiative Scale-II’ at a significant level ($p<.05$). It was determined that the sub-dimension of applying the relevant method significantly predicted the sub-dimensions of planfulness and using resources ($p<.05$).

The standardized regression loadings for the dimensions of readiness for change namely, planfulness, using resources, and Intentional behaviour on the dimension of adopting the right approach were estimated at. 44, .31, .42, and. 32, respectively. Additionally, the standardized regression loadings of the sub-dimensions of planfulness and using resources on the sub-dimension of applying the relevant method were both estimated at.21. The direct correlation coefficients indicate a positive and moderate relationship between adopting the right approach and the dimensions of planfulness, using resources, and intentional behaviour. In contrast, there is a low but positive relationship between implementing the relevant method and the dimensions of planfulness and using resources.

In addition, R-square value was calculated as.47 between the independent variables and readiness to change, 43 between planfulness, .37 between using resources and. 39 between

intentional behaviour. In other words, the sub-dimensions of the ‘adaptation of personal growth initiative scale-II’ together explain 47% of the variance in the variable of readiness for change, 43% of the variance in the variable of planfulness, 37% of the variance in the variable of using resources and 39% of the variance in the variable of intentional behaviour.

DISCUSSION & CONCLUSION

This study aimed to explore the personal growth initiative of physical education and sports teachers as well as teachers from other disciplines, specifically focusing on their competencies in acquiring problem-solving skills. The research sought to examine the relationship between these two variables across various sub-dimensions and to determine whether there is a significant relationship concerning demographic factors within the independent variables.

Participants were asked which subjects they would like to receive personal growtg training in, with the option to select multiple topics. The results indicated that stress management was the most desired area for training. This was followed by interest in problem-solving techniques, effective communication, motivation, leadership, anger control, body language, diction and eloquence, and other personal development topics. The topic of stress management in the sphere of education, like in all sectors whose material and addressee is human, has gained its place among the prioritized personal development items.

Today's human profile differs from previous approaches that accepted without questioning; they are persons that ask, question, research, and have reasons and whys. Knowledge and accumulation are vital resources in education, as they are in all fields. The educator's strength comes from his or her expertise and experience. It appears that teachers who are unable to control their stress, generate problem solutions, and communicate effectively will be unable to deliver values education to kids, gain behavior, and advance them academically. It is encouraging that our teachers are aware of this and are taking steps to better their own development.

Bitmez and Tatlı (2023) found that while teachers showed interest in personal development, their efforts on this issue were at a moderate level. According to Çoruk (2007), school principals think that they make efforts to improve themselves in the professional dimension. In the research, the majority of the school principals stated that they attend courses, seminars, etc. related to their professions as much as they have the opportunity, apart from those organized by the central and provincial organizations of MEB.

The mean scores on the personal growth initiative and teacher problem-solving abilities evaluations were found to be a high level. It is inevitable that difficulties will arise in an environment populated by individuals. What is important is the extent to which solutions are produced to these problems and how competent teachers and educators are in this regard. Since unresolved problems will create new problems, it is very important for teachers to give importance to their personal development and to solve problems on the spot.

In terms of the variable of receiving personal development training, it was determined that participants who received personal development training performed significantly better on both scales (personal growth adaptation scores and problem solving skill acquisition competence scores) than those who did not receive personal development training. The human being is a constantly changing being. When this development does not continue, it starts to pause and leads to regression. Teachers who aim for self-improvement have become more open to innovation and progress by learning new skills in their industry. This situation reflects the teacher's self-esteem and pride in his or her vocation. Problem solving is a natural outcome for a creative educator who is open to development.

In terms of the variable of choosing a profession willingly, it was determined that participants who chosen their profession willingly scored much higher on the personal growth adaptation scale than those who did not. Unfortunately, this is one of the most serious issues facing our country. Considering the population and employment sectors in our country, individuals are often compelled to choose career paths based on job availability rather than personal interest or passion. This situation has negative consequences, as mandatory employment in any field be it education, healthcare, or the economy can lead to unhappiness, inefficiency, and failure.

Regarding the participants' suitability for the teaching profession, it was found that those who affirmed their suitability had significantly higher personal growth adaptation scores compared to those who did not. People's temperamental characteristics vary significantly. The distinctive structures of individuals also affect their compatibility with different professions. In the field of education, where the primary material is human, it is certain that teachers who see themselves as educators, have good human relations, high human values, and excellent communication skills will elevate children and young people, who are the guarantors of our future, to much better positions both in terms of education and academics.

In terms of branch variable, it was determined that the scores of the scale of teacher problem solving skill competence were significantly lower for teachers whose branch was foreign language courses than for teachers of other branches. In a similar study, Pehlivan and Konukman (2004) concluded that although the difference between the groups in terms of problem solving skills in general was not found to be statistically significant, the results obtained over the total score were at a lower level against physical education teachers. According to the findings of Arslan's (2022) study, teachers' problem solving skill levels were found to be high. There are studies (Özgenel & Bozkurt, 2020), which overlap with these findings in the literature. According to Bağçeci and Kinay (2013), no significant difference was found between the problem solving skills of the teachers participating in the study according to the branch. Demirtaş and Dönmez (2008), in their study on high school teachers, found no significant difference between teachers' perceptions of problem solving skills according to branch. Pehlivan and Konukman (2004) found that the difference between the perception levels of problem solving skills according to branch was not significant. In contrast, Genç and Kalafat (2007) discovered no significant difference in pre-service teachers' problem-solving skills based on the department they studied (Classroom Teaching, Turkish Language Teaching, Science Teaching, and English Language Teaching). These studies demonstrate that branch is not always an effective variable in predicting problem-solving abilities.

As a result of the path analysis performed using the Maximum Likelihood method, the chi-square value of the model was found significant ($p<.05$). It was determined that the model fit values ($x^2/sd=2.83$, CFI=.91, TLI=.90, RMSEA=.71 and SRMR=.43) were estimated as good fit and within acceptable limits. Erkorkmaz et al. (2013), confirmatory factor analysis and fit indices value ranges and the value expressions found in this study support each other.

When the standardized coefficients of path analysis were examined, it was seen that the sub-dimension of adopting the right approach of the Teacher Problem Solving Competence Scale predicted the sub-dimensions of readiness for change, playfulness, using resources and intentional behavior of the Personal Growth Adaptation Scale at a significant level ($p<.05$). It was determined that the sub-dimension of applying the relevant method significantly predicted the sub-dimensions of playfulness and using resources ($p<.05$).

The standardized regression loadings of the dimensions of readiness for change, playfulness, using resources and intentional behavior on the dimension of adopting the right approach were estimated as .44, .31, .42 and .32, respectively; and the standardized regression

loadings of the sub-dimensions of playfulness and using resources on the sub-dimension of applying the relevant method were estimated as .21 and .21, respectively. The direct correlation coefficients between the variables showed a positive and moderate relationship between adopting the right approach and readiness for change, playfulness, using resources and intentional behavior, and a low and positive relationship between implementing the relevant method and the dimensions of playfulness and using resources. It is seen that the participants are ready for change, have a plan, use the relevant methods and resources and put on a show in the meeting.

Recommendation

The following suggestions are listed in line with the research findings;

Life, in its entirety, is a constantly changing, developing, and continuous phenomenon. This change and development are evident in every field, including education and physical education. In this sense, it is essential for teachers to thoroughly train and develop themselves in both their fields and in personal development and problem-solving.

Teachers' personal development goals should generally include developing professional abilities, enhancing teaching methods, and increasing student accomplishment. Goals should often include steps to be completed within a particular time limit.

Seminars, conferences, certification and in-service training programs should be organized annually in areas related to personal development, problem solving and education. These activities contribute significantly to the professional development of teachers by increasing their knowledge.

Personal development and problem-solving concerns should be addressed in undergraduate programs.

The scope of this study can be broadened by conducting comparable investigations in other provinces.

In addition to teachers, school officials should receive greater training in personal development and problem solving. Because mistakes in communication and unresolved issues caused by the school administration go first to the instructor, then to students, and finally to the entire school.

Teachers' awareness of personal development depends on their capacity to see their own capacities and prospects as persons. This understanding is frequently influenced by instructors' beliefs in lifelong learning and self-development. All positive initiatives will help teachers improve their problem-solving skills.

Limitations

This study has some limitations. The research is based solely on the evaluations of teachers working in schools affiliated with the Directorate of National Education in Kahramanmaraş. The study excluded teachers who did not belong to this group. To demonstrate the objectivity of the findings, the research methodologies were appropriately selected, and a large enough sample of participants was drawn from. The utilization of contemporary and modern literature sources on the topic received particular emphasis during the study.

Acknowledgements or Notes

The authors would like to thank the participants in the sample group and the editors and referees who provided constructive feedback.

REFERENCES

Alkan, C. (2011). *Educational technology.* (8. Printing). Ankara: Memoir Publications.

Arslan, H. (2022). Investigating the relationship between teachers' problem solving skills and technostress levels. (Unpublished Doctoral Thesis). Anatolia University, Eskisehir.

Bagceci, B., & Kinay, İ. (2013). Examining teachers' problem solving skills according to some variables. *Electronic Journal of Social Sciences, 12(*44), 335-347.

Balaban, Ö., & Çakmak, D. (2016). Examining the perceptions of university students towards personal development training. *Sakarya Economics Journal, 5(*1), 1-17.

Bitmez, A., & Tatlı, H. (2023). A study on teachers' perception of personal development: Bingöl province example. *Bingöl Journal of Research, (*18), 83-108. https://doi.org/10.53440/bad.1309066

Chaya R. J., Daniel. K. A. & Wade, E., (2015). What is self-growth? *International Journal of Process Education, 7(*1), 41-51.

Coruk, A. (2007). Personal development efforts of school principals and their contributions to the personal development of the teachers they work with. (Unpublished Master's Thesis). Canakkale Onsekiz Mart University Institute of Social Sciences, Çanakkale.

Coruk, A. (2012). Perceptions of prospective teachers regarding personal development and their personal development efforts. *Erzincan University Social Sciences Institute Journal, 5(*2), 233-246.

Demirtas, H., & Donmez, B. (2008). Secondary school teachers' perceptions about their problem solving abilities. Inonu University Faculty of Education Journal, 9(16), 177-198.

Ergin, B. E. (2009). Relationships between interpersonal problem-solving behavior, adult attachment styles, and symptoms of psychological distress. (Unpublished Master's Thesis). Hacettepe University, in Clinical Psychology, Ankara.

Erkorkmaz, Ü., Etikan, İ., Demir, O., Özdamar, K., & Sanisoğlu, S. Y. (2013). Confirmatory factor analysis and fit ındices: review. *Turkiye Klinikleri Journal of Medical Sciences, 33(*1), 210-223. https://doi.org/10.5336/medsci.2011-26747

Findikci, İ. (1996). *Self-development of managers in the information society.* İstanbul: Culture College Education Foundation Publications.

Genc, S. Z., & Kalafat, T. (2007). Examining the democratic attitudes and problem solving skills of teacher candidates in terms of various variables. *Pamukkale University Faculty of Education Journal, 22(*22), 10-22.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2013). Multivariate data analysis: Pearson Education Limited.

Kantek, F., & Yeşilbaş, H. (2019). The effects of gender on problem solving skills of nursing students in Turkey: a meta-analysis study. *Journal of Human Sciences, 16(*1), 134-142. https://doi.org/10.14687/jhs.v16i1.5451

Karabulut, E. O., & Kuru, E. (2009). Investigation of problem solving skills and personality traits of Ahi Evran University physical education teaching department students in terms of various variables. *Ahi Evran University Kirsehir Faculty of Education Journal, 10(*3), 119-127.

Bozkurt, B. N., & Ozgenel, M. (2020). The relationship between teachers' political skills and problem solving skills. *Maarif Schools International Journal of Educational Sciences, 4(*1), 1-15. https://doi.org/10.46762/mamulebd.731052

Pehlivan, Z., & Konukman, F. (2004). Comparison of physical education teachers and other branch teachers in terms of problem solving skills. *Spormetre Journal of Physical Education and Sports Sciences, 2(*2), 55-59. https://doi.org/10.1501/Sporm_0000000027

Robitschek, C., Ashton, M. W., Spering, C. C., Geiger, N., Byers, D., Schotts, G. C., & Thoen, M. A. (2012). Development and psychometric evaluation of the personal growth

ınitiative scale–II. *Journal of Counseling Psychology, 59(*2), 274–287. https://doi.org/10.1037/a0027310

Shewchuck R.M., Johnson M.O. & Elliot T.R. (2000). Self-appraised social problem solving abilities, emotional reactions and actual problem solving performance. *Behavior Research and Therapy, 38(*7), 727-740. https://doi.org/10.1016/S0005-7967(99)00122-9

Sen, S. (2020). *Structural equation modeling applications with Mplus.* Ankara: Nobel Academic Publishing.

Yalcın, İ., & Malkoc, A. (2013). Adaptation of personal growth ınitiative scale-II to Turkish and investigation of psychometric properties. *The Journal of Psychiatry and Neurological Sciences, 26(*3), 258-266. https://doi.org/10.5350/DAJPN2013260304

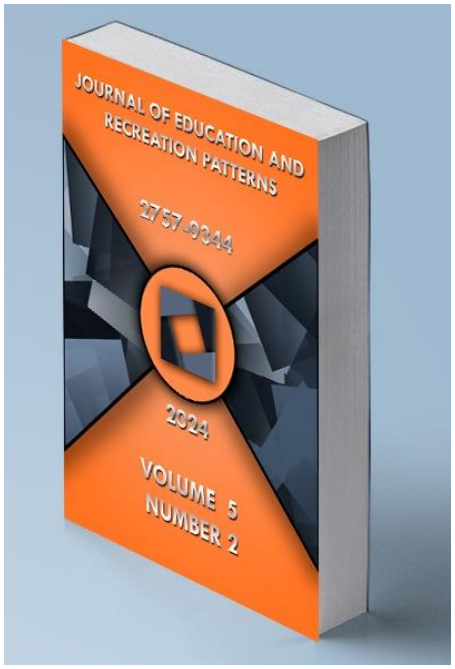
Yigit, Y. (2018). Development of a scale of teacher problem solving skill acquisition competence: Validity reliability study. *Journal of Islamic Sciences Research, 2(*4), 60-77.

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Impact of Demographic Characteristics on Information Management Attitudes Among Youth Center Directors

Buşra ÖZCAN[1]

To cite this article:

Özcan, B. (2024). Impact of demographic characteristics on information management attitudes among youth center directors. *Journal of Education and Recreation Patterns (JERP), 5 (2),* 265-284. DOI: https://doi.org/10.53016/jerp.v5i2.259

[1] Siirt University School of Physical Education and Sports, busra.ozcan@siirt.edu.tr, https://orcid.org/0000-0003-3619-8840

Journal of Education and Recreation Patterns (JERP)
Volume 5, Issue 2, Year 2024 ISSN: 2757-9344

Impact of Demographic Characteristics on Information Management Attitudes Among Youth Center Directors

Buşra Özcan[1]

ARTICLE INFORMATION
Original Research Paper

Received 23.09. 2024
Accepted 24.12. 2024

https://jerpatterns.com

December, 2024

Volume: 5, No: 2

Pages: 265-284

ABSTRACT

Information is one of the most critical resources for both individuals and organizations. With the Internet and information system tools, the ease and affordability of accessing information have led to the restructuring of organizational frameworks to be knowledge-based and management systems to be human-centered. This study aims to analyze how demographic characteristics influence the attitudes toward information management among youth center directors, who are largely responsible for the operations of these centers.

Statistical analyses involved surveying 113 youth center directors across Turkey. The results revealed that youth center directors scored highly in self-improvement, with an average score of 4.49. The commitment average score was also found to be relatively high at 3.23. However, the average communication score remained low at 2.23. This suggests that while youth center directors demonstrate a strong willingness to improve themselves and possess high levels of commitment, they exhibit weak performance in communication skills.

Further analysis of demographic variables indicated that directors with postgraduate education scored lower in communication compared to those without postgraduate qualifications. The scores for communication, commitment, and self-improvement did not exhibit significant differences across other demographic groups.

The findings suggest that postgraduate education may negatively impact communication skills among directors, highlighting the need for targeted communication skills training in youth center management programs, particularly for those with advanced academic qualifications.

Keywords: Information Management, Information Management Attitudes, Information Management Strategies, Youth Center.

