Comparison of Anxiety and Narcissism Levels of Different Performance Groups in Female Handball Players

ABSTRACT

Objective: This study aimed to compare the anxiety and narcissism levels of different performance groups in female handball players.

Methods: A total of 59 athletes between the ages of 15 and 37 participated in the study, taking the first 4 places from the Turkish Republic of Northern Cyprus senior women handball 1st league in the 2017-2018 season. Wingate peak power (WPP), Wingate average power (WAP), handball agility test (HAST), 10 m speed (10S), 20 m speed (20S), 20m shuttle run (SR), hands on waist vertical jump (HEVJ), hands free vertical jumping (HFVJ) test, Beck anxiety scale (BAI), 5-factor narcissism scale—short form (FFNI-SF), and sociodemographic data form were used. The athletes were divided into upper performance (UPG) and lower performance groups (LPG) using the median value according to the results of the physical measurement tests (FST).

Results: It was determined that the anxiety level of the participants in the LPG group was higher than that in the UPG group. The narcissism level of the participants in the UPG group was found to be higher than that in the LPG group. The scores of consent seeking, arrogance, leader/authority, insecurity, claiming rights, exhibitionism, carelessness, lack of empathy, and adventurousness were higher than LPG. In the correlation analysis, a positive and low level of relationship between anxiety and 20S and a negative and low level of significant relationship between HEJV were found. It was observed that there was a positive and low level significant relationship between narcissism and WPP, HFJV, and HEJV. It has been revealed that anxiety and narcissism variables have a predictive effect on the physical performance average score.

Conclusion: The findings suggest that in female handball players, high levels of narcissism may affect the performance positively and high anxiety levels negatively. As a result of this study, it was revealed that anxiety and narcissism have a predictive effect on physical performance average score in women's handball.

Keywords: Anxiety, narcissism, physical performance

Introduction

Sports and psychological problems have a close correlation. Although sports have a positive effect on anxiety disorder, self-esteem, and depression; and it is recommended to include sports in forward-looking treatment programs for these disorders,[1] this situation has changed in winning-oriented athletes. Contrary to the therapeutic nature of sports, it is reported that the negative consequences of the desire to win and other psychiatric problems affect sports performance.[2] Sports can affect mental health, and mental health can affect sports performance positively or negatively. Sportive performance is considered as a combination of the athlete's ability and capacity to produce athletic work.[3] To evaluate the performance of athletes, all components and factors affecting performance should be considered.[4] The performance level in handball is determined according to the technical, tactical, psychological, and physical characteristics of the players.[5] To achieve the targeted sportive performance, it is known that performance is affected by psychological factors such as anxiety, arousal level, concentration, personality traits, controllable inner focus, self-confidence, and the ability to cope with difficulties.[6,7] The capacity of athletes to cope with psychological pressure and stress plays an important role in determining performance differences between athletes.[8]

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Anxiety is explained as a state of tension and restlessness related to the existing situation in uncertain situations, caused by the unpredictability of the results, and disturbing the human mind and emotions.[9,10] Anxiety is one of the main components of the competitive situations. Without a certain level of anxiety, competitive performance cannot be achieved.[11] Too high or too low anxiety levels may prevent an athlete from reaching the target point in terms of sports performance.[12] In addition, it is very important to manage anxiety and cope with the stressful competitive situation to achieve a high level of performance.[13] As the stress level increases, the anxiety level will increase according to the degree of threat. Athletes frequently experience these feelings of stress and threat in sports activities, where the status of winning and losing is of great importance.[14] The need to be alert against unknown dangers causes anxiety, which in turn causes fear, and fear causes panic.[15] The resulting intense anxiety can lead to an anxiety disorder in the athlete and negatively affect performance.[16] Therefore, the level of anxiety is seen as a determining factor for athletes to reach the targeted performance and success level.[17]

Narcissism is an important factor influencing performance.[18] Individuals with narcissistic personality traits are extremely confident and appreciative of their physical characteristics.[19] Although these individuals adopt an approach that ignores the opinion of anyone other than themselves, they mostly act with the thoughts of others in the emotional process.[20] It has been reported that the fact that athletes with high narcissistic personality traits feel valued depends on their superiority to others and their ability to win their admiration.[19] They try to show their superiority and attract attention by making the most successful movements in sports fields.[21] The main characteristics are smugness, arrogance, lack of empathy, claiming rights, being liked, and feeling special.[15] Therefore, athletes with a narcissistic personality strive harder during a competition to prevent their self-esteem from being ignored as a result of an unsuccessful performance.[21]