INTRODUCTION

Since the existence of humanity, the need for knowledge has emerged, gaining increasing intensity over the ages. This need for knowledge has led to the birth of knowledge management, which facilitates the transfer of acquired knowledge to subsequent generations. As social beings, humans have developed communities by effectively producing knowledge, passing it down from generation to generation, and enabling new generations to use this knowledge cumulatively (Nonaka & Takeuchi, 2020; Wenger, 2018). Today, thanks to digital transformation and technological innovations, knowledge management has gained even more importance, and knowledge sharing and learning processes play a critical role among individuals and organizations (Santos & Sampaio, 2021).

Information is one of the most crucial resources for both individuals and organizations in the contemporary landscape. Leveraging the ease and affordability of access to information, modern organizations have restructured their frameworks to be knowledge-based and management systems to be human-centered. Consequently, there has been an increasing investment in human capital, emphasizing the importance of individuals who generate knowledge. The role of human resources, capable of operating mechanisms that process information and yield meaningful results, has become ever more significant (Davenport & Prusak, 2020; Lee & Choi, 2021). This shift towards a knowledge-centric approach allows organizations not only to adapt to rapidly changing environments but also to foster innovation and sustained competitive advantage (Schein, 2019).

Knowledge is a dynamic entity that expands as it is shared, contributing to the advancement of societies over time. This cumulative growth enables each society to surpass its predecessors in various aspects of development. For societies to effectively leverage knowledge for advancement, it is essential that their dynamics invest in both knowledge and the individuals who create it. Knowledge management thrives not only on structured organizations but also on the cultural approach to knowledge and its dissemination (Dalkir, 2017). Consequently, the success of knowledge management initiatives is closely tied to fostering a strong organizational culture that encourages collaboration and continuous learning (Alavi & Leidner, 2001; Dufour & Laferrière, 2020).

Knowledge management plays a critical role in enabling organizations to gain a competitive advantage and establish an effective knowledge-sharing culture. In this context, the impact of gender on individuals' knowledge management attitudes is an important research topic. This study aims to investigate how the knowledge management attitudes of youth center directors differ across certain demographic variables, particularly gender groups. Knowledge management has significantly evolved in recent years, paralleling the increasing recognition of knowledge as a strategic asset that drives innovation, enhances operational efficiency, and supports informed decision-making (Nonaka et al., 2021). Recent studies highlight the integration of new technologies, such as artificial intelligence and machine learning, in knowledge management practices, further transforming how organizations leverage knowledge for competitive advantage.

Literature Review

Information Management and Its Importance

Information management is a crucial element for organizational success, as it encompasses the processes used to gather, store, manage, and disseminate information effectively. Knowledge management, in particular, is viewed as a dynamic backdrop that transforms raw data into valuable knowledge, promoting an environment conducive to innovation and decision-making (Wang & Ahmed, 2020). Effective information management

practices can facilitate the collaborative sharing of tacit knowledge, which is derived from personal experience, thus enhancing organizational learning (Dalkir, 2017). Moreover, organizations that leverage advanced technologies such as artificial intelligence and data analytics report improved capability in identifying knowledge gaps and optimizing learning processes, which in turn supports strategic decision-making and competitive advantage (Heisig, 2021; Chong et al., 2021). Overall, the implementation of robust information management strategies is vital for achieving long-term organizational efficiency and adaptability.

Demographic Variables Affecting Information Management Attitudes

Research in the domain of information management has increasingly explored how demographic variables impact attitudes and behaviors regarding the management of information. Factors such as gender, educational background, and age have been shown to influence individual approaches to knowledge management (McAdam & McCreedy, 2000; Provost & Fawcett, 2013). For instance, studies suggest that executives with higher education levels are more likely to engage in systematic knowledge sharing practices, thereby reflecting positively on organizational outcomes (Lee et al., 2020). Understanding these demographic influences is particularly relevant for youth center directors, as their attitudes towards information management can shape operational policies and engagement strategies that affect service delivery and youth development outcomes.

Purpose of the Study

The primary purpose of this study is to analyze how demographic characteristics—such as education level, age, gender, and professional experience—of youth center directors influence their attitudes towards information management. As previous research indicates, demographic factors play a critical role in shaping individuals' perceptions and practices regarding knowledge and information management (Goh, 2019; Lee et al., 2020). Understanding these relationships is essential to identify how different groups may leverage information management practices to enhance operational effectiveness in youth centers.

Youth centers serve as essential environments for youth development, and effective information management is crucial for tailoring programs that meet the nuanced needs of young individuals (Karaca & Demir, 2019). As noted by Senge (2006), organizations that cultivate a culture of continuous learning and knowledge sharing tend to perform better due to their adaptability and innovation. Therefore, this study aims not only to contribute to the academic understanding of information management processes within youth centers but also to provide practical insights that could inform training and development programs for youth center directors.

By exploring the unique demographics of youth center directors and their approach to information management, this study seeks to fill critical gaps in the literature regarding the specific management practices in the context of Turkey's youth services. Ultimately, identifying how demographic variables influence attitudes toward information management can lead to improved strategies for knowledge sharing, enhancing both the efficacy of youth programs and the overall organizational health of youth centers.

Youth Centers

Youth centers in Türkiye operate under provincial and district directorates of youth and sports affiliated with the Republic of Türkiye Ministry of Youth and Sports. As of 2023, there are a total of 474 youth centers serving in all 81 provinces of Türkiye (Republic of Türkiye Ministry of Youth and Sports, 2023). The primary objectives of these youth centers, as defined by the Directorate General of Youth Services, are as follows:

"Youth Centers assist young individuals in making productive use of their free time; guide them toward social, cultural, artistic, scientific, and sports activities; contribute to their personal, social, and spiritual development; provide mentorship and counseling; raise their awareness of harmful habits; and help them acquire social skills and opportunities to share experiences through participation in various activities. These centers offer a range of programs, including historical and cultural excursions, camps, and sports events, all designed to enrich the lives of young people." (Republic of Türkiye Ministry of Youth and Sports Directorate General of Youth Services, 2023)

Youth centers deliver their services through youth center academies and youth center clubs. Youth center academies host theoretical workshop activities across diverse fields such as values, religious sciences, innovation, personal development, social sciences, language training, fine arts, as well as healthy living and sports. Meanwhile, the clubs consist of groups focusing on Social and Cultural Activities, Fine Arts, Science and Technology, Healthy Living and Sports, and Volunteering.

These youth centers are administered by directors, whose responsibilities are explicitly defined in the Official Gazette. Examples of these duties include: "working in collaboration with relevant stakeholders to consider the talents, goals, and interests of young individuals who benefit from the activities of the youth center," "ensuring that workshops, libraries, gymnasiums, and other facilities are adequately prepared for operation and usage, while overseeing their continuous development," and "preparing and monitoring the work schedules of personnel in the youth centers, as well as in affiliated coordination, promotion offices, youth offices, and similar units." Such responsibilities underscore the importance of youth center directors being proficient in knowledge management.

Information Management of Youth Center Managers

Knowledge management (KM) is a comprehensive strategic approach that encompasses the effective collection, processing, storage, and sharing of knowledge within organizations. This strategy includes the integration of knowledge into technological processes and action plans for leveraging this knowledge in alignment with organizational objectives. KM also involves the protection, development, and exploitation of intellectual capital, which is increasingly recognized as a key asset for organizational success. Organizations implement this strategy to analyze, measure, and evaluate processes, thereby facilitating continuous improvement (Alavi & Leidner, 2021). Moreover, effective knowledge management requires an interdisciplinary approach that draws insights from fields such as economics, psychology, sociology, and information science. By understanding and managing knowledge within this broader context, organizations can gain a competitive edge and navigate the complexities of today's dynamic business landscape (KPMG, 2020).

In Youth Centers, knowledge management is a critical aspect that encompasses the stages of acquisition, sharing, interpretation, and storage, while also bearing the crucial characteristic of supporting learning among employees. The interpretation of knowledge involves placing the obtained information in meaningful contexts and using it in accordance with the organization's strategic goals. The storage of knowledge ensures that learned information remains accessible and valuable in the organizational memory for future use. These processes strengthen an organization's ability to adapt, promote continuous learning, and enhance its capacity to quickly adjust to changing conditions, thereby increasing organizational effectiveness.

Due to the multiplicity and variability of sources from which information is collected in youth and sports centers, there is a diversity of sources. Managers and staff within the institution need to have the managerial skills to determine how and where to use the gathered information. In studies specific to these institutions, there is a variety of dynamics within the institution that

need to be evaluated (Göksel, Ekici, & Hacıcaferoğlu, 2016; Beltekin, 2015; Kepoğlu, 2015; Belli & Ekici, 2012; Ersöz & Çınarlı, 2012; Yel, 2011; Türkmen, 2005; Üzüm, 2005).

METHOD

Research Model

This research was conducted to measure the information management attitudes of youth center directors across Turkey and to explore how various demographic variables influence these attitudes. With a specific focus on directors within the Provincial Directorates of Youth and Sports, which are responsible under Law No. 3289 dated May 21, 1986, for all sporting activities aimed at children and youth, this study investigates the potential impact of demographic characteristics on the management behaviors and information attitudes in these managerial roles. The influence of sports on the personality, health, and social behavior of youth is significant, making the roles of those who manage these activities crucial. Previous studies have explored information management roles across different sectors (Memişoğlu & Özsarıkamış, 2009), but there is a notable gap in research specifically targeting the 81 Provincial Directorates of Youth and Sports. Given the intensive operational demands on Youth Centers as key units of the Ministries, there is a clear necessity for comprehensive studies to understand the influence of demographic characteristics on the management and information attitudes of those directing these centers.

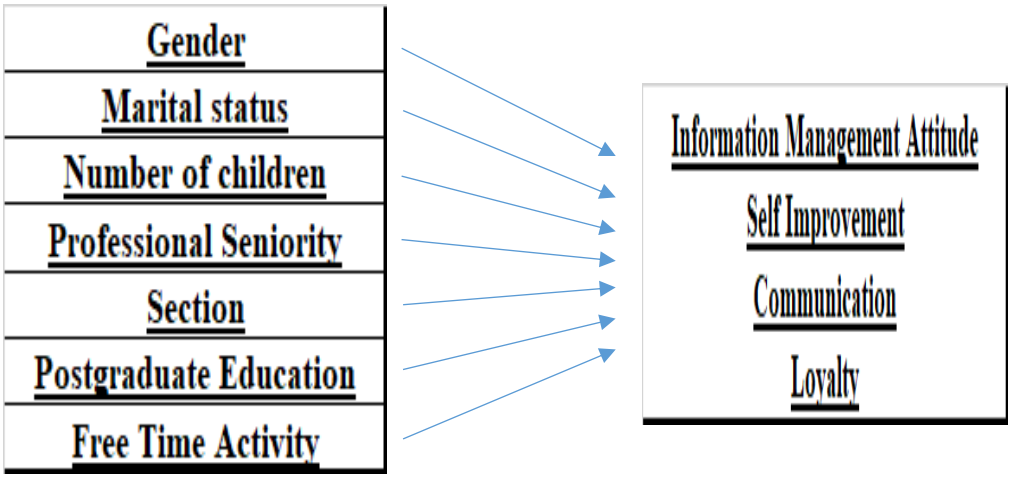
The study employs a relational survey design, a quantitative method, to examine the relationships between the demographic variables of the directors and their attitudes towards information management. This approach allows for the systematic collection of data from a defined population and the analysis of correlations between variables.

Research Hypotheses and Model

The dependent variables in this research are the sub-dimensions of information management attitudes: self-development, communication, and commitment. The independent variables include gender, marital status, number of children, professional tenure, departmental affiliations at the university level, receipt of postgraduate education, and engagement in leisure time activities. The research model was developed to systematically investigate these relationships, hypothesizing that demographic factors significantly influence the information management attitudes among youth center directors.

Figure 1

Research Model



Based on the information provided about your study on the information management attitudes of youth center directors in Turkey and considering the various demographic variables, here are the formulated research hypotheses:

H1: Gender significantly influences the information management attitudes of youth center directors.

H2: Marital status significantly influences the information management attitudes of youth center directors.

H3: The number of children significantly influences the information management attitudes of youth center directors.

H4: Professional tenure significantly influences the information management attitudes of youth center directors.

H5: The university department worked in significantly influences the information management attitudes of youth center directors.

H6: Having received postgraduate education significantly influences the information management attitudes of youth center directors.

H7: Engagement in leisure time activities significantly influences the information management attitudes of youth center directors.

These hypotheses are designed to test the relationships between demographic variables and information management attitudes, providing a comprehensive framework for analyzing how personal and professional characteristics of youth center directors influence their management practices.

Data Collection Tools

A total of 113 directors were selected through convenience sampling to participate in the survey. The survey was designed to be accessible online, facilitating ease of distribution and completion by the participants.

The primary tool used for data collection was the Information Management Attitude Scale, initially developed and validated by Demir (2005). This scale includes 22 items distributed across three factors, which reflect different dimensions of information management attitudes:

1. **Self-Development:** Comprising 8 items, this factor addresses attitudes towards personal growth and continuous learning within the context of information management.
2. **Communication:** This factor includes 7 items that assess the directors' effectiveness in interpersonal communication and information dissemination.
3. **Commitment:** The remaining 7 items measure the degree of commitment to organizational goals and the management of information resources.

The factor loadings for these items in Demir's study ranged from 0.40 to 0.81, indicating a satisfactory level of construct validity. The factors were named based on a thorough evaluation of the item content and a review of relevant literature, ensuring that they accurately represent the constructs of interest.

Ethical approval for this study was obtained from the Siirt University Scientific Research and Publication Ethics Committee. The approval was granted on September 19, 2023, under the protocol number 2023/5607, ensuring that all research activities complied with the ethical standards required for studies involving human participants.

Data Collection and Statistical Analysis

The data analysis process commenced with the application of descriptive statistics to summarize and illustrate the dataset's characteristics comprehensively. To evaluate the normality of the data distribution, tests for skewness and kurtosis were conducted. Adhering to the guidelines established by George and Mallery (2010), the data were considered normally distributed if the skewness and kurtosis values fell within the range of -2 to +2. Establishing normality is crucial for selecting appropriate statistical tests for further analysis.

For datasets involving two variables, t-tests were employed to compare the means of two distinct groups. This method was particularly useful for examining differences in information management attitudes across demographic groups, such as comparing gender differences or differences between individuals with and without postgraduate education. The t-test is applicable and valid under the condition that the data meet the assumptions of normality and homogeneity of variances between the groups.

In cases where the analysis required comparing means across multiple groups, such as demographic categories with several levels like age groups or professional seniority, Analysis of Variance (ANOVA) was used. ANOVA is instrumental in determining whether there are statistically significant differences between the means of three or more independent groups, thereby providing insights into the effects of various demographic factors on information management attitudes.

All statistical analyses, including normality tests, t-tests, correlation analyses, and ANOVA, were performed using SPSS version 25.

FINDINGS

This section presents the results derived from the analysis of the relationships between the research variables and their interactions with demographic factors.

Table 1

Demographic Characteristics of Participants

Gender	**(N=113)**	**%**
Male	31	27,4
Woman	82	72,6
Marital status	**(N=113)**	**%**
Married	72	63,7
Single	41	36,3
Number of children	**(N=113)**	**%**
1	19	16,8
2	31	27,4
3	8	7,1
4	55	48,7
Professional Seniority	**(N=113)**	**%**
1 Year and Under	23	20,4
2-4 Years	14	12,4
5-7 Years	9	8,0
8-10 Years	39	34,5
11-13 Years	15	13,3
13 Years and Above	13	11,5
Section	**(N=113)**	**%**

Sports Management	52	46,0
Coaching	11	9,7
Recreation	3	2,7
Other	47	41,6
Postgraduate Education	**(N=113)**	**%**
Degree	84	74,3
Doctorate	29	25,7
Free Time Activity	**(N=113)**	**%**
Yes	81	71,7
No	32	28,3

The study sample comprised 113 youth center directors in Turkey. Regarding gender, 72.6% of the participants were female (n = 82), and 27.4% were male (n = 31). In terms of marital status, the majority of the participants were married (63.7%, n = 72), while 36.3% (n = 41) reported being single.

The distribution of the number of children varied: 16.8% of the directors (n = 19) had one child, 27.4% (n = 31) had two children, 7.1% (n = 8) had three children, and 48.7% (n = 55) had four or more children. Professional seniority among the directors ranged widely: 20.4% (n = 23) had been in their current role for one year or less, 12.4% (n = 14) for two to four years, 8.0% (n = 9) for five to seven years, 34.5% (n = 39) for eight to ten years, 13.3% (n = 15) for eleven to thirteen years, and 11.5% (n = 13) had over thirteen years of experience.