There are athletes of various performance levels within a team. To evaluate their performance, all components and factors affecting performance should be considered. Besides the physical characteristics of athletes, it is known that anxiety and narcissism levels are important psychopathological factors that affect performance.[22,23] This study aimed to comparatively examine the levels of anxiety and narcissism among female handball players performing at upper and lower levels.

Methods

The Universe and Sample of the Research
A total of 59 athletes aged between 15 and 37 years (mean +/-) from 4 teams playing in the Turkish Republic of Northern Cyprus (TRNC) women's handball league participated in the study. Approval was ob-

> ### MAIN POINTS
> - This study shows that higher levels of narcissism in female handball players might positively affect performance.
> - This study shows that higher levels of anxiety in female handball players might negatively affect performance.
> - As a result of this study, it was revealed that the variables of anxiety and narcissism levels had a predictive effect on the physical performance average score.

tained from the Near East University Scientific Research Ethics Committee (YDU/2017/51-467) prior to the study. Written informed consent was obtained from the participants. The approval for athletes under the age of 18 was given by their parents.

Data Collection Tools

Scales
Sociodemographic Data Form: A data evaluation form questioning age, nationality, marital status, place of residence, employment status, occupation, educational status, physical and psychiatric disease history, smoking, and food supplement use was administered to the participants.

Five Factor Narcissism Scale-Short Form: The 5 factor narcissism-short form scale, which was developed by Glover et al[24] in 2012 and translated into Turkish by Eksi[25] in 2016, was used to measure the dimensions of narcissism.[25] The scale includes 60 questions in total, 4 questions for 15 sub-dimensions. The expressions of the participants were evaluated with a 5-point Likert-type scale between "strongly disagree = 1" and "strongly agree = 5." The Cronbach's alpha value was 0.838, and the alpha values of the FFNI-SF subscales varied between 0.817 and 0.858.

Beck Anxiety Scale: The scale was developed by Beck et al,[26] and its validity and reliability study in our country was conducted by Ulusoy et al.[27] This scale measures the individual's anxiety symptoms and the frequency of these symptoms. The scale includes 21 items and has a Likert-type structure between 0 and 3 points. Cronbach's alpha value is 0.632.

Physical Tests

To determine the physical performance of the athletes for the whole season, the athletes were tested once in the 1st and 2nd periods during the season, and the average of the 2 tests was recorded as the test-specific performance result. According to the test results, athletes were divided into upper (PPI) and lower (FPG) performance groups.

The 20-meters Shuttle Run Test: The athletes ran a distance of 20 m in a circle. The test starts at a speed of 8 km/hr, and the running speed is provided by a signaling tape. The athletes start the race at the first signal sound and have to reach the other line by the second signal sound. The initial speed increases gradually every 10 seconds, and the athletes adjust their pace so as to be on the other line by the next beep. If the athletes fail to reach the line at 1 beep and only reach the other line at the second beep, the test continues. The test ends if they miss both signals in a row and do not reach the line.[28]

Splash Tests: This test was conducted in 2 ways: hands on waist and hands free.[29] Each athlete performed 3 trials. There was a 1-minute rest period between the trials. On command, the athletes' hands were at their waist and/or free, the hips were bent 90 degrees to the ground, and they jumped without waiting. The tests were carried out on a force platform (Bertec Strength Platform 4060). The longest bounce time was recorded as the test time. The jump height was calculated by the formula ($H = ½g [t/2] 2$) defined by Moir.[30]

The 10 m and 20 m Sprint Tests: The athletes started the test 50 cm behind the starting photocell line. Times were recorded at 10 m and

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20 m, which was the finish line, by photocells (Newtest 300). Photocells were placed 40 cm above the ground and had a sensitivity of 0.001 seconds. Each athlete ran 3 runs at 2-minute intervals. The fastest time was recorded at 10 m from the baseline and 20 m from the baseline.[29]

Handball Agility Test (HAST): This test included forward and backward running at a high speed and sideways sliding movements.[29] The subjects started running 50 cm behind the starting line. Timing was done with electronic photocells with an accuracy of 0.001 seconds (Newtest 300-series) located 40 cm above the ground.[31,32] The test was repeated twice at 3-minute intervals, and the best results were recorded.[28]

Wingate Test: It was applied to determine the anaerobic capacity. For each athlete, a weight of 0.075 kg per 1 kg of body weight was placed on the bicycle ergometer (Monark Exercise 894 E AB, Sweden), and the athlete was asked to pedal at maximum speed for 30 seconds.[33]

Statistical Analysis
The SPSS version 24.0 (IBM Corp., Armonk, NY, USA) was used for the analysis of data obtained from the research. The level of significance was set at $P < .05$.

Athletes were ranked from the highest score to the lowest score for each of the 6 physical tests performed. The athletes who achieved the highest rank in the tests were given 59 points (the total number of athletes), and 1 point was given to the athlete with the lowest rank. The athletes were ranked from the highest to the lowest according to the average of their total scores from all tests (physical performance average score). According to this ranking, the athletes who were in between 1 to 30 in the ranking were accepted as upper performance group (UPG) and the athletes who were in between 31 to 59 in the ranking were accepted as lower performance group (LPG).

The compliance of the scale scores with the normal distribution was examined with the Shapiro-Wilk test. Most of the scales showed normal distribution. As the skewness and kurtosis values of the parameters that did not comply with the normal distribution were in the range of ±1.5, it was concluded that they fit the normal distribution.

The Chi-squared test was used to compare the demographic characteristics of the UPG and LPG groups. Student's *t*-test analysis was used in independent groups to compare total and subscale mean scores for anxiety and narcissism. The relationship between the physical measurement tests of the athletes and their anxiety and narcissism scores was deduced using Pearson correlation analysis. Multiple regression analyses were conducted to observe the predictive effect of narcissism, anxiety, smoking status, and nationality variables on the physical performance mean score. Cronbach's alpha reliability coefficient was calculated for the internal consistency of the scales.

Results

A total of 59 female athletes participated in the study. There were 30 athletes in the UPG and 29 in the LPG groups. Of the total UPG, 43.3% was from TRNC, 36.7% was from Turkey, and 20% was from other nationality. In the LPG group, 72.4% were from TRNC, 27.6% were from Turkey. A total of 6.7% of the UPG and 31% of LPG were smokers. The smoking rate of the participants in LPG was observed to be higher

than that of those in the UPG. The comparisons of sociodemographic variables related to both groups are shown in Table 1.

When the UPG and LPG performance groups were examined in terms of their anxiety levels, it was determined that the anxiety levels of the participants in LPG were higher than the participants in the UPG. However, the narcissism levels of the participants in the UPG were higher than those in the LPG. Considering the difference between the sub-dimensions of narcissism and the upper and lower performance groups, it was observed that the levels of consent seeking, arrogance, leader/authority, distrust, claiming rights, exhibitionism, indifference lack of empathy, and manipulativity were higher in UPG than participants in LPG (Table 2).

Table 1. Top and Bottom Performance Groups and Demographic Comparison of Propertiesa Among Female Handball Athletes