Participants' educational backgrounds in specific departments were also diverse: 46.0% (n = 52) were from Sports Management, 9.7% (n = 11) from Coaching, 2.7% (n = 3) from Recreation, and 41.6% (n = 47) were categorized under Other. As for postgraduate education, 74.3% (n = 84) held a master's degree and 25.7% (n = 29) a doctorate.

Regarding leisure time activities, 71.7% (n = 81) of the participants engaged in such activities, whereas 28.3% (n = 32) did not engage in any free time activities.

Table 2

Correlation Matrix of Self-Improvement, Communication, and Loyalty with Skewness and Kurtosis Values

	Self-Improvement	**Communication**	**Loyalty**	**Skewness**	**Kurtosis**
Self-Improvement	1	-0.153*	-0.032	-1.831	1.966
Communication	-0.153*	1	0.034	0.150	-0.145
Loyalty	-0.032	0.034	1	-1.040	1.161

*p<0.05, **p<0.01

Correlation analysis was performed to investigate the relationships between self-improvement, communication, and loyalty among 113 directors of youth centers. Results indicated that self-improvement exhibited a small but statistically significant negative correlation with communication ($r = -0.153$, $p < .05$), suggesting a modest inverse relationship between these variables. This implies that higher levels of self-improvement may be associated with slightly lower levels of communication efficacy among the directors.

Conversely, the relationship between self-improvement and loyalty was not statistically significant ($r = -0.032$, $p > .05$), indicating that attitudes towards self-improvement do not appear to influence loyalty attitudes significantly within this group. Similarly, the correlation between communication and loyalty was found to be nonsignificant ($r = 0.034$, $p > .05$), demonstrating that communication does not have a discernible impact on loyalty among the directors studied.

These findings suggest that while self-improvement may slightly impact communication among youth center directors, neither self-improvement nor communication significantly affects their loyalty attitudes.

Descriptive Characteristics of Research Variables

In this study, the sub-factors of information management attitudes, which are self-development, communication, and commitment, serve as the research variables. The descriptive characteristics of the research variables are provided in the table below.

Table 3

Descriptive Characteristics of Research Variables

Research Variables	N	Average	Std. Deflection	Minimum	Maximum
Self Improvement		4,49	0,58	1,00	5,00
Communication	113	2,23	0,47	1,00	3,29
Loyalty		3,23	0,29	1,71	3,86

The study examined the descriptive statistics for three main variables: Self-Improvement, Communication, and Loyalty among 113 participants. The mean score for Self-Improvement was 4.49 (SD = 0.58), ranging from a minimum of 1.00 to a maximum of 5.00, indicating a relatively high level of self-improvement attitudes among the youth center directors. Communication had an average score of 2.23 (SD = 0.47), with scores extending from 1.00 to 3.29, reflecting moderate levels of communication efficacy. Lastly, Loyalty exhibited a mean of 3.23 (SD = 0.29), with the lowest score being 1.71 and the highest 3.86, suggesting a consistent positive orientation towards loyalty.

Analyzes Regarding Gender and Research Variables

The study tested whether the research variables of self-development, communication, and commitment differ significantly according to gender. Upon examining the assumptions of within-group normal distribution and equality of group variances, both conditions were met, so the t-test was used. The results of the t-test can be seen in the table below.

Table 4

T-Test Results for Gender Differences in Self-Improvement, Communication, and Loyalty

		Statistical Values			T-test		
Gender		N	M	SD	GVE*	t	p
Self Improvement	Male	31	4,63	0,43	0,238	1,627	0,107
	Woman	82	4,44	0,62			
Communication	Male	31	2,32	0,49	0,541	1,265	0,209
	Woman	82	2,20	0,45			
Loyalty	Male	31	3,22	0,26	0,997	-0,306	0,760
	Woman	82	3,24	0,30			

*GVE=Test of Group Variance Equality (if p>0.05, group variances are equal).

Results from the t-test analysis in Table 4 indicate no significant gender differences in self-improvement, communication, or loyalty among youth center directors.Specifically, males reported a slightly higher mean score in self-improvement (M = 4.63, SD = 0.43) compared to females (M = 4.44, SD = 0.62), but this difference was not statistically significant (t(111) = 1.627, p = .107). Similarly, for communication, males had a mean score of 2.32 (SD = 0.49), which was slightly higher than that of females (M = 2.20, SD = 0.45); however, the difference was also not significant (t(111) = 1.265, p = .209). In terms of loyalty, males scored an average

of 3.22 (SD = 0.26) while females scored slightly higher with an average of 3.24 (SD = 0.30), but again, the difference was not significant (t(111) = -0.306, p = .760).

Analyzes on Marital Status and Research Variables

The study tested whether the research variables of self-development, communication, and commitment differ significantly according to marital status. Upon examining the assumptions of within-group normal distribution and equality of group variances, both conditions were found to be met, so the t-test was used. The results of the t-test can be seen in the table below.

Table 5

T-Test Results for Marital Status Differences in Self-Improvement, Communication, and Loyalty

		Statistical Values			T-test		
Marital status		**N**	**M**	**SD**	**GVE***	**t**	**p**
Self Improvement	Married	72	4,52	0,64	0,302	0,790	0,431
	Single	41	4,43	0,44			
Communication	Married	72	2,16	0,47	0,480	-2,274	0,025
	Single	41	2,36	0,43			
Loyalty	Married	72	3,22	0,29	0,386	-0,287	0,774
	Single	41	3,24	0,28			

*GVE=Test of Group Variance Equality (if p>0.05, group variances are equal).

Results from the t-test analysis in Table 5 indicate significant differences in communication based on marital status among youth center directors, while no significant differences were found in self-improvement or loyalty. Specifically, for self-improvement, married directors reported a mean score of 4.52 (SD = 0.64) compared to 4.43 (SD = 0.44) for single directors. However, this difference was not statistically significant (t(111) = 0.431, p = .790).

In terms of communication, married directors had a lower mean score of 2.16 (SD = 0.47) than their single counterparts, who scored a mean of 2.36 (SD = 0.43). This difference was statistically significant (t(111) = -2.274, p = .025), suggesting that marital status may influence communication attitudes among youth center directors.

Regarding loyalty, married directors scored an average of 3.22 (SD = 0.29), while single directors had a slightly higher score of 3.24 (SD = 0.28). This difference was not statistically significant (t(111) = -0.287, p = .774).

In summary, the findings reveal that while marital status influences communication among youth center directors, it does not appear to significantly impact their self-improvement or loyalty.

Analyzes Regarding the Number of Children and Research Variables

The study tested whether the research variables of self-development, communication, and commitment differ significantly according to the number of children. Upon examining the assumptions of within-group normal distribution and equality of group variances, both conditions were found to be met, so the ANOVA (F) test was used. The results of the F-test can be seen in the table below.

Table 6

F-Test Results for Number of children Differences in Self-Improvement, Communication, and Loyalty

Group Variable		Statistical Values			F-Test		
Number of children		N	M	SD	GVE*	F	p
Self Improvement	1	19	4,59	0,61	0,457	0,364	0,779
	2	31	4,42	0,78			
	3	8	4,55	0,67			
	4	55	4,49	0,41			
Communication	1	19	2,17	0,57	0,645	0,402	0,752
	2	31	2,25	0,42			
	3	8	2,38	0,61			
	4	55	2,22	0,44			
Loyalty	1	19	3,15	0,42	0,702	1,828	0,146
	2	31	3,29	0,26			
	3	8	3,38	0,27			
	4	55	3,20	0,24			

*GVE=Test of Group Variance Equality (if p>0.05, group variances are equal).

For self-improvement, youth center directors with one child had a mean score of 4.59 (SD = 0.61), while those with two children reported a mean of 4.42 (SD = 0.78). Directors with three children scored a mean of 4.55 (SD = 0.67), and those with four children had a mean score of 4.49 (SD = 0.41). The analysis revealed that these differences were not statistically significant, as indicated by an F-value of 0.364 (p = .779).

In terms of communication, directors with one child reported a mean of 2.17 (SD = 0.57), compared to 2.25 (SD = 0.42) for those with two children, 2.38 (SD = 0.61) for those with three children, and 2.22 (SD = 0.44) for those with four children. Similarly, the differences in communication scores were also found to be statistically insignificant, with an F-value of 0.402 (p = .752).

Regarding loyalty, directors with one child scored an average of 3.15 (SD = 0.42), while those with two children had a mean of 3.29 (SD = 0.26), directors with three children scored 3.38 (SD = 0.27), and those with four children scored 3.20 (SD = 0.24). The F-test for loyalty yielded an F-value of 1.828 (p = .146), indicating no significant differences based on the number of children.

Analyzes Regarding Professional Tenure and Research Variables

The study tested whether the research variables of self-development, communication, and commitment differ significantly according to professional tenure. Upon examining the assumptions concerning within-group normal distribution and equality of group variances, both conditions were met, so the ANOVA (F) test was used. The results of the F-test can be seen in the table below.

Table 7

F-Test Results for Professional Seniority Differences in Self-Improvement, Communication, and Loyalty

Group Variable		Statistical Values			F-Test		
Professional Seniority		N	M	SD	GVE*	F	p
Self Improvement	1 year and below	23	4,53	0,38	0,180	0,534	0,750
	2-4 years	14	4,67	0,34			
	5-7 years	9	4,33	0,71			
	8-10 years	39	4,50	0,40			
	11-13 years	15	4,40	0,74			
	13 years and above	13	4,41	1,09			
Communication	1 year and below	23	2,26	0,54	0,172	0,367	0,870
	2-4 years	14	2,20	0,54			
	5-7 years	9	2,16	0,51			
	8-10 years	39	2,25	0,39			
	11-13 years	15	2,32	0,59			
	13 years and above	13	2,11	0,29			
Loyalty	1 year and below	23	3,12	0,26	0,197	2,250	0,055
	2-4 years	14	3,35	0,26			
	5-7 years	9	3,05	0,54			
	8-10 years	39	3,27	0,24			
	11-13 years	15	3,30	0,23			
	13 years and above	13	3,22	0,26			

*GVE=Test of Group Variance Equality (if p>0.05, group variances are equal).

For self-improvement, directors with one year or less of experience reported a mean score of 4.53 (SD = 0.38), while those with 2 to 4 years of experience had a mean score of 4.67 (SD = 0.34). Directors with 5 to 7 years of experience scored a mean of 4.33 (SD = 0.71), those with 8 to 10 years scored 4.50 (SD = 0.40), directors with 11 to 13 years had a mean of 4.40 (SD = 0.74), and those with 13 years or more scored 4.41 (SD = 1.09). The analysis found no statistically significant differences in self-improvement scores among these groups, as indicated by an F-value of 0.534 (p = .750).

In communication, directors with one year or less had a mean score of 2.26 (SD = 0.54), while those with 2 to 4 years reported a mean of 2.20 (SD = 0.54). Directors with 5 to 7 years of experience scored 2.16 (SD = 0.51), those with 8 to 10 years scored 2.25 (SD = 0.39), directors with 11 to 13 years reported a mean of 2.32 (SD = 0.59), and those with 13 years and above had a mean score of 2.11 (SD = 0.29). The differences in communication scores among these groups were also not statistically significant, with an F-value of 0.367 (p = .870).

When examining loyalty, youth center directors with one year or less of experience scored an average of 3.12 (SD = 0.26), whereas those with 2 to 4 years reported a mean of 3.35 (SD = 0.26). Directors with 5 to 7 years scored 3.05 (SD = 0.54), those with 8 to 10 years had a mean of 3.27 (SD = 0.24), directors with 11 to 13 years scored 3.30 (SD = 0.23), and those with 13 years or more reported a mean of 3.22 (SD = 0.26). The analysis approached significance with an F-value of 2.250 (p = .055), suggesting a potential trend where loyalty may be influenced by professional seniority, although it did not reach conventional levels of significance.

Analyzes Regarding University Department and Research Variables

The study tested whether the research variables of self-development, communication, and commitment differ significantly according to the department they work in. Upon examining the assumptions concerning within-group normal distribution and equality of group variances, both conditions were met, so the ANOVA (F) test was used. The results of the F-test can be seen in the table below.

Table 8

F-Test Results for Department he works in Differences in Self-Improvement, Communication, and Loyalty

Group Variable		Statistical Values			F-Test		
Department he works in		N	M	SD	GVE*	F	p
Self Improvement	Sports Management	52	4,54	0,44	0,282	0,371	0,691
	Coaching	11	4,39	0,73			
	Other	47	4,47	0,69			
Communication	Sports Management	52	2,23	0,39	0,068	1,860	0,161
	Coaching	11	2,01	0,69			
	Other	47	2,31	0,48			
Loyalty	Sports Management	52	3,24	0,22	0,067	0,067	0,935
	Coaching	11	3,22	0,53			
	Other	47	3,22	0,29			

*GVE=Test of Group Variance Equality (if p>0.05, group variances are equal).

For self-improvement, directors in Sports Management reported a mean score of 4.54 (SD = 0.44), while those in Coaching had a mean score of 4.39 (SD = 0.73). Directors working in other departments scored a mean of 4.47 (SD = 0.69). The analysis indicated no statistically significant differences in self-improvement among the groups, as evidenced by an F-value of 0.371 (p = .691).

In terms of communication, Sports Management directors scored an average of 2.23 (SD = 0.39), while Coaching directors had a lower mean score of 2.01 (SD = 0.69), and those in other departments reported a mean of 2.31 (SD = 0.48). The differences in communication scores did not reach statistical significance, with an F-value of 1.860 (p = .161).

Regarding loyalty, Youth center directors in Sports Management scored an average of 3.24 (SD = 0.22), while those in Coaching and other departments both had mean scores of 3.22 (SD = 0.53 and SD = 0.29, respectively). The F-test for loyalty revealed no significant differences, yielding an F-value of 0.067 (p = .935).

Analyses Related to Postgraduate Education and Research Variables

The study tested whether the research variables of self-development, communication, and commitment differ significantly according to whether individuals have postgraduate education. Upon examining the assumptions concerning within-group normal distribution and equality of group variances, both conditions were found to be met, so the t-test was used. The results of the t-test can be seen in the table below.

Table 9

T-Test Results for Postgraduate Education Differences in Self-Improvement, Communication, and Loyalty

		Statistical Values			T-Test		
Postgraduate Education		**N**	**M**	**SD**	**GVE***	**t**	**p**
Self Improvement	Bachelor's Degree	84	4,54	0,43	0,055	1,625	0,107
	Master's Degree and Doctorate Degree	29	4,34	0,87			
Communication	Bachelor's Degree	84	2,29	0,43	0,259	2,372	**0,019**
	Master's Degree and Doctorate Degree	29	2,06	0,52			
Loyalty	Bachelor's Degree	84	3,22	0,26	0,956	-0,565	0,573
	Master's Degree and Doctorate Degree	29	3,26	0,36			

*GVE=Test of Group Variance Equality (if p>0.05, group variances are equal).

For self-improvement, directors with a Bachelor's degree reported a mean score of 4.54 (SD = 0.43), whereas those with a Master's or Doctorate degree had a mean score of 4.34 (SD = 0.87). The difference between these two groups was not statistically significant, with a t-value of 1.625 (p = .107), suggesting that the level of education does not have a meaningful impact on self-improvement scores among youth center directors.

In terms of communication, directors with a Bachelor's degree scored an average of 2.29 (SD = 0.43), compared to a lower mean score of 2.06 (SD = 0.52) for those with postgraduate qualifications. This difference was statistically significant, as indicated by a t-value of 2.372 (p = .019), implying that directors with a Master's or Doctorate degree may have different attitudes toward communication compared to their peers with only a Bachelor's degree.

Regarding loyalty, directors with a Bachelor's degree had a mean score of 3.22 (SD = 0.26), while those with advanced degrees scored a mean of 3.26 (SD = 0.36). However, this difference was not statistically significant, as evidenced by a t-value of -0.565 (p = .573).

Analyses Related to Leisure Time Activity and Research Variables

The study tested whether the research variables of self-development, communication, and commitment differ significantly according to whether individuals engage in leisure time activities. Upon examining the assumptions concerning within-group normal distribution and equality of group variances, both conditions were found to be met, so the t-test was used. The results of the t-test can be seen in the table below.

Table 10

T-Test Results for Free Time Activity Differences in Self-Improvement, Communication, and Loyalty

		Statistical Values			T-Test		
Free Time Activity		**N**	**M**	**SD**	**GVE***	**t**	**p**
Self Improvement	Yes	81	4,51	0,59	0,761	0,605	0,547
	No	32	4,44	0,54			
Communication	Yes	81	2,22	0,48	0,416	-0,631	0,529
	No	32	2,28	0,44			
Loyalty	Yes	81	3,24	0,25	0,227	0,470	0,639
	No	32	3,21	0,37			

*GVE=Test of Group Variance Equality (if p>0.05, group variances are equal).

For self-improvement, directors who engage in free time activities reported a mean score of 4.51 (SD = 0.59), while those who do not participate in such activities scored a mean of 4.44 (SD = 0.54). The difference between these two groups was not statistically significant, with a t-value of 0.605 (p = .547), indicating that participation in free time activities does not have a meaningful impact on self-improvement among youth center directors.

In terms of communication, directors involved in free time activities scored an average of 2.22 (SD = 0.48), compared to a mean score of 2.28 (SD = 0.44) for those who do not engage in these activities. This difference was also not statistically significant, as evidenced by a t-value of -0.631 (p = .529), suggesting that free time activities do not significantly influence communication attitudes among youth center directors.

Regarding loyalty, youth center directors who participate in free time activities reported a mean score of 3.24 (SD = 0.25), while those not engaged in these activities had a mean score of 3.21 (SD = 0.37). Again, this difference was not statistically significant, as indicated by a t-value of 0.470 (p = .639).

DISCUSSION & CONCLUSION

Youth directorates that provide services through workshops and clubs on various topics play a crucial role in achieving successful outcomes from these activities. This study examined the information management attitudes of youth center directors, who bear significant responsibility for the operational success of these centers. The research emphasizes three core sub-factors of information management attitudes: self-development, communication, and commitment, and investigates whether these fundamental sub-factors differ significantly across demographic groups.

The statistical analyses revealed that youth center directors exhibited high scores in self-development and a relatively elevated average in commitment. These findings align with Gupta and Singh (2021), who noted that individuals with stronger self-development attitudes tend to engage more effectively in knowledge management processes. The significance of self-development is paramount, as it can lead to enhanced performance in organizational settings. However, it is concerning that the average communication score among directors was notably low, indicating this as an essential area for improvement. This unexpected result suggests that while these directors are motivated towards self-improvement, they may struggle with interpersonal communication, which is vital for fostering knowledge sharing and collaboration within their teams (Buchanan & Miller, 2020). This gap highlights the need for targeted communication training, as effective communication is critical for successful knowledge management and team cohesion.

H1: Gender significantly influences the information management attitudes of youth center directors.

Research has explored the role of gender in shaping professional attitudes, particularly in leadership roles. Studies indicate that gender can significantly affect communication styles and decision-making approaches, which are integral components of information management (Miller et al., 2020). Therefore, it is hypothesized that female and male youth center directors may exhibit distinct differences in their information management attitudes.

H2: Marital status significantly influences the information management attitudes of youth center directors.

Marital status has been suggested to impact professional behaviors and attitudes, with evidence indicating that personal responsibilities can shape communication and management styles (Harris & Kearney, 2019). This hypothesis posits that youth center directors' marital

status—whether single, married, or divorced—will significantly influence their approaches to information management, reflecting the interplay between personal and professional life.

H3: The number of children significantly influences the information management attitudes of youth center directors.

The number of children may affect individuals' time management, priorities, and stress levels, which in turn can influence professional attitudes (Bianchi et al., 2020). Based on this premise, we hypothesize that the varying number of children among youth center directors will have a significant impact on their information management attitudes, as parental responsibilities may shape their perspectives.

H4: Professional tenure significantly influences the information management attitudes of youth center directors.

Professional tenure is often associated with accumulated experience and knowledge, which can, in turn, influence management practices and attitudes (Huang et al., 2021). This hypothesis posits that youth center directors with varying lengths of professional tenure will demonstrate significantly different information management attitudes, with greater experience potentially leading to more adaptive and informed approaches.

H5: The university department worked in significantly influences the information management attitudes of youth center directors.

Educational background plays a crucial role in shaping professional competencies and perspectives. Different university departments may emphasize varying curricula that can affect the information management strategies employed by individuals (Johnson et al., 2023). Thus, this hypothesis suggests that the specific department in which youth center directors received their education will significantly influence their information management attitudes.

H6: Having received postgraduate education significantly influences the information management attitudes of youth center directors.

Postgraduate education often equips individuals with advanced skills and a deeper understanding of their fields, which may significantly affect their professional attitudes and practices (Britton & Tesser, 1991). Consequently, this hypothesis posits that youth center directors who have pursued postgraduate education will exhibit distinct information management attitudes compared to their counterparts with only undergraduate degrees.

H7: Engagement in leisure time activities significantly influences the information management attitudes of youth center directors.

Leisure activities are known to contribute to stress reduction and improved well-being, which can enhance professional performance (Klein, 2015). This hypothesis suggests that youth center directors who actively engage in leisure time activities will demonstrate more positive information management attitudes, as their mental well-being may support better decision-making and interpersonal relations.

The proposed hypotheses collectively aim to explore the multifaceted influences on information management attitudes among youth center directors. By examining these various demographic factors, this study seeks to contribute to the understanding of how personal characteristics can shape professional practices in youth services.

Limitations

In this study, assessments were made based on the information management scale applied to youth center directors. Although the relationship between information management attitudes and demographic variables yielded meaningful results, investigating the factors that influence knowledge attitudes could reveal more comprehensible outcomes. Also, increasing the sample

size and incorporating additional demographic data could lead to a clearer understanding of the information management attitudes of youth center directors.

Recommendation

Based on the findings, several recommendations are proposed to formulate a more effective strategy in the realm of knowledge and information management. These include conducting information management processes more systematically within organizations, incorporating relevant topics into management training programs, and organizing in-service training sessions for current managers. Furthermore, fostering organizational memory, creating a culture that encourages knowledge sharing, enhancing knowledge sensitivity, and providing postgraduate education opportunities for staff may significantly strengthen information management practices and cultivate a robust organizational culture.

Significance and Future Directions

In conclusion, this study emphasizes the critical importance of information management attitudes among youth center directors, particularly highlighting areas for improvement, especially in communication. The findings contribute valuable insights into the dynamics of self-development, communication, and commitment within the context of youth management. Future research should delve deeper into the interplay between demographic factors and knowledge management strategies while evaluating the effectiveness of targeted training programs on improving information management practices. Such investigations hold significant potential for optimizing operations within youth centers and similar organizations, ultimately enhancing service delivery and outcomes for the youth they serve.

REFERENCES

Alavi, M., & Leidner, D. E. (2001). Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS Quarterly, 25*(1), 107–136. https://doi.org/10.2307/3250961

Bianchi, S. M., Milkie, M. A., Sayer, L. C., & Robinson, J. (2020). The impact of family structure on professional attitudes: A longitudinal analysis. *Journal of Family Issues, 41*(6), 823–842.

Britton, B. K., & Tesser, A. (1991). Effects of higher education on communication skills. *Journal of Educational Psychology, 83*(4), 496–504. https://doi.org/10.1037//0022-0663.83.3.405

Buchanan, T. W., & Miller, R. J. (2020). Gender differences in communication styles: A meta-analysis. *Journal of Applied Communication Research, 48*(2), 190–208.

Chong, A. Y.-L., Tai, S.-Y., & Hsu, Y.-L. (2021). The role of organizational culture in knowledge management: A study of the effects of digital transformation. *Journal of Knowledge Management, 25*(9), 2345–2362.

Dalkir, K. (2017). *Knowledge management in theory and practice.* MIT Press.

Davenport, T. H., & Prusak, L. (2020). *Working knowledge: How organizations manage what they know.* Harvard Business Review Press.

Demir, K. (2005). Information Management Attitude Scale. *Eurasian Journal of Educational Research (EJER), (20).*

Dufour, B., & Laferrière, T. (2020). The role of organizational culture in knowledge management: Evidence from the literature. *Journal of Knowledge Management, 24*(8), 1969–1985.

George, D., & Mallery, P. (2010). *SPSS for Windows step by step: A simple guide and reference, 17.0 update (10th ed.).* Pearson.

Goh, S. (2019). Building a knowledge-centric organization: The importance of knowledge retention in educational institutions. *Journal of Knowledge Management, 23*(5), 1014–1028.

Goh, S. C. (2019). Knowledge retention strategies: Protecting the knowledge assets. *Knowledge Management Research & Practice, 17*(3), 456–465.

Gupta, A., & Singh, R. (2021). The influence of gender on personal development: Evidence from a cohort study. *International Journal of Educational Management, 35*(4), 711–726.

Harris, C. M., & Kearney, M. A. (2019). Balancing work and family: The effect of marital status on workplace communication. *Human Resource Management Review, 29*(3), 295–306.

Heisig, P. (2021a). Knowledge management: Theoretical foundations and implications. *International Journal of Information Systems for Crisis Response and Management, 13*(1), 70–88.

Heisig, P. (2021b). Harmonisation of knowledge management: Comparing 29 knowledge management frameworks. *Journal of Knowledge Management, 25*(4), 751–775. https://doi.org/10.1108/JIC-07-2020-0256

Huang, C., Zhao, J., & Liu, J. (2021). Professional tenure and workplace engagement: The mediating role of leadership practices. *Journal of Occupational Health Psychology, 26*(1), 105–121.

Johnson, L., McCarthy, L., & Roberts, S. (2023). The paradox of higher education: Exploring communication skills in higher degree holders. *International Journal of Educational Management, 37*(1), 121–134.

Karaca, H., & Demir, O. (2019). Youth engagement in information management: A Turkish perspective. *Youth Studies Quarterly, 12*(4), 80–94.

Klein, K. J. (2015). The role of leisure time in work-life balance. *American Journal of Business, 30*(2), 85–94.

KPMG. (2020). The future of knowledge management: Insights from industry leaders. Retrieved from https://www.kpmg.com

Lee, C., Park, H., & Kim, S. (2020). Demographics and digital literacy: Implications for information management. *International Journal of Information Science, 8*(3), 45–58.

Lee, H., & Choi, B. (2021). Knowledge management in the digital age: Review, synthesis, and future directions. *Journal of Knowledge Management, 25*(7), 1591–1607.

McAdam, R., & McCreedy, S. (2000). A critical review of knowledge management models. *The Learning Organization, 7*(4), 166–179.

Memişoğlu, S. P., & Özsarıkamış, S. (2009). Information management competencies of primary school administrators. *Abant İzzet Baysal University Faculty of Education Journal, 9*(2), 133–151.

Miller, A. J., Silverman, M. D., & Street, J. (2020). Gender dynamics in leadership: Insights from recent studies. *Journal of Business Ethics, 162*(1), 123–139.

Nonaka, I., & Takeuchi, H. (2020). The new new product development game. *Harvard Business Review.*

Nonaka, I., Takeuchi, H., & Umemoto, K. (2021). The new new product development game. In *The knowledge-creating company: How Japanese companies create the dynamics of innovation* (pp. 12–40). Oxford University Press.

Nonaka, I., Toyama, R., & Konno, N. (2021). SECI, Ba and leadership: A united model of dynamic knowledge creation. *International Business Review, 30*(6), 101–112.

Provost, F., & Fawcett, T. (2013). *Data science for business: What you need to know about data mining and data-analytic thinking.* O'Reilly Media.

Republic of Türkiye Ministry of Youth and Sports. (2023). Youth centers. Retrieved December 1, 2023, from https://e-genc.gsb.gov.tr/EGenc/Kurum/KurumList?kurumTipEnum=GenclikMerkezi

Republic of Türkiye Ministry of Youth and Sports Directorate General of Youth Services. (2023). Youth centers. Retrieved December 1, 2023, from https://ghgm.gsb.gov.tr/Sayfalar/3277/3187/genclik-merkezleri-dairesi.aspx

Santos, A. C., & Sampaio, P. (2021). The role of knowledge management in the digital economy. *Journal of Knowledge Management, 25*(3), 553–572.

Schein, E. H. (2019). *Organizational culture and leadership.* Wiley.

Senge, P. M. (2006). *The fifth discipline: The art and practice of the learning organization.* Crown Business.

Wang, F., & Ahmed, P. K. (2020). Knowledge management and innovation: A bibliometric analysis. *Journal of Knowledge Management, 24*(1), 1–18.

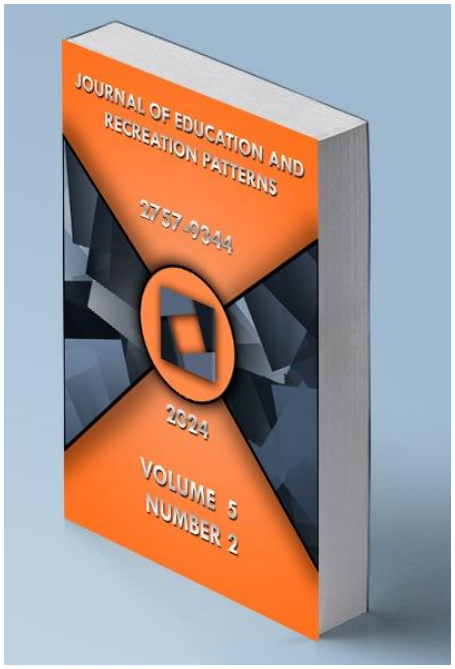
Wenger, E. (2018). *Communities of practice: Learning, meaning, and identity.* Cambridge University Press.

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Investigation of Basketball Players' Mental Training and Courage Levels and Their Perception of Struggle and Threat in Sports

Veysel DALĞALI[1], Varol TUTAL[2]

To cite this article:

Dalğalı,V. & Tutal, V. (2024). Investigation of basketball players' mental training and courage levels and their perception of struggle and threat in sports. *Journal of Education and Recreation Patterns (JERP), 5(2),* 285-297. DOI: https://doi.org/10.53016/jerp.v5i2.261

[1] Provincial Directorate of Youth and Sports, Siirt, Türkiye, veyseldalgali446@hotmail.com, https://orcid.org/0009-0009-9988-5382

[2] Department of Exercise and Sports Science, Faculty of Health Sciences, Malatya Turgut Özal University, Malatya, Türkiye, v.tutal@ozal.edu.tr, https://orcid.org/0000-0001-5647-9370

Journal of Education and Recreation Patterns (JERP)
Volume 5, Issue 2, Year 2024 ISSN: 2757-9344

Investigation of Basketball Players' Mental Training and Courage Levels and Their Perception of Struggle and Threat in Sports

Veysel Dalğalı[1], Varol Tutal[2]

ARTICLE INFORMATION
Original Research Paper

Received 04.10. 2024
Accepted 16.12. 2024

https://jerpatterns.com

December, 2024

Volume: 5, No: 2

Pages: 285-297

ABSTRACT

The purpose of this research; The aim of this study is to examine the mental training and courage levels of basketball players and their perception of struggle and threat in sports. The research included 202 males (70.1%) (Mean age=22.92±4.18) and 86 females studying at the Faculties of Sports Sciences and Schools of Physical Education and Sports of universities located in the Eastern and Southeastern Anatolia regions and playing in basketball clubs. A total of 288 competitive basketball players (29.9%) (Mean age=21.85±2.75) participated voluntarily. The research was designed in relational screening model. The research was designed using the relational screening model. The personal information form created by the researchers as a data collection tool within the scope of the research was developed by Behnke et al. (2019) and the revision of the Turkish inventory was conducted by Yarayan and İlhan (2018). The mental training inventory was developed by Rossato, Uphill, Swain, and Coleman (2018). The struggle and threat scale in sports adapted to Turkish by Türkyılmaz and Altıntaş (2020) and the courage scale developed by Konter and Johan (2012) were used. In the analysis of the data, first the skewness and kurtosis values were examined for normality assumptions, and it was determined that the distribution was normal. In this regard, t-test was used to compare two independent groups, One Way Anova test was used to compare more than two independent groups, and Pearson correlation analysis was used to determine the relationships between variables.

When the findings obtained within the scope of the research were examined, statistically significant relationships were determined between the mental training level of basketball players and their courage, struggle and threat level. Based on these results, it has been determined that as the level of mental training increases, the level of courage, struggle and threat will also increase. However, when the statistical analyzes for demographic variables within the scope of the research are examined; It was not determined that the variables of gender, level of sportsman ship and years of doing sports created a significant difference between the groups.

In conclusion, It has been determined that the value of mental training cannot be denied in sports that require intense physical and mental effort, such as basketball, and it is though that the mental strength of athletes can make them more resilient not only physically but also emotionally and psychologically.

Keywords: Basketball, Courage Level, Mental Training, Struggle, Threat Perception.