Demographic information	Upper group n = 30, (%)	Subgroup n = 29, (%)	χ^2	*P*
Age group				
25 yr and under	26 (86.7)	26 (89.7)	0.126	.723
26 yr and older	4 (13.3)	3 (10.3)		
Nationality				
TRNC	13 (43.3)	21 (72.4)	8.341	.015[b]
TR	11 (36.7)	8 (27.6)		
Other	6 (20)	0 (0)		
Marital status				
Married	4 (13.3)	2 (6.9)	0.669	.413
Single	26 (86.7)	27 (93.1)		
Living place				
Nicosia	23 (76.7)	18 (62.1)	.727	.436
Famagusta	5 (16.7)	5 (17.2)		
Kyrenia	1 (3.3)	4 (13.8)		
İskele	1 (3.3)	2 (6.9)		
Working status				
Working	6 (20)	3 (10.3)	1.063	.253
Not working	30 (80)	26 (89.7)		
Job				
Student	24 (80)	26 (89.7)	1.063	.302
Other	6 (20)	3 (10.3)		
Education status				
HS	13 (43.3)	16 (55.2)	0.909	.635
University	15 (50)	11 (37.9)		
Masters degree and above	2 (6.7)	2 (6.9)		
Physical illness				
Yes	0 (0)	0 (0)	0	0
No	30 (100)	29 (100)		
Psychiatric disorder				
Yes	1 (3.3)	3 (10.3)	1.147	.284
No	29 (96.7)	26 (89.7)		
Smoking status				
Yes	2 (6.7)	9 (31)	5.773	0.016[b]
No	28 (93.3)	20 (69)		
Dietary supplement intake				
Yes	1 (3.3)	2 (6.9)	0.388	0.533
No	29 (96.7)	27 (93.1)		

[a]Chi-squared.
[b]($P < .05$).
HS, high school; TRNC, Turkish Republic of Northern Cyprus; TR, Turkish Republic.

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A significant positive and low level relationship between anxiety and 20 m speed (20S) performance level, a significant negative and low level relationship between anxiety and hands on waist vertical jump (HEVJ) performance level were found. In this study, it was observed that as the anxiety level increased, the 20 m shuttle run (20SR) perfor-

mance level increased, and the HEJV performance level decreased. However, a significant, positive, and low level relationship was found between narcissism and Wingate peak power (WPP), hands free vertical jump (HFVJ), and HEJV performance levels (Table 3).

To evaluate the predictive effect of narcissism, anxiety, smoking status, and nationality variables on the physical performance mean score, multiple regression analyses were performed, and the multiple regression model explained significantly 49.8% of the physical performance average score of the variables of narcissism, anxiety, smoking status, and nationality

It was observed that narcissism and anxiety variables had a predictive effect on the physical performance average score (Table 4).

Discussion

In this study, the anxiety and narcissism levels of the athletes playing in the TRNC women's handball super league were examined comparatively, and the relationship between anxiety and narcissism was investigated with some performance tests.

This study determined that the anxiety levels of the athletes in LPG were higher than those in UPG. Previous studies have shown that athletes with low anxiety levels can control their efforts to maintain their performance, whereas athletes with anxiety disorders are unable to.[34] In a study conducted to find the relationship between the anxiety levels of professional football players and their motivation for success, it was revealed that as the anxiety level of the football players increased, their motivation for success decreased.[14] In another study on male volleyball players, it was stated that athletes with low anxiety level were more successful in controlling their performance than those with high anxiety level.[35] The high level of anxiety in the LPG group in our study was similar to the studies in the literature.

Table 2. Comparison of Upper and Lower Performance Groups with Sub-Dimensions of Anxiety and Narcissism[a]

	Group	n	x̄	t	P
Anxiety	up-	30	6.10 (4.01)	-3.75	.000
	Sub-	29	9.86 (3.69)		
Narcissism	up-	30	181.27 (16.74)	4.19	.000
	Sub-	29	161.90 (18.76)		
Approval seeking	up-	30	15.37 (2.11)	4.07	.000[b]
	Sub-	29	12.97 (2.41)		
Arrogance	up-	30	12.37 (2.58)	4.32	.000[b]
	Sub-	29	10.00 (1.51)		
Leader/authority	up-	30	12.17 (1.88)	3.71	.000[b]
	Sub-	29	10.48 (1.60)		
Insecurity	up-	30	13.07 (1.68)	2.378	.021[c]
	Sub-	29	11.83 (2.27)		
Claim	up-	30	13.63 (2.04)	5.13	.000[b]
	Sub-	29	11.03 (1.85)		
Exhibitionism	up-	30	10.43 (1.91)	3.85	.000[b]
	Sub-	29	8.35 (2.26)		
Exploitation	up-	30	11.93 (2.27)	1.33	.188
	Sub-	29	11.17 (2.11)		
Dreams of Grandiosity	up-	30	10.10 (1.92)	-0.89	.380
	Sub-	29	10.59 (2.29)		
Indifference	up-	30	12.40 (2.67)	3.31	.002[b]
	Sub-	29	10.14 (2.58)		
Lack of empathy	up-	30	11.90 (2.43)	2.46	.017[c]
	Sub-	29	10.38 (2.32)		
Manipulativity	up-	30	10.47 (2.60)	1.44	.157
	Sub-	29	9.48 (2.67)		
Need for admiration	up-	30	9.00 (2.82)	-1.72	.091
	sub	29	10.35 (3.19)		
Reactive anger/anger	up-	30	13.33 (2.63)	0.35	.729
	sub	29	9.48 (2.44)		
Shame	up-	30	13.13 (1.81)	1.86	.068
	Sub-	29	12.03 (2.63)		
Adventurism	up-	30	11.97 (1.71)	4.13	.000[b]
	Sub-	29	10.00 (1.95)		