INTRODUCTION

Recent studies show that individuals who engage in high levels of physical activity and sports in their daily lives tend to be healthier and mentally stronger (Akgül et al., 2024; Arı et al., 2020; Dursun et al., 2021; Edwards and Barker, 2015; Yarayan et al., 2024). People who are involved in sports professionally must manage and control their sports activities and exercise psychology effectively. Sports and exercise psychology is defined as a scientific discipline that studies human behavior in sports-related fields, which are sub-branches of these two sciences (Gill, 1986). Strength and conditioning training in sports activities has been a widespread practice for many years, especially in regions like America and Europe, as well as in our country, where its popularity and application have increased in recent years. The primary goal of this type of training is to scientifically enhance the strength and overall fitness levels of athletes. In addition to physical and conditioning training, mental training has been shown to contribute to solving anticipatory, mental, and behavioral problems (Altıntaş & Akalan, 2008). The ultimate aim is to maximize athletes' performance during competitions, thereby optimizing their efficiency on the field. By integrating scientific knowledge and methods into strength and conditioning programs, athletes become better equipped to achieve success. Studies focusing on optimal performance and psychological factors are also present in the literature (Yarayan et al., 2023; Yarayan & Gülşen, 2023; Yarayan et al., 2022).

Strength and conditioning training involve the planning and implementation of exercises specifically designed to improve various motor and anthropometric factors that influence athletic performance. Advanced motor skills, such as dribbling abilities, shooting accuracy, and passing precision, play a crucial role in distinguishing the best basketball players from their peers. However, to achieve the highest performance levels, athletes must not only possess exceptional skills but also maintain optimal physical health and conditioning, surpass basic standards, and achieve long-term physical capacity (Bompa & Haff, 2015).

Although basketball is a team sport, the importance of evaluating athletes as individuals during training cannot be overlooked. Each player has unique motor and morphological characteristics, which require training programs tailored to their positions and individual needs. The frequency of training required for each athlete may vary.

In today's basketball environment, technical and tactical skills remain important, but motor skills significantly impact performance. The less fatigued an athlete is during competition, the better they can understand the game, execute technical maneuvers, and make informed decisions, ultimately increasing their chances of success. Numerous studies have highlighted the importance of strength, anaerobic capacity, and other motor skills in basketball players, emphasizing their role in optimizing performance.

Regardless of the sport, being physically prepared is essential for success in any discipline, but being mentally prepared is equally important. When athletes are mentally ready, it becomes easier for them to focus before the competition begins. It is said that physical, mental, and spiritual success together lead to sporting achievement (Anshel, 1990).

In the sport of basketball, mental training during activities enhances competitive performance and helps athletes focus more on the game. It has also been observed that athletes who are strong in mental training make better decisions due to their increased confidence. They are thought to react more quickly to threats posed by their opponents.

In this context, the aim of this study on basketball players is to examine their mental training and courage levels, as well as their perceptions of competition and threats in sports.

METHOD

Research Model

In this study, designed using a relational survey model, the relationships between basketball players' mental training and courage levels, as well as their levels of perception of competition and threats in sports, were examined. "The aim of this model is to determine the existence and/or degree of co-variation between two or more variables" (Fraenkel, Wallen, &Hyun, 2012; Creswell & Creswell, 2017).

Universe and Sample

The data for the study consists of university students and basketball club players who are over the age of 18 and have been actively playing basketball for at least one year in certain cities and universities in the Eastern and Southeastern Anatolia regions in 2023-2024. Necessary explanations were made to the participants in the relevant educational institutions and sports clubs and their voluntary participation was ensured. Participants were selected using pragmatic sampling methods, considering accessibility and cost-effectiveness (Gravetter & Forzano, 2012). A total of 288 athletes participated in the study, including 202 males (70.1%) and 86 females (29.9%). Ethical approval for conducting this research was obtained from Siirt University, with the ethics committee approval number 645 dated 14.08.2023.

Data Collection Tools

In this study, the data collection tools included a personal information form created by the researchers, which consisted of questions on gender, sports level, and years of sports activity. Additionally, the Mental Training Inventory, developed by Behnke et al. (2019) and revised for the Turkish inventory by Yarayan and İlhan (2018), was used. The inventory consists of basic mental skills (4 items) α=0.82), mental functioning skills (6 items) (α=0.82), personal communication skills (4 items) (α=0.85), self-talk (3 items) (α=0.91), mental visualization (3 items) (α=0.82) and a total of 20 items. The inventory is a 5-point Likert type scale. The Sport Competition and Threat Scale, developed by Rossato, Uphill, Swain, and Coleman (2018) and adapted into Turkish by Türkyılmaz and Altıntaş (2020), along with the Courage Scale developed by Konter and Johan (2012), were also utilized. Courage scale in sports the scale is a 5-point Likert-type scale consisting of 5 sub-dimensions and 31 items. Competence-mastery (confidence) (,a=0.82); Stability (,a=0.82); Assertiveness (,a=0.72); Taking risks (facing fears) (,a=0.72); Self-sacrifice (,sacrifice) (,a=0.61). The scale of struggle and threat perception in sports consists of a total of 12 items and two subscales presented in a 6-point Likert format.

Data Analysis

The statistical analysis of the data obtained from the scales was conducted using the SPSS 22.0 software. As part of the research, the missing data were first evaluated to verify the appropriateness of the analyses and whether the assumptions were met. At this stage, the data were tested for normality using the Kolmogorov-Smirnov test, and it was determined that the data did not meet the normality assumptions. In this context, the skewness and kurtosis values of -2 to +7, as suggested by Hong, Malik, and Lee (2003), were considered, and it was observed that the distribution was normal (Table 1). To determine the differences in the courage levels of basketball players based on gender and athletic level variables, a T-test was conducted to identify the source of the differences. A one-way ANOVA was used based on the number of years of sports participation. After this analysis, Pearson correlation analysis was also utilized to determine the relationships between the scales.

FINDINGS

In the findings section of the research, information regarding the findings obtained as a result of the analysis of the data obtained in line with the purpose is included.

Table 1

Demographic Characteristics of Participants

Variables	Groups	Frequency (n)	Percentage (%)
Gender	Male	202	70,1
	Female	86	29,9
Sports Level	Professional	54	18,8
	Amateur	234	81,2
Years of Sports Participation	1-3 Years	67	23,3
	4-6 Years	77	26,7
	7-9 Years	62	21,5
	10 Years and Above	82	28,5

Table 1 presents the distribution of demographic characteristics among the research participants, indicating that out of 288 basketball players, 70.1% were male and 29.9% were female. Additionally, the majority of the athletes were classified as amateur (81.2%) compared to professional (18.8%), and the distribution of years of sports participation varied, with the largest group having participated for 10 years and above (28.5%).

Table 2

Mean, Standard Deviation, Skewness, and Kurtosis Values of the Scales Used in the Study

Scales	N	M	SD	Skewness	Kurtosis
Total Mental Training	288	77,64	11,446	-1,559	5,633
Perception of Threat	288	27,69	8,328	-,155	-,891
Perception of Competition	288	24,00	4,865	-1,388	2,221
Courage	288	114,69	19,384	-,644	,906

Table 2 shows that skewness values range between -1.559 and -0.155, and kurtosis values range between -0.891 and 5.633. Considering the skewness and kurtosis values of -2 to +7, as suggested by Hong, Malik, and Lee (2003), it was determined that the distribution follows a normal distribution. Table 2 displays the descriptive statistics, including the mean (M), standard deviation (SD), skewness, and kurtosis values for each scale utilized in the study. The results indicate that all scales exhibit acceptable levels of skewness and kurtosis, suggesting that the data distributions are approximate normality. Specifically, the Total Mental Training scale has a mean of 77.64 (SD = 11.45) with slight negative skewness (−1.56) and elevated kurtosis (5.63). The Perception of Threat scale shows a mean of 27.69 (SD = 8.33) with minimal skewness (−0.16) and slight negative kurtosis (−0.89). The Perception of Competition scale presents a mean of 24.00 (SD = 4.87) with notable negative skewness (−1.39) and positive kurtosis (2.22). Lastly, the Courage scale has a mean of 114.69 (SD = 19.38) with moderate negative skewness (−0.64) and slight positive kurtosis (0.91). These statistical properties confirm the suitability of the scales for subsequent analyses in the study.

Table 3

Independent Samples T-Test Results for Gender Differences

Scales	Gender	N	M	SD	t	df	p
Total Mental Training	Male	86	77,25	9,033	-,426	286	0,671
	Female	202	77,81	12,348			
Perception of Threat	Male	86	28,12	7,876	,576	286	0,565
	Female	202	27,50	8,525			
Perception of Competition	Male	86	23,37	4,703	-1,448	286	0,149
	Female	202	24,27	4,919			
Courage	Male	86	112,68	17,663	-1,161	286	0,247
	Female	202	115,55	20,051			

Table 3 presents the results of independent samples t-tests conducted to examine gender differences in Total Mental Training, Perception of Threat, Perception of Competition, and Courage among basketball players. The analyses revealed no statistically significant differences between male and female players across all measured variables. Specifically, for Total Mental Training, males (M = 77.25, SD = 9.03) did not differ significantly from females (M = 77.81, SD = 12.35), t(286) = −0.426, p = .671. Similarly, no significant differences were found in Perception of Threat (males: M = 28.12, SD = 7.88; females: M = 27.50, SD = 8.53), t(286) = 0.576, p = .565; Perception of Competition (males: M = 23.37, SD = 4.70; females: M = 24.27, SD = 4.92), t(286) = −1.448, p = .149; or Courage (males: M = 112.68, SD = 17.66; females: M = 115.55, SD = 20.05), t(286) = −1.161, p = .247. These findings suggest that gender does not significantly influence the levels of mental training, perception of threat and competition, or courage among competitive basketball players in this sample.

Table 4

Independent Samples T-Test Results for Athletic Level Differences

Scales	Sports Level	N	M	SD	t	df	p
Total Mental Training	Professional	234	77,51	10,495	-0,330	286	0,743
	Amateur	54	78,22	14,995			
Perception of Threat	Professional	234	27,33	8,272	-1,535	286	0,126
	Amateur	54	29,25	8,463			
Perception of Competition	Professional	234	24,08	4,631	0,538	286	0,591
	Amateur	54	23,68	5,810			
Courage	Professional	234	113,97	19,165	-1,314	286	0,190
	Amateur	54	117,81	20,193			

When the participants' mental training levels were examined according to the athletic level variable in Table 4, it was determined that there was no significant difference in the total score (t(286)=-0.330, p>0.05). When examining the threat perception levels and the athletic level variable, it was found that there was no significant difference in the total score (t(286)=-1.535, p>0.05). Similarly, when the competition perception levels and the athletic level variable were examined, no significant difference was found in the total score (t(286)=0.538, p>0.05). Lastly, when examining the courage levels and the athletic level variable, no significant difference was found in the total score (t(286)=-1.314, p>0.05).

Table 5

One-Way ANOVA Results for Years of Sports Participation on Psychological Variables

Scales	Year of Sports	N	M	SD	df	f	p
Total Mental Training	1-3 years	67	77,671	10,158			
	4-6 years	77	77,948	10,901	3		
	7-9 years	62	78,983	9,602	284	0,660	0,578
	10 years and above	82	76,329	14,000	287		
	Total	288	77,645	11,446			
Perception of Threat	1-3 years	67	27,582	6,715			
	4-6 years	77	26,129	8,839	3		
	7-9 years	62	27,790	8,706	284	1,801	0,147
	10 years and above	82	29,182	8,602	287		
	Total	288	27,694	8,328			
Perception of Competition	1-3 years	67	24,059	4,795			
	4-6 years	77	23,857	5,038	3		
	7-9 years	62	24,500	4,626	284	0,324	0,808
	10 years and above	82	23,731	4,991	287		
	Total	288	24,006	4,865			
Courage	1-3 years	67	111,417	21,308			
	4-6 years	77	115,636	16,115	3		
	7-9 years	62	114,596	19,475	284	0,952	0,416
	10 years and above	82	116,561	20,465	287		
	Total	288	114,694	19,384			

1= 1-3 yıl / 2=4-6 yıl / 3=7-9 yıl / 4=10 years and above/ p<0,05

Table 5 presents the results of one-way Analysis of Variance (ANOVA) conducted to examine the effects of years of sports participation on four psychological variables: Total Mental Training, Perception of Threat, Perception of Competition, and Courage among competitive basketball players. The participants were categorized into four groups based on their years of sports participation: 1–3 years, 4–6 years, 7–9 years, and 10 years and above.

For Total Mental Training, the mean scores across the groups were 77.67 (SD = 10.16) for 1–3 years, 77.95 (SD = 10.90) for 4–6 years, 78.98 (SD = 9.60) for 7–9 years, and 76.33 (SD = 14.00) for 10 years and above. The ANOVA revealed no significant differences among the groups, $F(3, 284) = 0.660$, $p = .578$. In the case of Perception of Threat, the mean scores were 27.58 (SD = 6.71), 26.13 (SD = 8.84), 27.79 (SD = 8.71), and 29.18 (SD = 8.60) for the respective groups. The ANOVA indicated no significant differences, $F(3, 284) = 1.801$, $p = .147$. Regarding Perception of Competition, the mean scores were 24.06 (SD = 4.80), 23.86 (SD = 5.04), 24.50 (SD = 4.63), and 23.73 (SD = 4.99). The one-way ANOVA showed no significant differences among the groups, $F(3, 284) = 0.324$, $p = .808$. Lastly, for Courage, the mean scores were 111.42 (SD = 21.31), 115.64 (SD = 16.12), 114.60 (SD = 19.48), and 116.56 (SD = 20.47). The ANOVA results indicated no significant differences across the groups, $F(3, 284) = 0.952$, $p = .416$.

These findings suggest that the number of years participants have engaged in sports does not significantly influence their levels of mental training, perception of threat and competition, or courage within this sample of competitive basketball players.

Table 6

Correlation Analysis of Mental Training and Psychological Variables in Basketball Players

Scales		Total Mental Training	Perception of Threat	Perception of Competition	Courage
Total Mental Training	r	1	,013	,405**	,220**
	p		,828	,000	,000
	n	288	288	288	288
Perception of Threat	r	,013	1	-,087	,282**
	p	,828		,142	,000
	n	288	288	288	288
Perception of Competition	r	,405**	-,087	1	,397**
	p	,000	,142		,000
	n	288	288	288	288
Courage	r	,220**	,282**	,397**	1
	p	,000	,000	,000	
	n	288	288	288	288

** Expresses significance / p<0,05

Table 6 presents the Pearson correlation coefficients (r) and corresponding p-values (p) for the relationships between Total Mental Training, Perception of Threat, Perception of Competition, and Courage among 288 competitive basketball players.

The analysis reveals that Total Mental Training is significantly positively correlated with both Perception of Competition ($r = .405$, $p < .001$) and Courage ($r = .220$, $p < .001$), indicating that higher levels of mental training are associated with greater perceptions of competition and higher courage levels. Additionally, Perception of Threat shows a significant positive correlation with Courage ($r = .282$, $p < .001$), suggesting that athletes who perceive higher threats also exhibit higher levels of courage.

Conversely, the correlation between Total Mental Training and Perception of Threat is not statistically significant ($r = .013$, $p = .828$), nor is the relationship between Perception of Threat and Perception of Competition ($r = -.087$, $p = .142$). These findings indicate that mental training does not significantly influence athletes' perception of threats in their sport, and perceptions of threat and competition are not significantly related.

Overall, the significant positive correlations underscore the importance of mental training in enhancing competitive perception and courage among basketball players, while the non-significant relationships highlight areas where mental training may not directly impact certain psychological perceptions.

DISCUSSION & CONCLUSION

According to the findings of the study, when the mental training levels of the participants were examined based on the gender variable, no significant difference was found in the overall scores. In their study, Erman et al. (2023) also found that the gender factor did not result in a significant difference in mental training levels. In the study by Çelik and Güngör (2020), although the average scores were higher for men, no statistically significant difference was found between gender and mental training levels. Similarly, Karaca and Gündüz (2021) also found no significant difference between gender and mental training levels in another study. However, some studies contradict these findings. In the study by Cankurtaran (2020), a

statistically significant difference was found in the self-talk sub-dimension of mental training, with the difference clearly in favor of male participants.

When the mental training levels of the participants were examined according to the athletic level variable, no significant difference was found in the total score. In their study, Erdoğan and Gülşen (2020) found significant differences in the sub-dimensions of mental training based on athletic level. In a study by Keskin et al. (2020), it was concluded that professional athletes had higher mental training levels compared to amateur athletes. On the other hand, Güvendi and Pehlivan (2020) found no statistically significant difference between athletic level and mental training level. Erman et al. (2023) found a significant difference between athletic level and mental training level, with the difference favoring professional athletes. It is clear from a review of the literature that there are studies both consistent and inconsistent with the present research. These differences are thought to be due to socio-cultural factors and the demographic characteristics of the study populations.

In this study, no significant difference was found in the total mental training scores according to the number of years of sports participation. Erman et al. (2023) concluded that as the number of years of sports participation increased, so did mental training levels. In the study by Öner and Cankurtaran (2020), it was found that the number of years of sports participation had an effect on mental training levels, with athletes who had participated for longer years having higher mental training levels than those with fewer years. Similarly, Kara and Hoşver (2019) found that as the number of years of sports participation increased, significant differences were observed in the sub-dimensions of mental training, with the differences favoring athletes with more years of experience. Doğan (2019), on the other hand, found no significant difference between mental training levels and the number of years of sports participation. Cebeci et al. (2019) also found no correlation between the number of years of sports participation and mental training levels.

In the study, when the statistics between the threat perception sub-dimension of the competition and threat perception scale and the gender variable were examined, no significant difference was found in the total score. No significant difference was found in the total score between the competition perception sub-dimension and the gender variable. In the study by Karaca and Gündüz (2021), no significant difference was found between competition and threat levels and gender. Erman et al. (2023) also found no significant difference between gender and competition and threat levels in their study. Jones (2002) also found no significant result between competition and threat levels and gender.

When the threat perception levels and athletic level variable were examined, no significant difference was found in the total score. When the competition perception levels and athletic level variable were examined, no significant difference was found in the total score. In their study, Türkyılmaz and Altıntaş (2020) found a significant difference between competition and threat levels and athletic level, with the difference favoring professional athletes. Similarly, Erman et al. (2023) found significant results in favor of professional athletes regarding competition and threat levels and athletic level.

No significant difference was found in the threat perception subscale scores of the participants. No significant difference was found in the competition perception sub-dimension scores of the participants. In their study, Erman et al. (2023) found statistically significant differences between competition and threat levels and sports participation levels. It can be said that the advantage of older athletes in sports may explain this difference.

When the statistics for the courage scale were examined, no significant difference was found between the courage level and the gender variable. In his master's thesis, Kaya (2018) found no significant difference between gender and courage levels. Similarly, Can and Kaçay (2016) found no significant difference between gender and courage levels in their study.

When the courage levels and athletic level variable of the participants were examined, no significant difference was found in the total score. In his study, Konter (2015) found no significant difference between athletic level and courage, with the difference indicating that national/professional athletes take fewer risks compared to non-professional athletes. Similarly, Can and Kaçay (2016) found no significant results between individual or team athletes and their courage levels in their study.

No statistically significant difference was found in the total courage scores of the participants. In their study, Güvendi et al. (2018) found a statistically significant positive relationship between the number of years of sports participation and courage levels. However, Kaya (2018) found no statistically significant difference between the number of years of sports participation and courage levels in his master's thesis.

When the correlation analysis results between the scales applied to the participants were examined, a low positive correlation was found between total mental training score and threat perception, a high positive correlation with competition perception, and a positive correlation with courage. Considering these relationships, our study findings suggest that as mental training levels increase, basketball players' competition and courage levels also increase. When examining the correlation analysis results between the scales applied to the participants, a low positive relationship was found between threat perception and mental training, a low negative relationship with competition perception, and a high positive relationship with courage. Based on these relationships, it can be observed that as the level of threat increases, the level of courage also increases. When the correlation analysis results between the scales were examined, a high positive relationship was found between competition perception and mental training, a low negative relationship with threat perception, and a high positive relationship with courage. Based on these relationships, it can be observed that as the level of competition increases, the level of courage also increases.

Finally, when examining the correlation analysis results, a high positive relationship was found between courage levels and mental training, a high positive relationship with threat perception, and a high positive relationship with competition perception. Considering these relationships, it can be observed that as the level of courage increases, the levels of competition and threat perception also increase.

In conclusion, mental training has positive effects on basketball players' competition, threat perception, and courage levels. Therefore, incorporating mental training programs into basketball teams' training routines and ensuring that managers and coaches prioritize these programs are believed to contribute positively to both individual and team performance.

Recommendation

Athletes can be provided with individual mental training coaches, providing support tailored to their individual needs. This enables athletes to cope more effectively with their unique challenges.

Basketball teams should regularly implement mental training programs to increase the mental toughness of their players.

Coaches and sports psychologists should emphasize the importance of mental training and inform athletes about it. Athletes can use these techniques more effectively by being informed about the benefits of mental training.

Monitoring the effects of mental training and providing regular feedback helps athletes evaluate their progress. This increases the effectiveness of training programs and allows for necessary adjustments to be made.

As a result, it is seen that mental training has positive effects on basketball players' perceptions of struggle and threat and courage levels. Therefore, it is of great importance to include mental training programs in the training routines of basketball teams.

Based on the findings, several recommendations are proposed to formulate a more effective strategy in the realm of knowledge and information management. These include conducting information management processes more systematically within organizations, incorporating relevant topics into management training programs, and organizing in-service training sessions for current managers. Furthermore, fostering organizational memory, creating a culture that encourages knowledge sharing, enhancing knowledge sensitivity, and providing postgraduate education opportunities for staff may significantly strengthen information management practices and cultivate a robust organizational culture.

REFERENCES

Akgül, A., Solmaz, S., Uzun, A., & Yarayan, Y. E. (2024). Mental toughness: The role of imagery and emotional intelligence. *The Online Journal of Recreation and Sports*, 13(3), 334–340. https://doi.org/10.22282/tojras.1465496

Arı, Ç., Ulun, C., Yarayan, Y. E., Dursun, M., Mutlu, T., & Üstün, Ü. D. (2020). Mindfulness, healthy life skills and life satisfaction in varsity athletes and university students. *Progress in Nutrition*, 22(2), 1–8. https://doi.org/10.23751/pn.v22i2-S.10561

Altıntaş, A., & Akalan, C. (2008). Mental training and high performance. *Spormetre Journal of Physical Education and Sports Sciences*, 6(1), 39–43. https://doi.org/10.1501/Sporm_0000000131

Anshel, M. H. (1990). Perceptions of black intercollegiate football players: Implications for the sport psychology consultant. *The Sport Psychologist*, 4(3), 235–248. https://doi.org/10.1123/tsp.4.3.235

Behnke, M., Tomczak, M., Kaczmarek, L. D., Komar, M., & Gracz, J. (2019). The sport mental training questionnaire: Development and validation. *Current Psychology*, 38, 504–516. https://doi.org/10.1007/s12144-017-9629-1

Bompa, T., & Haff, G. G. (2015). *Periyodik dönemleme antrenman kuramı ve yönetimi* [Periodization: Theory and methodology of training]. Ankara: Spor Yayınevi.

Can, Y., & Kaçay, Z. (2016). Investigation of the relationship between athlete identity perception, courage and self-confidence<p>Sporcu kimlik algısı ile cesaret ve özgüven duyguları arasındaki ilişkilerin incelenmesi. *Journal of Human Sciences*, *13*(3), 6176–6184. https://doi.org/10.14687/jhs.v13i3.4353

Cankurtaran, Z. (2020). The effect of the mental training skills used by the archers in the competition environment on the ranking shot scores. *International Journal of Contemporary Educational Studies (IntJCES)*, 6(1), 13–29.

Cebeci, C., Doğu Algün, G., & Yılmaz, B. (2019). Badminton sporcularının zihinsel antrenman düzeylerinin incelenmesi. In *2. Uluslararası Herkes İçin Spor ve Wellness Kongresi* (pp.). Antalya.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage Publications.

Çelik, O. B., & Güngör, N. B. (2020). The effects of the mental training skills on the prediction of the sports sciences faculty students' anxiety levels. *International Journal of Eurasian Education and Culture*, (9), 888–929.

Dursun, M., Yarayan, Y. E., Arı, Ç., Ulun, C., & Adaş, S. K. (2021). COVID-19 in Turkey: Leisure boredom, psychological resilience, physical activity and emotional state. *IJERI: International Journal of Educational Research and Innovation*, 15, 460–486. https://doi.org/10.46661/ijeri.5588

Doğan, E. (2019). Comparison of imagery styles of female and male athletes. *Gaziantep University Journal of Sports Sciences*, 4(3), 373–381. https://doi.org/10.31680/gaunjss.605586

Edwards, D. J., & Barker, J. B. (2015). Practitioners' perceptions of sport and exercise psychology in South Africa and the United Kingdom. *African Journal for Physical Health Education, Recreation and Dance*, 21(2), 619–637. https://hdl.handle.net/10520/EJC172480

Erdoğan, B. S., & Gülşen, D. B. A. (2020). Determination of mental training levels of athletes studying in the Faculty of Sport Sciences. *Mediterranean Journal of Sport Science*, 3(1), 219–228. https://doi.org/10.38021/asbid.753967

Erman, M. Y., Turhan, M. Ö., & Sarı, C. (2023). Investigation of mental training levels of athletes and perceptions of challenge and threat in sports. *Gazi Journal of Physical Education and Sports Sciences*, 28(1), 32–41. https://doi.org/10.53434/gbesbd.1149920

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education*. New York: McGraw-Hill.

Gill, D. L. (1986). A prospective view of the journal of sport (and exercise) psychology. *Journal of Sport and Exercise Psychology*, 8(3), 164–173. https://doi.org/10.1123/jsp.8.3.164

Gravetter, F., & Forzano, L. (2012). Selecting research participants. *Research Methods in the Behavioral Sciences*, 125, 139.

Güvendi, B., & Pehlivan, M. Y. (2020). The examination of self-talks and aggression and anger behaviors in combat athletes. *Beden Eğitimi ve Spor Bilimleri Dergisi*, 14(2), 168–176.

Güvendi, B., Türksoy, A., Güçlü, M., & Konter, E. (2018). Examination of the level courage and mental toughness of professional wrestlers. *International Journal of Sport Exercise and Training Sciences (IJSETS)*, 4(2), 70–78. https://doi.org/10.18826/useeabd.424017

Hong, S. M., Malik, M. K., & Lee, M. K. (2003). Testing configural, metric, scalar, and latent mean invariance across genders in sociotropy and autonomy using a non-Western sample. *Educational and Psychological Measurement*, 63(4), 636–654. https://doi.org/10.1177/0013164403251332

Jones, G., Hanton, S., & Connaughton, D. (2002). What is this thing called mental toughness? An investigation of elite sport performers. *Journal of Applied Sport Psychology*, 14(3), 205–218. https://doi.org/10.1080/10413200290103509

Kara, Ö., & Hoşver, P. U. (2019). Investigation of the mental training level of women volleyball players who take place in play-off competition in terms of some variables. *International Sport Science Student Studies*, 1(1), 35–42.

Karaca, R., & Gündüz, N. (2021). Examining the relationship between mental training and performance in orienteering athletes. *Spormetre: The Journal of Physical Education and Sport Sciences*, 19(1), 99–115. https://doi.org/10.33689/spormetre.719991

Kaya, B. (2018). *Comparison of individual and team athletes' sport courage levels* (Master's thesis, İstanbul Gelişim Üniversitesi, Sağlık Bilimleri Enstitüsü).

Keskin, B., Güvendi, B., & Kaplan, M. (2020). The relation between self-talking and decision making styles for table tennis players. *Sport Sciences*, 15(4), 44–52.

Konter, E. (2015). 10–13 yaş grubu çocukların seçili kişisel değişkenlerine göre cesaret profilleri. In *Ulusal Spor Hekimliği Kongresi*.

Konter, E., & Ng, J. (2012). Development of sport courage scale. *Journal of Human Kinetics*, 33, 163–172. https://doi.org/10.2478/v10078-012-0055-z

Öner, Ç., & Cankurtaran, Z. (2020). The determinative role of the mental skills and techniques of elite archers in their shooting performance. *International Journal of Exercise Psychology*, 2(1), 1–9.

Rossato, C. J., Uphill, M. A., Swain, J., & Coleman, D. A. (2018). The development and preliminary validation of the Challenge and Threat in Sport (CAT-Sport) scale.

International Journal of Sport and Exercise Psychology, 16(2), 164–177. https://doi.org/10.1080/1612197X.2016.1182571

Türkyılmaz, H. B., & Altıntaş, A. (2020). Investigation of psychometric characteristics of Challenge and Threat in Sports Scale. *Turkiye Klinikleri Journal of Sports Sciences*, 12(2). https://doi.org/10.5336/sportsci.2019-72097

Yarayan, Y. E., & İlhan, E. L. (2018). The Sport Mental Training Questionnaire (SMTQ) adaptation study. *Gazi Journal of Physical Education and Sport Sciences*, 23(4), 205–218.

Yarayan, Y. E., İlhan, E. L., Esentürk, O. K., Arı, Ç., & Gülşen, D. B. A. (2023). Does emotional intelligence affect mental toughness in physically disabled athletes? *Journal of Sports Sciences Research*, 8(2), 231–242. https://doi.org/10.25307/jssr.1228541

Yarayan, Y. E., & Gülşen, D. B. A. (2023). A stepwise regression analysis on the effects of imagery and emotion regulation on courage level in athletes. *Journal of ROL Sport Sciences*, 896–910.

Yarayan, Y. E., Solmaz, S., Aslan, M., Batrakoulis, A., Al-Mhanna, S. B., & Keskin, K. (2024). Sex differences in athletic performance response to the imagery and mental toughness of elite middle- and long-distance runners. *Sports*, 12(6), 141. https://doi.org/10.3390/sports12060141

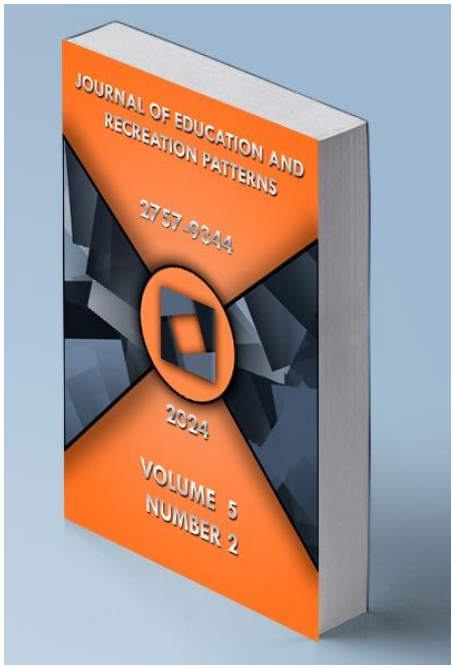
Yarayan, Y. E., Güngör, N. B., Çelik, O. B., & Gülşen, D. B. A. (2022). Path analysis: Predicting psychological performance strategies in the context of athlete identity. *Mediterranean Journal of Sport Science*, 5(3), 699–712. https://doi.org/10.38021/asbid.1164718

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

The Effect of Managerial Humour on Counterproductive Work Behaviours in Sport Service Providers

Ali KAYA[1]

To cite this article:

Kaya, A. (2024). The effect of managerial humour on counterproductive work behaviours in sport service providers. *Journal of Education and Recreation Patterns (JERP), 5 (2)*, 298-312. DOI: https://doi.org/10.53016/jerp.v5i2.272

[1] Istanbul Gelişim University, faculty of sports sciences, alikaya@gelisim.edu.tr ,
https://orcid.org/0000-0002-6417-4523

Journal of Education and Recreation Patterns (JERP)
Volume 5, Issue 2, Year 2024 ISSN: 2757-9344

The Effect of Managerial Humour on Counterproductive Work Behaviours in Sport Service Providers

Ali Kaya[1]

ARTICLE INFORMATION
Original Research Paper

Received 01.11. 2024
Accepted 30.12. 2024

https://jerpatterns.com

December, 2024

Volume: 5, No: 2

Pages: 298-312

ABSTRACT
The purpose of this study is to examine the effect of managerial humor on counterproductive work behaviors in sport organizations. Another aim of the study is to examine whether managerial humor and counterproductive work behaviors vary according to gender, age, marital status, and position variables. The study was prepared using the relational survey model and conducted on a voluntary basis. The questionnaire technique was used as a data collection tool in the study. In the study, coaches, facility supervisors and counseling staff in sports service companies located in the European side of Istanbul constitute the population and 322 personnel selected by convenience sampling method from this population constitute the sample. In addition to the personal information form, the perceived manager humor scale and the counterproductive work behavior scale were used in the study. The analysis of the study was transferred to the SPSS 25.0 package program, and after the Kolmogorov-Smirnov normality test, it was determined that the data did not show normal distribution. Reliability analysis was performed to determine the reliability levels of the total and subdimensions of the scales used in our study, and "Chronbach's Alpha Coefficient" was obtained. As a statistical analysis, Mann Whitney U, Kruskal Wallis and Spearman correlation analyses were applied to the research group. According to the results of the research, excessive use of humor in sports companies can cause counterproductive work behaviors by damaging business efficiency. In particular, sarcastic humor and rejectionist humor can cause problems between individuals by causing business productivity.