[a]t-test table.
[b]$P < .001$.
[c]$P < .05$.

Table 4. Multiple Regression Analyses for Examining the Effects of Narcissism, Anxiety, Smoking Status, and Nationality Variables on Physical Performance Average Score of Female Handball Athletes

	Non-standard coefficients		Standard coefficients				
	B	Std. error	B	t	P	F	P
Table	-6.914	7.237	-0.955	0.344	15.367	.000	.498
Narcissisism	0.188	0.037	0.482	5.049	.000		
Anxiety	-0.633	0.179	-0.344	-3.536	.001		
Smoking status	3.690	1.881	-0.185	1.962	.055		

$P < .05$.

Table 3. Correlation Analysis Table of Anxiety and Narcissism Levels with Physical Measurement Tests Among Female Handball Athletes

		Physical measurements							
		WPP	WAP	HAST	MK	10S	20S	HFVJ	HEVJ
Anxiety	r	-0.128	-0.104	0.108	-0.95	0.227	0.307[a]	-0.204	-0.321[a]
	P	.334	.431	.417	.472	.084	.018	.122	.013
Narcissism	r	0.271[a]	0.229	-0.206	-0.068	-0.242	-0.251	0.284[a]	0.351[b]
	P	.038	.081	.117	.611	.065	.055	.029	.006

[a]$P < .05$.
[b]$P < .01$.
WPP, Wingate peak power; WAP, Wingate average power; HAST, handball agility test; 10S, 10 m speed; 20S, 20 m speed shuttle run (20SR); HEVJ, hands on waist vertical jump; HFVJ, hands free vertical jumping.

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Although it is known that a certain level of anxiety contributes to the readiness of athletes,[14] it was observed that athletes with poor performance, as in this study, had more intense anxiety levels. It has been reported that as the level of anxiety increases, the positive motivation of the athlete will give way to mental distress such as tension, fear, and panic, which could negatively affect their performance.[14,16]

When the narcissism level of the UPG and LPG groups was compared, it was found that the narcissism levels of the athletes in the UPG group were higher than that of the athletes in the LPG group. Narcissism, seen as a personality disorder, is defined as one of the personality traits known as the "dark triad" along with machiavelism and psychopathy.[36] However, scientific evidence paints a different picture and demonstrates that narcissism is positive in situations where there is an opportunity to show off but has negative consequences in situations where there is little interest in others, and there is no opportunity to show off.[37] Studies related to sports have shown that narcissists perform better in competitive situations where the pressure is high, but their performance falls when the pressure is removed.[38] It was determined that the shooting exercise performances of the handball players with a high level of narcissistic personality were higher than the athletes with low narcissistic personality traits in a 1000-person audience environment and video recorded.[39] Similarly, it has been observed that elite figure skaters with high narcissism scores were more successful in their competition routines and in stressful national level competitions than during their training.[40] It has been reported that in the field of sports where the conditions are equal, narcissists are more successful in the competitive environment, but this situation may not be seen in training without competitions.[37] Although narcissism is generally regarded as a negative personality trait, it is stated that it is not just "good" or "bad," and it may have the potential to make positive or negative contributions, especially in situations related to performance.[37,41] Studies have reported that similar results to those in a competition environment were obtained when individual performances were recognized, and athletes were compared with each other.[38] In our study, performance tests were administered in a training environment and not in a competitive environment. As in this study, it has been observed that even if the environment is training, the competitive environment aimed at comparing the players with each other and determining their performance levels can cause individuals with more intense narcissistic characteristics to display a higher performance. When the grandiose and fragile dimensions of narcissism were examined, it was observed that the UPG group had a higher rate of grandiose narcissistic features compared with the LPG group and that fragile narcissistic features were not observed. Although insecurity, need for admiration, reactive anger, and shame express the sub-dimensions of fragile narcissism; seeking approval, arrogance, leader/authority, claiming, exhibitionism, exploitation, grandiose dreams, indifference, lack of empathy, manipulability, and adventurousness are the sub-dimensions of grandiose narcissism.[42] Grandiose narcissists are extroverted, socially courageous, and even attractive,[43] but they are also reported to be closed, defensive, and timid.[44] In grandiose narcissism, inflated self-image, a personality trait characterized by a tendency to preserve superiority, has been reported to express a general, non-pathological form of narcissism and has features such as exhibitionism, self-stimulation, authority, high self-confidence, and social potential.[45]