Keywords: Behavior, Humor, Sports Businesses

INTRODUCTION

The impact of humor on human health and well-being has been a subject of extensive research over many years. The findings of this research have led to the conclusion that humor possesses certain features that can be beneficial to health. These benefits include immune system strengthening, pain reduction, and the alleviation of stress hormone responses. It has been postulated that humor can induce relaxation of muscles, enhance endorphin production, provide analgesia, and facilitate respiration (Johnson, 2024). Individuals who possess a sense of humor have been observed to exhibit a reduced emotional response when confronted with situations that evoke negative effects. Additionally, the ability to experience and appreciate humor is a crucial element in fostering more harmonious social interactions (Kastner, 2024). As posited by McGhee (1983), a seminal figure in the field of humor research, the capacity to withstand emotional distress is a crucial attribute for navigating the increasingly stressful world we inhabit. Humor can be regarded as a distinct skill. It is therefore important to develop the capacity for humor as a skill and to utilize it when appropriate.

The employment of humor facilitates the perception of circumstances that are generally regarded as grave or disconcerting from a more whimsical and diverting vantage point. This approach enables individuals to approach problems from a novel perspective. Consequently, individuals who adopt a humanist and common-sense approach to problem-solving tend to obtain more accurate results. Humor plays a pivotal role in facilitating effective communication within the context of interpersonal relationships. Humor has been shown to facilitate the resolution of interpersonal conflicts (Özşenler, 2016).

The predominant objective of business entities is to maximize productivity while minimizing expenses. A significant objective in this regard is the curtailment of counterproductive work behaviors (Moretti, 2009). The presence of such behaviors has been identified as a detrimental factor for both individual and organizational performance (Moretti, 2009). This phenomenon has emerged as a pressing concern within the business community, particularly in the post-1990s era (Gökçen Kapusuz & Biçer, 2018; Huang et al., 2017).

Counterproductive work behaviors (CWB), which are pervasive in business settings and require management attention, are deliberate and intentional actions by employees that adversely affect organizational functioning (Ahmed, 2024). Such behaviors are detrimental to organizations in several ways, including the achievement of organizational goals and objectives, the generation of profits, the maintenance of customer relations, the organization's structure, and the efficiency of production. Furthermore, there exist behaviors that are deliberately designed to cause harm to the organization. These include theft, sabotage, conflict, slowing down work, shirking, the wasteful use of time and resources, and gossip. The underlying cause of these behaviors, which manifest in various forms, is the direct or indirect damage to the organization resulting from an employee engaging in deviant behavior (Öcel & Aydın, 2010).

This study provides a unique perspective by investigating the effect of managers' use of humor on counterproductive work behaviors in sport service businesses.In addition to examining the effects of humor styles (affirming, sarcastic, productive, rejecting, and humorless) on organizational productivity, the study also examined whether these effects differ according to demographic variables such as gender, age, marital status, and position. While numerous studies have explored the role of humor in individual well-being and social interactions, research on the impact of humor on counterproductive behaviors within organizational settings is scarce.In addressing this gap, the present study contributes to the extant literature by examining the effects of humor in the context of sports organizations, with a focus on its effects at the managerial level. This novel approach offers significant insights into managerial practices and contributes to the broader discourse surrounding the role of

humor in organizational settings. The main problem sentence of this content is the question of whether humorous dimensions have an impact on productivity and work output of managers working in the field of sports services.

METHOD

This section presents an explanation of the research model, the population and sample, the data collection tools and the data analysis.

Research Model

The research model was constructed in accordance with the principles of a relational survey model. The relational survey model is a research instrument that enables the examination of the existence and degree of change of multiple variables concurrently (Karasar, 2017). The primary method for data collection was a questionnaire. The survey was conducted on a voluntary basis. The participants were asked to complete a form containing descriptive information, a scale measuring their perception of managerial humor, and another scale measuring their perception of organizational deviance.

Universe and Sample

The population under investigation comprises coaches, facility supervisors, and counseling staff employed in sports service businesses situated on the European side of Istanbul. The sample was selected by convenience sampling from this population and consisted of 322 individuals. Convenience sampling is a non-random technique that permits the selection of a sample from the primary population in a non-random manner.

Data Collection Tools

In this section, the following instruments were employed: the Personal Information Form, the Perceived Manager Humour Scale and the Organisational Deviance Scale. The scales are provided in the following section.

Personal information form: In the course of our investigation, the researcher devised a personal information form. The personal information form comprises variables pertaining to gender, age, marital status and position. The scales utilized in the research are provided below for reference.

Perceived Manager Humour Scale: In the present study, the administrator humor scale developed by Cemaloğlu, Recepoğlu, Şahin, Daşçı, and Köktürk (2012) was employed. In developing the scale, the researchers drew upon the findings of Babad's (1974) study. Babad (1974) posits that the scale comprises five sub-dimensions. The dimensions utilized in the scale are as follows: Affirming Humour (1, 2, 3, 4, 5), Sarcastic Humour (6, 7, 8, 9, 10, 11, 12, 13), Generative Humour (14, 15, 16, 17, 18, 19, 20, 21, 22), Rejecting Humour (23, 24, 25, 26, 27), and No Humour Style (28, 29, 30). The scale under consideration comprises 30 items and is structured in a 5-point Likert format. The items are presented on a 5-point Likert scale, with the following options: 'Strongly Disagree', 'Disagree', 'Neither Agree nor Disagree', 'Agree', and 'Strongly Agree'. Cemaloğlu, Recepoğlu, Şahin, Daşçı, and Köktürk (2012) reported a Cronbach Alpha reliability coefficient of 864 for affirming humor and 864 for sarcastic humor. The Cronbach alpha reliability coefficient was found to be 864 for approving humor, 943 for sarcastic humor, and 943 for productive social humor. The reliability coefficient for rejecting humor was determined to be 923. The reliability coefficient for rejecting humor was found to be 855, while the coefficient for unused humor was 895. The value of 895 was thus determined. In our study, the reliability coefficient of the scale was determined as 922.

Organisational Deviance Scale: The Organizational Deviance scale, a tool employed to identify counterproductive work behaviors, was first developed by Bennett and Robinson (2000) and subsequently adapted into Turkish by İyigün and Çetin (2012). The scale consists

of 15 items and is divided into two sub-dimensions. Initially, the scale's seven items were designed to assess individual deviance, while the subsequent eight items were developed to evaluate organizational deviance. The scale utilizes a 5-point Likert format, wherein respondents indicate the frequency of their behaviors on a scale ranging from "Never" to "Always." The scale's internal consistency, as measured by the Cronbach alpha reliability coefficient, was determined to be 89, as reported by İyigün and Çetin (2012). This value was subsequently determined to be 89. In our study, the reliability coefficient of the scale was determined as 945.

Data Analysis

A series of statistical analyses were conducted on the research group, including Mann-Whitney U, Kruskal-Wallis, and Spearman's correlation tests. The findings indicated that the excessive use of humor in business contexts can lead to counterproductive work behaviors, thereby impeding business efficiency. Specifically, the use of sarcastic and rejectionist humor has been observed to result in interpersonal challenges, which, in turn, can hinder business productivity. Consequently, it is imperative to maintain an appropriate level of humor in business environments to ensure optimal business efficiency.

FINDINGS

The findings obtained in the research are presented below.

Table 1

Demographic Characteristics of the Participants

Variables	Groups	Frequency	Percent
Gender	Female	225	43.3
	Male	295	56.7
	Total	520	100.0
Age	18-22	98	18.8
	23-27	118	22.7
	28-32	109	21.0
	33-36	112	21.5
	37 and above	83	16.0
	Total	520	100.0
Marital Status	Married	209	40.2
	Single	311	59.8
	Total	520	100.0

A thorough analysis of Table 1 reveals that 43.3% of the participants identified as female, 56.7% as male, 18.8% as between the ages of 23 and 27, 22.7% as between the ages of 23 and 27, 21% as between the ages of 28 and 32, 21.5% as between the ages of 33 and 36, and 16% as between the ages of 37 and above. Furthermore, 40.2% of the participants were married, while 59.8% were single.

Table 2

Skewness kurtosis levels of Perceived Managerial Humour Scale and Organisational Deviance Scale Sub-Dimension and Total Score Scores

Dimensions	N	Skewness	Kurtosis	P
Affirming Humour	520	-1.430	1.522	.000
Sarcastic Humour	520	1.443	1.249	.000
Producer Humour	520	-.243	-1.154	.000
Rejecting Humour	520	.886	-.027	.000
Non-Humorous Style	520	.927	-.075	.000
Perceived Manager Humour Scale Total Score	520	.339	1.607	.000
Interindividual Deviation	520	1.379	2.367	.000
Organisational Deviation	520	1.329	.896	.000
Organisational Deviance Scale Total Score	520	1.323	1.330	.000

As demonstrated in Table 2, the outcomes of the Kolmogorov-Smirnov test demonstrate that the scores obtained for the Perceived Manager Humour scale sub-dimensions and total score are within the range typically regarded as normal. It should be noted that the Kolmogorov-Smirnov test is but one of a number of methods employed to ascertain whether the data are normally distributed. A thorough examination of the normal distribution curves revealed that the data manifested a normal distribution. According to Büyüköztürk (2007), variables within the range of ±1 can be considered as normal distribution. However, Tabachnick and Fidell (2013) propose a more stringent criterion, suggesting that variables should be within the range of ±1.5 to be considered normal. Consequently, it can be concluded that the scale scores demonstrate a normal distribution.

Table 3

Descriptive Analysis of the Participants' Responses to the Perceived Managerial Humour Scale and Organisational Deviance Scale

Sub Dimensions	N	Min	Max	Mean±Sd
Affirming Humour	520	6.00	25.00	18.92±4.51
Sarcastic Humour	520	8.00	40.00	16.19±7.82
Producer Humour	520	9.00	45.00	27.43±9.35
Rejecting Humour	520	5.00	25.00	11.40±4.65
Non-Humorous Style	520	3.00	15.00	6.87±3.23
Perceived Manager Humour Scale Total Score	520	49.00	148.00	80.81±13.74
Interindividual Deviation	520	7.00	33.00	11.67±4.55
Organisational Deviation	520	8.00	38.00	14.81±6.93
Organisational Deviance Scale Total Score	520	15.00	71.00	26.48±10.75

A thorough examination of Table 3 reveals that the mean score for the participants' Perceived Managerial Humour scale approving humor sub-dimension is 18.92 ± 4.51, while the mean score for the sarcastic humor sub-dimension is 16.19 ± 7.82. The mean score for the generative humor sub-dimension is 27. The mean scores for the Rejecting Humour sub-dimension were 43 ± 9.35, while the mean scores for the Non-Humorous Style sub-dimension were 11.40 ± 4.65. The Perceived Manager Humour Scale Total Score was 80.81 ± 13.74. The mean score for the participants' Organisational Deviance Scale Interpersonal Deviance sub-dimension was 11.67±4.55, while the mean score for the Organisational Deviance sub-dimension was 14.81±6.93. The mean total score on the Organisational Deviance Scale was 26.48±10.75.

Table 4

Examination of the Participants' Responses to the Perceived Managerial Humour Scale according to Their Gender

Sub Dimensions	Sex	N	Rank Mean	Row Total	U	Cohen's d	P
Affirming Humour	Female	225	232.66	52348.50	26923.50	-0.31	.000**
	Male	295	281.73	83111.50			
Sarcastic Humour	Female	225	257.32	57897.50	32472.50	0.08	.673
	Male	295	262.92	77562.50			
Producer Humour	Female	225	270.87	60945.00	30855.00	0.13	.169
	Male	295	252.59	74515.00			
Rejecting Humour	Female	225	280.45	63102.00	28698.00	0.25	.008*
	Male	295	245.28	72358.00			
Non-Humorous Style	Female	225	275.30	61941.50	29858.50	0.19	.051
	Male	295	249.22	73518.50			
Perceived Manager Humour Scale Total Score	Female	225	272.67	61351.00	30449.00	0.17	.106
	Male	295	251.22	74109.00			

*p<0.05, **p<0.01

A subsequent examination of the sub-dimensions and total scores of the Perceived Managerial Humour scale according to the gender variable of the research participants revealed that there was no statistically significant difference in the total scores of the Perceived Managerial Humour scale, sarcastic humor, productive humor, non-humorous style, and perceived managerial humor scale ($p < 0.05$). However, a statistically significant distinction was observed between the sub-dimensions of approving humor and rejecting humor. The results indicated that male participants exhibited higher scores in the affirming humor sub-dimension, whereas female participants demonstrated higher scores in the rejecting humor sub-dimension.

Table 5

Examination of the Participants' Answers to the Organisational Deviance Scale according to Their Gender

Scales	Sex	N	Rank Mean	Row Total	U	Cohen's d	P
Interindividual Deviation	Female	225	261.28	58787.50	33012.50	-0.02	.917
	Male	295	259.91	76672.50			
Organisational Deviation	Female	225	258.94	58262.00	32837.00	0.04	.836
	Male	295	261.69	77198.00			
Organisational Deviance Scale Total Score	Female	225	259.77	58447.50	33022.50	0.02	.922
	Male	295	261.06	77012.50			

An examination of the total score and subscale scores of the Organizational Deviance Scale according to the gender variable of the participants in our research, as presented in Table 5, reveals that there is no statistically significant difference in the interpersonal deviance and organizational deviance sub-dimension and total scores of the Organizational Deviance Scale ($p < 0.05$).

Table 6

Examination of the Participants' Responses to the Perceived Managerial Humour Scale according to Their Ages

Sub Dimensions	Age	N	Rank Mean	sd	X^2	η2	p	Difference
Affirming Humour	18-22[1]	98	231.62	4	13.673	0.013	.029*	**4>1**
	23-27[2]	118	243.56					
	28-32[3]	109	252.53					
	33-36[4]	112	297.21					
	37 and above[5]	83	279.62					
Sarcastic Humour	18-22[1]	98	232.95		9.513	0.98	.047*	**4>1**
	23-27[2]	118	253.82					
	28-32[3]	109	267.13					
	33-36[4]	112	293.67					
	37 and above[5]	83	250.01					
Producer Humour	18-22[1]	98	284.74		15.849	1.40	.016*	**1>4**
	23-27[2]	118	294.78					
	28-32[3]	109	227.31					
	33-36[4]	112	245.34					
	37 and above[5]	83	247.19					
Rejecting Humour	18-22[1]	98	292.85		21.892	0.39	.014*	**1>4**
	23-27[2]	118	290.38					
	28-32[3]	109	249.99					

	33-36[4]	112	211.36				
	37 and above[5]	83	259.94				
Non-Humorous Style	18-22[1]	98	302.07	18.595	0.16	.020*	**1>4**
	23-27[2]	118	271.90				
	28-32[3]	109	244.61				
	33-36[4]	112	219.29				
	37 and above[5]	83	271.69				
Perceived Managerial Humour Scale Total Score	18-22[1]	98	258.88	8.620	0.24	.020*	**1>4**
	23-27[2]	118	293.72				
	28-32[3]	109	258.10				
	33-36[4]	112	241.36				
	37 and above[5]	83	244.17				

*p<0.05

When the sub-dimensions and total scores of the Perceived Managerial Humor Scale are examined according to the age variable of the participants in Table 6; a statistically significant difference is observed in the Approving humor, sarcastic humor, productive humor, rejecting humor and non-humorous style sub-dimensions of the Perceived Managerial Humor Scale and in the Perceived Managerial Humor Scale Total Scores (p<0.05).

Table 7

Examination of the Answers of the Participants to the Organizational Deviance Scale according to Their Ages

Scales	Age	N	Rank Mean	sd	X^2	η2	p	Difference
Interindividual Deviation	18-22[1]	98	227.53		17.728	0.20	.001**	**3>1**
	23-27[2]	118	247.80					
	28-32[3]	109	295.58					
	33-36[4]	112	287.36					
	37 and above[5]	83	235.17					
Organisational Deviation	18-22[1]	98	241.58	**4**	15.824	0.26	.003*	**3>1**
	23-27[2]	118	254.46					
	28-32[3]	109	303.53					
	33-36[4]	112	268.05					
	37 and above[5]	83	224.72					
Organisational Deviance Scale Total Score	18-22[1]	98	233.30		17.172	0.25	.002*	**3>1**
	23-27[2]	118	253.65					
	28-32[3]	109	302.92					
	33-36[4]	112	274.58					
	37 and above[5]	83	227.66					

*p<0.05, **p<0.01

As demonstrated in Table 7, a statistically significant discrepancy is evident between the age groups 18-22 and 28-32 with respect to the sub-dimensions of interpersonal deviance and organizational deviance. This discrepancy is also observed in the total scores on the Organisational Deviance Scale, with a p-value less than 0.05. The observed discrepancy is particularly pronounced among individuals in the 28-32 age range.

Table 8

The Relationship Between Perceived Manager Humour and Organisational Deviance

Sub Dimensions		Interindividual Deviation	Interindividual Deviation	Interindividual Deviation
Affirming Humour	r	-.185**	-.233**	-.214**
	p	.000	.000	.000
Sarcastic Humour	r	.576**	.454**	.409**
	p	.000	.000	.000
Producer Humour	r	.488**	-.161**	-.229**
	p	.000	.000	.000
Rejecting Humour	r	.624**	.127**	.191**
	p	.000	.004	.000
Non-Humorous Style	r	.479**	.159**	.199**
	p	.000	.000	.000
Perceived Managerial Humour Scale Total Score	r	.245**	.251**	.235**
	p	.000.	.000	.000

*p<0.05, **p<0.01

As illustrated in Table 8, a weak negative relationship is evident between perceived manager humor and organizational deviance. Specifically, there is a weak negative relationship between approving humor and interpersonal deviance (r=,-185; p=,000), a weak negative relationship between organizational deviance (r=,-233; p=,000), and a weak negative relationship between organizational deviance scale total score (r=,-214; p=,000).

In addition, a moderate positive correlation is observed between the sarcastic humor sub-dimension and interpersonal deviance (r=,576; p=,000), between organizational deviance (r=,454; p=,000), and between total scores on the organizational deviance scale (r=,409; p=,000).

A moderate negative relationship is observed between the generative humor sub-dimension and interpersonal deviance (r=.488; p=,000), a weak negative relationship between organizational deviance (r=,-161; p=,000), and a weak negative relationship between the total score of the organizational deviance scale (r=,-229; p=,000).

A moderate positive relationship is evident between the rejecting humor sub-dimension and interpersonal deviance (r=,624; p=,000), a weak positive relationship between organizational deviance (r=,127; p=,000), and a weak positive relationship between organizational deviance scale total score (r=,191; p=,000).

A weak positive relationship is evident between the non-humorous style and interpersonal deviance (r=,479; p=,000), as well as between organizational deviance (r=,159; p=,000) and the organizational deviance scale total score (r=,199; p=,000).

The total scores on the Perceived Manager Humour Scale demonstrate a weak positive relationship with interpersonal deviance (r=,245; p=,000), organizational deviance (r=,251; p=,000), and the total score on the organizational deviance scale (r=,235; p=,000).

DISCUSSION & CONCLUSION

An in-depth analysis of the sub-dimensions and total scores of the Perceived Managerial Humor Scale, based on the gender variable of the participants, revealed no statistically significant differences in the total scores for sarcastic humor, productive humor, non-humorous style, and the overall Perceived Managerial Humor Scale ($p > 0.05$). However, significant differences were identified in the sub-dimensions of approving humor and rejecting humor. Males exhibited higher scores in the affirming humor sub-dimension, whereas females scored higher in the rejecting humor sub-dimension. This finding suggests a gender-based divergence in humor appreciation, where males tend to demonstrate a greater inclination toward affirming humor, possibly reflecting an adaptive approach to enhance sociability within Turkish society. Conversely, females displayed a more conservative attitude toward humor, indicating a lower propensity to approve or engage in humor compared to males.

In the literature, Aslan (2006) reported no gender-based differences in teachers' humor styles. Similarly, Erözkan (2009) found that male university students were more inclined toward self-enhancing humor, while females preferred participatory humor. Sarı and Aslan (2005) noted that male students favored aggressive humor more than females, and Soyaldın (2007) revealed that male secondary school students employed aggressive humor more frequently than their female counterparts. Additionally, Führ (2002) found that boys in early adolescence utilized sexual and aggressive humor more often than girls.

An examination of the Organizational Deviance Scale and its sub-dimensions based on the participants' gender revealed no statistically significant differences in interpersonal deviance, organizational deviance, or total scores ($p > 0.05$). These findings suggest that gender does not significantly influence counterproductive work behaviors in sports enterprises. Employees are not categorized by gender, and their professional effectiveness is determined by factors beyond gender.

Literature supports a complex relationship between gender and counterproductive work behaviors. Demir (2009) concluded that gender is a significant factor influencing these behaviors, while Grasmick and Kobayashi (2002) observed that women exhibit less aggressive behavior than men but are more vulnerable to harassment. Moreover, T. Pozaçıcı and Demir (2002) found that female employees were more likely to exhibit behaviors such as absenteeism, tardiness, and leaving work early. Lau et al. (2003) emphasized the role of marital status, reporting that married individuals engaged more frequently in counterproductive behaviors compared to their single counterparts.

When the sub-dimensions and total scores of the Perceived Managerial Humor Scale are examined according to the age variable of the participants in Table 6; a statistically significant difference is observed in the Approving humor, sarcastic humor, productive humor, rejecting humor and non-humorous style sub-dimensions of the Perceived Managerial Humor Scale and in the Perceived Managerial Humor Scale Total Scores ($p<0.05$). Individuals in the middle age group (33–36) demonstrated a greater tendency to use humor as a coping mechanism, likely due to their professional stability and clarity of role within their organization. These findings align with Dinç and Cemaloğlu (2018), who identified age as a key factor influencing managerial humor styles, though contrasting findings were presented by Recepoğlu and Özdemir (2012), who reported higher humor usage among teachers aged 51 and above.

Further analysis of the Organizational Deviance Scale by age showed significant differences between participants aged 18–22 and 28–32 in interpersonal deviance, organizational deviance, and total scores ($p < 0.05$). Participants in the 28–32 age range demonstrated greater adherence to workplace norms and ethics, possibly reflecting their efforts to establish professional credibility. As individuals age and gain experience, a marked reduction in counterproductive behaviors is observed, likely driven by a desire to advance professionally.

Contrary to these findings, Tüfekçi (2016) and Ödemiş (2011) found no significant correlation between age and counterproductive work behaviors. This discrepancy underscores the context-specific nature of such behaviors, which are influenced by individual, group, and environmental factors.

The study also examined the relationship between perceived managerial humor and organizational deviance, revealing weak to moderate correlations. Excessive use of humor, particularly sarcastic and rejecting humor, was found to contribute to interpersonal challenges, negatively impacting business productivity. Managers are therefore encouraged to adopt a balanced approach, integrating humor strategically to foster a positive work environment without compromising organizational efficiency.

Practical applications include fostering organizational commitment through initiatives such as inter-unit sports competitions, celebratory events (e.g., birthday and Teachers' Day celebrations), and artistic integration of humor, such as the Hacivat-Karagöz tradition. These strategies may mitigate organizational deviance and strengthen workplace cohesion.

Conclusion

The findings of this study underscore the potential adverse effects of excessive humor usage in sports organizations, which may contribute to counterproductive work behaviors and a subsequent decline in organizational productivity. Specifically, the frequent use of sarcastic and rejecting humor has been linked to interpersonal conflicts, which can impair workplace harmony and efficiency. Therefore, fostering a balanced and contextually appropriate sense of humor within the workplace emerges as a critical managerial priority.

Excessive humor, particularly when used indiscriminately by managers, can diminish energy levels and productivity in the workplace. Managers are encouraged to adopt a more professional demeanor, limiting humor-based communication and aligning their actions with organizational priorities. This approach may help maintain a productive and harmonious work environment.

The utilization of humor at the individual level in sports businesses also offers potential for positive outcomes. When humor is employed thoughtfully, without compromising employees' roles or interpersonal dynamics, it can foster a supportive and engaging workplace culture. Additionally, the integration of humor with cultural and artistic elements—such as the traditional Hacivat-Karagöz performances—may offer novel avenues for enhancing organizational morale and cohesion.

Strategies aimed at increasing organizational commitment have been demonstrated to effectively reduce deviant behaviors in workplace settings. Initiatives such as inter-departmental sports competitions, astroturf matches, movie nights, birthday celebrations, and observances of special occasions (e.g., Teachers' Day or New Year's celebrations) not only strengthen team spirit but also promote a sense of belonging among employees. By fostering a supportive and inclusive workplace culture, these activities hold the potential to mitigate organizational deviance and contribute to long-term productivity.

Recommendation

Based on the results of the study, the following recommendations have been developed. Training and seminars can be given for managers to use humor effectively in the workplace. In addition, the importance of using humor correctly and the harms of excessive humor to businesses can be conveyed in the trainings. In addition, managers should use humor as a tool to involve employees, strengthen team spirit and relieve stressful situations. In particular, humor can increase employees' flexibility and reduce stress levels in the workplace in stressful or challenging tasks. Managers can strategically adjust the use of humor when necessary by evaluating the effects of humor on productivity and morale.

REFERENCES

Ahmed, M. A. O., Zhang, J., Fouad, A. S., Mousa, K., & Nour, H. M. (2024). The dark side of leadership: How toxic leadership fuels counterproductive work behaviors through organizational cynicism and injustice. *Sustainability, 17*(1), 105. https://doi.org/10.3390/su17010105

Arslan, D. (2018). *Ortaokul öğrencilerinde ASİS ile ölçülen zekâ ve mizah üretme yeteneği ilişkisi [The relationship between intelligence measured by ASIS and humor production ability in middle school students]* [Yüksek lisans tezi, Anadolu Üniversitesi].

Babad, E. Y. (1974). A multi-method approach to the assessment of humor: A critical look at humor tests. *Journal of Personality, 42*(4), 618–631. https://doi.org/10.1111/j.1467-6494.1974.tb00697.x

Bennett, E. L., & Robinson, J. G. (2000). *Hunting of wildlife in tropical forests: Implications for biodiversity and forest peoples.* [Kaynak künyesi eksik veya tam belirtilmemiştir.]

Büyüköztürk, Ş. (2007). *Sosyal bilimler için veri analizi el kitabı [Data analysis handbook for social sciences]* (7. bs.). Pegem Akademi Yayıncılık.

Cemaloğlu, N., Recepoğlu, E., Şahin, F., Daşçı, E., & Köktürk, O. (2012). Mizah Davranışları Ölçeğinin Geliştirilmesi: Geçerlik ve Güvenirlik Çalışması [Development of the Humor Behaviors Scale: Validity and reliability study]. *Türk Eğitim Bilimleri Dergisi, 10*(4), 693–716.

Demir, M. (2009). *Konaklama işletmelerinde duygusal zekâ, örgütsel sapma, çalışma yaşamı kalitesi ve işten ayrılma eğilimi arasındaki ilişkinin analizi [The analysis of the relationship among emotional intelligence, organizational deviance, quality of work life, and turnover intention in accommodation enterprises]* [Doktora tezi, Dokuz Eylül Üniversitesi]. Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü.

Dinç, Ü., & Cemaloğlu, N. (2018). İlkokul yöneticilerinin mizah kullanma tarzları ile öğretmenlerin stres yaşama düzeyleri arasındaki ilişkinin bazı değişkenlere göre incelenmesi [Examining the relationship between primary school administrators' humor styles and teachers' stress levels in terms of some variables]. *Turkish Journal of Educational Studies, 5*(2), 1–37. https://doi.org/10.33907/turkjes.397171

Erözkan, A. (2009). Üniversite öğrencilerinin kişiler arası ilişki tarzları ve mizah tarzları [University students' interpersonal relationship styles and humor styles]. *Dokuz Eylül Üniversitesi Buca Eğitim Fakültesi Dergisi, (26),* 56–66.

Führ, M. (2002). Coping humor in early adolescence. *Humor: International Journal of Humor Research, 15*(3), 283–304. https://doi.org/10.1515/humr.2002.016

Huang, R.-T., Sun, H.-S., Hsiao, C.-H., & Wang, C.-W. (2017). Minimizing counterproductive work behaviors: The roles of self-determined motivation and perceived job insecurity in organizational change. *Journal of Organizational Change Management, 30*(1), 15–26. https://doi.org/10.1108/JOCM-12-2015-0238

İyigün, N. Ö., & Çetin, C. (2012). Psikolojik kontratın örgütsel sapma üzerindeki etkisi ve ilaç sektöründe bir araştırma [The impact of the psychological contract on organizational deviance and a research in the pharmaceutical sector]. *Öneri Dergisi, 10*(37), 15–29.

Johnson, M. A. (2024). *Humor and health in the media: Raising the question, should illness be funny?* Taylor & Francis. https://doi.org/10.4324/9781003356745

Kapusuz, A. G., & Biçer, M. (2018). Psikolojik sermayenin üretkenlik karşıtı iş davranışları üzerindeki olumlayıcı etkileri [Positive effects of psychological capital on counterproductive work behaviors]. *Toros Üniversitesi Sosyal Bilimler Dergisi, 5*(9), 229–249.

Karasar, N. (2017). *Bilimsel araştırma yöntemi: Kavramlar, ilkeler, teknikler [Scientific research method: Concepts, principles, techniques]*. Nobel Yayınları.

Kastner, C. (2024). *Synergies of mindfulness and humor: Development and evaluation of a humor-enriched mindfulness-based program (HEMBP)* [Doktora tezi, University of Zurich]. University of Zurich. https://doi.org/10.3389/fpsyg.2023.1324329

Kobayashi, E., & Grasmick, H. A. (2002). Comparison of the perceived threats of managerial sanctions, embarrassment and shame in Japan and the United States. *Journal of Language, Culture and Communication, 4*(1), 11–52.

Lau, V. C. S., Au, W. T., & Ho, J. M. C. (2003). A qualitative and quantitative review of antecedents of counterproductive behavior in organizations. *Journal of Business and Psychology, 18*(1), 73–99. https://doi.org/10.1023/A:1025035004930

McGhee, P. E. (1983). The role of arousal and hemispheric lateralization in humor. In P. E. McGhee & J. H. Goldstein (Eds.), *Handbook of humor research* (pp. 13–38). Springer-Verlag. https://doi.org/10.1007/978-1-4612-5572-7

Moretti, D. M. (2009). The prediction of employee counterproductivity through attitude assessment. *Journal of Business and Psychology, 1*(2), 134–147. https://doi.org/10.1007/BF01018809

Öcel, H., & Aydın, O. (2010). Adil dünya inancı ve cinsiyetin üretim karşıtı iş davranışları üzerindeki etkisi [The effect of just-world belief and gender on counterproductive work behaviors]. *Türk Psikoloji Dergisi, 25*(66), 73–83.

Ödemiş, S. (2011). *Beş faktör kişilik özelliklerinin üretkenlik karşıtı davranışlar üzerine etkileri: Bir araştırma [The effects of five-factor personality traits on counterproductive behaviors: A study]* [Yüksek lisans tezi, Marmara Üniversitesi]. Marmara Üniversitesi Sosyal Bilimler Enstitüsü.

Özşenler, S. D. (2016). Ways of using humor in interpersonal relationships: An analysis between Turks and the Spanish. In *Proceedings of International Academic Conferences* (No. 4006563). https://doi.org/10.20472/IAC.2016.024.069

Recepoğlu, E., & Özdemir, S. (2012). Okul müdürlerinin mizah tarzları ile öğretim liderliği davranışları arasındaki ilişki [The relationship between school principals' humor styles and instructional leadership behaviors]. *İnönü Üniversitesi Eğitim Fakültesi Dergisi, 13*(3), 24–42. https://dergipark.org.tr/tr/pub/inuefd/issue/8695/108613

Soyaldın, S. Z. (2007). *Orta öğretim öğrencilerinin öfke ifade tarzları ile mizah tarzları arasındaki ilişkinin incelenmesi [Investigation of the relationship between secondary school students' anger expression styles and humor styles]* [Yüksek lisans tezi, Mersin Üniversitesi]. Mersin Üniversitesi Sosyal Bilimler Enstitüsü.

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6. bs.). Pearson.

Tüfekçi, Ü. (2016). *Üretkenlik karşıtı iş davranışları ve örgütsel bağlılık arasındaki ilişkinin incelenmesine yönelik bir araştırma [A study on the relationship between counterproductive work behaviors and organizational commitment]* [Yüksek lisans tezi, Uludağ Üniversitesi]. Uludağ Üniversitesi Sosyal Bilimler Enstitüsü.

Tütüncü, Ö., & Demir, M. (2002). *Konaklama işletmelerinde insan kaynakları yönetimi ve işgücü hareketlerinin analizi [Human resource management and analysis of labor movements in accommodation enterprises]*. Turhan Kitabevi.

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None