It is stated that these factors can cause players to show greater success as they find the opportunity to show off in performance-oriented environments such as sports.[37]

In this study, it was observed that the anxiety level of the athletes showed a different level of relationship with some performance tests. It was found that as the 20S performance level increased and the HEVJ performance level decreased, the anxiety level increased. In a study in which golfers' general performances were correlated with their anxiety levels, it was revealed that the performance in golf that requires fine muscle coordination was positively affected by decreased anxiety level and that the performance was negatively affected by increased level of anxiety.[46] In a study conducted with the aim of finding the relationship between anxiety and sportive performance, it was stated that shooting success levels of male basketball players decreased as their anxiety levels increased.[47] In our study, the relationship between anxiety level and HEVJ performance was investigated. HEVJ performance is realized in the form of explosive force and as a result of instantaneous reactions.[48] Considering that the anxiety level increases in an unknown situation and in a process based on this situation,[9] it is stated that the anxiety levels of the athletes will be low, which will affect the performance positively.[14] In addition, although 20SR performance is highly affected by explosive force such as HEVJ performance, it differs from the performance of HEVJ[48] owing to the fact that it is a more complicated movement, and the movement takes place in a longer period. Prolonging the duration of the performance will cause the continuation of the unknown situation in the athlete[9] and the anxiety level to increase to a certain level in the continuation of the unknown situation.[14] Although this anxiety level occurring in 20S performance is higher than the anxiety level in HEVJ performance, it is known that a certain level of anxiety will affect the performance of the athlete positively.[11,12] Therefore, it is seen that there is a positive relationship between 20S performance and anxiety level.

The data obtained showed that with the increase in the level of narcissism in athletes, their performances such as WPP, HFVJ, and HEVJ, which require explosive force, increased. In a study conducted to compare the narcissism levels of bodybuilding athletes and athletes from different branches, it was stated that the narcissism levels of bodybuilding athletes were higher than other athletes within the scope of the study.[18] Aggressive defense and game that includes aggression is very important in team sports. The term "aggressive" here indicates an approved situation. As long as it does not exceed the limits of determined rules, it is supported and even rewarded.[49] Aggressive play and defense is always a physical factor that requires explosive force. Therefore, it can be thought that athletes with high narcissistic personality traits are more successful in performances where the explosive strength feature of female handball players stands out.

It has been determined that the number of athletes smoking in the LPG group was higher than in the UPG group. Smoking has long been shown in a large-scale study to reduce lung capacity and muscle strength, thus negatively affecting athletic performance.[50] Therefore, it is an expected result that the number of athletes smoking in LPG is higher.

When the results of the study were examined, it was observed that the level of anxiety and narcissism significantly affected the physical performance of female handball players. It is seen that the anxiety

level is higher in LPG, and narcissism level is higher in UPG. This study was limited to the scales we made in terms of anxiety and narcissism levels and the 59 athletes from 4 teams in the TRNC. This study shows that for female handball players to reach the targeted sportive performance level, clubs and technical teams should give importance to the treatment of psychiatric disorders as much as physical measurements. This study sheds light on determining the performance of female handball players in the TRNC, and there is a need for further studies that reveal more comprehensive anxiety and narcissism profiles of female handball athletes.

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